

CITY OF BELLMEAD

**SAN JACINTO STREET, UTAH STREET, AND SAM
HOUSTON STREET WASTEWATER IMPROVEMENTS
(TXCDBG PROJECT - CONTRACT #CDV21-0001)**

PROJECT MANUAL

OCTOBER 2023

PROJECT NUMBER 1-03501



10/12/2023

Kyle P. Dunlop, P.E.

**PROJECT MANUAL
as part of
the
Bidding Documents**



T.B.P.E. Registration No. 8053

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Advertisement and Invitation for Bids

The City of Bellmead will receive bids for TXCDBG CDV21-0001 San Jacinto Street, Utah Street, and Sam Houston Street Wastewater Improvements until 2:00 PM local time on November 7, 2023 at Bellmead City Hall, 3015 Bellmead Drive, Waco, TX 76705. The bids will be publicly opened and read aloud shortly thereafter.

Bids are invited for several items and quantities of work as follows:

1. Replace 765 linear feet of 8-inch and 12-inch wastewater line
2. 4 concrete manholes
3. Service reconnections

Bid/Contract Documents, including Drawings and Technical Specifications are on file at Walker Partners, 823 Washington Avenue, Suite 100, Waco, TX 76701.

Copies of the Bid/Contract Documents may be obtained at no charge via CivCast (www.civcastusa.com).

A bid bond in the amount of 5 percent of the bid issued by an acceptable surety shall be submitted with each bid for those contracts that exceed \$100,000. A certified check or bank draft payable to the City of Bellmead or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.

Attention is called to the fact that not less than, the federally determined prevailing (Davis-Bacon and Related Acts) wage rate, as issued by the Texas Department of Agriculture Office of Rural Affairs and contained in the contract documents, must be paid on this project. 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.

The City of Bellmead reserves the right to reject any or all bids or to waive any informalities in the bidding.

Bids may be held by City of Bellmead for a period not to exceed 60 days from the date of the bid opening for the purpose of reviewing the bids and investigating the bidder's qualifications prior to the contract award.

City of Bellmead

Yousry Zakhary, City Manager

October 9, 2023

All contractors and subcontractors must be cleared (not suspended or debarred) prior to any formal action authorizing the award of a contract to the contractor. Minority Business Enterprises, Small Business Enterprises, Women Business Enterprises, and Section 3 Businesses are encouraged to submit bids.

Instructions to Bidders

1. Use of Separate Bid Forms

These contract documents include a complete set of bid and contract forms which are for the convenience of the bidders and are not to be detached from the contract document, completed or executed. Separate bid forms are provided for your use.

2. Interpretations or Addenda

No oral interpretations will be made to any bidder. Each request for clarification shall be made via the CivCast Q&A feature no less than eight (8) days prior to the bid opening. Each interpretation made will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than seven (7) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidders.

If an addendum to the bid package is necessary, it must be distributed to each potential bidder. The distribution of an addendum shall be verified either by statements of receipt or registered/certified mail receipts, which shall be included in the public works construction file. The addendum shall allow adequate time for consideration in bid preparation (usually at least one week). If adequate time is not available, the bid opening date must be extended and the Grant Recipient must republish the invitation for bids containing the place, time, and date for the new bid opening. Note that any change to the original bid opening date will require republication of the invitation for bids at least once in a locally published newspaper. The republished notice will include the place, time and date for the new bid opening and must be published at least seven days prior to the new bid opening date.

3. Inspection of Site

Each bidder should visit the site of the proposed work and should become acquainted with the existing conditions and facilities, the difficulties and restrictions pertaining to the performance of the contract. The bidder should thoroughly examine and become familiar with the drawings, technical specifications and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal document or to visit the site or the conditions existing at the site. The City will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

4. Pre-bid Conference

A pre-Bid conference will be held at 10:00 a.m. local time on October 24, 2023 at Bellmead City Hall, 3015 Bellmead Dr., Waco, TX. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

5. Alternate bid items

No alternate bids or bid items will be considered unless they are specifically requested by the technical specifications.

6. Bids

- a. All bids must be submitted on the forms provided and are subject to all requirements of the Contract Documents, including the Drawings.
- b. All bids must be regular in every respect and no interlineation, excisions or special conditions may be made or included by the bidder.
- c. Bid documents, including but not limited to the bid, the bid bond(s), the contractor's certifications, local opportunity plan, and the statement of the bidder's qualifications, shall be sealed in an envelope and clearly labeled with the words "Bid Documents", the project number, name of bidder and the date and time of bid opening.
- d. The City may consider as irregular any bid on which there is an alteration of or departure from the bid form and, at its option, may reject any irregular bid.
- e. If a contract is awarded, it will be awarded to a responsible bidder on the basis of the lowest/best bid and the selected alternate bid items, if any. The contract will require the completion of the work in accordance with the contract documents.

7. Bid Modifications Prior to Bid Opening

- a. Any bidder may modify its bid by submitting a modification or supplemental bid at any time prior to the scheduled closing time for receipt of bids, provided such modification or supplemental bid is received by the locality prior to the closing time. The modification or supplemental bid should not reveal the original bid price but should provide only the addition, subtractions or other modifications to the original bid so that the final prices or terms will not be known by the locality until the sealed bid is open.

8. Bid Bond

- a. A bid bond in the amount of 5% of the bid issued by an acceptable surety shall be submitted with each bid. A certified check or bank draft payable to the locality or negotiable U.S. Government Bonds (as par value) may be submitted in lieu of the Bid Bond.
- b. The bid bond or its comparable will be returned to the bidder as soon as practical after the opening of the bids.

9. Statement of Bidders Qualifications

Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. The Grant Recipient shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform its obligations under the contract, and the bidder shall furnish the Grant Recipient

all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy the Grant Recipient that the bidder is qualified to carry out properly the terms of the contract.

10. Unit Price

The unit price for each of the several items in the bid shall include its pro rata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. Any bid not conforming to this requirement may be rejected as informal. Special attention is drawn to this condition, as the unit prices will be used to determine the total bid price and the amount of any change orders resulting from an increase or decrease in quantities.

11. Corrections

Erasures or other corrections in the bid must be noted over the signature of the bidder.

12. Time for Receiving Bids

Bids received prior to the advertised hour of opening shall be kept securely sealed. The officer appointed to open the bids shall decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the Grant Recipient that the late arrival of the bid was solely due to delay in the mail for which the bidder was not responsible, such bid will be received and considered.

13. Opening of Bids

The City shall, at the time and place fixed for the opening of bids, open each bid and publicly read it aloud, irrespective of any irregularities therein. Bidders and other interested individuals may be present.

14. Withdrawal of Bids

Bidder may withdraw the bid before the time fixed for the opening of bids, by communicating its purpose in writing to the Grant Recipient. Upon receipt of such notice, the unopened bid will be returned to the bidder. The bid guaranty of any bidder withdrawing his bid will be returned promptly.

15. Award of Contract/Rejection of Bids

- a. The contract will be awarded to the responsive, responsible Bidder submitting the lowest/best bid. The bidder selected will be notified at the earliest possible date. The locality reserves the right to reject any or all bids and to waive any informality in bids received where such rejection or waiver is in its interest.
- b. The Grant Recipient reserves the right to consider as unqualified to do the work any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in this contract.

16. Execution of Agreement/Performance and Payment Bonds

- a. Performance Bonds - Requires all prime contractors which enter into a formal contract in excess of \$100,000 with the State, a county, or a municipality; a department, board, or agency of the state, a county, or a municipality; and a school district or a subdivision thereof, to obtain a Performance Bond in the amount of the contract before commencing with work.
- b. Payment Bonds- Requires all prime contractors which enter into a formal contract with the State, a county, or a municipality; a department, board, or agency of the state, a county, or a municipality; and a school district or a subdivision thereof, to furnish to the governmental entity a payment bond in the amount of the contract. The payment bond must be filed within 30 days from the date of the Notice of Award:
 - o Municipalities: If the contract is in excess of \$50,000, a payment bond is required.
 - o Counties: If the contract is in excess of \$25,000, a payment bond is required.
- c. The failure of the successful bidder to execute the agreement and supply the required bonds within thirty (30) days from the date of the notice of award-or within such extended period as the locality may grant, shall constitute a default and the locality may, at its option, either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, the locality may charge against the bidder the difference between the amount of the bid, and the amount for which a contract is subsequently executed irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against the locality for a refund.

17. Wages and Salaries

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.

18. 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.

19. Certification Regarding Lobbying –

Contractors who apply or bid for an award of \$100,000 or more shall provide the required certification 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 a Federal contract, grant or any other award covered by 31 USC § 1352.

DOCUMENTS REQUIRED TO BE SUBMITTED WITH BID

Statement of Bidder's Qualifications

This statement must be notarized. All questions must be answered, and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires.

Date: _____

Bidder
(Legal Name of Firm): _____

Date Organized: _____

Name of Owner(s): _____

Address: _____

Date Incorporated: _____

Federal ID Number: _____

Number of Years in contracting
business under present name _____

List all other names under which your business has operated in the last 10 years:

Work Presently Under Contract:

Contract	\$ Amount	Completion Date

Attach additional sheets if necessary

Type of work performed by your company: _____

Total Staff employed by Firm (Include breakdown by Managers and Trades on separate sheet):

Have you ever failed to complete any work awarded to you? *(If yes, please attach summary on a separate sheet. Include brief explanation of cause and resolution)*

Yes No

Have you ever defaulted on a contract? *(If yes, please attach summary of details on a separate sheet.)*

Yes No

Has your organization had any disbarments or suspensions that have been imposed in the past five years or that was still in effect during the five-year period or is still in effect? *(If yes, list and explain; such list must include disbarments and suspensions of officers, principals, partners, members, and employees of your organization.)*

Yes No

List the projects most recently completed by your firm (include project of similar importance):

Project	\$ Amount	Month/Year Completed

Attach additional sheets if necessary

Major equipment available for this contract:

Are you in compliance with all applicable EEO requirements? *(If no, please attach details on separate sheet.)*

Yes No

(Optional) Minority Business Reporting Information:

Owner's Race: _____

Owner's Ethnicity: _____

Owner's Gender: _____

Are you a Section 3 business? Yes No

Section 3 Business Concerns:

- a) *Businesses that are 51 percent or more owned by Section 3 residents;*
- b) *Businesses whose permanent, full-time employees include persons, at least 30 percent of whom are currently Section 3 residents, or within three years of the date of first employment with the firm were Section 3 residents;*
- c) *Businesses that provide evidence of a commitment to subcontract in excess of 25 percent of the dollar amount of all subcontracts to be awarded to businesses that meet the qualifications described above; or*
- d) *Businesses located within the Grant Recipient's jurisdiction that identifies themselves as Section 3 Business Concerns because they provide economic opportunities for low- and very low-income persons.*

Bank References

Address: _____ Contact Name: _____

City & State: _____ Zip: _____ Phone Number: _____

Credit available: \$ _____

Has the firm or predecessor firm been involved in a bankruptcy or reorganization? *(If yes, please attach summary of details on a separate sheet.)*

Yes No

Additional Attachments

List on a sheet attached hereto all judgements, claims, arbitration proceedings, or suits pending or outstanding against bidder over the last five (5) years with amount of claim and brief description.

List on a sheet attached hereto all lawsuits or requested arbitration with regard to construction contracts which bidder has initiated within the last five (5) years and brief explanation of claim and outcome.

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Signed this _____ day of _____, 20____.

Signature

Printed Name and Title

Company Name

Notary Statement:

_____. *being duly sworn, says that he/she is the _____Position/Title
_____of_____ (Firm Name), and hereby swears that the answers to the
foregoing questions and all statements therein contained are true and correct. He/she hereby authorizes*

and requests any person, firm, or corporation to furnish any information requested City of Bellmead in verification of the recitals comprising this Statement of Bidder's Qualifications.

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

Signature of Notary Public

Printed Name

My Commission Expires: _____.

The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

Proposed Contracts Breakdown

Type of Contracts – list all construction, materials, or other types of subcontracts (for example: electrical, plumbing, concrete, boring, etc.)

No. of Contracts – Number of contracts under this category

Approximate Total Dollar Amount – Total amount of each contract

Estimated No. to Local Business – Number of contracts awarded to local businesses and Section 3 businesses

Estimated \$ Amount to Local Business - How many dollars will be spent locally for each type of contract? For example: will you hire any local employees or subcontractors?

Estimated Project Workforce Breakdown

Work Classifications – Classification of project employees as defined on Wage Rate

Total Estimated Positions – List the number employees for each work classification will you need on this project

Number of Positions Currently Filled – List the number of estimated positions you currently have filled

Number of Positions Not Filled – List the number of estimated positions you currently do not have filled

Number of Positions to Fill with Low to Moderate Income (Section 3) Residents – List the number of local residents earning low to moderate incomes that you plan to employ to fill the estimated positions not filled

PROPOSED CONTRACTS BREAKDOWN

Type of Contracts	No. of Contracts	Approx. Total Dollar Amount	Estimated No. to local Business	Estimated \$ Amount Local Business

ESTIMATED PROJECT WORKFORCE BREAKDOWN

Work Classifications	Total Estimated Positions	No. of Positions Currently Filled	No. of Positions not Filled	No. of Positions to fill with LMI Residents (Section 3)
Totals				

CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity

FORM CIQ

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

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

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

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

OFFICE USE ONLY

Date Received

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

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

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

_____ Name of Officer

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

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

Yes No

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

Yes No

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

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

7

_____ Signature of vendor doing business with the governmental entity

_____ Date

Non-Collusion Affidavit Of Prime Bidder

State of Texas)

County of _____)

_____, 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 the _____ (Local Public Agency) 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 _____.

By: _____
Notary Public

My commission expires _____

BID FORM

City of Bellmead
San Jacinto Street, Utah Street, and Sam Houston Street Wastewater Improvements

Project No. 1-03501
TXCDBG Project (Contract No. CDV21-0001)

TABLE OF ARTICLES

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Bellmead
3015 Bellmead Dr.
Waco, TX 76705

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 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.

ARTICLE 3 – BIDDER'S ACCEPTANCE OF INSTRUCTIONS

3.01 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.

ARTICLE 4 – BIDDER'S REPRESENTATIONS

4.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

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

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities).

E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and

procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 5 – FURTHER REPRESENTATIONS

5.01 Bidder further represents that:

- A. 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 agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

ARTICLE 6 – BASIS OF BID

6.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BID PROPOSAL

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL AMOUNT
1.00 GENERAL IMPROVEMENTS					
1.01	MOBILIZATION, PROJECT INCIDENTALS, AND TRAFFIC HANDLING	1	LS	_____	_____
1.02	CLEARING (METHOD B)	776	LF	_____	_____
1.03	TRAFFIC CONTROL PLAN	1	LS	_____	_____
1.04	TRAFFIC CONTROL PLAN IMPLEMENTATION	1	LS	_____	_____
1.05	TRENCH SAFETY PLAN	1	LS	_____	_____
1.06	LOCATE EXISTING UNDERGROUND UTILITIES AND VERIFY SIZE, ORIENTATION, AND ELEVATION OF THE UTILITIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES	1	LS	_____	_____
SUBTOTAL GENERAL IMPROVEMENTS					_____
2.00 WASTEWATER IMPROVEMENTS					
2.01	12" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	241	LF	_____	_____
2.02	8" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	524	LF	_____	_____
2.03	TRENCH SAFETY IMPLEMENTATION	776	LF	_____	_____
2.04	4' DIAMETER CONCRETE MANHOLE (0-5' DEEP) WITH STANDARD RING AND COVER	4	EA	_____	_____
2.05	EXTRA DEPTH FOR 4' DIAMETER MANHOLE OVER 5' DEEP	6	VF	_____	_____
2.06	CORE & CONNECT TO EX. 4' DIAMETER CONCRETE MANHOLE (2-8" CONNECTIONS)	1	EA	_____	_____
2.07	4" SANITARY SEWER SERVICE WITH 2-WAY CLEANOUT AND CONNECT TO PRIVATE SERVICE (INCLUDING CLASS 'B' SURFACE REPLACEMENT)	25	EA	_____	_____
2.08	CLASS 'B' SURFACE REPLACEMENT	776	LF	_____	_____
2.09	BROADCAST SEEDING (DISTURBED AREAS FOR WASTEWATER SERVICES)	1	LS	_____	_____
2.10	PLUG EXISTING 10" WASTEWATER LINE WITH 24" GROUT PLUG	2	EA	_____	_____
2.11	REMOVE EX. 8"/10" WASTEWATER LINE	685	LF	_____	_____
2.12	REMOVE EX. BRICK MANHOLE	2	EA	_____	_____
2.13	TEMPORARY BYPASS SYSTEM (RE. FLOW CONTROL / BY-PASS PUMPING NOTES SHEET C003)	1	LS	_____	_____
SUBTOTAL WASTEWATER IMPROVEMENTS					_____
TOTAL BID					_____

Bidder acknowledges that 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.

ARTICLE 7 – TIME OF COMPLETION

7.01 Bidder agrees that the Work will be substantially complete within 180 calendar days after the date when the Contract Times commence to run, and will be completed and ready for final payment within 210 calendar days after the date when the Contract Times commence to run.

7.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 8 – ATTACHMENTS TO THIS BID

8.01 The following documents are attached to and made a condition of this Bid:

- A. Statement of Bidder’s Qualifications
- B. Proposed Contracts Breakdown
- C. Conflict of Interest Form
- D. Non-Collusion Affidavit of Prime Bidder
- E. Bid Bond
- F. Certificate as to Corporate Principal
- G. Certification of Bidder Regarding Civil Rights Laws and Regulations
- H. Contractor’s Local Opportunity Plan
- I. Certification Regarding Lobbying
- J. Disclosure of Lobbying Activities

ARTICLE 9 – LEFT BLANK INTENTIONALLY

ARTICLE 10 – DEFINED TERMS

10.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 11 – BID SUBMITTAL

11.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual’s signature)

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____ (CORPORATE SEAL)

Attest _____

Date of Authorization to do business in *[State Where Project is Located]* is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

Phone No. _____ Fax No. _____

SUBMITTED on _____, 20____.

State Contractor License No. _____ . (If applicable)

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, and _____, as SURETY are held and firmly bound unto City of Bellmead hereinafter called the "Local Public Agency", in the penal sum of _____ Dollars, (\$ _____), lawful money of the United States, 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.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the Accompanying Bid, dated _____, for _____

NOW, THEREFORE, the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefor, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Local Public Agency in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Local Public Agency the difference between the amount specified in said Bid and the amount for which the local Public Agency may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above parties have executed this instrument this _____ day of _____, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

(SEAL)

(SEAL)

Attest: By: _____
Affix Corporate Seal

Attest: By: _____

Affix Corporate Seal

Attest: By: _____
Countersigned

By

* Attorney-in-Fact, State of Texas

Certificate As To Corporate Principal

I, _____, certify that I am the Secretary of the Corporation named as Principal in the bid bond; that _____, who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his/her signature, and his/her signature thereto is genuine; and that said bond was duly signed, sealed, and attested to, on behalf of said corporation by authority of its governing body.

Corporate

Seal

Title: _____

* Power-of-attorney for person signing for Surety Company must be attached to bond.

Certification of Bidder Regarding Civil Rights Laws and Regulations

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. <input type="checkbox"/> Yes <input type="checkbox"/> No	
The undersigned hereby certifies that: <input type="checkbox"/> The <u>Provision of Local Training, Employment, and Business Opportunities</u> clause (Section 3 provision) is included in the Contract. <input type="checkbox"/> The <u>Equal Opportunity</u> 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? <input type="checkbox"/> Yes <input type="checkbox"/> No	
NAME AND TITLE OF SIGNER (Please type)	
SIGNATURE	DATE

- x) To maintain records concerning the amount and number of contracts, subcontracts, and purchases which contribute to objectives.

- xi) 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 _____ (name of company), we the undersigned have read and fully agree to this Plan and the Grantee's Section 3 Plan and become a party to the full implementation of the program and its provisions.

Signature

Printed Name

Title

Date

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

Disclosure of Lobbying Activities

This disclosure form shall be completed by the reporting entity, whether subawardee 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.

- 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.
- 2) Identify the status of the covered Federal action.
- 3) Identify the appropriate classification of this report. If this is a followup 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.
- 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 subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
- 5) If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
- 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.
- 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.
- 8) Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant

announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."

- 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.
- 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. (b) 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).
- 11) The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

Disclosure of Lobbying Activities

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

<p>1. Type of Federal Action:</p> <ul style="list-style-type: none"> a. contract _____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance 	<p>2. Status of Federal Action:</p> <ul style="list-style-type: none"> a. bid/offer/application _____ b. initial award c. post-award 	<p>3. Report Type:</p> <ul style="list-style-type: none"> a. initial filing _____ b. material change <p>For material change only: Year _____ quarter _____ Date of last report _____</p>
<p>4. Name and Address of Reporting Entity:</p> <p>_____ Prime _____ Subawardee</p> <p style="padding-left: 40px;">Tier _____, if Known:</p> <p style="padding-left: 20px;">Congressional District, <i>if known</i>:</p>	<p>5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:</p> <p style="padding-left: 20px;">Congressional District, <i>if known</i>:</p>	
<p>6. Federal Department/Agency:</p>	<p>7. Federal Program Name/Description:</p> <p style="padding-left: 20px;">CFDA Number, <i>if applicable</i>: _____</p>	
<p>8. Federal Action Number, <i>if known</i>:</p>	<p>9. Award Amount, <i>if known</i>:</p> <p>\$ _____</p>	
<p>10. a. Name and Address of Lobbying Registrant (if individual, last name, first name, MI):</p>	<p>b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI):</p>	
<p>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.</p>	<p>Signature: _____</p> <p>Print Name: _____</p> <p>Title: _____</p> <p>Telephone No.: _____ Date: _____</p>	
<p>Federal Use Only</p>	<p>Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)</p>	

Section 3 Policy Issuance for Construction Contracts

Federal Revisions for Section 3 Requirements – TDA Policy Issuance CDBG 20-01
Effective Date: July 1, 2021

Applicability:

Section 3 of the Housing and Urban Development Act of 1968 requires that, to the greatest extent feasible, economic opportunity generated by CDBG funds and other HUD assistance, most importantly employment, is directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, as well as residents of the community in which the federal funds are spent.

- The requirements apply to the entire project that is funded with Section 3 covered financial assistance, regardless of whether the Section 3 project is fully- or partially-funded with CDBG assistance.
- All construction and administrative services contracts must comply with the requirements below.
- Section 3 goals and data reporting requirements generally do not apply to contracts for materials, planning, and professional services. Professional services include non-construction services that require an advanced degree or professional licensing (e.g., engineering, architecture, land surveying, accounting).

Construction Contractor Compliance Overview:

Please note that Federal rules do not require Grant Recipients to contract or subcontract with a Section 3 business concern, nor do the rules require hiring of Section 3 workers. However, Grant Recipients must be able to demonstrate that, where possible, contracting, employment, and training opportunities were made available to workers and businesses meeting Section 3 designation criteria.

Under the revised Section 3 Policy, Construction Contractors are required to complete the following. Please return all completed forms to your GrantWorks Project Manager or Labor Standards Specialist.

- Include required contract clauses in all construction contracts and subcontracts. See **Required Contract Clause- Section 3 Compliance Terms and Conditions**
- Complete the **Certification of Bidder Regarding Civil Rights Laws and Regulations**
- Demonstrate outreach efforts to recruit Section 3 residents for employment. See **Section 3 Requirements for Outreach and Reporting**
- Confirm the Section 3 Status of your business by doing ONE of the following:
 - Completing **Form A1023 Certification as Section 3 Business Concern**
 - Providing documentation (e.g. screenshot, print out) of your business' inclusion on any list or database published by HUD reporting Section 3 Status, such as HUD's Section 3 Business Registry - <https://portalapps.hud.gov/Sec3BusReg/BRegistry/BRegistryHome>
- Confirm the Section 3 Status of all employees by doing ONE of the following:
 - Complete **Form A1022- Employer Certification Form for Section 3** listing all employees and their Section 3 Status (to be completed by prime contractor) -OR-
 - Have each employee complete **Form GW1022- Employee Self-Certification Form for Section 3** and submit that form with their first payroll

Section 3 Definitions:

Section 3 is a provision of the Housing and Urban Development Act of 1968 for the purpose of ensuring that employment and other economic opportunities generated by certain HUD financial assistance shall, **to the greatest extent feasible**, be directed to low- and very low-income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

Section 3 status may be applied to individuals designated by HUD as either **SECTION 3 WORKERS** or **TARGETED SECTION 3 WORKERS** and to businesses identified as **SECTION 3 BUSINESS CONCERNS**:

Section 3 Worker:

A Section 3 Worker is any worker who currently fits, or when hired within the past five years fit, at least one (1) of the following categories, as documented:

1. The worker's income for the previous or annualized calendar year is below the income limit established by HUD
2. The worker is employed by a Section 3 business concern; or
3. The worker is a YouthBuild participant

Targeted Section 3 Worker:

A Targeted Section 3 Worker for Housing and Community Development Financial Assistance Projects is a Section 3 Worker who:

1. Is employed by a Section 3 Business Concern; or
2. Currently fits or when hired fit at least one of the following categories, as documented within the past five (5) years:
 - a. Living within the service area or the neighborhood of the project; or
 - b. A YouthBuild participant

Residents based outside the project Service Area **DO NOT** qualify as Targeted Section 3 Workers. See attached Project Service Area Map for exact boundaries.

Section 3 Business Concern:

A Section 3 Business Concern is a business that meets at least one of the following criteria, documented within the last six (6) month period:

- 1) At least 51% owned and controlled by low- or very low-income persons;
- 2) Over 75% of the labor hours performed for the business over the prior three-month period are performed by Section 3 workers; or
- 3) A business at least 50% owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.

Reporting of labor hours for Section 3 Compliance will be determined by employee hours on Payroll Reports. The Section 3 status of each employee must be documented on the following forms and submitted to the GrantWorks Labor Standards Specialist within 30 days of construction completion.

Section 3 Requirements for Outreach and Reporting

Contractors are required to access the following resources to identify potential Section 3 employees IF any new employees are needed, OR if vacancies exist for work on the project:

- Texas Workforce Solutions - <https://www.workintexas.com>; or
- Local Workforce Solutions Office (WIOA One Stop Shop), if applicable - <https://www.twc.texas.gov/directory-workforce-solutions-offices-services>

Job vacancies posted at <https://www.workintexas.com> should include the notation **Sec3** in the job title and job description. Instructions are attached. A copy of the posting must be provided for the project file.

While contractors are not required to employ Section 3 Workers, they must demonstrate an effort to identify potential employees as appropriate, including documentation for any applicants that are Section 3 Workers.

Similarly, all outreach efforts and attempts to comply with Section 3 guidelines, as well as any impediments encountered despite the efforts undertaken, as applicable.

Documentation of outreach efforts must be maintained and submitted to the GrantWorks Project Manager or Labor Standards Specialist.

Federal Labor Standards Provisions

Form HUD-4010 (07/2021)
ref. Handbook 1344.1

U.S. Department of Housing and Urban Development Office of Davis-Bacon and Labor Standards

A. 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

(i) All laborers and mechanics employed or working upon the site of the work 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 wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment, computed at rates not less than those contained in the wage determination of the Secretary of Labor (which is attached hereto and made a part hereof), regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); 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 shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4)

Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH1321)) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place, where it can be easily seen by the workers.

(ii) Additional Classifications.

(A) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor 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;
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor, the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division ("Administrator"), Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget ("OMB") under OMB control number 1235-0023.)

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, or HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

(D) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs

(1)(ii)(B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

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

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of 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, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1235-0023.)

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

(3) Payrolls and basic records.

(i) Maintaining Payroll Records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification(s), 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 Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid.

Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1235-0023 and 1215-0018)

(ii) Certified Payroll Reports.

(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <https://www.dol.gov/agencies/whd/forms> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the U.S. Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1235-0008.)

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

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

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

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

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (a)(3)(ii)(b).

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

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

(4) Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate), to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(5) Compliance with Copeland Act requirements. 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 will insert in any subcontracts the clauses contained in subparagraphs (1) through (11) in this paragraph (a) and such other clauses as HUD or its designee may, by appropriate instructions, require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

(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 U.S. Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of Eligibility.

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

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

(iii) Anyone who knowingly makes, presents, or submits a false, fictitious, or fraudulent statement, representation or certification is subject to criminal, civil and/or administrative sanctions, including fines, penalties, and imprisonment (e.g., 18 U.S.C. §§ 287, 1001, 1010, 1012; 31 U.S.C. §§ 3729, 3802).

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

B. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The provisions of this paragraph (b) are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen 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 the individual is employed on such work to work in excess of 40 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 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph B(1) of this paragraph, the contractor, and any subcontractor responsible therefor, shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph B(1) of this paragraph, 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 40 hours without payment of the overtime wages required by the clause set forth in subparagraph B(1) of this paragraph. In accordance with the Federal Civil Penalties Inflation Adjustment

Act of 1990 (28 U.S.C. § 2461 Note), the Department of Labor adjusts this civil monetary penalty for inflation no later than January 15 each year.

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

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

C. HEALTH AND SAFETY

The provisions of this paragraph (c) 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.

Title 29: Labor

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

Contents

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- §3.9 Prohibited payroll deductions.
- §3.10 Methods of payment of wages.
- §3.11 Regulations part of contract.

AUTHORITY: R.S. 161, sec. 2, 48 Stat. 848; Reorg. Plan No. 14 of 1950, 64 Stat. 1267; 5 U.S.C. 301; 40 U.S.C. 3145; Secretary's Order 01-2008; and Employment Standards Order No. 2001-01.

SOURCE: 29 FR 97, Jan. 4, 1964, unless otherwise noted.

§3.1 Purpose and scope.

This part prescribes “anti-kickback” regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with federally assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

§3.2 Definitions.

As used in the regulations in this part:

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

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

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

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

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

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

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

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

§3.3 Weekly statement with respect to payment of wages.

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

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by this part 3 and part 5 of this title during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on the back of Form WH 347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Copies of Form WH 347 may be obtained from the Government contracting or sponsoring agency or from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site.

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

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

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

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

(a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

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

(Reporting and recordkeeping requirements in paragraph (b) have been approved by the Office of Management and Budget under control number 1215-0017)

[29 FR 97, Jan. 4, 1964, as amended at 47 FR 145, Jan. 5, 1982]

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

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

(a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.

(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. *A bona fide prepayment of wages* is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the contractor, subcontractor, or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: *Provided, however,* That the following standards are met:

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

(2) It is either:

(i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or

(ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees;

(3) No profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and

(4) The deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: *Provided, however,* that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and part 531 of this title. When such a deduction is made the additional records required under §516.25(a) of this title shall be kept.

(k) Any deduction for the cost of safety equipment of nominal value purchased by the employee as his own property for his personal protection in his work, such as safety shoes, safety glasses, safety gloves, and hard hats, if such equipment is not required by law to be furnished by the employer, if such deduction is not violative of the Fair Labor Standards Act or prohibited by other law, if the cost on which the deduction is based does not exceed the actual cost to the employer where the equipment is purchased from him and does not include any direct or indirect monetary return to the employer where the equipment is purchased from a third person, and if the deduction is either

(1) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance; or

(2) Provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees.

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

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

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

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;

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

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

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

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

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

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

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

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

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

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

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

§3.8 Action by the Secretary of Labor upon applications.

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

§3.9 Prohibited payroll deductions.

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

§3.10 Methods of payment of wages.

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

§3.11 Regulations part of contract.

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

Minority/Female Goals And Timetables

The female employment goal is effective as of April 1980 and is currently 6.9%. The percentages for minority participation in Texas are:

Texarkana Area:	
Texarkana & Bowie Co.	19.7
Non-MSA Counties of Camp, Cass, Lamar, Morris, Red River & Titus	20.2
Tyler-Longview Area:	
Longview, Gregg Co. & Harrison Co.	22.8
Tyler & Smith Co.	23.5
Non-MSA Counties of Anderson, Angelina, Cherokee, Henderson, Marion, Nacogdoches, Panola, Rusk, San Augustine, Shelby, Upshur & Wood	22.5
Beaumont-Port Arthur Area:	
Beaumont, Port Arthur, Orange, Hardin Co., Jefferson Co., & Orange Co.	22.6
Non-MSA Counties of Jasper, Houston, Newton, Sabine, & Tyler	22.6
Houston Area:	
Bryan, College Station & Brazos Co.	23.7
Galveston, Texas City & Galveston Co.	28.9
Houston, Brazoria Co., Fort Bend Co., Harris Co., Liberty Co., Montgomery Co. & Waller Co.	27.3
Non-MSA Counties of Austin, Bureson, Calhoun, Chambers, Colorado, DeWitt, Fayette, Goliad, Grimes, Jackson, Lavaca, Leon, Madison, Matagorda, Polk, Robertson, San Jacinto, Trinity, Victoria, Walker, Washington, & Wharton	27.4
Austin Area:	
Austin, Hays Co., Travis Co., & Williamson Co.	24.1
Non-MSA Counties of Bastrop, Blanco, Burnet, Caldwell, Lee & Llano	24.2
Waco, Killeen, Temple Area:	
Killeen, Temple, Bell Co. & Coryell Co.	16.4
Waco & McLennan Co.	20.7
Non-MSA Counties of Bosque, Falls, Freestone, Hamilton, Hill, Lampasas, Limestone, Milam & Mills	18.6
Dallas, Fort Worth Area:	
Dallas, Fort Worth, Collin Co., Dallas Co., Denton Co., Ellis Co., Hood Co., Johnson Co., Kaufman Co., Parker Co., Rockwall Co., Tarrant Co. & Wise Co.	18.2
Sherman, Denison & Grayson Co.	9.4
Non-MSA Counties of Cooke, Delta, Erath, Fannin, Franklin, Hopkins, Hunt, Jack, Montague, Navarro, Palo Pinto, Rains, Somervell, & Van Zandt	17.2
Wichita Falls Area:	
Wichita Falls, Clay Co. & Wichita Co.	12.4
Non-MSA Counties of Archer, Baylor, Cottle, Foard, Hardeman, Wilbarger & Young	11.0

Abilene Area:	
Abilene, Callaghan Co., Jones Co. & Taylor Co.	11.6
Non-MSA Counties of Brown, Coleman, Comanche, Eastland, Fisher, Haskell, Kent, Knox, Mitchell, Nolan, Scurry, Shackelford, Stephens, Stonewall & Throckmorton	10.9
San Angelo Area:	
San Angelo & Tom Green Co.	19.2
Non-MSA Counties of Coke, Concho, Crockett, Irion, Kimble, McCullough, Mason, Menard, Reagan, Runnels, San Saba, Schleicher, Sterling, Sutton & Terrell	20.0
San Antonio Area:	
Laredo & Webb Co.	87.3
San Antonio, Bexar Co., Comal Co. & Guadalupe Co.	47.8
Non-MSA Counties of Atascosa, Bandera, Dimmit, Edwards, Frio, Gillespie, Gonzales, Jim Hogg, Karnes, Kendall, Kerr, Kinney, La Salle, McMullen, Maverick, Medina, Real, Uvalde, Val Verde, Wilson, Zapata & Zavala	49.4
Corpus Christi Area:	
Corpus Christi, Nueces Co. & San Patricio Co.	41.7
Non-MSA Counties of Aransas, Bee, Brooks, Duval, Jim Wells, Kenedy, Kleberg, Live Oak & Refugio	44.2
Brownsville, McAllen, Harlingen Area:	
Brownsville, Harlingen, San Benito & Cameron Co.	71.0
McAllen, Pharr, Edinburg & Hidalgo Co.	72.8
Non-MSA Counties of Starr & Willacy	72.9
Odessa, Midland Area:	
Midland & Midland Co.	19.1
Odessa & Ector Co.	15.1
Non-MSA Counties of Andrews, Crane, Glasscock, Howard, Loving, Martin, Pecos, Reeves, Upton, Ward & Winkler	18.9
El Paso Area:	
El Paso & El Paso Co.	57.8
Non-MSA Counties of Brewster, Culbertson, Hudspeth, Jeff Davis & Presidio	49.0
Lubbock Area:	
Lubbock & Lubbock Co.	19.6
Non-MSA Counties of Bailey, Borden, Cochran, Crosby, Dawson, Dickens, Floyd, Gaines, Garza, Hale, Hockley, King, Lamb, Lynn, Motley, Terry & Yoakum	19.5
Amarillo Area:	
Amarillo, Potter Co. & Randall Co.	9.3
Non-MSA Counties of Armstrong, Briscoe, Carson, Castro, Childress, Collingsworth, Dallam, Deaf Smith, Donley, Gray, Hall, Hansford, Hartley, Hemphill, Hutchinson, Lipscomb, Moore, Ochiltree, Oldham, Parmer, Roberts, Sherman, Swisher, & Wheeler	11.0

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
 COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM
 CONTRACTOR'S CERTIFICATION

Concerning Labor Standards And Prevailing Wage Requirements

TO (appropriate recipient)	DATE
	PROJECT NUMBER (if any)
C/O	PROJECT NAME

1. The undersigned, having executed a contract with _____
 _____ for the construction of the above-identified project, acknowledges that:

- (a) The Labor Standards provisions are included in the aforesaid contract,
- (b) Correction of any infractions of the aforesaid conditions, including infractions by any subcontractors and any lower tier subcontractors, is Contractor's responsibility.

2. Certifies that:

- (a) Neither Contractor nor any firm, partnership or association in which it has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended.
- (b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. Contractor agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. Certifies that:

- (a) The legal name and the business address of the undersigned are:

(b) The undersigned is (choose one):

(1) A SINGLE PROPRIETORSHIP

(3) A CORPORATION ORGANIZED IN THE STATE OF

(2) A PARTNERSHIP

(4) OTHER ORGANIZATION (Describe)

(c) The name, title and address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS

(d) The names and addresses of all other persons having a substantial interest in the undersigned, and the nature of the interest are:

NAME	ADDRESS	NATURE OF INTEREST

(e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are:

NAME	ADDRESS	TRADE CLASSIFICATION

(Contractor)

Date _____

By _____

Project-Specific General Wage Decision

"General Decision Number: TX20230007 01/06/2023

Superseded General Decision Number: TX20220007

State: Texas

Construction Types: Heavy and Highway

Counties: Atascosa, Bandera, Bastrop, Bell, Bexar, Brazos, Burleson, Caldwell, Comal, Coryell, Guadalupe, Hays, Kendall, Lampasas, McLennan, Medina, Robertson, Travis, Williamson and Wilson Counties in Texas.

HEAVY (excluding tunnels and dams, not to be used for work on Sewage or Water Treatment Plants or Lift / Pump Stations in Bell, Coryell, McClennon and Williamson Counties) and HIGHWAY Construction Projects

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

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

Additional information on contractor requirements and worker protections under the Executive Orders is available at

<http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
 0 01/06/2023

SUTX2011-006 08/03/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures).....	\$ 12.56	**
ELECTRICIAN.....	\$ 26.35	
FORM BUILDER/FORM SETTER Paving & Curb.....	\$ 12.94	**
Structures.....	\$ 12.87	**
LABORER Asphalt Raker.....	\$ 12.12	**
Flagger.....	\$ 9.45	**
Laborer, Common.....	\$ 10.50	**
Laborer, Utility.....	\$ 12.27	**
Pipelayer.....	\$ 12.79	**
Work Zone Barricade Servicer.....	\$ 11.85	**
PAINTER (Structures).....	\$ 18.34	
POWER EQUIPMENT OPERATOR: Agricultural Tractor.....	\$ 12.69	**
Asphalt Distributor.....	\$ 15.55	**
Asphalt Paving Machine.....	\$ 14.36	**
Boom Truck.....	\$ 18.36	
Broom or Sweeper.....	\$ 11.04	**
Concrete Pavement Finishing Machine.....	\$ 15.48	**
Crane, Hydraulic 80 tons or less.....	\$ 18.36	
Crane, Lattice Boom 80 tons or less.....	\$ 15.87	**
Crane, Lattice Boom over 80 tons.....	\$ 19.38	
Crawler Tractor.....	\$ 15.67	**
Directional Drilling Locator.....	\$ 11.67	**
Directional Drilling Operator.....	\$ 17.24	
Excavator 50,000 lbs or Less.....	\$ 12.88	**
Excavator over 50,000 lbs...	\$ 17.71	
Foundation Drill, Truck Mounted.....	\$ 16.93	
Front End Loader, 3 CY or Less.....	\$ 13.04	**
Front End Loader, Over 3 CY.	\$ 13.21	**
Loader/Backhoe.....	\$ 14.12	**
Mechanic.....	\$ 17.10	
Milling Machine.....	\$ 14.18	**
Motor Grader, Fine Grade....	\$ 18.51	
Motor Grader, Rough.....	\$ 14.63	**
Pavement Marking Machine....	\$ 19.17	
Reclaimer/Pulverizer.....	\$ 12.88	**

Roller, Asphalt.....\$ 12.78 **
 Roller, Other.....\$ 10.50 **
 Scraper.....\$ 12.27 **
 Spreader Box.....\$ 14.04 **
 Trenching Machine, Heavy....\$ 18.48

Servicer.....\$ 14.51 **

Steel Worker

Reinforcing.....\$ 14.00 **
 Structural.....\$ 19.29

TRAFFIC SIGNALIZATION:

Traffic Signal Installation

Traffic Signal/Light Pole
 Worker.....\$ 16.00 **

TRUCK DRIVER

Lowboy-Float.....\$ 15.66 **
 Off Road Hauler.....\$ 11.88 **
 Single Axle.....\$ 11.79 **
 Single or Tandem Axle Dump
 Truck.....\$ 11.68 **
 Tandem Axle Tractor w/Semi
 Trailer.....\$ 12.81 **

WELDER.....\$ 15.97 **

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

=====
 ** Workers in this classification may be entitled to a higher
 minimum wage under Executive Order 14026 (\$16.20) or 13658
 (\$12.15). Please see the Note at the top of the wage
 determination for more information.

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

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

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

Union Rate Identifiers

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

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

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

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

Union Average Rate Identifiers

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

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current

negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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

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

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

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

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

=====
END OF GENERAL DECISIO"

Project-Specific Environmental Mitigation Measures

Mitigation Measures and Conditions [40 CFR 1505.2(c)]

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure
Section 106 of the National Historic Preservation Act, Historic Preservation	<p>(Arch) If buried materials are encountered during construction or disturbance activities, work should cease in the immediate area and the Texas Historical Commission should be contacted for guidance; work can continue where no cultural materials are present.</p> <p>(Arch and Historical) If historic properties are discovered or unanticipated effects on historic properties are found, or if buried materials are encountered during construction or disturbance activities, work should cease in the immediate area and the Texas Historical Commission should be contacted for guidance; work can continue where no historic or cultural materials are present.</p>

Temporary Signage Requirements

Temporary Signage

All construction projects utilizing TxCDBG funding must have temporary signage erected in a prominent location at the construction project site. For projects with a Citywide benefit but multiple project locations, (E.g., water meter replacement throughout the city, manhole replacement throughout the city, etc.) the temporary signage may be located in a central location such as City Hall or the County Courthouse provided that the temporary signage is accompanied by a description or map of the specific locations. For additional guidance for similarly scattered project locations, contact TDA staff. A photo of this signage must be submitted to TDA prior to the release of construction funds.

Requirements of temporary signage include

- placement in a prominent visible public area that is not blocked or obscured;
- constructed of durable materials;
- minimum size of 11" x 17" with lettering no smaller than one-half inch;

Required text (or similar)*:

This project is funded by the Texas Department of Agriculture with funds allocated by the U.S. Department of Housing and Urban Development through the Community Development Block Grant Program.

***NOTE:** The text requirement above is satisfied by using the text in this manual. Alternate wording may be approved by TDA upon request.

Temporary signage may be reused for future TxCDBG projects as appropriate.

GrantWorks can provide a temporary sign meeting the minimum requirements at the pre-construction conference, upon request.

Projects Requiring Permanent Signage

Permanent signage identifying the location as a TxCDBG-funded project is required for any TxCDBG-funded public buildings, park areas, or other structures open to the public. Some examples of projects requiring permanent signage include community centers, parks/recreation facilities, fire stations, and significant improvements to existing facilities. Project signage is an eligible construction cost.

Requirements of permanent signage include:

- placement in a prominent visible public area that is not blocked or obscured;
- constructed of permanent materials;
- minimum size of 12" x 18" with lettering no smaller than one-half inch;
- Required text:

This project is funded by the Texas Department of Agriculture with funds allocated by the U.S. Department of Housing and Urban Development through the Community Development Block Grant Program.

Buy America Preference

Pursuant to the Buy America Build America Act (BABA), Grant Recipients that receive funding for infrastructure project must ensure that:

- (1) all iron and steel used in the project are produced in the United States - this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) specifically listed manufactured products - this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and:
 - a. Metals other than iron or steel (non-ferrous metals),
 - b. Lumber,
 - c. Composite building materials, and
 - d. Plastic and polymer-based pipe and tube materials, including PVC pipe.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of the structure or permanently affixed to the infrastructure project.³⁴

Documentation of BABA compliance must be provided for a minimum of 95% of all iron, steel, manufactured products, and construction materials used in the project. The Grant Recipient must provide an itemization to identify the products, quantities, and costs as support documentation. The bid tab is generally not sufficiently detailed to itemize each separate product or material.

All contractors must provide written evidence from the manufacturer or supplier that:

- Identifies the item purchased;
- Affirms the location of manufacture as within the United States; and
- If signed by an authorized company representative.

In rare instances, a BABA waiver may be available. To request such a waiver, the Grant Recipient must provide a letter to the TxCDBG Director requesting a BABA waiver, citing the relevant exception, and providing a narrative justification and any supporting documentation for how the exception applies to the project. NOTE: TDA does not have the authority to waive BABA requirements; all requests for waivers will be evaluated by TDA and, if applicable, forwarded for review and potential approval by

both HUD and the Office of Management and Budget. Any project delays due to the waiver process will not be considered for proposed Grant Agreement extensions.

Notice of Award

Dated _____

Project:	Owner:	Owner's Contract No.:
Contract:		Engineer's Project No.:
Bidder:		
Bidder's Address: (send Certified Mail, Return Receipt Requested)		

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for _____

(Indicate total Work, alternates or sections or Work awarded.)

The Contract Price of your Contract is _____ Dollars (\$_____).

_____ copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [_____] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security Bonds.
3. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Owner

By: _____
Authorized Signature

Title

Copy to Engineer

Notice to Proceed

Dated _____

Project:	Owner:	Owner's Contract No.:
Contract:		Engineer's Project No.:

Contractor:

Contractor's Address: [send Certified Mail, Return Receipt Requested]

You are notified that the Contract Times under the above contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

- 1.0 Call the Texas One-Call System @ 1-800-344-8377 at least 48 hours prior to digging.
- 2.0 Prepare and submit Trench Safety Plan.
- 3.0 Prepare a Stormwater Pollution Prevention Plan. Prepare and submit a Notice of Intent (NOI) to TCEQ as prescribed in the Technical Specifications.
- 4.0 Preconstruction Conference Requirements:

Contractor

Received by: _____
Authorized Signature

Title

Date

Owner

Given by: _____
Authorized Signature

Title

Date

Copy to Engineer

Construction Contract

THIS AGREEMENT made this the [Date] day of [Month], [Year], by and between [Name of Firm] an [Description of Firm] hereinafter called the "*Contractor*", and City of Bellmead hereinafter called the "*City*."

WITNESSETH, that the Contractor and the City of Bellmead for the considerations stated herein mutually agree as follows:

ARTICLE 1. Statement of 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 the construction of the Improvements embraced in the Project; namely, San Jacinto Street, Utah Street, and Sam Houston Street Wastewater Improvements for the CDV21-001 Texas Community Development Block Grant (TxCDBG) project, all in strict accordance with the contract documents including all addenda thereto, numbered _____, dated _____ and _____, all as prepared by Walker Partners, LLC acting and in these contract documents preparation, referred to as the "*Engineer*".

ARTICLE 2. The Contract Price. The City will pay the Contractor for the performance of the Contract in current funds, for the total quantities of work performed at the *unit prices* stipulated in the Bid for the several respective items of work completed subject to additions and deductions as provided in Exhibit ____, hereof.

ARTICLE 3. The Contract. The executed contract documents shall consist of the following components:

- | | |
|----------------------------|--|
| (a) This Agreement | (f) General Conditions, Part I |
| (b) Addenda | (g) Special Conditions |
| (c) Invitation to Bids | (h) Technical Specifications |
| (d) Instruction to Bidders | (i) Drawings (as listed in the Schedule of Drawings) |
| (e) Signed Copy of Bid | (j) [Add any applicable document] |

ARTICLE 4. Performance. Work, in accordance with the Contract dated _____, shall commence on or before _____, _____, and Contractor shall start performing your obligations under the Contract Documents. In accordance with the Agreement, the number of days to achieve Substantial Completion is 180, and the number of days to achieve readiness for final payment is 210.

This Agreement, together with other documents enumerated in this ARTICLE 3, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, forms the Contract between the parties hereto. In the event that any provision in any component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this ARTICLE 3 shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in _____ original copies on the day and year first above written.

(The Contractor)

By _____
Title _____

(City)

By _____

Title _____

Corporate Certifications

I, _____, certify that I am the _____ of the corporation named as Contractor herein; that _____ who signed this Agreement on behalf of the Contractor, was then _____ of said corporation; that said Agreement was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Corporate Seal

(Corporate Secretary)

General Conditions for Construction Contracts

1) Contract and Contract Documents

- a) The project to be constructed pursuant to this contract will be financed with assistance from the Texas Department of Agriculture - Office of Rural Affairs through a Community Development Block Grant (TxCDBG) and is subject to all applicable Federal and State laws and regulations.
- b) The Plans, Specifications and Addenda shall form part of this contract and the provisions thereof shall be binding upon the parties as if they were herein fully set forth.

2) Definitions

Whenever used in any of the Contract Documents, the following meanings shall be given to the terms here in defined:

- a) The term "Contract" means the Contract executed between the City of Bellmead, hereinafter called the "City" and (Name of Construction Co.), hereinafter called "Contractor", of which these GENERAL CONDITIONS, form a part.
- b) The term "Project Area" means the area within the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
- c) The term "Engineer" means Walker Partners, LLC, Engineer in charge, serving the City with architectural or engineering services, his successor, or any other person or persons, employed by the City for the purpose of directing or having in charge the work embraced in this Contract.
- d) The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

3. Supervision by Contractor

- a) Except where the Contractor is an individual and personally supervises the work, the Contractor shall provide a competent superintendent, satisfactory to the Engineer, on the work at all times during working hours with full authority to act as Contractor's agent. The Contractor shall also provide adequate staff for the proper coordination and expediting of his work.
- b) 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.

4. Subcontracts

- a) 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.
- b) No proposed subcontractor shall be disapproved by the City except for cause.

- c) The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- d) Nothing contained in the Contract shall create any contractual relation between any subcontractor and the City.

5. Fitting and Coordination of Work

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

a) Partial Payments

- i) The Contractor shall prepare the requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deduct 5% to be retained until final payment, and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer.
- ii) Monthly or partial payments made by the City 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 City. Such payments shall not constitute a waiver of the right of the City 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 City in all details.

b) Final Payment

- i) After final inspection and the acceptance by the City all work under the Contract, the Contractor shall prepare the requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Contract. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments.
- ii) Before paying the final estimate, City shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor. The City may make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.
- iii) Any amount due the City under Liquidated Damages shall be deducted from the final payment due the contractor.

c) Payments Subject to Submission of Certificates

- i) Each payment to the Contractor by the City shall be made subject to submission by the Contractor of all written certifications required of it and its subcontractors.

d) Withholding Payments

- i) The City may withhold any payment due the Contractor as deemed necessary to protect the City, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the City and will not require the City to determine or adjust any claims or disputes between the Contractor and its subcontractors or material dealers, or to withhold any moneys for their protection unless the City elects to do so. The failure or refusal of the City to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

7. Changes in the Work

- a) The City may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any obligations under the Contract or any guarantee given pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise. Additionally, all such change orders must be approved by TxCDBG prior to execution of same.

- b) Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

- c) If applicable unit prices are contained in the Contract, the City may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).

d) Each change order shall include in its final form:

- i) A detailed description of the change in the work.
- ii) The Contractor's proposal (if any) or a confirmed copy thereof.
- iii) A definite statement as to the resulting change in the contract price and/or time.
- iv) The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.

- v) The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Claims for Extra Cost

- a) If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the City, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.
- b) Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- c) Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the City and work shall not proceed except at the Contractor's risk, until written instructions have been received from the City.
- d) If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

9. Termination, Delays, and Liquidated Damages

- a) Right of the City to Terminate Contract for Convenience
 - i) City may at any time and for any reason terminate Contractor's services and work at City'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.
 - ii) Upon such termination, Firm shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with this Agreement plus (2) such other costs actually incurred by Firm as are permitted by the prime contract and approved by City. There shall be deducted from such sums as provided in this subparagraph the amount of any payments made to Firm prior to the date of the termination of this Agreement. Firm shall not be entitled to any claim or claim of lien against City for any additional compensation or damages in the event of such termination and payment.
- b) Right of the City to Terminate Contract for Cause
 - i) In the event that any of the provisions of this contract are violated by the Contractor, or by any subcontractors, the City may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the City shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not

commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the City may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the City for any excess cost incurred. In such event the City may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.

c) Liquidated Damages for Delays.

- i) If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the City as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of Five Hundred Dollars (\$500.00) for each calendar day of delay, until Substantial Completion is achieved and Two Hundred and Fifty Dollars (\$250.00) for each calendar day of delay, until Final Completion is achieved. The Contractor and Contractor's sureties shall be liable to the City for the amount thereof.

d) Excusable Delays.

- i) The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
- ii) Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
- iii) Any acts of the City;
- iv) Causes not reasonably foreseeable by the parties to this Contract at the time of execution which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God, terrorism, war, acts of another Contractor in the performance of some other contract with the City, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
- v) Provided, however, that the Contractor promptly notifies the City within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

10. Assignment or Novation

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 City. 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.

11. Technical Specifications and Drawings

Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the City for review. Contractor shall be liable for any issues or expenses in the event the discrepancy is not submitted to the City.

12. Shop Drawings

- a) All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer via pdf for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at Contractor's own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.
- b) Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- c) If a shop drawing is in accordance with the contract or involves only minor adjustment in the interest of the City not involving a change in contract price or time, the engineer may approve the drawing. The approval shall not relieve the Contractor from responsibility to adhere to the contract or for any error in the drawing.

13. Requests for Supplementary Information

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information which should be furnished by the City 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.

14. Materials and Workmanship

- a) Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.
- b) The Contractor shall furnish to the City for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.
- c) Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- d) Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- e) The City may require the Contractor to dismiss from the work such employee or employees as the City or the Engineer may deem unqualified.
- f) Domestic Preferences - 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.
 - i) 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.

15. Samples, Certificates and Tests

- a) The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.

- b) Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- c) Approval of any materials shall be general only and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.
- d) Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:
 - 1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
 - 2) The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
 - 3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;
 - 4) The City will pay all other expenses.

16. Permits and Codes

- a) The Contractor shall give all notices required by and comply with all applicable federal and state laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the City. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the City will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.
- b) Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the Contractor shall remove such work without cost to the City.

- c) The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- d) The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.
- e) The Contractor will be required to make arrangements for and pay the water, electrical power, or any other utilities required during construction.
- f) During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the City, shall moisten the surrounding area to prevent a dusty condition.

17. Care of Work

- a) The Contractor shall be responsible for all damages to person or property that occur as a result of its fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- b) In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City is authorized to act to prevent such threatened loss or injury. Contractor shall follow all instructions of City.
- c) The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and shall be responsible for completely repairing any damage thereto caused by the operations.
- d) The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the City from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

18. Accident Prevention

- a) No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Department of Labor.

- b) The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- c) The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the City with reports concerning these matters.
- d) The Contractor shall indemnify and hold harmless the City from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- e) The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.
- f) The contractor shall at all time conduct work in such a manner as to ensure the least possible inconvenience to vehicular and pedestrian traffic. At the close of the work each day, all streets where possible in the opinion of the City, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the City at the expense of the Contractor.

19. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for laborers. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

20. Use of Premises

- a) The Contractor shall confine equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the City, and shall not unreasonably encumber the site or public rights of way with materials and construction equipment.
- b) The Contractor shall comply with all reasonable instructions of the City and all existing federal, state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

21. Removal of Debris, Cleaning, Etc.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

22. Inspection

- a) All materials and workmanship shall be subject to inspection, examination, or test by the City and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The City shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the City.
- b) The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the City will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.
- c) The Contractor shall notify the City sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the City, the Contractor shall uncover for inspection and recover such facilities at Contractor's expense, when so requested by the City.
- d) Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be reimbursable and if completion of the work of the entire Contract has been delayed, a suitable extension of time will be approved.
- e) Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards to: (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- f) Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the City or its agents shall relieve the Contractor or its sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

23. Review by City

The City and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the City through its authorized representatives or agents.

24. Final Inspection

When the Improvements included in this Contract are substantially completed, the Contractor shall notify the City in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The City will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

25. Deduction for Uncorrected Work

If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the City and subject to settlement, in case of dispute, as herein provided.

26. Insurance

The Contractor shall not commence work under this contract until all required insurance under this paragraph has been secured and approved by the City.

a) Worker's Compensation Insurance: The Contractor shall procure and shall maintain during the life of this contract Worker's Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.

b) Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance. The Contractor shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the following amounts:

1. Workers Compensation

- A. Statutory Workers Compensation Benefits
- B. Employer Liability:
 - Bodily Injury by Accident - \$1,000,000 Each Accident
 - Bodily Injury by Disease - \$1,000,000 Policy Limit
 - Bodily Injury by Disease - \$1,000,000 Each Employee

2. Commercial General Liability

- \$1,000,000 Combined Single Limit of Bodily Injury Liability and Property Damage Liability Per Occurrence
- \$2,000,000 General Aggregate Limit
- \$2,000,000 Products & Completed Operations Aggregate Limit
- \$1,000,000 Personal and Advertising Injury Limit

Products and Completed Operations Coverage must be maintained for not less than two full years after final payment.

3. Business Auto Liability

A. \$1,000,000 Combined Single Limit of Bodily Injury
Liability and Property Damage Liability

4. Excess Liability

A. \$2,000,000 Each Occurrence Limit
\$2,000,000 Aggregate Limit

c) Proof of Insurance: The Contractor shall furnish the City with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the City."

27. Warranty of Title

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same, together with all improvements and appurtenances constructed or placed by Contractor, to the City free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

28. Warranty of Workmanship and Materials

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the City or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of final acceptance of the work.

29. Job Offices

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

- b) Upon completion of the improvements, or as directed by the City, the Contractor shall remove all such temporary structures and facilities from the site, and leave the site of the work in the condition required by the Contract.

30. Partial Use of Site Improvements

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

- a) The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.
- b) The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

31. Local Program Liaison

For purposes of this Agreement, the City Manager or equivalent authorized person will serve as the Local Program Liaison and primary point of contact for the Contractor. All required progress reports and communication regarding the project shall be directed to this liaison and other local personnel as appropriate.

32. Access to Information

- a) The U.S. Department of Housing and Urban Development (HUD), Inspectors General, the Comptroller General of the United States, the Texas Department of Agriculture (TDA), and the City, or any of their authorized representatives, shall have access to any documents, papers, or other records of the Contractor which are pertinent to the TxCDBG award, in order to make audits, examinations, excerpts, and transcripts, and to closeout the City's/County's TxCDBG contract with TDA.
- b) Contractor shall include the substance of this clause in all subcontracts it awards.

33. Records Retention

- a) The Contractor shall retain all required records for three years after the City makes its final payment and all pending matters are closed.
- b) Contractor shall include the substance of this clause in all subcontracts it awards.

34. Resolution of Program Non-Compliance and Disallowed Costs

In the event of any dispute, claim, question, or disagreement arising from or relating to this Contract, or the breach thereof, including determination of responsibility for any costs disallowed as a result of non-compliance with federal, state or TxCDBG 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 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 Contract and choose a mediator that is not affiliated with the American Arbitration Association. The parties shall bear the costs of such mediation equally.

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.

35. Compliance with Davis-Bacon Act

All laborers and mechanics employed upon the work covered by this Contract shall be paid unconditionally and not less often than once each week, and without subsequent deduction or rebate on any account (except such payroll deductions as are made mandatory by law and such other payroll deductions as are permitted by the applicable regulations issued by the Secretary of Labor, United States Department of Labor, pursuant to the Anti-Kickback Act hereinafter identified), the full amount due at time of payment computed at wage rates not less than those contained in the wage determination decision of said Secretary of Labor (a copy of which is included in these documents and herein incorporated by reference), regardless of any contractual relationship which may be alleged to exist between the Contractor or any subcontractor and such laborers and mechanics. All laborers and mechanics employed upon such work shall be paid in cash, except that payment may be by check if the employer provides or secures satisfactory facilities approved by the City for the cashing of the same without cost or expense to the employee. For the purpose of this clause, contributions made or costs reasonably anticipated under Section 1 (b) (2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section 5.5 (a) (1) (iv) of Title 29, Code of Federal Regulations. Also for the purpose of this clause, regular contributions made or costs incurred for more than a weekly period under plans, funds, or programs, but covering the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

The Contractor and its subcontractors shall not, by any means, induce any person employed in the construction, completion, or repair of public work, give up any part of the compensation to which he or she is otherwise entitled. The City must report all suspected or reported violations to TDA.

36. Conflicts of interest.

- a) Governing Body. No member of the governing body of the City and no other officer, employee, or agent of the City, who exercises any functions or responsibilities in connection with administration, construction, engineering, or implementation of TxCDBG award between TDA and the City, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Firm shall take appropriate steps to assure compliance.
- b) Other Local Public Officials. No other public official, who exercises any functions or responsibilities in connection with the planning and carrying out of administration, construction, engineering or implementation of the TxCDBG award between TDA and the City, shall have any personal financial interest, direct or indirect, in the Contractor or this Contract; and the Contractor shall take appropriate steps to assure compliance.

- c) The Contractor and Employees. The Contractor warrants and represents that it has no conflict of interest associated with the TxCDBG award between TDA and the City or this Contract. The Contractor further warrants and represents that it shall not acquire an interest, direct or indirect, in any geographic area that may benefit from the TxCDBG award between TDA and the City or in any business, entity, organization or person that may benefit from the award. The Contractor further agrees that it will not employ an individual with a conflict of interest as described herein.

37. Debarment and Suspension (Executive Orders 12549 and 12689)

The Contractor certifies, by entering into this Contract, that neither it nor its principals are presently debarred, suspended, or otherwise excluded from or ineligible for participation in federally-assisted programs under Executive Orders 12549 (1986) and 12689 (1989). The term "principal" for purposes of this Contract is defined as an officer, director, owner, partner, key employee, or other person with primary management or supervisory responsibilities, or a person who has a critical influence on or substantive control over the operations of the Contractor. The Contractor understands that it must not make any award or permit any award (or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension."

38. Anti-Lobbying

Contractor shall file the required certification: 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 of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

39. 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, including watchmen and guards, shall require or permit any laborer or mechanic in any workweek in which he is employed on such work to work in excess of 40 hours in such work week unless such laborer or mechanic receives compensation at a

rate not less than one and one-half times his basic rate of pay for all hours worked in excess of 40 hours in such work week, as the case may be.

40. Clean Air Act and the Federal Water Pollution Control Act

The Contractor or subcontractor shall 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).

41. Equal Opportunity Clause [applicable to contracts and subcontracts over \$10,000].

During the performance of this contract, the Contractor agrees as follows:

- a) The Contractor will not act against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- b) 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.
- c) 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.
- d) 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.
- e) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, "Equal Employment Opportunity," and of the rules, regulations, and relevant orders of the Secretary of Labor.
- f) 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.

- g) 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.
- h) The Contractor will include the portion of the sentence immediately preceding paragraph (a) and the provisions of paragraphs (a) through (h) 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.

42. Section 109 of the Housing and Community Development Act of 1974.

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.

43. 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.

44. Age Discrimination Act of 1975.

- a) 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.

45. 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 TxCDBG 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.

46. Contract Documents and Drawings

The City will furnish the Contractor without charge 4 copies of the Contract Documents, including Technical Specifications and Drawings. Additional copies requested by the Contractor will be furnished at cost.

47. Contract Period

The work to be performed under this contract shall commence within the time stipulated by the City in the Notice to Proceed, and shall be fully completed within 210 calendar days thereafter.

48. Liquidated Damages

Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the City the sum of Five Hundred Dollars (\$500.00) as fixed, agreed and liquidated damages for each calendar day of delay from the above stipulated time for completion.

49. Verification No Boycott Israel

As required by Chapter 2270, Government Code, CONTRACTOR hereby verifies that it does not boycott Israel and will not boycott Israel through the term of this Agreement. For purposes of this

verification, "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.

50. Foreign Terrorist Organizations

Pursuant to Chapter 2252, Texas Government Code, CONTRACTOR represents and certifies that, at the time of execution of this Agreement neither CONTRACTOR, 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.

51. Firearm Entities and Trade Association Discrimination

CONTRACTOR verifies that: (1) it does not, and will not for the duration of the contract, have a practice, policy, guidance, or directive that discriminates against a firearm entity or firearm trade association or (2) the verification required by Section 2274.002 of the Texas Government Code does not apply to the contract. If circumstances relevant to this provision change during the course of the contract, Respondent shall promptly notify Agency.

52. Gender Neutral - Gender References

When necessary, unless the context clearly requires otherwise, any gender-specific or gender-neutral term in this Contract (for example, he, she, it, etc.) is to be read as referring to any other gender or to no gender.

53. Payment Processing

Payment under this contract must be processed through the Texas Department of Agriculture. Receipt of payment from the Grant Recipient may take at least 45 to 60 days from the time the pay estimate is submitted by the Owner to the Texas Department of Agriculture.

Section 504 Certification

POLICY OF NONDISCRIMINATION ON THE BASIS OF DISABILITY

The _____ does not discriminate on the basis of disability 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).

Payment Bond

KNOW ALL MEN BY THESE PRESENTS that:

(Name of Contractor or Company)

(Address)

a _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

(Address)

hereinafter called Surety, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____

Dollars, \$ _____ in lawful money of the United States, for this payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the ___ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

(Project Name)

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of
(Number)
which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

By _____ (s)
(Principal Secretary)

(SEAL)

(Witness as to Principal) (Address)

(Address)

ATTEST: _____
(Surety)

(Witness as to Surety) By _____
(Attorney in Fact)

(Address) (Address)

Performance Bond

KNOW ALL MEN BY THESE PRESENTS that:

_____ (Name of Contractor or Company)

_____ (Address)

a _____ hereinafter called Principal, and

_____ (Name of Surety Company)

_____ (Address)

hereinafter called Surety, are held and firmly bound unto

_____ (Name of Grant Recipient)

_____ (Grant Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____

Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ day of _____
counterparts, each one of which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

By _____ (s)
(Principal Secretary)

(SEAL)

(Witness as to Principal) _____
(Address) _____

(Address) _____

ATTEST: _____
(Surety)

By _____
(Witness as to Surety) _____
(Attorney in Fact)

(Address) _____
(Address)

Certificate of Liability Insurance

[INSERT Copy of Contractor's Liability Insurance]

Certificate of Interested Parties Form 1295 and Instructions

DISCLOSURE OF INTERESTED PARTY FORM:

NEW OBLIGATION OF THE CITY TO RECEIVE INFORMATION FROM WINNING BIDDER

Effective January 1, 2016, pursuant to Texas Government Code, Section 2252.908 (the “Interested Party Disclosure Act”), the City of Bellmead may not award a contract to a bidder unless the bidder submits a Certificate of Interested Parties Form 1295 (the “Disclosure Form”) to the City of Bellmead as prescribed by the Texas Ethics Commission (“TEC”). In the event that the bidder’s bid for the TXCDBG Contract CDV21-0001 is the best bid received, the City of Bellmead or its consultant, will promptly notify the bidder. That notification will serve as the conditional verbal acceptance of the bid. Upon this acceptance, the winning bidder must promptly, not later than the DATE the Contract Documents are fully executed.

PROCESS FOR COMPLETING THE DISCLOSURE FORM¹

The Disclosure Form can be found at <https://www.ethics.state.tx.us/forms/1295.pdf>, and reference should be made to the following information in order to complete it:

- (a) item 2 – Name of City (“Bellmead, Texas”)
- (b) item 3 – the identification number (“TxCDBG ”), and
- (c) item 3 – description of the goods or services assigned to this contract by the City (“Construction Services for)

You must:

- 1) complete the Disclosure Form electronically at the TEC’s “electronic portal”, and
- 2) print, sign and deliver a copy (scanned and emailed is fine) of the Disclosure Form and Certification of Filing that is generated by the TEC’s “electronic portal.”

¹ A completed Form 1295 is not required for:

- a sponsored research contract of an institution of higher education;
- an interagency contract of a state agency or an institution of higher education;
- a contract related to health and human services if:
 - the value of the contract cannot be determined at the time the contract is executed; and
 - any qualified vendor is eligible for the contract;
- a contract with a publicly traded business entity, including a wholly owned subsidiary of the business entity;
- a contract with an electric utility, as that term is defined by Section 31.002, Utilities Code; or
- a contract with a gas utility, as that term is defined by Section 121.001, Utilities Code.

The following link will take you to the electronic portal for filing:

<https://www.ethics.state.tx.us/TECCertInt/pages/login/certLogin.jsf>

Also, a detailed instruction video may be found here:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

Neither the City of Bellmead nor its consultants have the ability to verify the information included in a Disclosure Form, and neither have an obligation nor undertake responsibility for advising any business entity with respect to the proper completion of the Disclosure Form.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties. Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.	OFFICE USE ONLY
1 Name of business entity filing form, and the city, state and country of the business entity's place of business.	Must file online at www.ethics.state.tx.us/File
2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.	

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary

5 Check only if there is NO Interested Party.

6 UNSWORN DECLARATION

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.

(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____, on the _____ day of _____, 20____.

(month) (year)

Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Required Contract Provisions

For Construction Contracts and Subcontracts

Sourced from TDA 2022 Manual- Appendix B Required Contract Provisions

<https://texasagriculture.gov/Grants-Services/Rural-Economic-Development/Rural-Community-Development-Block-Grant-CDBG/Forms>

For all contracts

- Debarment and Suspension
- Access to Records
- Records Retention – 3 Years
- Conflict of Interest Questionnaire – Form CIQ (Texas Ethics Commission)
- Termination for Cause (>\$10K)
- Admin., Contractual, Legal Remedies (>\$50K)
- (If applicable) Option Contract - Procurement Before Application
- Byrd Anti-Lobbying (≥\$100K)

Additional provisions for administration & engineering contracts associated with construction contracts

- Equal Opportunity Clause Contracts > \$10K
- Section 3 Contract Provisions (administration services on all TxCDBG Agreements)

Additional provisions for construction contracts

- HUD 4010
- Davis Bacon and Copeland Anti-Kickback (>\$2K)
- Equal Opportunity Clause (>\$10K)
- Contract Work Hours and Safety Standards Act
- Section 3 Contract Provisions (All TxCDBG Agreements)
- Clean Air and Water Act (>\$150K)
- Domestic Preferences for Procurements

Required Contract Provisions

Italics – Explanatory; not contract language

All Contracts

THRESHOLD	PROVISION	CITATION
None	<p>(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.</p>	<p>2 CFR 200 APPENDIX II (H)</p>
None	<p>The U.S. Department of Housing and Urban Development (HUD), Inspectors General, the Comptroller General of the United States, and the Texas Department of Agriculture (TDA), and the City, or any of their authorized representatives, shall have access to any documents, papers, or other records of the Contractor which are pertinent to the TxCDBG award, in order to make audits, examinations, excerpts, and transcripts and to closeout the City’s/County’s TxCDBG contract with TDA.</p>	<p>2 CFR 200.337</p>
None	<p>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.</p>	<p>2 CFR 200.334</p>
None	<p>Sec. 176.003. CONFLICTS DISCLOSURE STATEMENT REQUIRED.</p> <p>(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:</p> <p>(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</p> <p>(2) the vendor:</p> <p>(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:</p> <p>(i) a contract between the local governmental entity and vendor has been executed; or</p> <p>(ii) the local governmental entity is considering entering into a contract with the vendor;</p>	<p>Chapter 176 of the Local Government Code</p>

	<p>(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:</p> <ul style="list-style-type: none"> (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 <p>(C) has a family relationship with the local government officer.</p> <p>(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:</p> <ul style="list-style-type: none"> (1) a political contribution as defined by Title 15, Election Code; or (2) food accepted as a guest. <p>(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.</p> <p>(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).</p>	
<p>>\$10,000</p>	<p><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></p> <p><i>Use the following language for contracts > \$ 10,000:</i></p> <p><u>Termination for Cause</u></p> <p>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 shall have the right to terminate this Agreement by giving written notice to the Contractor of such termination and specifying 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, be turned over to the City and become the property of the City. In the event of termination for cause, the Contractor</p>	<p>2 CFR 200 APPENDIX II(B)</p>

	<p>shall be entitled to receive reasonable compensation for any necessary services actually and satisfactorily performed prior to the date of termination.</p> <p>Notwithstanding the above, the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of contract by the Contractor, and the City 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.</p> <p><u>Termination for Convenience of the City</u></p> <p>City may at any time and for any reason terminate Contractor's services and work at City'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.</p> <p>[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.]</p>	
<p>>\$50,000</p>	<p><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></p> <p><i>Use the following language for contracts > \$50,000:</i></p> <p><u>Resolution of Program Non-compliance and Disallowed Costs</u></p> <p>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 TxCDBG 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 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</p>	<p>2 CFR 200 APPENDIX II (A)</p>

	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 by TDA through the TxCDBG program, this agreement shall be terminated by the City.	

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 “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</i>	41 CFR §60-1.4(b) And 2 CFR 200 APPENDIX II (C)

regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Therefore, include the following EO clause (not in italics) in construction contracts including construction associated administration and engineering contracts > \$10,000:

§60-1.4(b) Equal opportunity clause.

(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:

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive 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.

	<p>(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.</p> <p>(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.</p> <p>(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.</p> <p>[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]</p>	
None	<p><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></p> <p>Economic Opportunities for Section 3 Residents and Section 3 Business Concerns.</p> <p>(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.</p> <p>(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.</p> <p>(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</p>	24 CFR §75.27

	<p>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.</p> <p>(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 TxCDBG Project Implementation Manual.</p> <p>(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.</p>	
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Construction Contracts

Italics – Explanatory; not contract language

THRESHOLD	PROVISION	CITATION
<p>>\$2,000 for Davis Bacon and Copeland “Anti-Kickback” Act;</p> <p>>\$100,000 for Contract Work Hours and Safety Standards Act</p>	<p><i>HUD 4010 Federal labor standards provisions include:</i></p> <ol style="list-style-type: none"> 1. <i>Davis Bacon Act (40 U.S.C. 3141 et seq.) as supplemented by DOL regulations (29 CFR part 5);</i> 2. <i>Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3); and</i> 3. <i>Contract Work Hours and Safety Standards Act (40 U.S.C. 3701 et seq.)</i> <p><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></p>	
<p>>\$2,000</p> <p>(Satisfied with inclusion of HUD 4010)</p>	<p><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></p> <p>(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</p>	<p>2 CFR 200 APPENDIX II (D)</p>

	<p>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 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.</p>	
<p>>\$10,000</p>	<p><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></p> <p><i>Therefore, include the following EO clause (not in italics) in construction contracts including construction associated administration and engineering contracts > \$10,000:</i></p> <p>§60-1.4(b) Equal opportunity clause.</p> <p><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></p>	<p>41 CFR §60-1.4(b) And 2 CFR 200 APPENDIX II (C)</p>

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive 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

	<p>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.</p> <p>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.</p> <p>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.</p> <p>(c) Subcontracts. Each nonexempt prime contractor or subcontractor shall include the equal opportunity clause in each of its nonexempt subcontracts.</p> <p>(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.</p> <p>(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</p>	
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	<p>physically incorporated in such contracts and whether or not the contract between the agency and the contractor is written.</p> <p>(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.</p> <p>[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]</p>	
<p>>\$100,000</p> <p>(Satisfied with inclusion of HUD 4010)</p>	<p>(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.</p>	<p>2 CFR 200 APPENDIX II (E)</p>
<p>None</p>	<p>Economic Opportunities for Section 3 Residents and Section 3 Business Concerns.</p> <p>(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.</p> <p>(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.</p> <p>(c) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with</p>	<p>24 CFR §75.27</p>

	<p>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.</p> <p>(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 TxCDBG Project Implementation Manual.</p> <p>(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.</p>	
<p>>\$150,000</p>	<p>(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).</p>	<p>2 CFR 200 APPENDIX II (G)</p>
<p>No Threshold</p>	<p>§ 200.322 Domestic preferences for procurements.</p> <p>(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.</p> <p>(b) For purposes of this section:</p> <p>(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.</p> <p>(2) “Manufactured products” means items and construction materials composed in whole or in part of non-ferrous</p>	<p>2 CFR §200.322</p>

	metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.	
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ADDENDUM NO.

OWNER

PROJECT NAME

PROJECT NO.:

DATE OF ADDENDUM:

BID OPENING DATE:

This Addendum forms a part of Contract and clarifies, corrects or modifies original Bid Documents, dated _____ . Acknowledge receipt of this addendum in space provided on Bid Form. Failure to do so may subject bidder to disqualification.

- 1)
- 2)
- 3)

Approved by:

Engineer

Template Project Forms

In this section:

- Work Change Directive
- Field Order
- Contractor's Application for Payment
- Change Order Form
- Certificate of Construction Completion
- Contractor's Final Payment Affidavit

Work Change Directive

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

You are directed to proceed promptly with the following change(s):

Item No.	Description

Attachments (list documents supporting change):

Purpose for Work Change Directive:

- Authorization for Work described herein to proceed on the basis of Cost of the Work due to:
 - Nonagreement on pricing of proposed change.
 - Necessity to expedite Work described herein prior to agreeing to changes on Contract Price and Contract Time.

Estimated change in Contract Price and Contract Times:

Contract Price \$ _____ (increase/decrease) Contract Time _____ days (increase/decrease)

If the change involves an increase, the estimated amounts are not to be exceeded without further authorization.

Recommended for Approval by Engineer:	Date
Authorized for Owner by:	Date
Accepted for Contractor by:	Date
Approved by Funding Agency (if applicable):	Date:

Contractor's Application For Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

- 1. ORIGINAL CONTRACT PRICE \$ _____
- 2. Net change by Change Orders \$ _____
- 3. CURRENT CONTRACT PRICE (Line 1 ± 2)..... \$ _____
- 4. TOTAL COMPLETED AND STORED TO DATE
(Column F on Progress Estimate) \$ _____
- 5. RETAINAGE:
 - a. ____ % x \$ _____ Work Completed \$ _____
 - b. ____ % x \$ _____ Stored Material \$ _____
 - c. Total Retainage (Line 5a + Line 5b) \$ _____
- 6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)..... \$ _____
- 7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application) \$ _____
- 8. AMOUNT DUE THIS APPLICATION \$ _____
- 9. BALANCE TO FINISH, PLUS RETAINAGE
(Column G on Progress Estimate + Line 5 above) \$ _____

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By:	Date:
-----	-------

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____ (Date)
Funding Agency (if applicable)

Stored Material Summary

Contractor's Application

For (contract):					Application Number:				
Application Period:					Application Date:				
A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage (\$) (D + E - F)
			Date (Month/Year)	Amount (\$)	Amount (\$)	Subtotal	Date (Month/Year)	Amount (\$)	
		Totals							



Construction Contract Change Order

A505

Grant Recipient: _____ Select: City County
Contract No.: _____ Change Order No.: _____ Region: _____

Contractor:
(Name and Address)

Engineer:
(Name and Address)

Select Change Order Type(s): Change to Existing Line Items New Items Requested Change in Contract Duration

Grant recipient is requesting Texas Department of Agriculture review to determine eligibility of change order expenses.

Changes to Existing Line Items (Items from original bid or added in previous change order ONLY)

Bid Item #	Item Description	Original Qty.	Proposed Qty.	UOM	Unit Price	Δ Qty.	Change in Contract Price	+
								-
			0		\$0.00	0	\$0.00	-
			0		\$0.00	0	\$0.00	-
			0		\$0.00	0	\$0.00	-
			0		\$0.00	0	\$0.00	-
			0		\$0.00	0	\$0.00	-
			0		\$0.00	0	\$0.00	-
Contract Change Sub-Total:							\$0.00	

New Items Requested (Items WITHOUT a unit price in the original bid)

Provide explanation below (attach separate documentation as appropriate). The Grant Recipient must demonstrate competitive pricing for new items.

Bid Item #	Item Description	Original Qty.	Proposed Qty.	UOM	Unit Price	Δ Qty.	Change in Contract Price	+
								-
		0	0		\$0.00	0	\$0.00	-
		0	0		\$0.00	0	\$0.00	-
		0	0		\$0.00	0	\$0.00	-
		0	0		\$0.00	0	\$0.00	-
		0	0		\$0.00	0	\$0.00	-
Contract New Item Sub-Total:							\$0.00	

Change in Contract Duration

Provide explanation below (attach separate documentation as necessary).

Original Contract End Date:

Net change of previous Change Orders (days):

Increase/Decrease of this Change Order (days):

Change Order Contract End Date

Grant Recipient: _____ Contract No.: _____ Change Order No.: _____

This form required as of September 1, 2020.
All previous versions no longer valid.

Justification for Change

	Increase	Decrease	No Change
1. Effect of this change on scope of work:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Effect on operation and maintenance costs:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Yes	No	Not Applicable
3. Will this Change Order change the number of beneficiaries or TxCDBG contract Performance Statement Exhibit A?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Has this change created new circumstances or environmental conditions which may affect the project's impact, such as concealed or unexpected conditions discovered during actual construction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the TCEQ clearance still valid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are other TxCDBG contractual special condition clearances still valid?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. If new items are included that were not included in the competitive bid, have the prices been determined to be reasonable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Director Signature (optional)	Date
-------------------------------	------

Certificate of Construction Completion (COCC)

(Submit one for each Prime Construction Contract)

Grant Recipient: _____

TxCDBG Contract No: _____

This is to certify that all construction work has been completed and a final inspection of the project described below was conducted on the ___ day of _____, _____. Contract was entered into on the _____ day of _____, _____ between the City of Bellmead and _____ for the construction of _____.

This is to further certify that:

1. The work has been completed in accordance with the plans and specifications and all amendments, change orders and supplemental agreements thereto.
2. The sum of \$ _____, has been deducted from the final payment to the Contractor in accordance with any contract liquidated damages requirements, separate from any liquidated damages resulting from Davis-Bacon compliance.
3. All programmatic requirements have been met, all claims and disputes have been settled, all warranties have been received, and all liens have been released.
4. The Contractor has presented on behalf of itself and its sureties, satisfactory evidence that he or she will repair, replace and rectify any faulty workmanship and/or materials discovered in the work within a period of 12 months from this date, as provided in the Contract.
5. All bills for materials, apparatus, fixtures, machinery, labor, and equipment used in connection with the construction of this project have been fully paid.

6.	Amount of Original Contract	\$ _____
	Cumulative Change Orders	\$ _____
	Final Amount of Contract	\$ _____
	Less Previous Payments	\$ _____
	Less Deductions (from #2 above)	\$ _____
	FINAL PAYMENT (Balance)	\$ _____

7. The Final Payment above is now due and payable.

Certified by the following Engineer, Contractor, and Chief Elected Official/Designee:

Engineer Signature

Chief Elected Official Signature

Contractor Signature

Title

Title

Title

Firm

City

Contractor

Contractor's Final Payment Affidavit

Locality:			TX CDBG No:	
Contractor:			Date:	

BEFORE ME, THE UNDERSIGNED AUTHORITY, on this day personally appeared _____, who being duly sworn, on oath, says that he is a duly authorized representative of _____; Contractor, and that all terms of the Contract for the completion of certain public works described as _____; City of Bellmead, Texas have been satisfactorily completed and that ALL sums of money for payrolls, bills for material and equipment, and other indebtedness connected with the Work for the Owner or its property might in any way be responsible to the best of my knowledge and belief, have been paid or will be paid or otherwise satisfied within thirty days after receipt of final payment from the Owner, or within the period of time required by Article 601f, Vernon's Civil Statutes. Payments not made in full at the time of this affidavit are listed below.

FINAL PAYMENTS pending as of this date hereof are:		None Pending		As Listed Below
--	--	--------------	--	-----------------

Individual or Co. Name	Mailing Address	Amount Owed

Signature
Title

Affidavit must be signed by an individual owner or partner in partnership, or by a person authorized by by-laws or Board of Directors to sign for a corporation. If Contractor is a joint venture or partnership of individuals, either may sign, but if a joint venture in which a corporation is a party, separate affidavits must be executed by each corporation and by each individual owner or partnership. In the event subcontractors, laborers, or material suppliers have not been paid in full, the Contractor shall list here on the amount owed and the name and address of each subcontractor, laborer, or material supplier to whom such payment is owed.

Sworn and Subscribed before me this, the _____ day of _____, 20__.

(SEAL)

Notary Public in and for _____ County, Texas

TECHNICAL SPECIFICATIONS

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contingency allowances.
- B. Testing and inspection allowances.
- C. Application for Payment.
- D. Change procedures.
- E. Defect assessment.
- F. Unit prices.
- G. Alternates.

1.2 CONTINGENCY ALLOWANCES

- A. Not Used.

1.3 TESTING AND INSPECTION ALLOWANCES

- A. Not Used.

1.4 APPLICATION FOR PAYMENT

- A. Submit three copies of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment or a Contractor's electronic media driven form as approved by the Engineer.
- B. Content and Format: Use items listed in Bid Proposal for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment, when required.
- D. Payment Period: Submit at intervals stipulated in the Agreement.

1.5 CHANGE PROCEDURES

- A. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- B. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on EJCDC C-942 – Field Order.
- C. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Price and Contract Time with full documentation and a statement describing effect on the Work by separate or other Contractors.

- D. Stipulated Price Change Order: Based on Engineer's request and Contractor's fixed price quotation or Contractor's request for Change Order as recommended by Engineer and approved by Owner.
- E. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Directive Change. Changes in Contract Price or Contract Time will be computed as specified in Change Order.
- F. Work Directive Change: Engineer may issue directive, on EJCDC C-940 - Work Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Price or Contract Time. Promptly execute change.
- G. Change Order Forms: EJCDC C-941 - Change Order or as approved by Engineer.
- H. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the General Conditions of the Contract.

1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.
 - 1. When the defective Work is deemed to remain the unit price will be adjusted to new price at discretion of Engineer and Owner.
- C. Authority of Engineer and Owner to assess defects and identify payment adjustments is final.
- D. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.7 UNIT PRICES

- A. Authority: Measurement methods are described in individual Specification Sections.
- B. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
- C. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit price for Work incorporated in or made

necessary by the Work. A final Change Order will be executed to adjust the contract amount accordingly.

1.8 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 21 00 – MOBILIZATION, TRAFFIC HANDLING, AND INCIDENTALS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Project Mobilization and Demobilization.
 2. Traffic Handling.
 3. All project costs (incidentals) not included in the contract bid items.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Basis of Measurement: By the Lump Sum as the work progresses.
- B. Basis of Payment: This item will be paid for at the contract unit price bid for “Mobilization, Traffic Handling, and Project Incidentals,” which price shall be full compensation for mobilization and demobilization of all contractor personnel, facilities, equipment, and supplies, for all equipment, labor, and material associated with traffic handling, and all other project costs not specifically covered in the contract bid items.
- C. Partial payments for this item will be administered as follows. The adjusted contract amount for construction items as used below is defined as the total contract amount less the lump sum bid for mobilization.
1. When 1% of the adjusted contract amount for construction items is earned, 50% of the mobilization lump sum bid will be paid.
 2. When 5% of the adjusted contract amount for construction items is earned, 75% of the mobilization lump sum bid will be paid.
 3. When 10% of the adjusted contract amount for construction items is earned, 90% of the mobilization lump sum bid will be paid.
 4. Upon completion of all work items, payment for the remainder of the mobilization lump sum bid will be made.
- D. The lump sum bid for mobilization shall not exceed 10% of the total contract.

1.3 REFERENCES – Not used.

1.4 QUALITY ASSURANCE – Not used.

PART 2 PRODUCTS – Not used.

PART 3 EXECUTION – Not used.

END OF SECTION

SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Preinstallation meetings.
- F. Closeout meeting.
- G. Alteration procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit as closely as practical; place runs parallel with lines of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. Coordinate interruptions of all utilities and services. All work shall be in accordance with the requirements of the applicable utility company or agency involved.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
- G. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

1.3 PRECONSTRUCTION MEETING

- A. Engineer will schedule and preside over meeting after the Agreement has been executed and all bonds and insurance are in affect for the project.
- B. Attendance Required: Engineer, Owner, Inspector, and Contractor.

1.4 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at monthly intervals.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, and Engineer, as appropriate to agenda topics for each meeting.

1.5 PRE-INSTALLATION MEETINGS

- A. When required in individual Specification Sections, convene preinstallation meetings at Project Site before starting Work of specific Section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- C. Notify Engineer four days in advance of meeting date.

1.6 CLOSEOUT MEETING

- A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.
- B. Attendance Required: Contractor, Engineer, Owner, and others appropriate to agenda.
- C. Notify Engineer ten days in advance of meeting date.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 ALTERATION PROCEDURES

- A. The Project Location (City streets) will be occupied for normal operations during progress of construction. Cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage.
 - 1. Perform Work not to interfere with operations of occupied areas.
 - 2. Keep utility and service outages to a minimum and perform only after written approval of Owner.
 - 3. Clean Owner-occupied areas daily. Clean spillage, overspray, and heavy collection of dust in Owner-occupied areas immediately.
- B. Materials: As specified in product Sections; match existing products with new products for patching and extending Work.
- C. Employ original and/or skilled and experienced installer to perform alteration and renovation Work.

- D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion. Comply with Section 01 70 00 - Execution and Closeout Requirements
- E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Prepare surface and remove surface finishes to permit installation of new Work and finishes.
- H. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.
- I. Remove, cut, and patch Work to minimize damage and to permit restoring products and finishes to original or specified condition.
- J. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes.
- K. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- L. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Engineer for review.
- M. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition to Engineer for review.
- N. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.
- O. Finish surfaces as specified in individual product Sections.

END OF SECTION

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Product data.
- D. Use of electronic CAD files of Project Drawings.
- E. Shop Drawings.
- F. Samples.
- G. Design data.
- H. Test reports.
- I. Certificates.
- J. Manufacturer's instructions.
- K. Manufacturer's field reports.
- L. Erection Drawings.
- M. Contractor review.
- N. Engineer review.

1.2 SUBMITTAL PROCEDURES

- A. Submittals shall be directly from the Contractor. Submittals from others (i.e., suppliers or subcontractors) shall not be accepted.
- B. Transmit each submittal on an Engineer accepted form.
- C. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- D. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- E. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- F. Schedule submittals to expedite Project, and deliver to Engineer at business address. Coordinate submission of related items.
- G. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- H. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- I. Allow space on submittals for Contractor and Engineer review stamps.
- J. When revised for resubmission, identify changes made since previous submission.

- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- L. Submittals not requested will not be recognized or processed.
- M. Incomplete Submittals: Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Engineer.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Not Used.

1.4 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronic submittals to Engineer via email as PDF electronic files.
- C. Identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.5 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

- A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
- B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
 1. Use of files is solely at receiver's risk. Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Engineer of discrepancy and use information in hard-copy Drawings and Specifications.
 2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
 3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
 4. Receiver shall not hold Engineer responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.

5. Receiver shall understand that even though Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
6. Receiver shall not hold Engineer responsible for such viruses or their consequences, and shall hold Engineer harmless against costs, losses, or damage caused by presence of computer virus in files or media.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 1. Include signed and sealed calculations to support design.
 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 3. Make revisions and provide additional information when required by authorities having jurisdiction.
 4. Submit electronic shop drawings to Engineer via email as PDF electronic files.
 5. After review, distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.7 SAMPLES

- A. Samples: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Samples for Selection as Specified in Product Sections:
 1. Submit to Engineer for aesthetic, color, and finish selection.
 2. Submit Samples of finishes, textures, and patterns for Engineer selection.
- C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.
- D. Include identification on each Sample, with full Project information.
- E. Submit number of Samples specified in individual Specification Sections; Engineer will retain one Sample.
- F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.
- G. Samples will not be used for testing purposes unless specifically stated in Specification Section.

- H. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 01 70 00 - Execution and Closeout Requirements.

1.8 DESIGN DATA

- A. Submit to Engineer for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

- A. Submit test reports to Engineer for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

- A. Informational Submittal: When specified in Technical Specifications, submit certification by manufacturer, installation/application Subcontractor, or Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: When specified in Technical Specifications, submit manufacturer's installation instructions to Engineer for informational purposes.
- B. Submit printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for information for limited purposes of assessing conformance with information given and design concept expressed in Contract Documents.

1.13 ERECTION DRAWINGS

- A. Submit Drawings to Engineer for information assessing conformance with information given and design concept expressed in Contract Documents.
- B. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.14 CONTRACTOR REVIEW

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Engineer.
- B. Contractor: Responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.
 - 2. Determination and verification of field measurements and field construction criteria.
 - 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 - 4. Determination of accuracy and completeness of dimensions and quantities.
 - 5. Confirmation and coordination of dimensions and field conditions at Site.
 - 6. Construction means, techniques, sequences, and procedures.
 - 7. Safety precautions.
 - 8. Coordination and performance of Work of all trades.
- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Engineer.

1.15 ENGINEER REVIEW

- A. Do not make "mass submittals" to Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 15 or more submittals or items in one week. If "mass submittals" are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review "mass submittals" based on priority determined by Engineer after consultation with Owner.
- B. Informational submittals and other similar data are for Engineer's information, do not require Engineer's responsive action, and will not be reviewed or returned with comment.
- C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Work Change Directive.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Testing and inspection services.
- F. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date for receiving Bids except where specific date is established by code.

- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 TESTING AND INSPECTION SERVICES

- A. Owner will employ and pay for specified services of an independent firm to perform testing and inspection.
- B. Independent testing firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by Engineer. In the event of a conflict in the Contract Documents concerning sampling and testing frequency, the more stringent standard shall be enforced, unless otherwise approved by the Engineer.
 - 1. Laboratory: Authorized to operate in State of Texas.
 - 2. Laboratory Staff: Maintain full-time Professional Engineer on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by Engineer or Owner.
- D. Reports shall be submitted by independent firm to Engineer, Contractor, and authorities having jurisdiction, in duplicate, indicating observations and results of tests and compliance or non-compliance with Contract Documents.
 - 1. Submit final report indicating correction of Work previously reported as non-compliant.
- E. Cooperate with independent testing firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent testing firm 48 hours before expected time for operations requiring services.
 2. Make arrangements with independent testing firm and pay for additional Samples and tests required for Contractor's use.
- F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.
- G. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent testing firm on instructions from Engineer. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Price.
- H. Independent Testing Firm Responsibilities:
1. Test Samples of mixes submitted by Contractor.
 2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.
 3. Perform indicated sampling and testing of products according to specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Engineer and Contractor of observed irregularities or nonconformance of Work or products.
 6. Perform additional tests required by Engineer.
 7. Attend preconstruction meetings and progress meetings.
- I. Material Testing Reports: After each test, Independent Testing Firm shall promptly submit two copies of testing reports to Engineer, Contractor, and other entities as directed, indicating observations and results of tests and compliance or noncompliance with Contract Documents. At a minimum, include the following information in testing reports:
1. Date issued.
 2. Project title and number.
 3. Name of inspector/testing technician.
 4. Date and time of sampling or inspection.
 5. Identification of product and Specification Section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Compliance or noncompliance with Contract Documents.
 11. Special observations, if any.
- Submit final report indicating correction of Work previously reported as noncompliant. Log all test results in an electronic spreadsheet for each test procedure and provide updated versions to Engineer at agreed upon time interval.
- J. Limits on Independent Testing Firm Authority:
1. Independent Testing Firm may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Independent Testing Firm may not approve or accept any portion of the Work.
 3. Independent Testing Firm may not assume duties of Contractor.
 4. Independent Testing Firm has no authority to stop the Work.

1.7 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, and balancing of equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer is subject to approval of Engineer.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Equipment electrical characteristics and components.
- F. Product substitutions and procedures.

1.2 PRODUCTS

- A. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- B. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- C. Domestic Products: Except where specified otherwise, domestic products are required and interpreted to mean products mined, manufactured, fabricated, or produced in United States or its territories.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products according to manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.

- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named.

PART 2 PRODUCTS – Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Project record documents.
- D. Examination.
- E. Execution.
- F. Cutting and patching.
- G. Protecting installed construction.
- H. Final cleaning.

1.2 FIELD ENGINEERING

- A. Owner will locate and Contractor shall protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- B. Control datum for survey is established by Owner-provided survey indicated on Drawings.
- C. Contractor shall verify setbacks and easements; confirm Drawing dimensions and elevations.
- D. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.
- E. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- F. Contractor shall retain Engineer to replace dislocated survey control points based on original survey control.

1.3 CLOSEOUT PROCEDURES

- A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:
 - 1. Submit maintenance manuals, Project record documents, digital images of construction photographs, and other similar final record data in compliance with this Section.
 - 2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
 - 3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
 - 4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.

5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
6. Make final change-over of locks and transmit keys directly to Owner. Advise Owner's personnel of change-over in security provisions.
7. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
8. Perform final cleaning according to this Section.

B. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.

1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.
 - c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
2. Submittals: Submit following:
 - a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 - e. Contractor's affidavit of payment of debts and claims on Contractor's Affidavit of Payment of Debts and Claims.
 - f. Contractor affidavit of release of liens on Contractor's Affidavit of Release of Liens.
 - g. Consent of surety to final payment on Consent of Surety to Final Payment Form.
3. Perform final cleaning for Contractor-soiled areas according to this Section.

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed Shop Drawings, product data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates used.
 3. Changes made by Addenda and modifications.

- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
 - 1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 - 2. Include locations of concealed elements of the Work.
 - 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 - 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 - 5. Identify and locate existing buried or concealed items encountered during Project.
 - 6. Measured depths of foundations in relation to vertical datum.
 - 7. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 8. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 9. Field changes of dimension and detail.
 - 10. Details not on original Drawings.
- G. Submit marked-up paper copy documents to Engineer with claim for final Application for Payment.
- H. Submit PDF electronic files of marked-up documents to Engineer with claim for final Application for Payment.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Engineer for final decision.
- E. Allow for expansion of materials and building and structural movement.
- F. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated.
 - 1. Refer questionable mounting heights choices to Engineer for final decision.
 - 2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.
- G. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.3 CUTTING AND PATCHING

- A. Employ skilled and experienced installers to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and nonconforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore Work with new products according to requirements of Contract Documents.

- G. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
- J. Identify hazardous substances or conditions exposed during the Work to Engineer for decision or remedy.

3.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

3.5 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces; and vacuum carpeted and soft surfaces.
- C. Clean debris from roofs, gutters, downspouts, and drainage systems.
- D. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove waste and surplus materials, rubbish, and construction facilities from Site.
- F. Clean equipment and fixtures to sanitary condition with appropriate cleaning materials.
- G. Install new filters of operating equipment.

END OF SECTION

SECTION 03 60 00 - GROUTING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Portland cement grout.
 - 2. Rapid curing epoxy grout.
 - 3. Non-shrink cementations grout.

1.2 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 318 - Building Code Requirements for Structural Concrete.
- B. American Society of Testing and Materials:
 - 1. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 2. ASTM C40 - Test Method for Organic Impurities in Fine Aggregates for Concrete.
 - 3. ASTM C150 - Standard Specification for Portland Cement.
 - 4. ASTM C191 - Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
 - 5. ASTM C307 - Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing.
 - 6. ASTM C531 - Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
 - 7. ASTM C579 - Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts, monolithic Surfacing and Polymer Concretes.
 - 8. ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
- C. U. S. Army Corps of Engineers Concrete Research Division (CRD):
 - 1. CRD C621 - Non-Shrink Grout.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit product data on grout and results of tests performed by a certified independent testing laboratory showing conformance to ASTM C 1107.
- C. Manufacturer's Installation Instructions: Submit manufacturer's instructions for mixing, handling, surface preparation and placing epoxy type and non-shrink type grouts.
- D. Manufacturer's Certificate: Certify grout meets or exceeds requirements of ASTM C1107, Grade C.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Deliver grout in manufacturer's unopened containers with proper labels intact.
- C. Store grout in a dry shelter, protect from moisture.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements: Environmental conditions affecting products on site.
- B. Do not perform grouting if temperatures exceed 90 degrees F.
- C. Maintain minimum temperature of 45 degrees F before, during, and after grouting, until grout has set.

PART 2 PRODUCTS

2.1 PORTLAND CEMENT GROUT MATERIALS

- A. Portland Cement: ASTM C150, Type I and II.
- B. Water:
 - 1. Potable; containing no impurities, suspended particles, algae or dissolved natural salts in quantities capable of causing:
 - a. Corrosion of steel.
 - b. Volume change increasing shrinkage cracking.
 - c. Efflorescence.
 - d. Excess air entraining.
- C. Fine Aggregate:
 - 1. Washed natural sand.
 - 2. Gradation in accordance with ASTM C33 and represented by smooth granulometric curve within required limits.
 - 3. Free from injurious amounts of organic impurities as determined by ASTM C40.
- D. Mix:
 - 1. Portland cement, sand and water. Do not use ferrous aggregate or staining ingredients in grout mixes.

2.2 RAPID CURING EPOXY GROUT

- A. Manufacturers:
 - 1. Sika, Sikadur 42, Grout-Pak PT.
 - 2. L & M Construction Chemicals Inc., Crystex.
 - 3. Five Star Rapid Epoxy Grout

4. Substitutions: Section 01 60 00 - Product Requirements.

- B. Rapid Curing Epoxy Grout: High strength, three component epoxy grout formulated with thermosetting resins and inert fillers. Rapid-curing, high adhesion, and resistant to ordinary chemicals, acids and alkalies.

Property	Test	Result
Compressive Strength	ASTM C579	12,000 psi at 7 days
Tensile Strength	ASTM C307	2,000 psi minimum
Coefficient of Expansion	ASTM C531	30x10 ⁻⁶ in per degree F
Shrinkage	ASTM C827	None

2.3 NON-SHRINK CEMENTATIOUS GROUT

- A. Manufacturers:
 1. The Euclid Chemical Company, "Euco N-S Grout."
 2. Master Builders, "Masterflow 713."
 3. U.S. Grout Corporation, "Five Star Grout."
 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Non-shrink Cementations Grout: Pre-mixed ready for use formulation requiring only addition of water; non-shrink, non-corrosive, non-metallic, non-gas forming, no chlorides.
- C. Properties: Certified to maintain initial placement volume or expand after set and meet the following minimum properties when tested in accordance with CRD-C621, for Type D non-shrink grout:

Property	Test	Time	Result
Setting Time	ASTM C191	Initial	2 hours (Approx)
		Final	3 hours (Approx)
Expansion			0.10% - 0.4% Maximum
Compressive Strength	CRD-C621	1 day	4,000 psi
		7 days	7,000 psi
		28 days	10,000 psi to 10,800 psi

2.4 CURING

- A. Prevent rapid loss of water from grout during first 48 hours by use of approved membrane curing compound or with use of wet burlap method.

PART 3 EXECUTION

3.1 GENERAL

- A. Use rapid curing epoxy grouts for setting of base plates, installation of anchors and dowels, and in aggressive chemical environments.
- B. Use non-shrink grout for concrete repair, filling of construction joints where indicated on the Drawings, and other locations as indicated on the Drawings.

3.2 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify areas with Engineer to receive grout.

3.3 PREPARATION

- A. Remove defective concrete, laitance, dirt, oil, grease and other foreign material from concrete surfaces by brushing, hammering, chipping or other similar means until sound, clean concrete surface is achieved.
- B. Rough concrete lightly, but not enough to interfere with placement of grout.
- C. Remove foreign materials from metal surfaces in contact with grout.
- D. Align, level and maintain final positioning of components to be grouted.
- E. Saturate concrete surfaces with clean water; remove excess water, leave none standing.

3.4 INSTALLATION - FORMWORK

- A. Construct leakproof forms anchored and shored to withstand grout pressures.
- B. Install formwork with clearances to permit proper placement of grout.

3.5 MIXING

- A. Mix and prepare rapid curing epoxy grout in accordance with manufacturer's instructions.
 - 1. Capable of developing minimum compressive strength of 2400 psi in 48 hours and 6800 psi in 28 days.
- B. Mix and prepare non-shrink cementations grout in accordance with manufacturer's instructions.
 - 1. Capable of developing minimum compressive strength of 2400 psi in 48 hours and 6800 psi in 28 days.
- C. Mix grout components in proximity to work area and transport mixture quickly and in manner not permitting segregation of materials.

3.6 PLACING GROUT

- A. Place grout material quickly and continuously.
- B. Do not use pneumatic-pressure or dry-packing methods.
- C. Apply grout from one side only to avoid entrapping air.
- D. Do not vibrate placed grout mixture, or permit placement when area is being vibrated by nearby equipment.
- E. Thoroughly compact final installation and eliminate air pockets.
- F. Do not remove leveling shims for at least 48 hours after grout has been placed.

3.7 CURING

- A. Immediately after placement, protect grout from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. After grout has attained its initial set, keep damp for minimum of 3 days.

3.8 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Field inspection and testing will be performed in accordance with ACI 318 and under provisions of Section 01 40 00 - Quality Requirements.
- C. Submit proposed mix design of each class of grout to inspection and testing firm for review prior to commencement of Work.
- D. Tests of grout components may be performed to ensure conformance with specified requirements.

END OF SECTION

SECTION 31 05 13 - TOPSOIL

PART 1 GENERAL

1.1 SUMMARY

- A. Description: This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the Drawings or as directed by the Engineer.
- B. Section Includes:
 - 1. Topsoil materials.

1.2 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Basis of Measurement: The measurement of Topsoil, when included in the Contract as a separate pay item, will be measured by one of the following: Method A - the cubic yard in its final position based upon the average end areas taken from pre-construction cross sections, plan grades, or surface comparisons; or, Method B – by the square yard at the depth specified. The plan quantities for Topsoil will be used as the measurement and payment for this item.
- B. Basis of Payment: All work performed as required herein and measured as provided under “Measurement” will be paid for at the unit price bid. The prices shall be full compensation for furnishing all labor; for all materials; for all royalty and freight involved; for all hauling and delivering on the road; and for all tools, equipment and incidentals necessary to complete the work. Payment for unauthorized work will not be made.

Payment will be made under one of the following:

- 1. Topsoil (Method A) – Per Cubic Yard, Plan Quantity.
- 2. ___-Inch Topsoil (Method B) – Per Square Yard, Plan Quantity.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures
- B. Samples: Submit, in air-tight containers, 10 lb sample of each type of fill to testing laboratory.
- C. Materials Source: Submit name of imported materials source.

1.4 QUALITY ASSURANCE

- A. Furnish topsoil material from single source throughout the Work, unless directed otherwise by Engineer.

PART 2 PRODUCTS

2.1 TOPSOIL MATERIALS

- A. Topsoil:
 - 1. This material shall consist of approved topsoil material and shall be clean, friable, loamy soil capable of supporting plant life
 - 2. This material can be excavated and reused material from on-site sources, or imported from an approved off-site source.
 - 3. Reasonably free of roots, rocks larger than 2 inches, subsoil, debris, weeds, and foreign matter.
 - 4. Acidity range (pH) of 5.5 to 7.5.
 - 5. Containing minimum of 4 percent and maximum of 25 percent organic matter.
 - 6. Conforming to ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System). Group Symbol OH or PT.
 - 7. Limit decaying matter to 10 percent of total content by volume.

2.2 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements
- B. When tests and/or observations indicate materials do not meet specified requirements, change material and retest.
- C. Furnish materials of each type from same source throughout the Work, unless otherwise approved by Engineer. Off-site borrow sources shall be approved by the Engineer.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Perform as specified in Section 31 23 16 - Excavation

3.2 STOCKPILING

- A. Stockpile materials at locations designated or approved by Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Stockpile topsoil to only a height which yields safe slope stability.
- E. Prevent intermixing of soil types or contamination.
- F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.
- B. When borrow area is indicated, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

3.4 PLACING TOPSOIL

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, and stones in excess of 2 inches in size.
- C. Scarify surface to depth of 4 inches, or as indicated on the Drawings, where topsoil is scheduled.
- D. Place topsoil in areas where seeding and/or sodding is required to nominal depth of four inches (plus or minus ½ inch), or as indicated on the Drawings. For areas that will receive sod, leave topsoil low. Place topsoil during dry weather.
- E. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
- F. Remove roots, weeds, rocks, and foreign material while spreading.
- G. Manually spread topsoil close to plant material, structures, water and wastewater appurtenances, concrete paving, and curbs to prevent damage.
- H. Lightly roll placed topsoil.
- I. Remove surplus topsoil from site.
- J. Leave stockpile area and site clean and raked, ready to receive seeding or sodding.
- K. Prohibit construction traffic over topsoil.

END OF SECTION

SECTION 31 10 00 - CLEARING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing and disposing of surface debris, rubbish, and other objectionable materials.
2. Removing and disposing of designated building slabs, paving, curbs, driveways, miscellaneous stone, brick, concrete, sidewalks, drainage structures, headwalls, safety end treatments, manholes, inlets, and abandoned railroad tracks.
3. Removing and disposing of designated fencing and signage.
4. Removing and disposing of designated trees, shrubs, and other plant life.
5. Removing and disposing of designated abandoned water and wastewater utilities and septic tanks.
6. Herbicide treatment
7. Excavating topsoil.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Clearing:

1. Basis of Measurement: "Clearing," when included in the contract as a pay item, will be measured by the acre or by the linear foot (for the width of ROW and/or width of easement).
2. Basis of Payment: This item will be considered subsidiary to Section 31 23 16 - Excavation, unless included as a separate pay item in the contract. When included for payment, it shall be paid for at the unit price bid for "Clearing," which price shall be full compensation for all work herein specified, including the furnishing of all materials, equipment, tools, labor, hauling, legal disposal and incidentals necessary to complete the work. Herbicide shall be paid for herbicide application and furnishing equipment, material, labor, tools, re-treatment as necessary, and incidentals. Payment, when included as a contract pay item, will be made under the following:
 - a. Clearing (Method A) – Per Acre, Measured.
 - b. Clearing (Method B) – Per Linear Foot (width of ROW/width of easement), Plan Quantity.
 - c. Herbicide Treatment (Broadcast) – Per Lump Sum, Plan Quantity.
 - d. Herbicide Treatment (Basel Bark) – Per Lump Sum, Plan Quantity.
 - e. Herbicide Treatment (Cut-Stump) – Per Lump Sum, Plan Quantity.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures

- B. Product Data: Submit data for herbicide. Indicate compliance with applicable codes for environmental protection.

1.4 QUALITY ASSURANCE

- A. Conform to applicable code for environmental requirements, disposal of debris, burning debris on site, and use of herbicides.
- B. Herbicide:
 - 1. License Requirements: Possess either a commercial pesticide applicator license from the Texas Department of Agriculture, or a Texas Structural Pest Control Service License. Provide documentation of license before beginning work. Conduct on-site supervision of all mixing, transporting, handling, spraying, and disposal of materials with licensed personnel.
 - 2. Records: Document work in accordance with all Federal, State, and Local regulations. Submit a copy of the herbicide records on the next business day following application. Submit a final copy of all the herbicide application records upon completion of the work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Herbicide: Furnish herbicide materials in accordance with Section 15 of the 2017 TxDOT Herbicide Operations Manual.
- B. Pathfinder II, Transline, & Capstone are acceptable products that can be used in conjunction with each other.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify existing plant life designated to remain is tagged or identified.
- C. Identify spoils site for placing removed materials.

3.2 PREPARATION

- A. Call Texas 811 service at 800-344-8377 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Prior to commencing this work, erosion control measures shall be in place.

3.3 PROTECTION

- A. Locate, identify, and protect structures and utilities indicated to remain, from damage.

- B. Areas within the construction limits or as indicated shall be cleared of all trees, stumps, brush, etc. as defined above; except trees or shrubs indicated for preservation which shall be carefully trimmed as directed, and shall be protected from scarring, barking or other injuries during construction operations. Exposed ends of pruned limbs or scarred bark shall be pruned, trimmed and treated with an approved asphaltic material within 24 hours of the pruning or injury.
- C. Locate, protect, and maintain benchmarks, monuments, control points, and project engineering reference points. Re-establishment of disturbed or destroyed items shall be by a Registered Professional Land Surveyor (licensed in the state of Texas), at no additional cost to Owner.
- D. Construction equipment shall not be operated within the drip line of trees, unless indicated. Construction materials shall not be stockpiled under the canopies of trees. No excavation or embankment shall be placed within the drip line of trees until tree wells are constructed.

3.4 CLEARING

- A. Strip and remove from construction area all topsoil, organics, and vegetation to a minimum depth of 6 inches below the existing natural ground surface.
- B. Remove trees and shrubs within the construction limits unless noted otherwise in the Drawings. Remove stumps, main root ball, and root system. Holes remaining after the removal of all obstructions, objectionable materials, trees, stumps, etc. shall be backfilled with Select Fill and compacted.
- C. Clear undergrowth and deadwood, without disturbing subsoil.
- D. Apply herbicide to remaining stumps to inhibit growth.

3.5 REMOVAL

- A. Remove surface debris, rock, and extracted trees, shrubs and other plant life from site, or as indicated on Drawings.
- B. Remove designated building slabs, paving, curbs, driveways, miscellaneous stone, brick, concrete, sidewalks, drainage structures, headwalls, safety end treatments, manholes, inlets, and abandoned railroad tracks as indicated on Drawings. Neatly saw cut edges at right angle to surface.
- C. Remove designated fencing and signage.
- D. Remove abandoned water and wastewater utilities and septic tanks. Indicated removal termination point for underground utilities on Record Documents.
- E. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- F. Do not burn or bury materials on site. Leave site in clean condition.

3.6 HERBICIDE TREATMENT

- A. Season: Spray herbicide during active growing periods unless otherwise approved.
- B. Equipment: Furnish all equipment.
 - 1. Broadcast application: furnish self-propelled equipment tractor mounted or pulled spray rigs with a low center of gravity that allows safe traverse on a maximum 3:1 slope. Provide equipment capable of making uniform broadcast application calibrated at a rate between 20 and 40 gallons per acre (GPA).
 - 2. Basal Bark and Cut Tree applications: Furnish sprayers with low volume spray tips (spray system 5500 adjustable spray tip X-1 or X-2, or approved equivalent).
 - 3. Personal Protection Equipment: Follow the manufacturer's label requirements for personal protection of employees.
- C. Work Methods: Apply approved herbicide in accordance with the manufacturer's label recommendations, as shown on the drawings or as approved. Add surfactant and blue dye marker at the manufacturer's recommended rate unless otherwise approved. Prepare herbicide solution to the rates shown on the drawing using procedures on the herbicide container label. Dispose of empty containers and unused chemical mixtures in accordance with the label directions and local, state, and federal regulations. Cease spraying operation immediately when wind or other environmental conditions cause off-target spray drift, leaves are wet, or rainfall is imminent. An inspection of the treated areas will be made not less than 14 days and no later than 30 days after the application. Re-treat areas in which the undesirable vegetation has not be controlled for no additional compensation. Repair and replace any damaged desirable vegetation or erosion as a result of negligent applications.
 - 1. Broadcast application: spray undesirable vegetation by broadcasting with spray nozzels at the desired rate. Ensure nozzels spray consistent across the area being covered.
 - 2. Basal Bark treatment: apply herbicide solution with a low-volume, low pressure sprayer which thoroughly wets the lower 12-15 in. of stems on all sides, including the root collar area, but not to the point of run-off. Perform application at any time throughout the year, except when the stumps are wet from rainfall or dew prevents spraying to the base of the plant.
 - 3. Cut-stump treatment: cut plants parallel to the ground, not to exceed 2 in. above the ground line. Apply the herbicide solution with a low-volume, low-pressure sprayer which thoroughly wets the area adjacent to the cambium and bard around the entire circumference of the stump. Thoroughly wet the sides of the stump, but not to the point of run-off. Make the herbicide application within 1 hr. from the time each plant is cut. Dispose of removed materials and debris at appropriate off-site locations in accordance with local, state, and federal requirements.
- D. Engineer reserves the right to pay a partial payment of 50% of the lump sum price bid after the initial application is performed. The final 50% of the lump sum price bid will be paid after the inspection and required re-treatments have been completed and accepted.

3.7 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, regraded, or within the construction limits of a structure without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.

- C. Stockpile in area designated on site to a height which yields safe slope stability and protect from erosion.
- D. Remove excess topsoil not intended for reuse, from project.

END OF SECTION

SECTION 31 23 15 - TRENCH SAFETY SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Furnishing all equipment, materials and labor for a trench safety system meeting appropriate requirements established in Occupational Safety and Health Administration (OSHA) Safety and Health Regulations, 29 CFR Part 1926, OSHA Standards – Excavations; Final Rule, October 31, 1989. In the event of conflict of published and proposed rules, the more stringent requirement shall be used.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Trench Safety Plan:
 - 1. Basis of Measurement: Trench Safety Plan shall be measured by the lump sum for the project.
 - 2. Basis of Payment: Payment for Trench Safety Plan shall be made at the lump sum bid for “Trench Safety Plan.” Payment for all work prescribed under this item shall be full compensation for the Trench Safety Plan including acquisition of soils information and design of trench safety system, by a Professional Engineer registered in the State of Texas.
 - a. Trench Safety Plan – Per Lump Sum, Plan Quantity.
- B. Trench Safety Implementation:
 - 1. Basis of Measurement: Trench Safety Implementation shall be measured by the linear foot for the project.
 - 2. Basis of Payment: Payment for Trench Safety Implementation shall be made at the unit price bid for “Trench Safety Implementation.” Payment for all work prescribed under this item shall be full compensation for the Trench Safety System including any additional excavation and backfill required, for furnishing, placing, maintaining and removing all shoring, sheeting, or bracing; for dewatering or diversion of water; for all jacking and jack removal; and for all other labor, materials, tools, equipment, and incidentals necessary to complete the work.
 - a. Trench Safety Implementation – Per Linear Foot, Plan Quantity.

1.3 REFERENCES

- A. Federal Occupational Safety and Health Administration (OSHA) Standards – 29 CFR, Part 1926, Subpart P, as amended, including Proposed Rules published in the Federal Register (Vol. 52, No. 72) on April 15, 1987; Sections 1926-650 through 1926-653.
- B. Texas Legislature House Bill No. 662 and House Bill No. 665 with regard to Trench Safety Systems.

1.4 DEFINITIONS

- A. Trench: A trench shall be defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures
- B. Trench Safety Plan: Prior to construction the Contractor shall submit five copies of a trench safety system to the Engineer specifically for the construction of trench excavation. The trench safety system shall be in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation. The trench safety system must be designed and sealed by a professional engineer registered in the State of Texas with professional experience in Soil Mechanics. The Contractor is responsible for obtaining borings and soil analysis as required for plan design. After receiving the trench safety system plans, the Engineer will forward a copy of the plan to the project inspector, to the Contractor and keep one file copy. The submittal is only for general conformance review with OSHA safety standards and the review does not relieve the Contractor or design professional of any or all construction means, methods, techniques and procedures. Any property damage, bodily injury or death that arises from use of the trench safety system or from the Owner's failure to note exceptions to the system shall remain the sole responsibility of the Contractor. No trenching in excess of 5 feet below existing grade will be allowed until the plan is submitted. Any changes in the trench safety system after the initiation of construction will not be cause for extension of time or change order and will require the same review process. On some projects, the Owner may elect to provide preliminary soil information to the Contractors for bid purposes only and not as a substitute for required soil data for design use. The Owner assumes no liability nor makes any guarantees by the inclusion of any soil data.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with OSHA Regulations, 29 CFR Part 1926, OSHA Standards.
- B. Maintain one copy of OSHA Standards on site.

1.7 QUALIFICATIONS

- A. Prepare Trench Safety Plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Texas.

PART 2 PRODUCTS

2.1 TIMBER

- A. Trench sheeting materials shall be a minimum of 2 inches in thickness, solid and sound, free from weakening defects such as loose knots and splits. Shoring timber sizes shall not be less than that called for on the Trench Safety Plan.

2.2 STEEL SHEET PILING

- A. Steel sheet piling and steel for stringers and cross braces shall conform to ASTM A36 – Standard Specification for Carbon Structural Steel.

2.3 TRENCH BOXES

- A. Portable trench boxes shall be constructed of steel conforming to ASTM A36 - Standard Specification for Carbon Structural Steel. Connecting bolts shall conform to ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength. Welds shall conform to requirements of AWS Specification D1.1 – Structural Welding-Steel.

PART 3 EXECUTION

3.1 GENERAL

- A. Trench safety systems shall be constructed, installed and maintained in accordance with the design prepared by the Contractor’s registered Professional Engineer licensed to practice in the State of Texas to prevent death or injury to personnel or damage to structures in or near these trench excavations. Materials excavated from trench to be stored no closer to the edge of trench than 1/2 the depth of the trench.

3.2 INSTALLATION

- A. Timber Sheeting: Installed in accordance with detail shown on drawings. Drive timber sheeting to a depth below trench bottom as shown on Drawings. Size of uprights, stringers and cross bracing to be in accordance with details shown on Drawings. Place cross braces in true horizontal position, spaced vertically, and secured to prevent sliding, falling or kickouts.
- B. Steel Sheet Piling: Steel sheet piling of equal or greater strength may be substituted for timber trench shoring shown on the drawings. Contractor to provide certification that steel sheet piling substituted provides equal or greater protection than timber trench shoring shown on drawings. Certification of steel sheet piling to be provided by registered Professional Engineer. Drive steel sheet piling to a minimum depth below trench bottom as recommended by Contractor’s registered Professional Engineer licensed to practice in Texas providing design. Place cross braces in true horizontal position, spaced vertically and secured to prevent sliding, falling or kickouts.
- C. Trench Boxes: Portable trench box to be substituted for timber trench shoring shown on Drawings shall be designed or the design checked by Contractor’s registered Professional Engineer licensed to practice in Texas. Design trench box to provide equal or greater protection than timber trench shoring shown on Drawings. Certification of the design of trench boxes shall be provided by Contractor prior to its use on project. In cases where top of portable trench box will be below to top of trench, the trench must be sloped to an angle greater than the angle of repose for the soil conditions existing on the project. In areas where sloped trench will affect the integrity of existing structures, Contractor to protect structures prior to sloping trench.
- D. Trench Jacks: When trench jacks are used for cross bracing and/or stringers, the Contractor shall provide certification by a registered Professional Engineer licensed to practice in Texas that the trench jacks provide protection greater than or equal to the timber cross bracing shown on Drawings.

3.3 SUPERVISION

- A. Contractor shall provide competent supervisory personnel at each trench while work is in progress to ensure Contractor's methods, procedures, equipment and materials pertaining to the safety systems in this item are sufficient to meet requirements of OSHA Standards.

3.4 MAINTENANCE OF SAFETY SYSTEM

- A. The safety system shall be maintained in the condition as shown on Drawings or as specified by the Contractor's registered Professional Engineer licensed to practice in Texas. The Contractor shall take all necessary precaution to ensure the safety systems are not damaged during their use. If ay any time during its use a safety system is damaged, personnel shall be immediately removed from the trench or excavation area and the safety system repaired. The Contractor shall take all necessary precautions to ensure no loads, except those included in the safety system design, are imposed upon the excavation.

3.5 REMOVAL

- A. Bed and backfill pipe to a point at least one foot above top of pipe prior to removal of any portion of trench safety systems. Bedding and backfill shall be in accordance to other applicable specification items. Backfilling removal of trench supports shall progress together from bottom of trench upward. Remove no braces or trench supports until all personnel have evacuated the trench. Backfill trench to within 4 feet of natural ground prior to removal of entire trench safety systems.

3.6 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Inspection: Contractor shall make daily inspection of trench safety systems to ensure that the systems meet OSHA requirements. Daily inspection shall be made by competent personnel. If evidence of possible cave-ins or slides is apparent, all work in the trench shall cease until necessary precautions have been taken to safeguard personnel entering trench. Contractor shall maintain permanent record of daily inspections.

END OF SECTION

SECTION 31 23 16 - EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. Description: This item shall consist of excavating and properly utilizing or otherwise satisfactorily disposing of all excavated material, of whatever character, within the limits of the work indicated and the constructing, compacting, shaping and finishing of all earthwork on the entire project in accordance with the specification requirements herein outlined and in conformity with the required lines, grades and typical cross sections indicated or as directed by the Engineer. **All excavation shall be unclassified and shall include all materials encountered regardless of their nature or the manner in which they are removed.**
- B. Section Includes:
1. Soil compaction.
 2. Excavating for structures and foundations.
 3. Excavating for paving, roads, and parking areas.
 4. Excavating for slabs-on-grade.
 5. Excavating for site structures.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Excavation:
1. Basis of Measurement: All accepted excavation will be measured by Method A, B, or C as follows:
 - a. Method A: Measurement of the volume of excavation in cubic yards. The plan quantities for excavation will be used as the measurement for payment of this item.
 - b. Method B: Measurement of the area in square yards of surface area excavated as indicated. The plan quantities will be used as the measurement for payment of this item.
 - c. Method C: Measurement of the volume of excavation in cubic yards by the average end areas. Cross sectional areas shall be computed from the existing ground section to the established line of the subgrade as indicated for the limits of the right of way or other work limits shown, including parkway slopes and sidewalk areas.
 2. Basis of Payment: This item will be paid for at the contract unit price bid for "Excavation," as provided under measurement Method A, B, or C as included in the bid, which price shall be full compensation for all work herein specified, including subgrade preparation, unless specified otherwise and the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the work. Payment will be made under one of the following:
 - a. Excavation (Method A) – Per Cubic Yard, Plan Quantity.
 - b. Excavation (Method B) – Per Square Yard, Plan Quantity.
 - c. Excavation (Method C) – Per Cubic Yard, Measured.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures

- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- C. If an excavation can be defined as a “trench,” then a Trench Safety Plan must be submitted in accordance with Section 31 23 15 – Trench Safety Systems.

PART 2 PRODUCTS – Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Erosion control and tree protection measures shall be in place prior to commencing work.
- B. Construction equipment shall not be operated within the drip line of trees, unless indicated.
- C. Construction materials shall not be stockpiled under the canopies of trees. No excavation or embankment shall be placed within the drip line of trees until tree wells are constructed as indicated on the Drawings.
- D. Call Texas 811 service at 800-344-8377 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- E. Call Local Municipality(ies) not less than 2 weeks before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- F. Notify utility company(ies) to remove and relocate utilities as indicated on the Drawings.
- G. Protect utilities indicated to remain from damage.
- H. Protect plant life, lawns, rock outcroppings and other features remaining as portion of final landscaping.
- I. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 EXCAVATION

- A. All excavation shall be performed as specified herein and shall conform to the established alignment, grades and cross sections.
- B. Suitable excavated “on-site” materials (Subsoil Type S3) may be utilized, insofar as practicable and when the material meets the criteria outlined in Section 31 23 23 - Fill in constructing required embankments and “fill” areas.

- C. Materials with a Plasticity Index (PI) greater than the surrounding materials or with a moisture content greater than 2 percent in excess of optimum shall be classified as unsuitable and must be manipulated to meet the above criteria before use or be removed.
- D. Unsuitable excavated materials or excavation in excess of that needed for construction shall be known as “Waste” and shall become the property of the Contractor. It shall become his sole responsibility to dispose of this material off the limits of the right of way in an environmentally sound manner at a permitted disposal site.
- E. When required by the Engineer, the Contractor will set “blue-tops” for the subgrade.
- F. Excavate subsoil to the final subgrade elevation(s) to accommodate structural foundations, slabs-on-grade, paving, site structures, and civil site facilities.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- H. Trim excavation. Remove loose matter.
- I. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume. Remove larger material as specified in Section 31 23 23 - Fill.
- J. Notify Engineer of unexpected subsurface conditions.
- K. Correct areas over excavated with Structural Fill as specified in Section 31 23 23 – Fill.
- L. Remove excess and unsuitable material from site.
- M. Stockpile subsoil in area designated on site to depth not exceeding 8 feet and protect from erosion.
- N. Repair or replace items indicated to remain damaged by excavation.

3.3 SUBGRADE PREPARATION FOR STRUCTURES AND PAVEMENTS

- A. After final subgrade elevation has been achieved, the exposed subgrade soils (subsoils) shall be scarified to a minimum depth of 6 inches. Compaction of the subsoil shall be to a minimum of 95% and less than 100% of its maximum dry density when determined in accordance with ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort, Method D, Standard Proctor. The subsoil shall be no less than its optimum moisture to no greater than 3 percentage points above its optimum moisture content at the time of testing. The moisture content shall be maintained until subsequent construction activities commence.

3.4 FIELD QUALITY CONTROL

- A. Sections 01 40 00 - Quality Requirements.
- B. Request inspection of excavation, subgrade preparation, and density-controlled fill operations in accordance with Section 31 23 23 - Fill.

- C. Request visual inspection of bearing surfaces by Engineer before installing subsequent work. The Engineer shall be notified not less than three working days prior to the visual inspection.

3.5 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

SECTION 31 23 17 - TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. Description: This work shall include the furnishing of all labor, materials, tools, equipment and machinery necessary for clearing and removing from the site of the work wherever located, all obstructions, trees, stumps, brush, vegetation, woods and debris; and all earth, rock and other materials to be excavated; the removal of existing structures except where specifically paid for as separate contract pay items; the replacement of topsoil after backfilling is completed; the installation and operation of all pumping, bailing and draining necessary to keep the excavation free from seepage water, water from sewer, drains, ditches, creeks and other sources, and to provide for the uninterrupted flow of sewers and surface waters during progress of the construction; the satisfactory disposal of excess and unsuitable materials not required or which cannot be used for backfilling; compacting and refilling, after settlement of all excavated areas; the restoration of all streets, alleys, rights-of-way and other lands, private or public, damaged or occupied by the Contractor in the performance of the contract to the same (or improved) condition as they were prior to the beginning of the work.

B. Section Includes:

1. Excavating trenches for utilities.
2. Compacted fill from top of embedment to subgrade elevations.
3. Backfilling and compaction.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Trenching: Measurement and payment shall be considered subsidiary to the pipe construction for which it pertains.

1.3 DEFINITIONS

A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures

B. Trench Safety Plan: A Trench Safety Plan, which describes sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property shall be submitted in accordance with Section 31 23 15 – Trench Safety Systems.

C. Product Data: Submit data for geotextile fabric (when specified) indicating fabric properties and manufacturing data; and construction methods.

D. Materials Source: Submit name of imported fill materials suppliers

1.5 QUALIFICATIONS

- A. Prepare Trench Safety Plan as per Section 31 23 15 – Trench Safety Systems.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to construction.

1.7 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Embedment Material: The type of embedment to be used for storm sewers, sanitary sewers or water mains shall be one of the following:
 - 1. Coarse Aggregate Type A1 (Flexible Base) per Section 32 11 23 – Flexible Base.
 - 2. Coarse Aggregate Type A4 (Gravel for Trench Backfill) per Section 32 05 16 - Aggregates for Civil Site Improvements.
- B. Concrete Encasement: Concrete encasement shall consist of lean concrete with a compressive strength of 2000 psi.
- C. Trench Backfill:
 - 1. Backfill above embedment material (outside traffic areas): Excavated backfill material outside of traffic areas shall consist of an excavated material of gravel, fine rock cuttings, sandy loam, or clay having dimensions no greater than 2 inches, and compacted per applicable sections of this specification.
 - 2. Backfill above embedment material (beneath pavements):
 - a. Coarse Aggregate Type A1 (Flexible Base) per Section 32 11 23 – Flexible Base and compacted as specified herein.
 - b. Coarse Aggregate Type A4 (Gravel for Trench Backfill) per Section 32 05 16 - Aggregates for Civil Site Improvements and compacted as specified herein.

2.2 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, woven or non-woven, from the following manufacturers:
 - 1. U.S. Fabrics, Inc.
 - 2. Alkzo Nobel Geosynthetic Co.
 - 3. Huesker, Inc.
 - 4. TC Mirafi.
 - 5. Tenax Corp.
 - 6. Tensar Earth Technologies, Inc.

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Construct the trenches to lines and grades indicated on Drawings.
 - 1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with a qualified operator to establish lines and grades.
- C. Submit electronic layout plans from the pipe manufacturer for review and approval at least 30 days in advance of any actual construction of the project. The Engineer will forward all comments of the review to the Contractor for revision. Revisions shall be made and forwarded to the Engineer for his acceptance. Prior to commencement of the Project, reviewed layout plans will be sent to the Contractor marked for construction.
- D. Should the Contractor's procedures not produce a finished pipe placed to grade and alignment, the pipe shall be removed and re-laid, and the Contractor's procedures modified to the satisfaction of the Engineer. No additional compensation shall be paid for the removal and relaying of pipe required above.

3.2 PREPARATION

- A. Call Texas 811 service at 800-344-8377 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

3.3 TRENCHING

- A. Site Preparation: The construction site shall be prepared for construction operations by the removal and disposal of all obstructions and objectionable materials from the designated construction area. Such obstructions and objectionable materials shall include the removal of designated trees, bushes, grass, miscellaneous stone, brick, concrete, scrap iron and all rubbish and debris whether above or below ground level. It is the intent of this specification to provide for the removal and disposal of all objectionable materials not specifically provided for elsewhere by the Drawings and specifications. The removal of such items shall be

accomplished prior to grading and excavation operations. The removal and disposal of such items shall not be measured or paid for as a separate contract pay item. Such items shall be considered as incidental work and the cost thereof shall be included in such contract pay item as provided in the proposal and contract.

B. Maintenance of Streets During Construction:

1. Maintain the surfaces of streets being worked on at all times. The maintenance required shall include the filling of holes, blading or otherwise smoothing of the street surfaces (particularly the trench area), cleaning and removal of surplus excavation material, rubbish, etc., sprinkling of streets with water or abate dust nuisances and the elimination of interference resulting from blocking the street to residents thereon. Any or all such operations shall be performed by the Contractor upon demand by the Owner, but the Contractor shall not wait for instruction from the Owner before performing maintenance work obviously in need of being done to meet the requirements of these specifications. All costs of work covered by this paragraph shall be included in the prices bid for the various items of work; and no separate payment shall be made.
2. In the event the Contractor fails or refuses to properly maintain the surfaces of streets on which he is working or has worked, the Owner, after due notice to the Contractor, shall perform the necessary maintenance. All costs to the Owner incurred in the performance of such work shall be deducted from any monies due or to become due to the Contractor for work performed, or the Contractor shall be billed for such costs directly as the Owner shall elect. Notice to the Contractor to be given by the Owner shall be in writing, and it shall be delivered to the Contractor or his authorized agent. Except in emergency cases, where immediate action is required, the Contractor shall have 24 hours in which to comply with the instructions of the Owner. Should the Contractor fail to do so, the Owner shall proceed with the work as set forth above.
3. Where traffic must cross open trenches, such as street intersections and driveways, the Contractor shall provide suitable backfill bridges, protective barricades and such other safety equipment as required. The use of machinery must be so regulated as to preclude any unnecessary interference with traffic, utilities, etc. The Contractor shall abide by all applicable federal, state or local laws governing excavation work.

C. Soil Borings: Whenever the Owner has caused certain test borings to be made on the site, or when any information pertaining of the character or depth of materials is found from observations, records or otherwise, such information revealed thereby may be provided to the Contractor. The action of the Owner in revealing such information shall not, in any manner, be construed as a warranty on the part of the Owner of the exact nature of the subsurface conditions that shall be encountered during construction of the work. Although the information is shown as accurately as possible, the Owner does not guarantee that any materials to be encountered at any point or points are even approximately the same, either in character or elevations, as those shown on the Drawings. The information thus furnished by the Owner is intended only as a guide to the Contractor in making his own investigations preliminary to submitting a bid for the work.

D. Existing Structures:

1. All existing structures, improvements and utilities shall be adequately protected, at the expense of the Contractor, from damage that might otherwise occur due to construction operations. Where construction comes in close proximity to existing structures or utilities, or if it becomes necessary to move services, poles, guy wires, pipe lines or other obstructions, the Contractor shall notify and cooperate with the utility or structure Owner.

The utility lines and other existing structures shown on the Drawings are for information only and are not guaranteed by the Owner to be complete or accurate as to the location and/or depth. The Contractor shall be liable for damage to any utilities resulting from his operation. During construction, all fire hydrants, valve boxes and other existing utility controls shall be left intact, unobstructed and accessible as noted on the plan.

- a. **Relocation or Replacing Utilities:** Unless noted on the Drawings that utilities are to be moved by others, any cost of temporarily or permanently relocating utilities shall be borne by the Contractor. The cost of these replacements shall be included in the Contractor's bid price for the various items of work; and no separate payment shall be made. In case damage to an existing structure or utility occurs, whether such damage results directly or indirectly from the Contractor's operations, the Contractor shall be responsible to restore the structure or utility to its original condition and position without extra compensation. Temporary shut down of water and/or sewer services shall not extend overnight, holidays or weekends. The Owner shall approve all shut downs and may assist in the shut down operations.
- b. **Sewer Services:** All sewer services damaged during construction shall be replaced by the Contractor at his expense. Sewer service reconnections, including necessary adjustments to a sanitary sewer replacement, shall not require the services of a master plumber, if being replaced by a utility Contractor; however, in all cases, repair shall be inspected by the Owner. It shall be the responsibility of the Contractor to maintain such services throughout the construction process.
- c. **Water Services:** Service lines shall not be removed during excavation; and the Contractor shall provide adequate support for the services across the open ditch.
- d. **Interrupted Service:** Cuts or breaks in sewer mains and laterals, or service connections, shall be restored at the earliest practicable moment in order to give the least possible interruption in service. The Contractor shall be responsible for notifying customers of temporary interruption of service.
- e. **Other Utilities:** All water mains, water services, sanitary sewers, sanitary sewer house laterals, storm sewers, power conduits, gas mains, gas service laterals and other appurtenances damaged during construction shall be repaired or replaced. Where the exact depth of any utility or obstruction is not shown on a plan, excavation shall be made prior to reaching the obstruction in order to determine adjustments in grade if needed to prevent interference. Redesign to eliminate conflicts may be necessary. Extra compensation shall not be paid for such delays. When it is necessary to remove or adjust another utility, a representative of that utility shall be notified to decide method and work to be done. The Contractor shall make satisfactory arrangements with other utilities for the required cutting or adjustments at the Contractor's own expense. Other than for items that may be provided in the contract for such work. No extra compensation shall be paid due to delays caused by removal of public utility structures.
- f. **Street Sign Posts and Signs:** The Contractor shall be responsible for all damage to street sign posts and signs within the limits of his operations that remain in place or are removed and replaced. In the event that street sign posts and signs are damaged or destroyed by the Contractor's operations, they shall be replaced at the Contractors' expense.
- g. **Methods of Removal and Disposal:** Materials or parts of structures which are to be broken up, dismantled or removed, and which are to be salvaged, shall be removed, loaded, cleaned and unloaded at sites designated by the Owner.

Materials which are not designated to be salvaged shall become property of the Contractor; and he shall dispose of the material at his own cost and expense.

E. Do not advance open trench more than 200 feet ahead of installed pipe, unless preapproved by Engineer.

F. Trench Width

1. Trenches for pipes less than 20 inches in diameter shall have a minimum width of 10 inches and a maximum width of 1 foot on each side beyond the outside surfaces of the pipe bell or coupling.
2. Trenches for pipes between 21 and 48 inches in diameter shall have a minimum width of 12 inches and a maximum width not to exceed one pipe diameter on each side beyond the outside surfaces of the pipe.
3. Trenches for pipes 54 inches in diameter and larger shall have a minimum width of 15 inches and a maximum width of one pipe diameter beyond the outside surfaces of the pipe.
4. If trench width within the pipe zone exceeds this maximum, the entire pipe zone shall be refilled with approved backfill material, thoroughly compacted to a minimum of 95 percent of maximum density and then re-excavated to the proper grade and dimensions. Excavation along curves and bends shall be so oriented that the trench and pipe are approximately centered on the centerline of the curve, using short links for pipe and/or bend fillings if necessary.
5. For all utilities to be constructed in fill above natural ground, the embankment shall first be constructed to an elevation not less than 1 foot above the top of the utility after which excavation for the utility shall be made as indicated.

G. Alternative Trench Width for Use with Free-Flowing Granular Embedment Material

1. Based upon preapproval by Engineer, Contractor may use the alternative trench widths in conjunction with free-flowing granular embedment material. The minimum and maximum alternative trench widths are specified below; however, in most instances the minimum trench width shall be that width which is sufficient to insure working space between the outside surface of the pipe and the trench wall to safely place trench safety equipment and to properly place and compact the embedment materials.
 - a. Trenches for pipes less than 18 inches in diameter shall have a minimum width of 8 inches and a maximum width of 24 inches on each side beyond the outside surfaces of the pipe bell or coupling.
 - b. Trenches for pipes 18 inches in diameter or greater shall have a minimum width of 6 inches and a maximum width not to exceed one pipe diameter on each side beyond the outside surfaces of the pipe.

H. Trench Depth and Depth of Cover

1. All pipe and in-line appurtenances shall be laid to the grades indicated. The depth of cover shall be measured from the established finish grade, natural ground surface, subgrade for staged construction, street or other permanent surface to the top or uppermost projection of the pipe.
 - a. Where not otherwise indicated, all water piping shall be laid to the following minimum depths:
 - 1) Water piping installed in undisturbed ground in easements of undeveloped areas which are not within existing or planned streets, roads or other traffic areas shall be laid with at least 42 inches of cover.

- 2) Water piping installed in existing streets, roads or other traffic areas shall be laid with at least 42 inches of cover below finish grade.
 2. Provide uniform and continuous bearing and support for bedding material and pipe.
- I. Classification of Excavation: Excavation will not be considered or paid for as a separate item of work, so excavated material will not be classified as to type or measured as to quantity. Full payment for all excavation required for the construction shall be included in the various unit or lump sum contract prices for the various items of work installed, complete in place. No extra compensation, special treatment or other consideration will be allowed due to rock, pavement, caving, sheeting and bracing, falling or rising water, working under and in the proximity of trees or any other handicaps to excavation.
- J. Dewatering Excavation: Underground piped utilities shall not be constructed or the pipe laid in the presence of water. All water shall be removed from the excavation prior to the pipe placing operation to insure a dry firm granular bed on which to place the underground piped utilities and shall be maintained in such unwatered condition until all concrete and mortar is set. Removal of water may be accomplished by bailing, pumping or by a well-point installation as conditions warrant.
- In the event that the excavation cannot be dewatered to the point where the pipe bedding is free of mud, a seal shall be used in the bottom of the excavation. Such seal shall consist of lean concrete with a minimum depth of 3 inches.
- K. Trench Conditions:
1. Before attempting to lay pipe, all water, slush, debris, loose material, etc., encountered in the trench must be pumped or bailed out and the trench must be kept clean and dry while the pipe is laid and backfilled. Where needed, sump pits shall be dug adjoining the trench and pumped as necessary to keep the excavation dewatered.
 2. Backfilling shall closely follow pipe laying so that no pipe is left exposed and unattended after initial assembly. All open ends, outlets or other openings in the pipe shall be protected from damage and shall be properly plugged and blocked watertight to prevent the entrance of trench water, dirt, etc. The interior of the pipeline shall at all times be kept clean, dry and unobstructed.
 3. Where the soil encountered at established footing grade is a quicksand, saturated or unstable material, the following procedure shall be used unless other methods are indicated:
 - a. All unstable soils shall be removed to a depth of 2 feet below bottom of piped utility. Such excavation shall be carried out to the trench widths above.
 - b. All unstable soil so removed shall be replaced with concrete seal foundation rock for the entire trench width or coarse aggregate materials placed in uniform layers not to exceed 6 inches, loose measure and compacted by mechanical tamping or other means which will provide a stable foundation for the utility.
 - c. All forms, concrete seals, sheathing and bracing, pumping, additional excavation and backfill required shall be done at the Contractor's expense.
- L. Trench sidewalls shall be sloped, or sheeting and/or shoring shall be used in accordance with the Trench Safety Plan in order to provide safety and protection in, and to, the excavation.
- M. Trim excavation. Remove loose matter.

- N. Correct over excavated areas with compacted backfill as specified for authorized excavation or replace with lean concrete, or Flexible Base as directed by Engineer.
- O. Removing Old Structures: When out of service masonry structures or foundations are encountered in the excavation, such obstructions shall be removed for the full width of the trench and to a depth of 1 foot below the bottom of the trench. When abandoned inlets or manholes are encountered and no plan provision is made for adjustment or connection to the new sewers, such manholes and inlets within the construction limits shall be removed completely to a depth of 1 foot below the bottom of the trench. In each instance, the bottom of the trench shall be restored to grade by backfilling and compacting by the methods provided above. Where the trench cuts through storm or wastewater sewers which are known to be abandoned, these sewers shall be cut flush with the sides of the trench and blocked with a concrete plug in a manner satisfactory to the Engineer. When old structures are encountered, which are not visible from the existing surface and are still in service, they shall be protected and adjusted as required to the finished grade.
- P. Excess material or material which cannot be made suitable for use in embankments will be declared surplus by the Engineer and shall become the property of the Contractor to dispose of offsite at a permitted fill site, without injury to the City or any individual. Such surplus material shall be removed from the work site promptly following the completion of the portion of the utility involved.
- Q. Stockpile subsoil in area designated on site to only a height which yields safe slope stability and protect from erosion.

3.4 SHEETING AND SHORING

- A. All excavations for trenches, structures, etc. 5 feet in depth or greater are required to have a Trench Safety Plan prepared and sealed by a Registered Professional Engineer in the State of Texas in accordance with OSHA requirements and Section 31 23 15 – Trench Safety Systems of the specifications.
- B. Submit Trench Safety Plan prior to any excavation.
- C. When specified in the Drawings, sheeting and shoring to be left in place as part of the completed Work, cut off minimum 18 inches below finished grade. Otherwise, sheeting and shoring shall be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 PIPE BEDDING AND EMBEDMENT

- A. Where not otherwise provided, all piping shall be installed in a continuous envelope of embedment material meeting the requirement of materials specified herein.

- B. Embedment material shall extend from 6 inches below (bedding) to 12 inches above the outer parts of the pipe (unless indicated otherwise), fittings and accessories for pipe.
- C. All bracing, struts, etc., installed by the pipe manufacturer (or temporary replacements by the Contractor) shall be kept in place in the pipe, undisturbed, until the trench has been backfilled at least to the top of the pipe. When installing mortar lined and mortar coated steel pipe, all bracings, struts, etc., installed by the pipe manufacturer shall be kept in the pipe, undisturbed until the pipe has been backfilled.

3.6 BACKFILLING

- A. Backfill Procedure: Backfill procedure is that procedure required to return trenched or excavated areas to a condition satisfactory to the Engineer. Such backfilling occurs in two general areas. They are 1) areas not subjected to vehicular traffic; and 2) areas subjected to, or influenced by, vehicular traffic.

The methods of backfilling to be used shall vary with the width of trench, the character of the materials excavated, the method of excavation, the type of conduit and the degree of compaction required. The placing of backfill shall not begin until the pipe structure has been properly bedded and jointed.

- 1. Trench backfill material is the material required to fill the trench from the top of the embedment to ground elevation or subgrade of a pavement or structure.
- B. Backfill trenches to contours and elevations with unfrozen fill materials.
- C. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- D. Place geotextile fabric when specified in the Drawings.
- E. Place fill material in continuous layers and compact to the density specified herein.
- F. Employ placement method that does not disturb or damage utilities in trench.
- G. Maintain optimum moisture content of fill materials to attain required compaction density.
- H. Do not leave more than 50 feet of trench open at end of working day, unless preapproved by Engineer.
- I. Protect open trench to prevent danger to the Owner, the public, and users of the Project site.

3.7 COMPACTION

- A. Compaction of all bedding, embedment, and backfill materials shall be performed in a manner that shall not crack, crush and/or cause the installed pipe to be moved from the established grade and/or alignment, as shown on the Drawings. Satisfactory density shall be obtained at various depths on all backfill material as indicated from random selected test points prior to the required exfiltration or pressure tests that are to be performed on lines being constructed. The required moisture content shall be at not less than 2 percent below nor more than 4 percent above the optimum moisture of the material or as specified by the Engineer.

B. Densities for Bedding and Embedment:

1. Coarse Aggregate Type A1 (Flexible Base) embedment shall be mechanically compacted in 6 inch lifts to a minimum of 95 percent Standard Proctor Density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)), unless indicated otherwise on Drawings.
2. Coarse Aggregate Type A2 (Crushed Stone) embedment shall be mechanically compacted in 6 inch lifts to a minimum of 95 percent of Maximum Dry Density in accordance with TEX-113-E – Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials, unless indicated otherwise on Drawings.
3. Coarse Aggregate Type A4 (Gravel Trench Backfill) embedment shall be mechanically compacted in 6 inch lifts to a minimum of 95 percent Standard Proctor Density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)), unless indicated otherwise on Drawings.

C. Backfill Densities – Areas Subjected to or Influenced by Vehicular Traffic: The trench backfill shall be mechanically compacted to the top of the subgrade in 6 inch loose lifts to at least 95 percent of maximum density as determined by ASTM D698 -Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³), at, or above, optimum moisture content.

D. Backfill Densities – Areas Not Subjected to or Influenced by Vehicular Traffic: The trench backfill shall be placed in layers not more than 10 inches loose depth and shall be compacted by mechanical means. Compaction methods to at least 95 percent of maximum density as determined by ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³), at, or above, optimum moisture content.

3.8 TOLERANCES

- A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch (0.08 feet) from required elevations.
- B. Top Surface of General Backfilling: Plus or minus 1 inch (0.08 feet) from required elevations.

3.9 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements
- B. Perform laboratory material tests in accordance with ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
- C. Perform in place compaction tests in accordance with the following:
 1. Density Tests: ASTM D2922 – Standard Test Methods for Density of Soil and Soil-Aggregate in Plane by Nuclear Methods.
 2. Moisture Tests: ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods.

- D. Frequency of Tests: The in-place density/moisture content shall be tested and verified at an average frequency of once per 300 linear feet per lift for trenches in traffic areas, and an average of once per 1,000 linear feet per lift for trenches in non-traffic areas.
- E. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.10 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 31 23 23 - FILL

PART 1 GENERAL

1.1 SUMMARY

A. Description: This item shall consist of the placing and compacting of suitable materials obtained from approved sources for utilization in the construction of civil site improvements.

B. Section Includes:

1. Fill under structural foundations.
2. Fill for embankment for construction of highways, streets, and pavements.
3. Fill for the construction of earthen embankments, berms, levees, dikes, and structures.
4. Fill for over-excavation.
5. Backfilling of structural foundations, manholes, and utility structures to subgrade elevations.
6. Backfilling site structures to subgrade elevations.
7. Backfilling pipeline trenches.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Basis of Measurement: All accepted fill (of the Type specified), when included in the contract as a separate pay item, will be measured by the cubic yard in its final position based upon the average end areas taken from pre-construction cross sections and plan grades. The plan quantities will be used as the measurement for payment for this item.

B. Basis of Payment: This item is usually subsidiary to excavation and/or subsoils and is not paid for separately. However, when included in the contract as a separate pay item, it shall be paid for at the contract unit price bid for "Fill," which price shall be full compensation for all work herein specified, including the furnishing of all materials (except "Subsoils" when paid as a separate bid item), compacting, equipment, tools, labor, water for sprinkling, proof rolling and incidentals necessary to complete the work. Payment, when included in the contract as a separate pay item, will be made under:

1. Select Fill (Type S1; Select Fill, or Select Borrow) – Per Cubic Yard, Plan Quantity.
2. Fill (Type S2; Borrow) – Per Cubic Yard, Plan Quantity.
3. Fill (Type S3; On-Site Material) – Per Cubic Yard, Plan Quantity.
4. Structural Fill (Coarse Aggregate Fill, Type A1; Flexible Base) – Per Cubic Yard, Plan Quantity.
5. Fill (Course Aggregate Fill, Type A1; Per Geotechnical Engineer's Report) – Per Cubic Yard, Plan Quantity.
6. Fill (Coarse Aggregate Fill, Type A2; Crushed Stone) – Per Cubic Yard, Plan Quantity.
7. Fill (Coarse Aggregate Fill, Type A3; Gravel Base) – Per Cubic Yard, Plan Quantity.
8. Fill (Coarse Aggregate Fill, Type A4; Gravel for Trench Backfill) – Per Cubic Yard, Plan Quantity.

1.3 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures

- B. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- C. Samples: Submit, in air-tight containers, 50 lb sample of each type of fill to testing laboratory.
- D. Materials Source: Submit name of imported fill materials suppliers.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: All subsoil fill shall conform to the following material types:
 - 1. Select Type S1 (Select Fill, or Select Borrow): This material shall consist of sand or other suitable granular material, free from vegetation or deleterious or objectionable matter reasonably free from lumps of earth and when tested by standard TxDOT laboratory methods, shall meet the following requirements:
 - a. The Liquid Limits shall not exceed 35.
 - b. The Plasticity Index shall not be less than 4 nor more than 15.
 - c. Minimum and maximum passing No. 200 sieve: 10% and 70%, respectively.
 - d. No rocks greater than 2 inches in diameter.
 - 2. Subsoil Type S2 (Borrow):
 - a. This material shall consist of suitable nonswelling (soils with plasticity index less than 20) earth material such as loam, clay or other such materials that will form a stable embankment.
 - b. This material shall be free of lumps larger than 3 inches in diameter, and rocks larger than 4 inches in diameter.
 - 3. Subsoil Type S3 (On-Site Material):
 - a. This material shall be excavated from on-site and re-used for fills (embankment).
 - b. This material shall be free of lumps larger than 3 inches in diameter, and rocks larger than 4 inches in diameter.
- B. Structural Fill: Coarse Aggregate Type A1 (Flexible Base) as specified in Section 32 11 23 – Flexible Base.
- C. Coarse Aggregate Fill: Coarse Aggregate Type A4 (Gravel for Trench Backfill) as specified in Section 32 05 16 – Aggregates for Civil Site Improvements.
- D. Concrete: Lean concrete with a minimum compressive strength of 2000 psi.
- E. Flowable Fill: As specified in Section 31 23 24 – Flowable Fill.

2.2 ACCESSORIES

- A. Geotextile Fabric: Products and execution shall be specified in the drawings. Non-biodegradable, woven or non-woven, from the following manufacturers:
 - 1. Alkzo Nobel Geosynthetic Co.
 - 2. Huesker, Inc.

3. TC Mirafi.
4. Tenax Corp.
5. Tensar Earth Technologies, Inc.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION FOR STRUCTURES AND PAVEMENTS

- A. Strip and remove from the construction area any topsoil, organics, and vegetation to a minimum depth of 6 inches below the existing, natural ground surface in accordance with Section 31 10 00 - Clearing.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill and compact to the density specified herein.
- C. Compact the subgrade (subsoil) in accordance with Section 31 23 16 - Excavation prior to commencing with subsequent "fill" operations.
- D. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.2 EMBANKMENT/FILLING

- A. Prior to placing any embankment (fill), all tree protection, tree wells and erosion control devices shall be in place and all "Clearing" operations shall have been completed on the areas over which the embankment (fill) is to be placed. Stump holes or other small excavations in the limits of the embankments shall be backfilled with suitable material and thoroughly tamped by approved methods before commencing embankment construction. The surface of the ground, including plowed loosened ground or surface roughened by small washes, shall be restored to approximately its original slope and the ground surface thus prepared shall be compacted by sprinkling and rolling.
- B. Construction equipment shall not be operated within the drip line of the trees, unless indicated. Construction materials shall not be stockpiled under the canopies of trees. No excavation or embankment shall be placed within the drip line of trees unless indicated.
- C. Unless otherwise indicated, the surface of the ground of all unpaved areas, other than rock which are to receive embankment (fill), shall be loosened by scarifying or plowing to a depth of not less than 4 inches. The loosened material shall be recompacted with the new embankment as hereinafter specified.
- D. The surface of hillsides to receive embankment (fill) shall be loosened by scarifying or plowing to a depth of not less than 4 inches and benches cut before embankment materials are placed. The embankment shall then be placed in layers, as hereinafter specified, beginning at the low side in partial width layers and increasing the widths as the embankment is raised. The material which has been loosened shall be recompacted simultaneously with the embankment material placed at the same elevation.

- E. Where embankments are to be placed adjacent to or over existing roadbeds, the roadbed slopes shall be plowed or scarified to a depth of not less than 6 inches and the embankment built up in successive layers, as hereinafter specified, to the level of the old roadbed before its height is increased. Then, if indicated, the top of the old roadbed shall be scarified and recompacted with the next layer of the new embankment. The total depth of the scarified and added material shall not exceed the permissible layer depth.
- F. Trees, stumps, roots, vegetation or other unsuitable materials shall not be placed in embankment (fill).
- G. All embankment shall be constructed in layers approximately parallel to the finished grade and unless otherwise indicated.
- H. The embankment (fill) shall be continuously maintained at its finished section and grade until that portion of the work is accepted. After completion of the embankment to the finished section and grade, the Contractor shall proof roll the subgrade and revegetation procedures must commence immediately to minimize the soil loss and air pollution.
- I. Except as otherwise indicated, embankments (fills) shall be constructed in successive 6 inch layers, loose measure, for the full width of the individual cross section and in such length as are best suited to the sprinkling and compaction methods utilized.
- J. Minor quantities of rocks not larger than 4 inches, encountered in constructing earth embankment may be incorporated in the earth embankment layers, provided such placement of rock is not within 10 feet of any structure.
- K. Each layer of embankment shall be uniform as to material, density and moisture content before beginning compaction. Where layers of unlike materials abut each other, each layer shall be feathered on a slope of 1:20 or the material shall be so mixed as to prevent abrupt changes in soil. No material placed in the embankment by dumping in a pile or windrows shall be incorporated in a layer in that position, but all such piles or windrows shall be moved by blading or similar methods. Clods or lumps of material shall be broken and the embankment material mixed by blading, harrowing, discing or similar methods to the end that a uniform material of uniform density is secured in each layer.
- L. Water required for sprinkling to bring the material to the moisture content necessary for optimum compaction shall be evenly applied and it shall be the responsibility of the Contractor to secure a uniform moisture content throughout the layer by such methods as may be necessary.
- M. All cuts, whether full width or partial width cuts in the side of a hill, which are not required to be excavated below subgrade elevation shall be scarified to a uniform depth of at least 6 inches below grade and the material shall be mixed and reshaped by blading and then sprinkled and rolled in accordance with the requirements outlined above for earth embankments and to the same density as that required for the adjacent embankment.
- N. Compaction of embankments (fills) shall be to a minimum of 95% and less than 100% of its maximum dry density when determined in accordance with ASTM D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³), Method D, Standard Proctor, unless indicated otherwise on Drawings. The subsoil

shall be no less than its optimum moisture to not greater than 3 percentage points above its optimum moisture content at the time of testing. After each layer of earth embankment (fill) is complete, density tests as necessary will be made. If the material fails to meet the density specified, the course shall be reworked as necessary to obtain the specified compaction.

- O. Embankment (fill) shall slope away from building minimum 5 percent slope for minimum distance of 10 ft, unless noted otherwise.
- P. Grade changes in embankment (fill) shall be made with gradual grade changes. Blend slope into level areas.
- Q. Remove surplus fill materials from site.

3.3 BACKFILLING

- A. As soon as practicable, all portions of excavation not occupied by the permanent structure shall be backfilled. Backfill material shall comply with "Subsoil Fill" as specified herein.
- B. That portion of backfill which will not support any portion of completed structure, roadbed, or embankment shall be placed in layers not more than 10 inches in depth (loose measurement) and shall be compacted in accordance with Paragraph 3.4, "Compaction" for "Subsoil Fill."
- C. That portion of the backfill which will support any portion of the structure, roadbed, or embankment shall be placed in uniform layers not more than 8 inches in depth (loose measurement) and shall be compacted in accordance with Paragraph 3.5, "Compaction" for "Subsoil Fill" and shall be compacted to that density by means of mechanical tampers or rammers, except that the use of rolling equipment of the type generally used in compaction embankments will be permitted on portions which are accessible to such equipment. All portions of embankment too close to any portion of a structure to permit compaction by the use of the blading and rolling equipment used on adjoining sections of embankment, shall be placed and compacted in the same manner as specified above for backfill material. Unless otherwise indicated, hand tamping will not be accepted as an alternate for mechanical compaction. As a general rule, material used in filling or backfilling the portions described in this paragraph shall be "Subsoil Fill," free of any appreciable amount of gravel or stone particles larger than 4 inches in greater dimension and of a gradation that permits thorough compaction. When required by the Drawings or by written order of the Engineer, structural fill or coarse aggregate material shall be used for backfilling.
- D. The surface of hillsides to receive embankment (fill) shall be loosened by scarifying or plowing to a depth of not less than 4 inches and benches cut before embankment materials are placed. The embankment shall then be placed in layers, as hereinafter specified, beginning at the low side in partial width layers and increasing the widths as the embankment is raised. The material which has been loosened shall be recompacted simultaneously with the embankment material placed at the same elevation.
- E. Where embankments are to be placed adjacent to or over existing roadbeds, the roadbed slopes shall be plowed or scarified to a depth of not less than 6 inches and the embankment built up in successive layers, as hereinafter specified, to the level of the old roadbed before its height is increased. Then, if indicated, the top of the old roadbed shall be scarified and recompacted

with the next layer of the new embankment. The total depth of the scarified and added material shall not exceed the permissible layer depth.

3.4 COMPACTION

A. Subsoil Fill:

1. Select Type S1 (Select Fill, or Select Borrow): Compaction shall be to a dry density of at least 95 percent Standard Proctor maximum dry density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)) and shall be within the range of the materials optimum moisture content to 3 percentage points above the materials optimum moisture content. Placement shall be in lifts not exceeding 8 inches before compaction.
2. Subsoil Type S2 (Borrow) and Subsoil Type S3 (On-Site Material): Compaction shall be to a dry density of at least 95 percent Standard Proctor maximum dry density (ASTM D698 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)) and shall be within the range of the materials optimum moisture content to 3 percentage points above the materials optimum moisture content. Placement shall be in lifts not exceeding 8 inches before compaction.

B. Structural Fill, Coarse Aggregate Type A1 (Flexible Base): Flexible Base material used as structural fill beneath foundations and for backfilling structures shall be placed in loose lifts not exceeding 8 inches before compaction, and shall be compacted mechanically to a minimum 98 percent of Standard Proctor dry density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)) and within 2 percentage points of the materials optimum moisture content, unless indicated otherwise on Drawings.

C. Course Aggregate Fill:

1. Coarse Aggregate Type A2 (Crushed Stone): Compaction shall be a minimum of 95 percent of the maximum dry density in accordance with TxDOT Test Method TEX-113-E – Laboratory Compaction Characteristics and Moisture-Density Relationship of Base Materials, unless indicated otherwise on Drawings.
2. Coarse Aggregate Type A3 (Gravel Base Course): Gravel Base Course used as structural fill beneath foundations and for backfilling structures shall be placed in loose lifts not exceeding 8 inches before compaction, and shall be compacted mechanically to a minimum 95 percent of Standard Proctor dry density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)) and within 2 percentage points of the materials optimum moisture content, unless indicated otherwise on Drawings.
3. Coarse Aggregate Type A4 (Gravel Trench Backfill): Gravel Trench Backfill shall be placed in loose lifts not exceeding 8 inches before compaction, and shall be compacted mechanically to a minimum 95 percent of Standard Proctor dry density (ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³)) and within 2 percentage points of the materials optimum moisture content.

3.5 TOLERANCES

A. Top Surface of Fill Under Paved Areas: Plus or minus 0.50 inches from required elevations.

B. Top Surface of General Grading of Fill: Plus or minus 0.10 feet from required elevations.

3.6 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Perform laboratory material tests in accordance with ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
- C. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method, ASTM D2167 – Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method, ASTM D2922 – Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods, or TEX-115-E – Field Method for Determining In-Place Density of Soils and Base Materials as appropriate for the material being tested.
 - 2. Moisture Tests: ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- E. Proof roll compacted fill surfaces under structural foundations, pavers, paving, and sidewalks. Soft spots shall be removed, replaced, and retested.
- F. Quality assurance shall be, as a minimum, as outlined below:

Type of Work	Item	Sample Frequency	Sample Size	Minimum Testing
Select Fill	Select Type S1 (Select Fill or Select Borrow)	1 per soil Type	50 lbs.	- Gradation - P.I. - Moisture-Density Relationship
	Compaction	1 per 5000 sq.ft. per lift (min. of 3 per lift)		- Field Density Tests
Subsoil for Fill and Backfill	Subsoil Type S2 (Borrow); Subsoil Type S3 (On-Site)	1 per soil Type	50 lbs.	- Gradation - P.I. - Moisture-Density Relationship
	Compaction	1 per 5000 sq.ft. per lift (min. of 3 per lift)		- Field Density Tests
Structural Fill	Coarse Aggregate Type A1 (Flexible Base)	1 per type per 1000 cu. yds.	50 lbs.	- Sieve - P.I. - Moisture-Density
	Compaction	1 per 2500 sq.ft. per lift (min. of 3 per lift)		- Field Density Tests

Structural Fill	Coarse Aggregate Type A2 (Crushed Stone)	1 per type per 1000 cu. yds.	50 lbs	- Gradation/sieve
	Compaction	1 per 2500 sq.ft. per lift (min. of 3 per lift)		- Field Density Tests
Structural Fill	Coarse Aggregate Type A3; Coarse Aggregate Type A4	1 per type per 1000 cu. yds.	50 lbs	- Sieve - P.I. - Moisture-Density
	Compaction	1 per 2500 sq.ft. per lift (min. of 3 per lift)		- Field Density Tests

3.7 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.
- B. Reshape and re-compact fills subjected to erosion.

END OF SECTION

SECTION 31 23 24 - FLOWABLE FILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Flowable fill for:
 - a. Structure backfill.
 - b. Utility bedding.
 - c. Utility backfill.
 - d. Filling abandoned utilities.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Flowable Fill:
 - 1. Basis of Measurement:
 - a. Flowable Fill (Excavatable Type) – Per Cubic Yard.
 - b. Flowable Fill (Non-excavatable Type) – Per Cubic Yard.
 - 2. Basis of Payment: Includes furnishing flowable fill and installing where required. Measured quantities shall be taken from batch plant ticket.
 - a. Flowable Fill (Excavatable Type) – Per Cubic Yard, Plan Quantity.
 - b. Flowable Fill (Excavatable Type) – Per Cubic Yard, Measured.
 - c. Flowable Fill (Non-excavatable Type) – Per Cubic Yard, Plan Quantity.
 - d. Flowable Fill (Non-excavatable Type) – Per Cubic Yard, Measured.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Materials Source: Submit name of flowable fill materials suppliers.
- C. Manufacturer's Certificate:
 - 1. Certify Product meets or exceeds specified requirements.
- D. Mix Design:
 - 1. Submit flowable fill mix design for each specified strength. Submit separate mix designs as required for the following:
 - a. Flowable fill work during hot and cold weather.
 - b. Air entrained flowable fill work.
 - 2. Identify design mix ingredients, proportions, properties, admixtures, and tests.
 - 3. Submit test results to certify flowable fill mix design properties meet or exceed specified requirements.
- E. Delivery Tickets:
 - 1. Submit duplicate delivery tickets indicating actual materials delivered to Project site.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install flowable fill during inclement weather or when ambient temperature is less than 40 degrees F.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements before installing flowable fill to establish quantities required to complete the Work.

PART 2 PRODUCTS

2.1 FLOWABLE FILL

- A. Flowable Fill - Excavatable Type: Lean cement concrete fill used where future excavation may be required such as fill for utility trenches, bridge abutments, and culverts.
- B. Flowable Fill - Non-excavatable Type: Lean cement concrete fill used where future excavation is not anticipated such as fill below structure foundations and filling abandoned utilities.

2.2 MATERIALS

- A. Portland Cement: ASTM C150 (Standard Specification for Portland Cement) Type I - Normal; Type IA - Air Entraining; Type II - Moderate.
- B. Fine Aggregates: ASTM C33 – Standard Specification for Concrete Aggregates.
- C. Water: Clean and not detrimental to concrete.

2.3 MIXES

- A. Mix and deliver flowable fill in accordance with ASTM C94 - Standard Specification for Ready-Mixed Concrete, Option C.

FLOWABLE FILL DESIGN MIX

ITEM	EXCAVATABLE	NON-EXCAVATABLE
Cement Content	75-100 lbs/cy	100-150 lbs/cy
Water Content	Per mix design	Per mix design
28 Day Compressive Strength	Maximum 150 psi.	Minimum 250 psi
Unit Mass (Wet)	80-110 pcf	100-125 pcf

Temperature, Minimum at point of delivery	50 degrees F	50 degrees F
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- B. Provide water content in design mix to produce self-leveling, flowable fill material at time of placement.

2.4 SOURCE QUALITY CONTROL

- A. Test and analyze properties of flowable fill design mix and certify results for the following:
 - 1. Design mix proportions by weight of each material.
 - 2. Fine Aggregate: ASTM C33 – Standard Specification for Concrete Aggregates - for material properties and gradation.
 - 3. Properties of plastic flowable fill design mix including:
 - a. Temperature.
 - b. Slump.
 - c. Wet unit mass.
 - d. Yield.
 - e. Cement factor.
 - 4. Properties of hardened flowable fill design mix including:
 - a. Compressive strength at 1 day, 7 days, and 28 days. Report compressive strength of each specimen and average specimen compressive strength.
 - b. Unit mass for each specimen and average specimen unit mass at time of compressive strength testing.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify excavation and trenching is complete.
- C. Verify utility installation is complete and tested before placing flowable fill.
- D. Verify excavation is dry and dewatering system is operating.

3.2 PREPARATION

- A. Support and restrain utilities to prevent movement and flotation during installation of flowable fill.
- B. Protect structures and utilities from damage caused by hydraulic pressure of flowable fill before fill hardens.
- C. Protect utilities and foundation drains to prevent intrusion of flowable fill.

3.3 INSTALLATION - FILL, BEDDING, AND BACKFILL

- A. Place flowable fill by chute, pumping or other methods approved by Engineer.

1. When required, place flowable fill under water using tremie procedure.
2. Do not place flowable fill through flowing water.

- B. Place flowable fill in lifts to prevent lateral pressures from exceeding structural capacity of structures and utilities.
- C. Place flowable fill evenly on both sides of utilities to maintain alignment.
- D. Place flowable fill to elevations indicated on Drawings without vibration or other means of compaction.

3.4 INSTALLATION - FILLING ABANDONED UTILITIES

- A. Verify pipes and conduits are not clogged and are sufficiently empty to permit gravity installation of flowable fill for entire length indicated to be filled.
- B. Seal lower end of pipes and conduits by method to contain flowable fill and to vent trapped air caused by filling operations.
- C. Place flowable fill using method to ensure there are no voids.
 1. Fill pipes and conduits from high end.
 2. Fill manholes, tanks, and other structures from grade level access points.
- D. After filling pipes and conduits seal both ends.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements.
- B. Perform inspection and testing in accordance with ASTM C94/C94M.
 1. Take samples for tests for every 150 cu yd of flowable fill, or fraction thereof, installed each day.
 2. Sample, prepare and test four compressive strength test cylinders in accordance with ASTM D4832. Test one specimen at 3 days, one at 7 days, and two at 28 days.
 3. Measure temperature at point of delivery when samples are prepared.
- C. Perform in place penetration (density) tests using hand held penetrometer to measure penetration resistance of hardened flowable fill, in accordance with ASTM C403.
 1. Perform tests at locations as directed by Engineer.
- D. Perform in-place density tests using nuclear test device, in accordance with ASTM C1040.
 1. Perform tests at locations as directed by Engineer.
- E. Defective Flowable Fill: Fill failing to meet the following test requirements or fill delivered without the following documentation.
 1. Test Requirements:
 - a. Minimum temperature at point of delivery.
 - b. Compressive strength requirements for each type of fill.

- F. Submit delivery tickets indicating actual materials delivered to Project site. Delivery tickets shall contain project description, date, time, class and quantity of mix, actual batch proportions, free moisture content of aggregate and quantity of water withheld.

3.6 CLEANING

- A. Remove spilled and excess flowable fill from Project site.
- B. Restore facilities and site areas damaged or contaminated by flowable fill installation to existing condition before installation.

END OF SECTION

SECTION 32 05 16 - AGGREGATES FOR CIVIL SITE IMPROVEMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Coarse aggregate materials.
 - 2. Fine aggregate materials.
- B. Related Sections:
 - 1. Section 31 23 17 - Trenching.
 - 2. Section 31 23 23 - Fill.
 - 3. Section 32 11 23 - Flexible Base.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Aggregate:
 - 1. Basis of Measurement and Payment: Fine aggregate and course aggregate will not be paid for as a separate bid item, but shall be considered incidental to the item for which they pertain.

1.3 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D448 - Standard Classification for Sizes of Aggregate for Road and Bridge Construction
 - 3. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m<sup>3 - 4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m<sup>3 - 5. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 6. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.</sup></sup>

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Samples: Submit, in air-tight containers, 10 lb samples of each type of fill to testing laboratory.
- C. Materials Source: Submit name of imported materials suppliers.
- D. Manufacturer's Certificate: Certify that aggregates meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets, and Bridges (latest Edition).
- C. Maintain one copy of Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets, and Bridges (latest Edition) document on site.

PART 2 PRODUCTS

2.1 COARSE AGGREGATE MATERIALS

- A. Coarse Aggregate Type A1 (Flexible Base): Conforming to TxDOT's Standard Specifications Item 247, Grade 1 or 2, Type A.
- B. Coarse Aggregate Type A2 (Crushed Stone): washed; free of shale, clay, friable material and debris; graded in accordance with ASTM C136; within the following limits, based on ASTM D448:

Coarse Aggregate Type A2 Grading
Grade No. 2

Sieve Size	Percent Passing
2 inches	100%
1-1/2 inches	95-100%
3/4 inch	40-70%
3/8 inches	10-30%
No. 4	0-5%

OR

Coarse Aggregate Type A2 Grading
 Grade No. 3

Sieve Size	Percent Passing
1-1/2 inches	95-100%
3/4 inch	60-90%
1/2 inch	25-60%
No. 4	0-5%

C. Coarse Aggregate Type A3 (Gravel Base Course): Durable particles of gravel mixed with approved binding material; and shall be free from thin or elongated pieces, clay lumps, soil loam or vegetable matter. The material may be bank-run; or the binder may be added and incorporated by methods approved by Engineer. Should the material be secured from pits, the overburden or stripping from the site of the pits shall be removed to such a distance that none shall fall or wash into the pit; and it shall be placed so as to divert surface drainage away from the pit site. The pit shall be well drained at all times. The pits shall be opened in such a manner as to expose the vertical faces of all strata of acceptable materials; and, unless otherwise directed by Owner, the materials shall be secured in successive vertical cuts extending through all the exposed strata, in order that a uniformity mixed material shall be secured.

1. Tests: The soil binder shall meet the following requirements:
 - a. The liquid limit shall not exceed 35 when tested in accordance with ASTM D423.
 - b. The plastic limit shall be determined by testing in accordance with ASTM D424.
 - c. The plasticity index shall not exceed 12 nor be less than 4 when calculated in accordance with ASTM D424.
 - d. The preparation of samples for testing according to ASTM D423 and D424 shall be in accordance with the requirements of ASTM D2217.
 - e. The linear shrinkage shall not exceed 6 percent.
2. Gradation: The material when tested by standard laboratory methods shall meet the following percentages by weight:

Passing 1 ¾ in. sieve (45.0 mm)	100%
Passing ¾ in. sieve (9.5 mm)	40 to 80%
Passing No. 4 sieve (4.75 mm)	25 to 60%
Passing No. 40 sieve (425 µm)	15 to 35%

- a. Material passing the No. 40 sieve (425 µm) shall be known as “soil binder.”
- b. Materials containing conglomerate or gravel larger than 2” (50 mm) in any dimension shall be broken up and uniformly mixed with the remainder of the materials. Upgrading by the addition of washed gravel in order to meet the requirements of this section shall be permitted.
- c. If additional binder and/or soil binder are considered necessary by the Owner after gravel materials are spread and shaped, same shall be furnished and applied in the amount directed by the Owner; such additional binder and/or soil binder shall be carefully and evenly

incorporated with the pit materials in place by scarifying, harrowing or other methods approved by the Owner.

3. Rejection: Gravel which fails to meet the requirements of these specifications may be rejected by the Engineer. Such rejection shall incur no cost to the Owner.

D. Coarse Aggregate Type A4 (Gravel for Trench Backfill): Sandy gravel material, free of clay, shale, organic matter; meeting the following requirements:

1. Tests:
 - a. The liquid limit shall not exceed 35 when tested in accordance with ASTM Designation D423.
 - b. The plasticity index shall not exceed 12 nor be less than 4 when calculated in accordance with ASTM Designation D424.
 - c. The linear shrinkage shall not exceed six percent.
2. Gradation: The material when tested by standard laboratory methods shall meet the following percentages by weight:

Passing 2 in. sieve	100%
Passing 1/2 inch sieve	50 to 85%
Passing No. 4 sieve	20 to 65%
Passing No. 100 sieve	0 to 5%

2.2 FINE AGGREGATE MATERIALS

- A. Fine Aggregate Type A5 (Sand): Conforming to TxDOT's Standard Specifications Item 421.2(5), "Fine Aggregate."

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698.
- C. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698.
- D. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.1 STOCKPILING

- A. Stockpile materials on site at locations designated by Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.

- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

SECTION 32 11 23 - FLEXIBLE BASE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Crushed stone foundation course for structural backfill, embedment, trench backfill, surfacing, pavement or other base courses, furnished and installed on a prepared surface. The “Flexible Base” shall be constructed as herein specified in one or more courses in conformity with the typical sections and to the lines and grades as indicated or as established by the Engineer.
- B. Related Sections:
 - 1. Section 31 23 17 - Trenching.
 - 2. Section 31 23 23 - Fill.
 - 3. Section 32 05 16 - Aggregates for Civil Site Improvements.
 - 4. Section 32 12 16 - Hot Mix Asphaltic Concrete Paving.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Flexible Base:
 - 1. Basis of Measurement: “Flexible Base” will be measured at depths specified for the area indicated, by the square yard or by the cubic yard, complete in place, as indicated in the bid.
 - 2. Basis of Payment: This item will be paid for at the contract unit price bid for “Flexible Base” which price shall be full compensation for all work herein specified, including the furnishing, hauling, placing and compacting of all materials, rolling, proof rolling, recompacting and refinishing, for all water required and for all equipment, tools, labor and incidentals necessary to complete the work. Payment will be made under one of the following:
 - a. _____ -Inch Flexible Base – Per Square Yard.
 - b. Flexible Base – Per Cubic Yard

1.3 REFERENCES

- A. Texas Department of Transportation’s Standard Laboratory Test Procedures:
 - 1. Moisture Content Tex-103-E
 - 2. Liquid Limit Tex-104-E
 - 3. Plasticity Index Tex-106-E
 - 4. Bar Linear Shrinkage Tex-107-E, Part II
 - 5. Sieve Analysis Tex-110-E
 - 6. Moisture-Density Determination Tex-113-E
 - 7. Roadway Density Tex-115-E
 - 8. Wet Ball Mill Tex-116-E
 - 9. Triaxial Tests Tex-117-E
(Part I or II as selected by
the Engineer)
 - 10. Particle Count Tex-460-A, Part I

- B. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 - 1. Submit data for geotextile fabric and herbicide.
- C. Samples: Submit, in air-tight containers, 10 lb sample of each type of Flexible Base to testing laboratory.
- D. Materials Source: Submit name of aggregate materials suppliers.
- E. Manufacturer's Certificate: Certify Flexible Base meets or exceeds specified requirements outlined herein.

1.5 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets, and Bridges (latest Edition).
- C. Maintain one copy of Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets, and Bridges (latest Edition) on site.

PART 2 PRODUCTS

2.1 FLEXIBLE BASE MATERIAL REQUIREMENTS

- A. Flexible Base: Texas Department of Transportation's Standard Specification Item 247, Grade 1 or 2, Type A.

2.2 ACCESSORIES

- A. Geotextile Fabric: As specified in the Drawings.
- B. Herbicide: As specified in the Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

- B. Verify compacted substrate is dry and ready to support paving and imposed loads.
 - 1. Proof roll substrate in accordance with Texas Department of Transportation Standard Specification Item 216, “Rolling (Proof)” to identify soft spots.
 - 2. Remove soft substrate and replace with compacted fill as specified in Section 31 23 23 – Fill.
 - 3. No additional compensation will be made for materials, equipment or labor required for “Proof Rolling,” but shall be considered subsidiary to “Flexible Base.”
- C. Verify substrate has been inspected, gradients and elevations are correct.

3.2 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 BASE PLACEMENT

- A. When specified in the Drawings, install geotextile fabric over subgrade in accordance with manufacturer's instructions.
 - 1. Lap ends and edges minimum 6 inches.
 - 2. Anchor fabric to subgrade when required to prevent displacement until aggregate is installed.
- B. When the Flexible Base compacted thickness is less than (or equal to) 6 inches, spread base material over prepared substrate to total compacted thickness indicated on Drawings.
- C. When the Flexible Base compacted thickness exceeds 6 inches, place base material equal thickness layers to total compacted thickness indicated on Drawings.
 - 1. Maximum Layer Compacted Thickness: 6 inches.
 - 2. Minimum Layer Compacted Thickness: 3 inches.
- D. Roller compact Flexible Base to density indicated in Texas Department of Transportation’s Standard Specification Item 247.
- E. Level and contour surfaces to elevations, profiles, and gradients indicated.
- F. Maintain optimum moisture content of base materials to attain specified compaction density.
- G. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements and Texas Department of Transportation Item 247.3(1)(f), “Tolerances.”

- B. Maximum Variation from Flat Surface: 1/4 inch measured with 16 foot straight edge.
- C. Maximum Variation from Thickness: 1/2 inch.
- D. Maximum Variation from Elevation: 1/2 inch.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Compaction testing will be performed in accordance with Texas Department of Transportation's Test Method Tex-113-E.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: One test for every 1000 square yards of each course (layer) of compacted base material.

3.6 COMPACTION

- A. Each course of flexible base shall be compacted to not less than 100 percent density when tested in accordance with TxDOT Test Method Tex-113-E. Field density determination shall be made in accordance with TxDOT Test Method Tex-115-E.

END OF SECTION

SECTION 32 12 16 - HOT MIX ASPHALTIC CONCRETE PAVING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Asphalt materials.
 - 2. Aggregate materials.
 - 3. Asphalt paving surface course.
 - 4. Asphalt paving overlay for existing paving.

- B. Related Sections
 - 1. Section 31 23 23 - Fill.
 - 2. Section 32 05 16 - Aggregates for Civil Site Improvements.
 - 3. Section 32 11 23 - Flexible Base.

1.2 UNIT PRICE MEASUREMENT AND PAYMENT PROCEDURES

- A. Basis of Measurement
 - 1. Method A: Asphaltic concrete pavement will be measured by the ton (2,000 pounds) of asphaltic concrete pavement of the type actually used in the completed and accepted work in accordance with the plans and specifications for the project. When the dryer-drum process is used, measurement of the tonnage used shall be made on truck scales.
 - 2. Method B: Asphaltic concrete pavement will be measured by the square yard of the specified total thickness of the type actually used in the completed and accepted work in accordance with the plans and specifications. Multiple lifts will be considered as one for square yard measurement purposes.

- B. Basis of Payment: The work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid for at the unit prices bid for "Hot Mix Asphaltic Concrete Pavement," of the types and lifts specified, which process shall be full compensation for furnishing all materials, freight involved; for all heating, mixing, hauling, cleaning the existing base course or pavement; saw cutting, placing asphaltic concrete mixture, rolling and finishing, for all manipulations, labor, tools, equipment, temporary pavement markings and incidentals necessary to complete the work. Correcting defective work and the subsequent retesting shall be considered subsidiary.

The prime coat will not be measured or paid for directly but shall be considered subsidiary to this Item, unless included as a separate pay item in the contract.

The tack coat will not be measured or paid for directly but shall be considered subsidiary to this Item, unless included as a separate pay item in the contract.

All templates, straightedges, scales and other weighing and measuring devices necessary for the proper construction, measuring and checking of the work shall be furnished, operated and maintained by the Contractor at his expense.

All saw cutting as shown on the plans or as directed by the Engineer will not be measured or paid for directly, but shall be considered subsidiary to this Item.

Payment for work meeting the specifications will be made under one of the following:

1. Hot Mix Asphaltic Concrete Pavement, Type D Surface Course – Per Ton.
2. ___-Inch Hot Mix Asphaltic Concrete Pavement, Type D Surface Course – Per Square Yard.

1.3 REFERENCE STANDARDS

- A. Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets and Bridges (latest Edition):
 1. Tex-101-E – Preparing Soil and Flexible Base Materials for Testing
 2. Tex-107-E – Determining the Bar Linear Shrinkage of Soils
 3. Tex-200-F – Sieve Analysis of Fine and Coarse Aggregates
 4. Tex-203-F – Sand Equivalent Test
 5. Tex-204-F – Design of Bituminous Mixtures
 6. Tex-206-F – Compacting Specimens Using the Texas Gyrotory Compactor (TGC)
 7. Tex-207-F – Determining Density of Compacted Bituminous Mixtures
 8. Tex-210-F – Determining Asphalt Content of Bituminous Mixtures by Extraction
 9. Tex-217-F – Determining Deleterious Material and Decantation Test for Coarse Aggregates
 10. Tex-227-F – Theoretical Maximum Specific Gravity of Bituminous Mixtures
 11. Tex-228-F – Determining Asphalt Content of Bituminous Mixtures by the Nuclear Method
 12. Tex-229-F – Combined HMAC Cold-Belt Sampling and Testing Procedure
 13. Tex-404-A – Determining Unit Mass (Weight) of Aggregates
 14. Tex-410-A – Abrasion of Coarse Aggregate Using the Los Angeles Machine
 15. Tex-411-A – Soundness of Aggregate Using Sodium Sulfate or Magnesium Sulfate
 16. Tex-431-A – Pressure Slaking Test of Synthetic Coarse Aggregate
 17. Tex-432-A – Coarse Aggregate Freeze-Thaw Test
 18. Tex-433-A – Absorption and Dry Bulk Specific Gravity of Lightweight Coarse Aggregate
 19. Tex-438-A – Accelerated Polish Test for Coarse Aggregate
 20. Tex-460-A – Determining Crushed Face Particle Count
- B. American Association of State Highway and Transportation Officials:
 1. AASHTO M17 - Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
 2. AASHTO M29 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
 3. AASHTO M140 - Standard Specification for Emulsified Asphalt.
 4. AASHTO M208 - Standard Specification for Cationic Emulsified Asphalt.
 5. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.
 6. AASHTO M320 - Standard Specification for Performance-Graded Asphalt Binder.
 7. AASHTO M324 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.
 8. AASHTO MP1a - Standard Specification for Performance-Graded Asphalt Binder.

- C. Asphalt Institute:
 - 1. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot- Mix Types.
 - 2. AI MS-19 - Basic Asphalt Emulsion Manual.
 - 3. AI SP-2 - Superpave Mix Design.

- D. ASTM International:
 - 1. ASTM D242 - Standard Specification for Mineral Filler For Bituminous Paving Mixtures.
 - 2. ASTM D692 - Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures.
 - 3. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction.
 - 4. ASTM D977 - Standard Specification for Emulsified Asphalt.
 - 5. ASTM D1073 - Standard Specification for Fine Aggregate for Bituminous Paving Mixtures.
 - 6. ASTM D1188 - Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
 - 7. ASTM D2027 - Standard Specification for Cutback Asphalt (Medium-Curing Type).
 - 8. ASTM D2397 - Standard Specification for Cationic Emulsified Asphalt.
 - 9. ASTM D2041 - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
 - 10. ASTM D2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.
 - 11. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
 - 12. ASTM D3381 - Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction.
 - 13. ASTM D3515 - Standard Specification for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
 - 14. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.
 - 15. ASTM D3910 - Standard Practices for Design, Testing, and Construction of Slurry Seal.
 - 16. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data:
 - 1. Submit product information for asphalt and aggregate materials.
 - 2. Submit mix design with laboratory test results supporting design.

- C. The Contractor shall designate in writing the source of all materials proposed for use in the mixture. Material certificates signed by the material producer and contractor certifying that each material complies with specification requirements shall be furnished.

- D. Pavement marking plan indicating lane separations and defined parking places. Note dedicated handicapped spaces with international graphics symbol.

1.5 QUALITY ASSURANCE

- A. Mixing Plant: Conform to Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets and Bridges (latest Edition).
- B. Obtain materials from same source throughout.
- C. Perform Work in accordance with Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets and Bridges (latest Edition).
- D. Maintain one copy of Texas Department of Transportation's Standard Specifications for Construction of Highways, Streets and Bridges (latest Edition) on site.

1.6 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum 2 years documented experience as approved by Engineer.

1.7 AMBIENT CONDITIONS

- A. Do not place asphalt mixture when ambient air temperature is less than 50 degrees F and is falling (or surface is wet or frozen), but it may be placed when the air temperature is above 40 degrees F and is rising.
- B. Place asphalt mixture when temperature is not more than 30 degrees F less than initial mixing temperature.

PART 2 PRODUCTS

2.1 ASPHALT PAVING

- A. Asphalt Materials:
 - 1. Asphalt Cement: Asphalt cement for the paving mixture shall meet the requirements of TxDOT Standard Specifications Item 300, "Asphalts, Oils, and Emulsions."
 - 2. Tack Coat: Asphaltic materials for tack coats, shown on the plans or approved by the Engineer, shall meet the requirements of TxDOT Standard Specifications Item 300, "Asphalts, Oils, and Emulsions."
 - 3. Additives: Additives to facilitate mixing and/or improve the quality of the asphaltic mixture shall be used when noted on the Drawings or may be used with the authorization of the Engineer. The Contractor may choose to use either lime or a liquid anti-stripping agent to reduce the moisture susceptibility of the aggregate. The evaluation and addition of anti-stripping agents will be in accordance with TxDOT Standard Specifications Item 301, "Asphalt Anti-stripping Agents."

B. Aggregate Materials:

1. Coarse Aggregate: ASTM D692; crushed stone or crushed gravel in accordance with TxDOT Standard Specifications Item 340.
2. Fine Aggregate: ASTM D1073; natural sand or sand manufactured from stone, gravel, or blast furnace slag in accordance with TxDOT Standard Specifications Item 340.
3. Mineral Filler: ASTM D242; thoroughly dried stone dust or finely ground mineral particles, free of foreign matter; Portland cement, lime, or fly ash, in accordance with TxDOT Standard Specifications Item 340.

2.2 MIXES

- A. Asphalt Paving Mixtures: Designed in accordance with TxDOT Standard Specifications Item 340 with a maximum 20 percent by weight reclaimed asphalt pavement.
1. Surface Course: TxDOT Standard Specifications Item 340, Type D “Fine Graded Surface Course” composed of angular crushed limestone. Smooth, uncrushed gravel is not allowed.
 2. Stability: The materials used in the mixture design shall produce a mixture with a stability of at least 35 when tested in accordance with TxDOT Test Method TEX-208-F.

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Submit proposed mix design for review prior to beginning of Work.
- C. Test samples in accordance with TxDOT Standard Specifications Item 340.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.
- C. Verify compacted Flexible Base is dry and ready to support paving and imposed loads.
- D. Verify gradients and elevations of base are correct.
- E. Verify manhole frames and valve boxes are installed in correct position and elevation.

3.2 INSTALLATION

- A. Prime Coat:
1. Apply prime coat in accordance with TxDOT Standard Specifications Item 340.
 2. Use clean sand to blot excess primer.

- B. Tack Coat:
1. Apply tack coat in accordance with TxDOT Standard Specifications Item 340.
 2. Apply tack coat on asphalt and concrete surfaces and over Flexible Base surface at uniform rate.
 - a. New Surfaces: 0.10 gal/sq yd.
 - b. Existing Surfaces: 0.10 gal/sq yd.
 3. Apply tack coat to contact surfaces of curbs, gutters and structures.
 4. Coat surfaces of manhole and valve box frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.
- C. Single Course Asphalt Paving:
1. Install Work in accordance with TxDOT Standard Specifications Item 340.
 2. Place asphalt within 24 hours of applying primer or tack coat.
 3. Place asphalt surface course to thickness indicated on Drawings.
 4. Compact paving by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
 5. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.
- D. Double Course Asphalt Paving:
1. Place asphalt binder course within 24 hours of applying primer or tack coat.
 2. Place binder course to thickness indicated on Drawings.
 3. Place surface course within 24 hours of placing and compacting binder course. When binder course is placed more than 24 hours before placing wearing course, clean surface and apply tack coat before placing wearing course.
 4. Place surface course to thickness indicated on Drawings.
 5. Compact each course by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
 6. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.
- E. Asphalt Paving Overlay
1. Apply tack coat to existing paving surface at rate recommended by Engineer.
 2. When indicated on the Drawings, install geotextile fabric in accordance with manufacturer's instructions to permit asphalt saturation of fabric. Lap fabric edge and end joints 4 inches.
 3. Place surface course to thickness indicated on Drawings.
 4. Compact overlay by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
 5. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.3 COMPACTION

- A. Hot Mix Asphaltic Concrete (HMAC) Pavement shall be compacted to between 91 and 96 percent of the maximum theoretical density as measured by ASTM D2041 and in accordance with TxDOT Standard Specifications Item 340, "Hot Mix Asphaltic Concrete Pavement" for Air Void Control.

3.4 TOLERANCES

- A. Section 01 40 00 - Quality Requirements: Tolerances.
- B. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge applied parallel with and at right angles to centerline of paved area.
- C. Scheduled Compacted Thickness: Within 1/4 inch.
- D. Variation from Indicated Elevation: Within 1/4 inch.

3.5 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting, testing.
- B. Take samples and perform tests in accordance with TxDOT Standard Specifications Item 340.
- C. Asphalt Paving Mix Temperature: Measure temperature at time of placement.
- D. Asphalt Paving Thickness: ASTM D3549; test one core sample from every 1000 square yards compacted paving.
- E. Asphalt Paving Density: Test Method Tex-207-F; test one core sample from every 1000 square yards or 1 per day (minimum) of compacted paving.
- F. Stability: Test Method Tex-208-F; one test per day during production.
- G. Extraction: Test Methods Tex-210-F; Tex-228-F; or Tex-229-F; one test per day during production.

3.6 PROTECTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Immediately after placement, protect paving from mechanical injury until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 32 92 19 - SEEDING

PART 1 GENERAL

1.1 SUMMARY

- A. Description: This item shall consist of preparing a seed bed to the lines and grades indicated, sowing of seed, fertilizing, mulching with straw, asphalt, cellulose fiber and other management practices along and across such areas as are indicated or as directed by the Engineer.
- B. Section Includes:
 - 1. Fertilizing.
 - 2. Seeding.
 - 3. Hydroseeding.
 - 4. Mulching.
 - 5. Maintenance.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Seeding:
 - 1. Measurement: Work and acceptable material for "Broadcast Seeding" or "Hydraulic Seeding" will be measured by the square yard, by the acre, or by the linear foot, complete in place, with a minimum of 95 percent coverage with no bare areas exceeding 16 square feet and a 1 1/2 inch stand of grass. Bare areas shall be reprepared and reseeded as required.
 - 2. Payment: The work performed and materials furnished and measured will be paid for at the unit price bid for "Broadcast Seeding" or "Hydraulic Seeding" of the method specified, which price shall be full compensation for furnishing all materials, including all topsoil (if not included as a separate pay item), water seed, fertilizer, or mulch and for performing all operations necessary to complete the work. Payment will be made under one of the following:
 - a. Broadcast Seeding – per Square Yard (or, Per Acre) (or, Per Linear Foot).
 - b. Hydraulic Seeding – per Square Yard (or, Per Acre) (or, Per Linear Foot).

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.4 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, Brome Grass, or vegetative species other than specified species to be established in given area.

1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data for seed mix, fertilizer, mulch, stabilizer and other accessories.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; and types, application frequency, and recommended coverage of fertilizer.

1.7 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.8 QUALIFICATIONS

- A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.10 MAINTENANCE SERVICE

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Maintain seeded areas immediately after placement until grass is well established and exhibits vigorous growing condition.

PART 2 PRODUCTS

2.1 SEED

- A. All seed must meet the requirements of the Texas Seed Law including the labeling requirements for showing pure live seed (PLS), 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 delivery to 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.
- B. Substitutions: Section 01 60 00 - Product Requirements.

2.2 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable. Straw mulch shall be spread uniformly over the area indicated or as designated by the Engineer at the rate of 2 to 2 1/2 tons of straw per acre. The actual rate of application will be designated by the Engineer. Straw may be hand or machine placed and adequately secured.
- B. Cellulose Fiber Mulch: Cellulose fiber mulch shall be spread uniformly over the area indicated or as designated by the Engineer at the rate of 45 to 80 lbs per 1000 square feet.
- C. Fertilizer: All fertilizer shall be delivered in bags or containers clearly labeled showing the analysis. The fertilizer is subject to testing by the State Chemist in accordance with the Texas Fertilizer Law. A pelleted or granulated fertilizer shall be used with an analysis indicated below. 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. Fifty percent or greater of the Nitrogen required shall be in the form of Nitrate Nitrogen (NO_3). The remaining Nitrogen required may be in the form of Urea Nitrogen ($\text{CO}(\text{NH}_2)_2$).

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

Fertilizer shall be commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil to the following proportions: Nitrogen 15 percent, phosphoric acid 15 percent, soluble potash 15 percent.

- D. Lime: ASTM C602, Class T agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
- E. Water: Clean, fresh and free of industrial wastes and other substances or matter capable of inhibiting vigorous growth of grass.
- F. Soil Retention Blanket: Jute mesh or matting (open weave), or other material used as a soil retention blanket for erosion control purposes.

- G. Herbicide: As specified.
- H. Stakes: Softwood lumber, chisel pointed.
- I. String: Inorganic fiber.

2.3 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing, inspection and analysis requirements.
- B. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.
- C. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.
- D. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify prepared soil base is ready to receive the Work of this section.

3.2 PREPARING SEED BED

- A. After the designated areas have been rough graded to the lines, grades and typical sections indicated or as provided for in other items of this contract and any other soil area disturbed by the construction, a suitable seed bed shall be prepared. The seed bed shall consist of either 4 inches of approved topsoil or 4 inches of approved salvaged topsoil cultivated and rolled sufficiently to a state of good tilth which could prevent the seed from being covered too deep for optimum germination. The optimum depth for seeding shall be 1/4 inch. Water shall be applied as required to prepare the seed bed. Seeding shall be performed in accordance with the requirements hereinafter described.

3.3 FERTILIZING

- A. Apply lime at application rate recommended by soil analysis. Work lime into top 6 inches of soil.
- B. Apply fertilizer at application rate as indicated below:

Use	Type	Application Rate Pound Per Acre
Broadcast Seeding	Any	400
Hydraulic Seeding	Water Soluble	653
Sodding	Any	300

- C. Apply after smooth raking of topsoil and prior to roller compaction.
- D. Do not apply fertilizer at same time or with same machine used to apply seed.
- E. Mix fertilizer thoroughly into upper 2 inches of topsoil.
- F. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

3.4 BROADCAST SEEDING

- A. The seed or seed mixture in the quantity specified shall be uniformly distributed over the prepared seed bed areas indicated 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. After planting, the planted area shall be rolled with a corrugated roller of the “Culitpacker” type. All rolling of the slope areas shall be on the contour.
- B. Seed Mixture and Rate of Application for Broadcast Seeding: From September 15 to March 1, seeding shall be with a combination of unhulled Bermuda Grass at a rate of 2 pounds per 1000 square feet and winter rye at a rate of 7 pounds per 1000 square feet that has a PLS = 0.83. From March 1 to September 15, seeding shall be with hulled Bermuda Grass at a rate of 2 pounds per 1000 square feet with a PLS = 0.83. Fertilizer shall be applied as specified herein.
- C. Do not seed areas in excess of that which can be mulched on same day.
- D. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph.
- E. Lightly roll seeded area with roller not exceeding 112 lbs/linear foot.
- F. Immediately following seeding and rolling, apply mulch to thickness of 1/8 inch. Maintain clear of shrubs and trees.
- G. The broadcast seeded areas shall immediately be watered with a minimum of 5 gallons of water per square yard or as needed and in the manner and quantity as directed by the Engineer. Water shall be applied at a minimum rate of 10 gallons per square yard weekly except when rainfall of 1/2 inch or greater occurs on the site, the water can be postponed for one week or as directed, until the grass is uniformly 1 1/2 inches in height.

3.5 HYDRAULIC SEEDING

- A. The seed bed shall be prepared as specified above and hydraulic seeding equipment, which is capable of placing all materials in a single operation, shall be used.

March 1 to September 15: Hydraulic seeding mixture and minimum rate of application per 1000 square feet:

Hulled Bermuda Seed (PLS = 0.83)	Water Soluble Fertilizer	Cellulose Fiber Mulch	Soil Tackifier
1 lb.	15 lbs.	45.9 lbs.	1.4 lbs.

September 15 to March 1: Add 7 pounds per 1000 square feet of winter rye with a PLS = 0.83 to above mixture. Fertilizer shall be applied as specified herein.

- B. Watering: Hydraulically planted seeded area shall be watered weekly, except when rainfall of 1/2 inch or greater occurs on the site, the watering can be postponed for one week, commencing after the tackifier has dried or until the grass is uniformly 1 1/2 inches in height.

The native grass seeded area shall be watered at a minimum rate of 5 gallons per square yard weekly commencing after the tackifier has dried or until the grass is uniformly 1 1/2 inches in height. The watering can be postponed for one week or as directed, when rainfall of 1 1/2 inches or greater occurs on the site.

3.6 SEED PROTECTION

- A. Cover seeded slopes where grade is 3:1 (Horizontal:Vertical) or greater with soil retention blanket. Roll fabric onto slopes without stretching or pulling.
- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch intervals with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.7 MAINTENANCE

- A. Mow grass at regular intervals to maintain at maximum height of 2-1/2 inches. Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.
- B. Neatly trim edges and hand clip where necessary.

- C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.
- D. Water to prevent grass and soil from drying out.
- E. Lightly roll surface to remove minor depressions or irregularities.
- F. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
- G. Immediately reseed areas showing bare spots.
- H. Repair washouts or gullies.
- I. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

SECTION 33 01 30 – FRAMES, GRATES, RINGS AND COVERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Construction of frames, grates, rings and covers.
 - 2. Raising manhole frames and covers.
 - 3. Replacing manhole frames and covers.
- B. Related Sections:
 - 1. Section 33 05 14 - Manholes and Structures.
 - 2. Section 33 31 13 - Public Sanitary Utility Sewerage Piping.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Frames, Grates, Rings and Covers will not be measured and payment for furnishing all materials, tools, equipment, labor and incidentals necessary to complete the work will be included in the Bid items which constitute the complete structures.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
 - 2. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
 - 3. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
 - 4. ASTM C642 - Standard Test Method for Density, Absorption, and Voids in Hardened Concrete.
 - 5. ASTM C672 - Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.
 - 6. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
 - 7. ASTM D395 - Standard Test Method for Rubber Property - Compression Set.
 - 8. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
 - 9. ASTM D573 - Standard Test Method for Rubber-Deterioration in an Air Oven.
 - 10. ASTM D575 - Standard Test Methods for Rubber Properties in Compression.
 - 11. ASTM D2240 - Standard Test Method for Rubber Property-Durometer Hardness.
 - 12. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - 13. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

- B. Product Data: Submit manhole covers and riser rings construction, features, configuration, and dimensions.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record actual grade adjustment elevation of manhole.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum five years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

1.7 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in undamaged, unopened container, bearing manufacturer's original labels. Inspect for damage.
- C. Protect materials from damage by storage in secure location.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.10 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Provide schedule of manhole grade adjustment.

PART 2 PRODUCTS

2.1 FRAMES, GRATES, RINGS AND COVERS

- A. Manufacturers:
 - 1. East Jordan Iron Works (EJ Group, Inc.).
 - 2. Neenah Foundry (Neenah Enterprises, Inc.).

3. Substitutions: Section 01 60 00 - Product Requirements.

2.2 MATERIALS

A. Welded Steel:

1. Welded steel grates and frames shall conform to the member, size, dimensions and details indicated and shall be welded into an assembly in accordance with those details. Steel shall conform to the requirements of ASTM A36.

B. Castings:

1. Castings, whether Carbon-Steel, Gray Cast Iron or Ductile Iron shall conform to the shape and dimensions indicated and shall be clean substantial castings, free from sand or blowholes or other defects. Surfaces of the castings shall be free from burnt on sand and shall be reasonably smooth. Runners, risers, fins and other cast on pieces shall be removed from the castings and such areas ground smooth. Bearing surfaces between manhole rings and covers or grates and frames shall be cast or machined with such precision that uniform bearing shall be provided throughout the perimeter area of contact. Pairs of machined castings shall be matchmarked to facilitate subsequent identification at installation.
2. Steel castings shall conform to ASTM A27, "Mild to Medium Strength Carbon Steel Castings for General Application." Grade 70-36 shall be furnished unless otherwise specified.
3. Cast iron castings shall conform to ASTM A48, "Gray Iron Castings," Class 30.
4. Ductile Iron castings shall conform to ASTM A536, "Ductile Iron Castings." Grade 60-40-18 shall be used unless otherwise indicated.

C. Rings:

1. ASTM A536, "Gray Iron Castings."

D. Nuts and Bolts:

1. Stainless Steel ASTM F593.

E. Mortar:

1. Mortar for bedding castings shall consist of one part cement and 3 parts sand meeting the requirements of fine aggregate Section 03 30 00 Cast-in-Place Concrete.

F. Accessories:

1. Joint Sealant: ASTM C990.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify and locate manholes requiring grade adjustment.

3.2 CONSTRUCTION METHODS

- A. Frames, grates, rings and covers shall be constructed of the materials as specified and in accordance with the details indicated and shall be placed carefully to the lines or grades indicated or as directed by the Engineer.
- B. All welding shall conform to the requirements of the AWS-D-1-72. Welded frames, grates, rings and covers shall be hot-dipped galvanized (ASTM F1554).
- C. Painting of gray iron castings will not be required, except when used in conjunction with structural steel shapes.

3.3 EXISTING WORK

- A. Saw cut existing paving.
- B. Excavate.
- C. Clean manholes.
- D. Remove existing manhole frames and covers.
- E. Repair waterproofing.

3.4 RAISING MANHOLE FRAMES AND COVERS

- A. Locate and raise manholes to grade as indicated on Drawings.
- B. Use precast concrete manhole rings to achieve elevation indicated for frame and cover.
- C. Do not adjust elevation more than 12 inches with manhole rings.
- D. Seal joints between manhole top, rings, and frame with sealant.
- E. Reinstall removed manhole frame and cover.

3.5 REPLACING MANHOLE FRAMES AND COVERS

- A. Remove existing manhole frames and covers to enable reuse.
- B. Deliver removed manhole frames and covers to Owner as maintenance materials in accordance with Section 01 70 00 - Execution and Closeout Requirements.
- C. Install new frames and covers for manholes as indicated on Drawings. Adjust to match finished grade as indicated on Drawings. Seal joints between manholes and manhole frames.

3.6 PAVING RESTORATION

- A. Restore bituminous paving areas in accordance with Section 32 12 16.

END OF SECTION

SECTION 33 01 32 - SEWER AND MANHOLE TESTING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Testing Manholes:
 - a. Vacuum Test.
 - b. Exfiltration Test.
 - 2. Testing Gravity Sewer Piping:
 - a. Low-pressure Air Test.
 - b. Infiltration Test.
 - 3. Hydrostatic Testing Pressure Piping.
 - 4. Deflection Testing.
- B. Related Sections:
 - 1. Section 33 01 30 - Frames, Grates, Rings, and Covers.
 - 2. Section 33 31 13 - Public Sanitary Utility Sewerage Piping.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test Prior to Backfill.
 - 2. ASTM D2122 - Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Submit the following prior to start of testing:
 - 1. Testing procedures.
 - 2. List of test equipment.
 - 3. Testing sequence schedule.
 - 4. Provisions for disposal of flushing and test water.
 - 5. Certification of test gauge calibration.
 - 6. Deflection mandrel drawings and calculations.
- C. Test Reports: Indicate results of manhole and piping tests.

PART 2 PRODUCTS

2.1 VACUUM TESTING EQUIPMENT

- A. Vacuum pump.

- B. Vacuum line.
- C. Vacuum tester base with compression band seal and outlet port.
- D. Shut-off valve.
- E. Stop watch.
- F. Plugs.
- G. Vacuum gauge, calibrated to 0.1 inch Hg

2.2 EXFILTRATION TEST EQUIPMENT

- A. Plugs.
- B. Pump.
- C. Measuring device.

2.3 AIR TEST EQUIPMENT

- A. Air compressor.
- B. Air supply line.
- C. Shut-off valves.
- D. Pressure regulator.
- E. Pressure relief valve.
- F. Stop watch.
- G. Plugs.
- H. Pressure gauge, calibrated to 0.1 psi.

2.4 INFILTRATION TEST EQUIPMENT

- A. Weirs.

2.5 HYDROSTATIC TEST EQUIPMENT

- A. Hydro pump.
- B. Pressure hose.
- C. Water meter.
- D. Test connections.

- E. Pressure relief valve.
- F. Pressure gauge, calibrated to 0.1 psi.

2.6 DEFLECTION TEST EQUIPMENT

- A. Go, No-Go mandrels.
- B. Pull/retrieval ropes.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify manholes and piping are ready for testing.
- C. Verify trenches are backfilled.
- D. Verify pressure piping concrete reaction support blocking or mechanical restraint system is installed.

3.2 PIPING PREPARATION

- A. Lamping:
 - 1. Lamp gravity piping after flushing and cleaning.
 - 2. Perform lamping operation by shining light at one end of each pipe section between manholes; observe light at other end; reject pipe not installed with uniform line and grade; remove and reinstall rejected pipe sections; re-clean and lamp until pipe section achieves uniform line and grade.
- B. Plug outlets, wye-branches and laterals; brace plugs to resist test pressures.

3.3 FIELD QUALITY CONTROL

- A. Sections 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Testing Gravity Sewer Piping:
 - 1. Low-pressure Air Test:
 - a. Test each section of gravity sewer piping between manholes.
 - b. Introduce air pressure slowly to approximately 4 psig.
 - 1) Determine ground water elevation above spring line of pipe for every foot of ground water above spring line of pipe, increase starting air test pressure by 0.43 psig; do not increase pressure above 10 psig.
 - c. Allow pressure to stabilize for at least five minutes. Adjust pressure to 3.5 psig or increased test pressure as determined above when ground water is present. Start test.

d. Test:

- 1) Determine test duration for sewer section with single pipe size from the following table. Do not make allowance for laterals.

Nominal Pipe Size, inches	Minimum Test Time, min/ 100 feet
6	0.7
8	1.2
10	1.5
12	1.8
15	2.1
18	2.4
21	3.0
24	3.6
27	4.2
30	4.8
33	5.4
36	6.0

- 2) Record drop in pressure during test period; when air pressure has dropped more than 1.0 psig during test period, piping has failed; when 1.0 psig air pressure drop has not occurred during test period, discontinue test and piping is accepted.
 - 3) When piping fails, determine source of air leakage, make corrections and retest; test section in incremental stages until leaks are isolated; after leaks are repaired, retest entire section between manholes.
2. Test pipe larger than 36 inches diameter with exfiltration test not exceeding 100 gallons for each inch of pipe diameter for each mile per day for each section under test. Perform test with minimum positive head of 2 feet.
 3. Infiltration Test:
 - a. Use only when gravity piping is submerged in ground water minimum of 4 feet above crown of pipe for entire length being tested.
 - b. Maximum Allowable Infiltration: 100 gallons per inch of pipe diameter for each mile per day for section under test, include allowances for leakage from manholes. Perform test with minimum positive head of 2 feet.

C. Pressure test system in accordance with AWWA C600 and the following:

1. Hydrostatically test each portion of pressure piping, including valved section, at 1.5 times working pressure of piping based on elevation of lowest point in piping corrected to elevation of test gauge.
2. Conduct hydrostatic test for at least two-hour duration.
3. Fill section to be tested with water slowly, expel air from piping at high points. Install corporation cocks at high points. Close air vents and corporation cocks after air is expelled. Raise pressure to specified test pressure.
4. Observe joints, fittings and valves under test. Remove and renew cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
5. Correct visible deficiencies and continue testing at same test pressure for additional 2 hours to determine leakage rate. Maintain pressure within plus or minus 5.0 psig of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.

6. Compute maximum allowable leakage by the following formula:

$L = (SD\sqrt{P})/C$
L = testing allowance, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

7. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage.

D. Deflection Testing of Plastic Sewer Pipe:

1. Perform vertical ring deflection testing on PVC sewer piping, after backfilling has been in place for at least 30 days.
2. Allowable maximum deflection for installed sewer pipe limited to 5 percent of original vertical internal diameter.
3. Perform deflection testing using properly sized rigid ball or 'Go, No-Go' mandrel.
4. Furnish rigid ball or mandrel with diameter not less than 95 percent of base or average inside diameter of pipe as determined by ASTM standard to which pipe is manufactured. Measure pipe in compliance with ASTM D2122.
5. Perform test without mechanical pulling devices.
6. Locate, excavate, replace and retest pipe exceeding allowable deflection.

E. Testing Manholes:

1. General: Test using air whenever possible prior to backfilling to assist in locating leaks. Make joint repairs on both outside and inside of joint to ensure permanent seal. Test manholes with manhole frame set in place.
2. Vacuum test in accordance with ASTM C1244 and as follows:
 - a. Plug pipe openings; securely brace plugs and pipe.
 - b. Inflate compression band to effect seal between vacuum base and structure; connect vacuum pump to outlet port with valve open; draw vacuum to 10 inches of Hg; close valve; start test.
 - c. Test:
 - 1) Determine test duration for manhole from the following table:

Manhole Diameter	Test Period
4 feet	60 seconds
5 feet	75 seconds
6 feet	90 seconds

- 2) Record vacuum drop during test period; when vacuum drop is greater than 1 inch of Hg during test period, repair and retest manhole; when vacuum drop of 1 inch of Hg does not occur during test period, discontinue test and accept manhole.

- 3) When vacuum test fails to meet 1 inch Hg drop in specified time after repair, repair and retest manhole.
3. Exfiltration Test:
- a. Plug pipes in manhole; remove water in manhole; observe plugs over period of not less than 2 hours to ensure there is no leakage into manhole.
 - b. Determine ground water level outside manhole.
 - c. Fill manhole with water to top of cover frame. Prior to test, allow manhole to soak from minimum of 4 hours to maximum of 72 hours; after soak period, adjust water level inside manhole to top of cover frame.
 - d. Measure water level from top of manhole frame; at end of 4 hour test period, again measure water level from top of manhole frame; compute drop in water level during test period.
 - e. Manhole exfiltration test is considered satisfactory when drop in water level is less than values listed in table below:

Manhole Depth (feet)	Allowable Leakage inches for Manhole Diameter		
	4 feet	5 feet	6 feet
4	0.11	0.14	0.17
6	0.17	0.21	0.26
8	0.23	0.29	0.35
10	0.28	0.35	0.42
12	0.34	0.43	0.51
14	0.40	0.50	0.60
16	0.45	0.56	0.68
18	0.51	0.64	0.77
20	0.57	0.71	0.86
22	0.62	0.78	0.93
24	0.68	0.85	1.02
26	0.74	0.93	1.11
28	0.79	0.99	1.19
30	0.85	1.06	1.28

4. When unsatisfactory test results are achieved, repair manhole and retest until result meets criteria; repair visible leaks regardless of quantity of leakage.

END OF SECTION

SECTION 33 05 14 - MANHOLES AND STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Modular precast concrete manholes and structures with tongue-and-groove joints with transition to cover frame, covers, anchorage, and accessories.
2. Bedding, embedment, and backfill materials.

B. Related Sections:

1. Section 31 05 13 – Topsoil: Soils for backfill in trenches.
2. Section 31 23 16 - Excavation: Excavating for manholes, structures and foundation slabs.
3. Section 31 23 23 - Fill: Backfilling after manhole and structure installation.
4. Section 32 05 16 - Aggregates for Civil Site Improvements: Aggregate for backfill in trenches.
5. Section 33 01 30 - Frames, Grates, Rings, and Covers.
6. Section 33 01 32 - Sewer and Manhole Testing.
7. Section 33 31 13 - Public Sanitary Utility Sewerage Piping: Piping connections to manholes.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Manholes and Structures:

1. Basis of Measurement: Per each.
2. Basis of Payment: Includes excavating, concrete foundation slab, concrete structure sections, concrete structure construction, cover frame and cover, to indicated depth, forming and sealing pipe inlets and outlets.
3. For manholes greater than five feet in depth, each additional foot above five feet shall be paid by the vertical foot.

1.3 REFERENCES

A. American Association of State Highway Transportation Officials:

1. AASHTO M288 - Geotextiles.
2. AASHTO M306 - Drainage Structure Castings.
3. AASHTO M91 - Sewer and Manhole Brick (Made from Clay or Shale).

B. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements for Masonry Structures and Specifications for Masonry Structures.

C. ASTM International:

1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).

4. ASTM C55 - Standard Specification for Concrete Brick.
5. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
6. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
7. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
9. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Shop Drawings: Indicate structure locations, elevations, piping, conduit, and invert sizes and elevations of penetrations.
- C. Product Data: Submit manhole covers, component construction, features, configuration, dimensions and invert configuration.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum five years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum five years documented experience.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Comply with precast concrete manufacturer's instructions and ASTM C913 for unloading, storing and moving precast manholes and drainage structures.
- C. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property. Repair property damaged from materials storage.
- D. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Cold Weather Requirements: ACI 530/530.1.

PART 2 PRODUCTS

2.1 MANHOLES AND STRUCTURES

- A. Furnish materials in accordance with the Specifications contained herein.
- B. Precast Concrete Manholes and Structures (Wastewater): Precast Reinforced Concrete Manhole sections shall be made from crushed limestone coarse aggregates and natural silica fine sand aggregates. The concrete shall be sulfate resistant concrete with Type V Portland Cement and antimicrobial admixture as per Paragraph 2.4(A). The maximum water-cement ratio shall be 0.40 and the 28-day concrete compressive strength shall not be less than 5000 psi and the absorption shall not exceed 9%. Fly ash may be used for up to 30% of the cementitious material provided it has been tested in accordance with ASTM C1012 and exhibits a positive sulfate resistance when used with the sulfate-resistant concrete mix design. Type C fly ash shall not be used in sulfate resistant concrete. The structure shall be “moist-cured” for a minimum period of four (4) days.

The minimum wall thickness of the manhole shall be as follows:

Manhole Size	Minimum Wall Thickness
48” I.D.	5”
60” I.D.	6”
72” I.D.	7”
84” I.D.	8”

Cone sections will be made with 5” minimum wall at the bottom and an 8” wall thickness at the top. All base riser sections will be made with the bottom cast monolithically. The minimum thickness of the bottom shall be 6” for all manhole diameters. The manhole diameter to be used shall be as indicated on Drawings.

- C. Grout: As specified in Section 03 60 00.

2.2 FRAMES, GRATES, RINGS AND COVERS

- A. Furnish and install in accordance with Section 33 01 30 - Frames, Grates, Rings and Covers.

2.3 CONFIGURATION

- A. Shaft Construction and Concentric or Eccentric (as indicated) Cone Top Section: Reinforced precast or Cast-In-Place Concrete pipe sections, lipped male/female gasketed joints, sleeved to receive pipe.
- B. Shape: Cylindrical.
- C. Clear Inside Dimensions: 48, 60, or 72-inch diameter as indicated on Drawings.
- D. Design Depth: As indicated on Drawings.
- E. Clear Cover Opening: 30 inches diameter.

- F. Pipe Entry: Furnish openings as indicated on Drawings.
- G. Structure Joint Gaskets: ASTM C361; ASTM C990; and Federal Specification No. SS-S-00210; rubber.
 - 1. Manufacturers:
 - a. Ram-Neck.
 - b. Kent-Seal No. 2.

2.4 ACCESSORIES

- A. Antimicrobial Admixture for Sulfate Resistant Concrete for Wastewater Manholes:
 - 1. An antimicrobial agent, ConmicShield®, or approved equal, shall be used to render the concrete uninhabitable for bacteria growth.
 - 2. The liquid antibacterial admixture shall be an EPA registered material and the registration number shall be submitted for approval prior to use in the project.
 - 3. The amount to be used shall be as recommended by the manufacturer of the antibacterial admixture. This amount shall be included in the total water content of the concrete mix design.
 - 4. The admixture shall be added into the concrete mix water to insure even distribution of the admixture throughout the concrete mixture.
 - 5. ConTint concrete colorant, or approved equal, shall be added at the manufacturer's recommended dosage.
 - 6. Acceptance: acceptance of a product on the basis of a letter of certification to the Engineer stating that the correct amount and correct mixing procedure was followed for all antimicrobial concrete.
- B. Product Marking: add the name of the antimicrobial product.
- C. Cement: ASTM C150, Type V – sulfate resistant Portland type.
- D. Grout: Specified in Section 03 60 00.
- E. Watertight Polyethylene: Heat-shrinkable manhole encapsulation system:
 - 1. Manufacturers:
 - a. WrapidSeal by CCI Pipeline Systems.
 - b. Substitutions: Section 01 60 00 - Product Requirements.

2.5 FOUNDATION AND BACKFILL MATERIALS

- A. Foundation: Coarse Aggregate Type A2 (Grade No. 3) as specified in Section 32 05 16.
- B. Backfill Materials:
 - 1. Backfill Materials Outside of Traffic Areas: Excavated backfill material outside of traffic areas shall consist of an excavated material of gravel, fine rock cuttings, sandy loam, or clay having dimensions no greater than 2 inches.
 - 2. Backfill Materials Beneath Pavements:
 - a. Coarse Aggregate Type A1 (Flexible Base) per Section 32 11 23 – Flexible Base.
 - b. Aggregate Type A3 (Gravel for Trench Backfill) per Section 32 05 16 – Aggregates for Civil Site Improvements.
 - c. Flowable Fill per Section 32 23 24 – Flowable Fill.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify items provided by other sections of Work are properly sized and located.
- C. Verify built-in items are in proper location, and ready for roughing into Work.
- D. Verify correct size of manhole and structure excavation.

3.2 PREPARATION

- A. Coordinate placement of inlet and outlet pipe.
- B. Do not install manholes and structures where site conditions induce loads exceeding structural capacity of manholes or structures.
- C. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify manholes and structures are internally clean and free from damage. Remove and replace damaged units.

3.3 INSTALLATION - GENERAL

- A. Excavation:
 - 1. Excavate for manholes and structures in accordance with Section 31 23 16 in location and to depth shown. Provide clearance around sidewalls of manhole or structure for construction operations.
 - 2. When groundwater is encountered, prevent accumulation of water in excavations. Place manholes or structures in dry trench.
 - 3. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation.
- B. Install manholes and structures supported at proper grade and alignment on Coarse Aggregate Type A2 (Crushed Stone) foundation as shown on Drawings. When indicated on Drawings, install geotextile fabric over subgrade in accordance with manufacturer's instructions.
- C. Backfill excavations for manholes and structures in accordance with Section 31 23 17.
- D. Form and place manhole or structure cylinder plumb and level, to correct dimensions and elevations.
- E. Grout base of manhole to construct invert and achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel as indicated on Drawings.
- F. Set cover frames and covers level without tipping, to correct elevations.

3.4 PRECAST CONCRETE MANHOLE AND STRUCTURE INSTALLATION

- A. Lift precast manholes and structures at lifting points designated by manufacturer.
- B. When lowering manholes and structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and manhole or structure remains clean.
- C. Set precast manholes and structures bearing firmly and fully on Coarse Aggregate Type A2 (Crushed Stone), compacted in accordance with provisions of Section 31 23 23. When indicated on Drawings, install geotextile fabric over subgrade in accordance with manufacturer's instructions.
- D. Assemble multi-section manholes and structures by lowering each section into excavation. Install rubber gasket joints between precast sections in accordance with manufacturer's recommendations. Lower, set level, and firmly position base section before placing additional sections.
- E. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.
- F. Joint sealing materials may be installed on site or at manufacturer's plant.
- G. Verify manholes and structures installed satisfy required alignment and grade.
- H. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe. Fill annular space with mortar.
- I. Cut pipe to finish flush with interior of manhole or structure.
- J. Grout base of manhole to construct invert and achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel as indicated on Drawings.

3.5 SANITARY MANHOLE DROP CONNECTIONS

- A. Construct drop connections into sanitary manholes in accordance with Drawings.
- B. Form channel from pipe drop to sweep into main channel at maximum angle of 30 degrees.

3.6 CASTINGS INSTALLATION

- A. Set frames using mortar as indicated on Drawings. Install precast concrete grade rings with 1/4 inch thick joints. Lay concrete rings in full bed of mortar and completely fill joints.
- B. Unless indicated otherwise, set frame and cover 8 inches above finished grade for manholes and other structures with covers located within unpaved areas to allow area to be graded away from cover beginning 2 inches below top surface of frame.

3.7 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Test concrete manhole and structure sections in accordance with ASTM C497.

END OF SECTION

SECTION 33 31 13 - PUBLIC SANITARY UTILITY SEWERAGE PIPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sanitary sewer pipe and fittings.
 - 2. Underground pipe markers.
 - 3. Connection to existing manholes.
 - 4. Manholes.
 - 5. Wye branches and tees.
 - 6. Sanitary Laterals.
 - 7. Pile support systems.
 - 8. Bedding, embedment, and backfill materials.

- B. Related Sections:
 - 1. Section 03 60 00 - Grouting: Non-shrink grout.
 - 2. Section 31 05 13 - Topsoil: Soils for backfill in trenches.
 - 3. Section 32 05 16 - Aggregates for Civil Site Improvements: Aggregate for backfill in trenches.
 - 4. Section 31 23 16 - Excavation: Product and execution requirements for excavation and backfill required by this section.
 - 5. Section 31 23 17 - Trenching: Execution requirements for trenching required by this section.
 - 6. Section 31 23 23 - Fill: Requirements for backfill to be placed by this section.
 - 7. Section 33 01 32 - Sewer and Manhole Testing.: Pressure, infiltration, and deflection tests.
 - 8. Section 33 05 14 - Manholes and Structures: Concrete manholes, frames and grates for sanitary sewer.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Pipe and Fittings:
 - 1. Basis of Measurement: By the linear foot.
 - 2. Basis of Payment: Includes excavation, bedding, embedment, backfill, pipe and fittings, to indicated depth and connection to existing sewer.

- B. Sewer Services:
 - 1. Basis of Measurement: Per Each.
 - 2. Basis of Payment: Includes excavation, bedding, embedment, backfill, pipe and fittings, wye, cleanout, box, and incidentals, complete and in-place.

1.3 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
4. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
5. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
6. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
7. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
8. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
9. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
10. ASTM D1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
11. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.
12. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
13. ASTM D2466 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
14. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
15. ASTM D2729 - Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
16. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
17. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
18. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
19. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
20. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
21. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - American National Standard for Ductile-Iron and Grey-Iron Fittings, 3 in. through 48 in. (75 mm through 1200 mm), for Water and Other Liquids.

4. AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 5. AWWA C150 - ANSI Standard for the Thickness Design of Ductile Iron Pipe.
 6. AWWA C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.
 7. AWWA C153 - American National Standard for Ductile-Iron Compact Fittings for Water Service.
- D. National Fire Protection Association:
1. NFPA 24 - Installation of Private Fire Service Mains and Their Appurtenances.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit catalog cuts and other pertinent data indicating proposed materials, accessories, details, and construction information.
- C. Submit reports indicating field tests made and results obtained.
- D. Manufacturer's Installation Instructions:
 1. Indicate special procedures required to install Products specified.
 2. Submit detailed description of procedures for connecting new sewer to existing sewer line and directional drilling pipe jacking installation.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.
- B. Project Record Documents: Record location of pipe runs, connections, manholes, cleanouts, and invert elevations.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum 5 years documented experience.

1.7 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.
- C. Include affected utility companies and appropriate local officials.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Deliver and store valves in shipping containers with labeling in place.
- C. Block individual and stockpiled pipe lengths to prevent moving.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements and elevations are as indicated on Drawings.

1.10 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.
- B. Coordinate the Work with the City of Bellmead Public Works Department.
- C. Notify affected utility companies minimum of 72 hours prior to construction.

PART 2 PRODUCTS

2.1 SANITARY SEWER PIPE AND FITTINGS

- A. Sanitary Sewer Pipe: ASTM D3034, SDR 26, Poly (Vinyl Chloride) (PVC) material; bell and spigot style rubber ring sealed gasket joint.
 - 1. Fittings: ASTM D3034, SDR 35, PVC material.
 - 2. Joints: ASTM F477, elastomeric gaskets.

2.2 SANITARY SEWER SERVICE PIPE AND FITTINGS

- A. Service Pipe: ASTM 3034, SDR 26 Poly (Vinyl Chloride) (PVC) material; bell and spigot style rubber ring gasket joint.
- B. Fittings: ASTM 3034, SDR 35, PVC material.
- C. Joints: ASTM 477, elastomeric gaskets.

2.3 FLEXIBLE COUPLINGS

- A. Manufacturers:
 - 1. Fernco, Inc.
 - 2. The Metraflex Company.
 - 3. Siemens AG Water Technologies.
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Flexible Coupling: Resilient chemical-resistant elastomeric polyvinyl chloride (PVC) coupling, two Series 300 stainless steel clamps and stainless steel screws and housings.

2.4 FLEXIBLE PIPE BOOT FOR MANHOLE PIPE ENTRANCES

- A. Manufacturers:
 - 1. A-Lok.
 - 2. J-K Polysource, Inc.
 - 3. Trelleborg Pipe Seals Milford, Inc.
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Flexible Pipe Boot: ASTM C923, ethylene propylene rubber (EPDM), Series 300 stainless steel clamp and stainless steel hardware.

2.5 CONCRETE ENCASUREMENT AND CRADLES

- A. Concrete: 2000 psi 28 day concrete, rough troweled finish, as indicated on Drawings.

2.6 MANHOLES

- A. Manholes: Conform to Section 33 05 14 as indicated on Drawings.

2.7 BEDDING, EMBEDMENT, AND BACKFILL MATERIALS

- A. Bedding Material: As specified in Section 31 23 17.
- B. Embedment Material: As specified in Section 31 23 17.
- C. Backfill Material: As specified in Section 31 23 17.

2.8 ACCESSORIES

- A. Grout: Specified in Section 03 60 00.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify trench excavation is ready to receive work and excavations, dimensions, and elevations are as indicated on drawings.

3.2 PREPARATION

- A. Correct over excavation with coarse aggregate.
- B. Remove large stones or other hard matter capable of damaging pipe or impeding consistent backfilling or compaction.
- C. Protect and support existing sewer lines, utilities and appurtenances.

- D. Maintain profiles of utilities. Coordinate with other utilities to eliminate interference. Notify Engineer where crossing conflicts occur.

3.3 BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 17.
- B. Excavate to lines and grades shown on Drawings.
- C. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.
- D. Provide sheeting and shoring in accordance with Section 31 23 17 and Section 31 23 15.
- E. Bedding shall be required to bring the trench bottom up to grade and shall be the same material as the embedment. The bedding shall be contoured at each belled joint to permit proper joint assembly while maintaining uniform pipe support.
- F. Place bedding to a compacted depth as indicated on the Drawings and in accordance with Section 31 23 17.
- G. Maintain optimum moisture content of bedding material to attain the required compaction density as specified in Section 31 23 17.

3.4 INSTALLATION - PIPE

- A. All wastewater installations to be in accordance with Texas Commission on Environmental Quality (TCEQ) Chapter 217.
- B. Sanitary sewers that are parallel, or cross, waterlines shall be installed in accordance with the Texas Administrative Code (TAC), Rule 290.44.
- C. Install pipe, fittings, and accessories in accordance with ASTM D2321.
- D. Lay pipe to slope gradients noted on Drawings.
- E. Assemble and handle pipe in accordance with manufacturer's instructions.
- F. Keep pipe and fittings clean until work is completed and accepted by Engineer. Cap open ends during periods of work stoppage.
- G. Lay bell and spigot pipe with bells upstream.
- H. Connect pipe to existing sewer system at existing manhole as indicated on Drawings.

3.5 INSTALLATION - CONNECTION TO EXISTING MANHOLE

- A. Core drill existing manhole to clean opening. Using pneumatic hammers, chipping guns, or sledge hammers is not permitted.

- B. Install watertight neoprene gasket and seal with non-shrink concrete grout.
- C. Prevent construction debris from entering existing sewer line when making connection.

3.6 INSTALLATION - MANHOLES

- A. Install manholes in accordance with Section 33 05 14.

3.7 INSTALLATION - WYE BRANCHES AND TEES

- A. Install wye branches or pipe tees at locations indicated on Drawings concurrent with pipe laying operations. Use standard fittings of same material and joint type as sewer main.
- B. Use saddle wye or tee with stainless steel clamps for taps into existing piping. Mount saddles with solvent cement or gasket and secure with metal bands. Layout holes with template and cut holes with mechanical cutter.

3.8 INSTALLATION - SANITARY LATERALS

- A. Construct laterals from wye branch to terminal point at right-of-way or as indicated on Drawings.
- B. Where depth of main pipeline warrants, construct riser type laterals from wye branch.
- C. Maintain 3 feet minimum depth of cover over pipe, or as indicated on Drawings.
- D. Install watertight plug, braced to withstand pipeline test pressure thrust, at termination of lateral. Install temporary marker stake extending from end of lateral to 12 inches above finished grade. Paint top 6 inches of stake with fluorescent orange paint.

3.9 EMBEDMENT

- A. Place embedment around sides and above the top of pipe in accordance with Section 31 23 17 and as indicated on Drawings.
- B. Maintain optimum moisture content of embedment material to attain required compaction density.

3.10 CONCRETE ENCASEMENT

- A. Encase pipe in concrete when indicated on Drawings.
- B. All flexible adapters, bends, and tees on service lines shall be encased in 6 inches (minimum) of concrete.

3.11 BACKFILL

- A. Place backfill above embedment material in accordance with Section 31 23 17 and as indicated on Drawings.

3.12 FIELD QUALITY CONTROL

- A. Sections 01 40 00 - Quality Requirements and 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Pressure Test: Test in accordance with Section 33 01 32.
- C. Infiltration Test: Test in accordance with Section 33 01 32.
- D. Deflection Test: Test in accordance with Section 33 01 32.
- E. Request inspection prior to and immediately after placing embedment.
- F. Compaction Testing for Bedding, Embedment, and Backfill: In accordance with Section 31 23 17.
- G. When tests indicate Work does not meet specified requirements, remove work, replace and retest.
- H. Frequency of Compaction Tests: Per Section 31 23 17.

3.13 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

SECTION 33 34 10 - TEMPORARY BYPASS PIPELINE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Design Requirements.
 - 2. Performance Requirements.
- B. Related Requirements:
 - 1. Section 01 33 00 - Submittal Procedures.
 - 2. Section 04 40 00 - Quality Requirements.

1.2 DESCRIPTION

- A. This Section requires the Contractor to furnish all materials, labor, equipment, maintenance, etc. to implement temporary force main pumping and other necessary appurtenances for the purpose of diverting the existing flow around the work area identified within the drawings.
- B. The design, installation and operation of the temporary pipeline system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

1.3 UNIT PRICES - MEASUREMENT AND PAYMENT

- A. Measurement for the work will be by lump sum and as required by the drawings and specifications. Should Contractor determine additional bypass pipeline is required that is not specifically shown on the drawings, this will not be measured separately for payment and will be considered incidental. Repair or replacement of manhole sections disturbed as part of the bypass operations is considered incidental to the bid item and will not be measured separately for payment.

1.4 DESIGN REQUIREMENTS

- A. Bypass pipeline system shall have sufficient capacity to divert existing flows during construction activities. The Contractor shall provide all pipeline plugs and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be replaced. Bypass pipeline system will be required to be operated 24 hours per day.
- B. Provide adequate standby piping available and ready for immediate operation and use in the event of an emergency.
- C. Bypass pipeline system shall be capacity of bypassing the flow around the work area.
- D. Make all arrangements for the bypass pipeline during the time when the force main is shut down.

1.5 PERFORMANCE REQUIREMENTS

- A. It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the wastewater installation work. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, conduits and all other labor and equipment to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing sewer downstream of his work.
- B. The design, installation and operation of the temporary pipeline system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- C. Provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.
- D. Maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.
- E. Protect water resources, wetlands and other natural resources.
- F. Any spillage, backups and/or overflows, etc. as a result of inadequate pipeline equipment are the sole responsibility of the Contractor.

1.6 COORDINATION

- A. Section 01 30 00 - Administrative Requirements specifies requirements for coordination.

1.7 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures specifies requirements for submittals.
- B. Shop Drawings:
 - 1. Prepare a specific description of the proposed pipeline system and submit it for review and approval.
 - 2. Submit detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. Plan must be specific and complete to insure proper protection of the facilities. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.
 - 3. Plan shall include but not limited to details of the following:
 - a. Sewer plugging method and types of plugs;
 - b. Number, size, material, method of installation and location of installation of discharge piping;
 - c. Downstream discharge plan;
 - d. Method of protecting discharge manholes or structures from erosion and damage;
 - e. Any thrust restraint locations;
 - f. Any temporary pipe supports and anchoring required;
 - g. Calculations of selection of bypass pipe size;
 - h. Schedule for installation of and maintenance of bypass pumping lines;

- i. Plan indicating selection location of bypass pumping line locations.

PART 2 PRODUCTS

2.1 DISCHARGE PIPING

- A. In order to prevent the accidental spillage of flows all discharge system shall be temporarily constructed of rigid pipe with positive restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the Engineer.

PART 3 EXECUTION

3.1 PREPARATION

- A. Locate any existing utilities in the area the Contractor selects to locate the bypass pipelines in order to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the City and the Engineer. All cost associated with relocating utilities and obtaining approvals shall be paid by the Contractor.
- B. During all bypass piping operations, protect the existing sewer manholes. The Contractor is responsible for all physical damage caused by Contractors operations.

3.2 INSTALLATION AND REMOVAL

- A. Installation of bypass pipelines:
 1. Pipeline may be placed along shoulder of roads.
 2. When bypass pipeline crosses local streets and private driveways, place in roadway ramps or place pipeline in trenches and cover with temporary pavement.
 3. Pipeline may not be located on Union Pacific Railroad right-of-way.
- B. Remove manhole sections or make connections to the existing sewer at the locations indicated on the Drawings.
- C. When working inside manhole or force main, exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.
- D. The pipeline must be located off streets and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the Contractor must place the bypass pipelines in roadway ramps or in trenches and cover with temporary pavement. Upon completion of the bypass pipeline operations, the Contractor shall remove all the piping, restore all property to pre-construction condition and restore all pavement.

3.3 FIELD QUALITY CONTROL AND MAINTENANCE

- A. Perform leakage and pressure tests of the bypass piping using clear water prior to actual operation.

- B. Inspect bypass pumping system daily to ensure that the system is working correctly.
- C. Insure that the temporary system is properly maintained.
- D. Spare parts for piping shall be kept on site as required.

END OF SECTION



DRAWINGS for CITY OF BELLMEAD

DRAWINGS
as part of
the
Bidding Documents

SAN JACINTO STREET, UTAH STREET, AND SAM HOUSTON STREET WASTEWATER IMPROVEMENTS (TXCDBG PROJECT - CONTRACT #CDV21-0001)

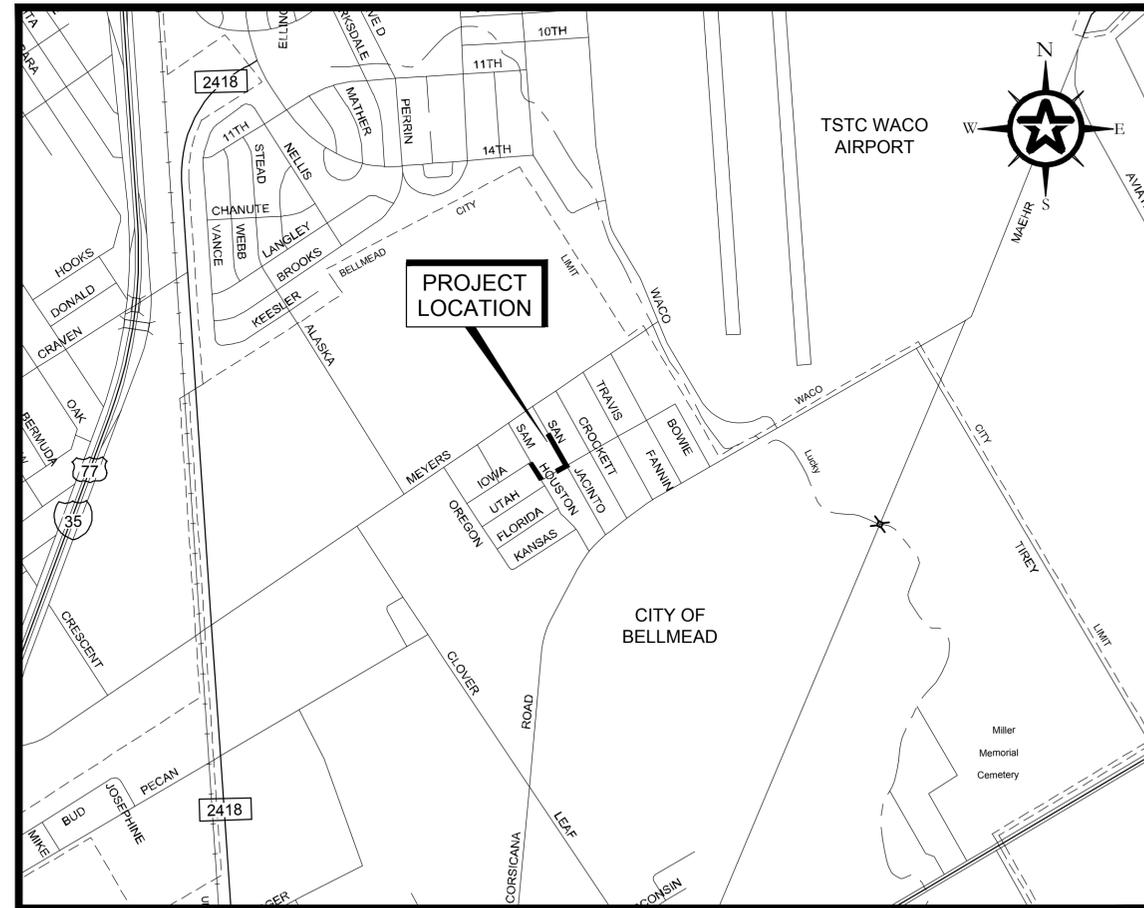
BELLMEAD, TX

CITY COUNCIL

MAYOR
MAYOR PRO-TEM
COUNCIL
COUNCIL
COUNCIL
CITY MANAGER

JASMINE NEAL
BRYAN WINGET
KAREN COLEMAN
TRAVIS GIBSON
JAMES CLEVELAND
YOUSRY ZAKHARY

OWNER: CITY OF BELLMEAD
3015 BELLMEAD DRIVE
BELLMEAD, TEXAS 76705



INDEX OF DRAWINGS

- C000 COVER SHEET
- GENERAL**
- C001 LEGENDS, ABBREVIATIONS, & SYMBOLS
- C002 PROJECT NOTES
- C003 PROJECT NOTES
- C004 QUANTITY MATRIX
- C005 OVERALL PROJECT LAYOUT & SURVEY CONTROL
- WASTEWATER COLLECTION SYSTEM IMPROVEMENTS**
- C100 WW LINE "A" PLAN AND PROFILE (STA. BEGIN-3+00)
- C101 WW LINE "A" PLAN AND PROFILE (STA. 3+00-END)
- C102 WW LINE "B" PLAN AND PROFILE
- DETAILS**
- C300 TRENCH DETAILS
- C301 WASTEWATER DETAILS
- C302 WASTEWATER DETAILS

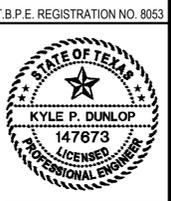
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T.B.P.E. Registration No. 8053

10/10/2023
DATE

Kyle P. Dunlop, P.E.
KYLE P. DUNLOP



1-03501 - CITY OF BELLMEAD - SAN JACINTO ST. AND SAM HOUSTON ST. WASTEWATER IMPROVEMENTS

PUBLIC SANITARY UTILITY SEWERAGE SYSTEM NOTES:

1. ALL PUBLIC SANITARY UTILITY SYSTEM CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND STANDARD DETAILS CONTAINED HEREIN.

SPECIAL PUBLIC SANITARY UTILITY SEWERAGE SYSTEM NOTES:

- 1. SANITARY SEWER PIPE, UNLESS OTHERWISE SPECIFIED ON THE PLANS, SHALL BE PVC SDR-26 (ASTM D3034) USING BEDDING, EMBEDMENT, AND BACKFILL PER THE TECHNICAL SPECIFICATIONS AND DETAILS SHOWN HEREIN.
- 2. AN "S" SHALL BE STAMPED ON THE FACE OF CURB AT THE LOCATION OF EACH SANITARY SEWER SERVICE.
- 3. ALL SANITARY SEWER ADAPTERS REQUIRED TO CONNECT TO EXISTING SANITARY SEWERS ARE INCIDENTAL TO THE BID ITEM FOR SANITARY SEWER PIPE.
- 4. ADDITIONAL SANITARY SEWER SERVICES (AS NEEDED). MORE SANITARY SEWER SERVICES HAVE BEEN INCLUDED WITHIN THE BID PROPOSAL THAN ARE SHOWN IN THE PLANS. IT IS POSSIBLE THAT ADDITIONAL SERVICES WILL BE ENCOUNTERED DURING CONSTRUCTION AND THE ADDITIONAL QUANTITY WILL BE UTILIZED. ADDITIONAL SANITARY SEWER SERVICES MAY ONLY BE INSTALLED AND PAID FOR WITH THE SPECIFIC PERMISSION OF THE ENGINEER AND/OR CITY. NO ADJUSTMENT TO THE UNIT PRICES IN THE CONTRACT WILL BE MADE AS A RESULT OF REDUCED QUANTITIES IF THESE SUPPLEMENTAL SERVICES ARE NOT USED.

FLOW CONTROL / BY-PASS PUMPING

- 1. NO FLOW MONITORING DATA HAS BEEN PROVIDED. CONTRACTOR TO COORDINATE WITH CITY TO DETERMINE TOTAL EXISTING WASTEWATER FLOW DATA PRIOR TO START OF CONSTRUCTION.
- 2. IN LOCATIONS WHERE A NEW SEWER IS BEING CONSTRUCTED IN THE SAME LOCATION AS EXISTING ACTIVE SEWER, THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING DURING CONSTRUCTION HOURS:
 - a. PLUG THE UPSTREAM MANHOLE, USE IT AS A TEMPORARY STORAGE FOR THE UPSTREAM WASTEWATER AND HAUL OFF THE WASTEWATER WHEN THE MANHOLE HAS BECOME FULL.
 - b. PROVIDE TEMPORARY 8" SERVICE AROUND THE MANHOLE.
 - c. PROVIDE A TEMPORARY PUMPING/BYPASS SYSTEM WHEN WASTEWATER FLOW IS PLUGGED, OR BLOCKED, SUFFICIENT PRECAUTIONS SHALL BE TAKEN TO PROTECT WASTEWATER LINES FROM DAMAGE. NO WASTEWATER SHALL BE ALLOWED TO BACKUP INTO ANY HOMES OR BUILDING. NO WASTEWATER SHALL OVERFLOW ANY MANHOLE, CLEANOUT, OR ANY OTHER SEWER ACCESS. DURING ANY TIME WHEN AN ACTIVE WASTEWATER LINE IS PLUGGED OR BLOCKED, THE CONTRACTOR SHALL CONTINUALLY OBSERVE THE CONDITIONS UPSTREAM OF THE PLUG.
- 3. OUTSIDE OF CONSTRUCTION HOURS, THE CONTRACTOR SHALL PROVIDE A TEMPORARY CONNECTION, IF NECESSARY, BETWEEN THE OLD AND THE NEW PIPE. FOR ALL WORK WHICH WILL REQUIRE A TEMPORARY INTERRUPTION OF UTILITY SERVICE, THE CONTRACTOR SHALL SUBMIT A PROPOSED PUMP AROUND WORK PLAN WHICH INDICATES THE MANPOWER, TOOLS, EQUIPMENT, AND PROCEDURE TO BE USED TO COMPLETE AT INSTALLATION, AT LEAST 14 DAYS PRIOR TO THE ACTIVITY.
- 4. IF TEMPORARY BYPASS PUMPS ARE UTILIZED, THEY SHALL BE A "QUIET" TYPE WITH APPROPRIATE NOISE REDUCING EQUIPMENT.
- 5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED BYPASS OF MANHOLES ON ACTIVE SEWER LINES. COST IS SUBSIDIARY TO SANITARY SEWER FLOW CONTROL/BYPASS PUMPING BID ITEM.

REINFORCED CONCRETE NOTES:

- 1. CEMENT SHALL CONFORM TO ASTM C150, TYPE I, OR TYPE II, UNLESS SPECIFIED OTHERWISE.
- 2. AGGREGATES SHALL CONFORM TO ASTM C33 FOR NORMAL WEIGHT AGGREGATE. THE MAXIMUM SIZE OF AGGREGATE SHALL BE 1.5," UNLESS SPECIFIED OTHERWISE.
- 3. MIXING WATER SHALL BE CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIS, SALTS, ORGANIC MATERIALS, AND OTHER DELETERIOUS SUBSTANCES.
- 4. AIR-ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260. OTHER ADMIXTURES TO MODIFY WORKABILITY, HARDNESS, OR OTHER CHARACTERISTICS SHALL NOT BE USED. CALCIUM CHLORIDE SHALL NOT BE USED UNDER ANY CIRCUMSTANCES.
- 5. ALL REINFORCEMENT SHALL BE OF DOMESTIC MANUFACTURE AND SHALL CONFORM TO ACI 318-83, AND SHALL BE FREE FROM LOOSE FLAKY RUST, LOOSE SCALE, MUD, OIL, OR OTHER COATINGS THAT WILL PREVENT OR REDUCE THE BOND. ALL REINFORCING STEEL SHALL HAVE A MINIMUM 60,000 PSI YIELD STRESS AND CONFORM TO ASTM A615 GRADE 60 DEFORMED REINFORCING BARS. REINFORCEMENT SHALL BE PLACED IN CONFORMANCE WITH ACI 318-83, CHAPTER 7, AND AS SHOWN ON THE PLANS. DETAILING OF CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI PUBLICATION 315.
- 6. ALL CONCRETE SHALL MEET THE QUALITY REQUIREMENTS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
- 7. DIMENSIONS SHOWN ARE TO OUTSIDE OF REBAR.
- 8. CAST IN PLACE CONCRETE SHALL STRICTLY ADHERE TO THE PROPORTIONS ESTABLISHED IN DESIGN MIXES, CONSISTING OF THE ACTUAL MATERIALS TO BE USED DURING CONSTRUCTION, FOR STRENGTHS AND USES INTENDED. THESE DESIGN MIXES ARE TO BE PREPARED BY A QUALIFIED LABORATORY, AND THE MATERIALS AND TEST RESULTS ARE TO BE APPROVED BY THE ENGINEER PRIOR TO USE.
- 9. CONTRACTOR SHALL VERIFY THE PRESENCE, LOCATION AND SIZE OF ALL OPENINGS AND SLAB DEPRESSIONS AND EMBEDMENTS PRIOR TO PLACING CONCRETE. NO OPENINGS SHALL BE PERMITTED THROUGH BEAMS, JOISTS, OR COLUMNS UNLESS NOTED OTHERWISE ON PLANS AND/OR APPROVED BY THE ENGINEER.
- 10. PROPER ACCESSORIES AND SUPPORTS ARE TO BE USED AS NOTED AND APPROVED ON THE SHOP DRAWINGS. PROVIDE GALVANIZED OR PLASTIC COATED CHAIRS AND BAR SUPPORTS AT SOFFITS OF ALL EXPOSED MEMBERS. ALL REINFORCING TO BE SECURELY AND ACCURATELY HELD IN POSITION.
- 11. PROVIDE 1/4" CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE.
- 12. CAPSULE ANCHORS SHALL BE PARABOUND CAPSULE SYSTEM BY HILTI OR APPROVED EQUAL.
- 13. ALL ANCHOR BOLTS SHALL BE 316 STAINLESS STEEL UNLESS NOTED OTHERWISE.

DEMOLITION NOTES:

- 1. FOLLOWING APPROPRIATE SAFETY PROCEDURES, DEMOLISH EXISTING FACILITIES AS SHOWN ON THE PLANS. PROTECTION OF PUBLIC AND PRIVATE PROPERTY AND SAFE DISPOSITION OF SPOIL MATERIAL IS INCLUDED IN THIS ITEM.
- 2. CONTRACTOR SHALL SUBMIT FOR APPROVAL TO ENGINEER AND THE OWNER A DEMOLITION PLAN INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - A. METHODS, EQUIPMENT AND SEQUENCE OF OPERATION.
 - B. CREDENTIALS OF INDIVIDUALS PERFORMING DEMOLITION OPERATIONS, INCLUDING SUBCONTRACTORS.

- C. SAFETY MEASURES TO PROTECT WORKERS, PERSONNEL, AND THE PUBLIC.
 - D. SAFETY MEASURES TO PROTECT ADJACENT PROPERTIES, LANDSCAPING, IMPROVEMENTS TO REMAIN OR PUBLIC RIGHTS-OF-WAY.
 - E. ASBESTOS OR OTHER HAZARDOUS MATERIAL ABATEMENT PLAN, UNLESS SUCH PLAN IS PROVIDED BY THE OWNER.
 - F. STORAGE, REMOVAL AND DISPOSAL OF SPOIL MATERIAL.
 - G. EROSION CONTROL MEASURES, INCLUDING NPDES PROCEDURES AND REGULATIONS.
 - H. POLLUTION AND AIR QUALITY CONTROL MEASURES (DUST CONTROL, ETC.).
 - I. HEALTH DEPARTMENT NOTICE.
 - J. UTILITY COORDINATION WITH ALL AFFECTED UTILITIES, INCLUDING LOCATION OF FACILITIES, PROTECTION DURING DEMOLITION, DAMAGE REPAIRS AND DISRUPTION OF SERVICE).
3. THE USE OF EXPLOSIVES WILL NOT BE PERMITTED.
- 4. THE PROJECT SITE SHALL BE CLEANED DAILY. DEBRIS, RUBBISH AND CONTRACTORS SALVAGED MATERIAL SHALL BE REMOVED PROMPTLY.
 - 5. ALL SPOIL MATERIAL REMAINING AFTER OWNER SALVAGE IS COMPLETE AND RESULTING FROM DEMOLITION OPERATIONS BECOMES THE PROPERTY OF THE CONTRACTOR. APPROPRIATE DISPOSAL OF SPOIL MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT HIS EXPENSE. OWNER WILL PROVIDE LIST OF ITEMS TO BE SALVAGED.

GRADING NOTES:

- 1. VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES. MINOR ADJUSTMENT TO FINISH GRADE TO ACCOMPLISH SPOT DRAINAGE IS ACCEPTABLE, IF NECESSARY, UPON PRIOR APPROVAL OF THE ENGINEER.
- 2. ALL FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER PRIOR TO IMPORTING AND/OR PLACING AND COMPACTING.

TRAFFIC CONTROL NOTES:

- 1. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
- 2. TRAFFIC CONTROL SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (THE LATEST EDITION). ADEQUATE SIGNS, BARRICADES, FLAG PERSONNEL, ETC. SHALL BE ERECTED AND MAINTAINED IN COMPLETE COMPLIANCE WITH THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 3. ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, WARNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (THE LATEST EDITION).
- 4. ALL PAVEMENT MARKINGS, MAKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES AND THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (THE LATEST EDITIONS).

EARTHWORK:

- 1. EXCESS MATERIAL RESULTING FROM EXCAVATION OPERATIONS IS THE PROPERTY OF THE CONTRACTOR. APPROPRIATE DISPOSAL SHALL BE AT THE CONTRACTOR'S EXPENSE.
- 2. ALL EXCAVATION SHALL BE PERFORMED AS DIRECTED IN THE DRAWINGS AND IN COMPLIANCE WITH OSHA STANDARDS.
- 3. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ALL AFFECTED UTILITY COMPANIES. THIS SHALL INCLUDE LOCATION OF FACILITIES, PROTECTION DURING CONSTRUCTION, DAMAGE REPAIRS AND DISRUPTION OF SERVICE.
- 4. THE EXCAVATION IS UNCLASSIFIED, AND CONTRACTOR SHALL PERFORM EXCAVATION TO THE ELEVATIONS INDICATED IN THE PLANS, REGARDLESS OF CHARACTER OF MATERIAL, WITH NO ADDITIONAL COMPENSATION FROM THE OWNER. USE OF EXPLOSIVES IS PROHIBITED.
- 5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING BARRICADES REQUIRED TO WARN AND/OR PREVENT ACCESS TO CONSTRUCTION AREA.
- 6. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ADJACENT FACILITIES FROM DAMAGE.
- 7. OVER-EXCAVATION IS NONCOMPENSABLE, AND SHALL BE BACKFILLED AND COMPACTED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- 8. CONTRACTOR SHALL PROVIDE ALL LABOR AND EQUIPMENT NECESSARY TO PROPERLY DEWATER EXCAVATION AREAS - AS REQUIRED.
- 9. EXCAVATED MATERIAL SHALL BE STOCKPILED WHERE DIRECTED IN THE PLANS. STOCKPILE SHALL BE MAINTAINED IN COMPLIANCE WITH ALL RELEVANT POLLUTION PREVENTION PLANS.
- 10. CONSTRUCTION AREAS SHALL BE STRIPPED OF ALL EXISTING PAVEMENT MATERIALS, CURBS, EXISTING FILL MATERIAL, ETC. ROOTS OF TREES, IF PRESENT IN LANDSCAPE PORTIONS, TO BE REMOVED WITHIN CONSTRUCTION AREAS SHOULD BE GRUBBED TO FULL DEPTHS. REMNANTS OF FOUNDATION UNITS FROM EXISTING STRUCTURES, IF ANY, TO BE DEMOLISHED SHOULD BE REMOVED TO A MINIMUM DEPTH OF 24 INCHES BELOW FINAL SUBGRADE ELEVATION. ALL UTILITIES FROM PREVIOUS SITE DEVELOPMENT THAT ARE PLANNED TO BE ABANDONED SHOULD BE COMPLETELY REMOVED FROM WITHIN THE PROPOSED BUILDING AREAS, UNLESS OTHERWISE NOTED. ONCE FINAL SUBGRADE ELEVATION HAS BEEN ACHIEVED, EXPOSED SOIL SUBGRADE AREAS SHOULD BE CAREFULLY PROOFROLLED WITH A 15-TON ROLLER OR EQUIVALENT EQUIPMENT TO DETECT WEAK ZONES. WEAK AREAS DETECTED DURING PROOFROLLING, AS WELL AS ZONES CONTAINING DEBRIS OR ORGANICS AND VOIDS RESULTING FROM REMOVAL OF TREE ROOTS, FILL SOILS, FOUNDATION REMNANTS, UTILITIES, ETC., SHOULD BE REMOVED AND REPLACED WITH SOILS EXHIBITING SIMILAR CLASSIFICATION, MOISTURE CONTENT, AND DENSITY AS THE ADJACENT IN-SITU SOILS. PROPER SITE DRAINAGE SHOULD BE MAINTAINED DURING CONSTRUCTION SO THAT PONDING OF SURFACE RUNOFF DOES NOT OCCUR AND CAUSE CONSTRUCTION DELAYS AND/OR INHIBIT SITE ACCESS.
- 11. PRIOR TO ANY FILLING OPERATIONS, SAMPLES OF THE PROPOSED BORROW (IMPORTED) MATERIALS SHALL BE OBTAINED FOR SPECIFICATION COMPLIANCE AND LABORATORY MOISTURE-DENSITY TESTING. THE TESTS WILL PROVIDE A BASIS FOR EVALUATION OF FILL COMPACTION BY IN-PLACE DENSITY TESTING. A GEOTECHNICAL ENGINEER SHALL PERFORM IN-PLACE DENSITY TESTS DURING THE FILLING OPERATIONS TO VERIFY THAT SPECIFIED LEVELS OF COMPACTION ARE BEING ATTAINED.

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REV.	DESCRIPTION	DATE



CITY OF BELLMEAD

SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

PROJECT NOTES

10/10/2023 DATE *Kyle P. Dunlop, P.E.* KYLE P. DUNLOP

DESIGNED	KDS
DRAWN	KPD
CHECKED	ARC
PROJECT NO.	1-03501
DRAWING NO.	C003

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ITEM #	UNIT	DESCRIPTION	WASTEWATER PLAN & PROFILE			TOTAL QTY
			C100	C101	C102	
1.00 GENERAL:						
1.01	LS	MOBILIZATION, PROJECT INCIDENTALS, AND TRAFFIC HANDLING		1		1
1.02	LF	CLEARING (METHOD B)	396	135	245	776
1.03	LS	TRAFFIC CONTROL PLAN		1		1
1.04	LS	TRAFFIC CONTROL PLAN IMPLEMENTATION	0.51	0.17	0.32	1
1.05	LS	TRENCH SAFETY PLAN		1		1
1.06	LS	LOCATE EXISTING UNDERGROUND UTILITIES AND VERIFY SIZE, ORIENTATION, AND ELEVATION OF THE UTILITIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES		1		1

2.00 WASTEWATER IMPROVEMENTS						
2.01	LF	12" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	0	0	241	241
2.02	LF	8" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	391	133	0	524
2.03	LF	TRENCH SAFETY IMPLEMENTATION	396	135	245	776
2.04	EA	4' DIAMETER CONCRETE MANHOLE (0-5' DEEP) WITH STANDARD RING AND COVER	1	1	2	4
2.05	VF	EXTRA DEPTH FOR 4' DIAMETER MANHOLE OVER 5' DEEP	2	0	4	6
2.06	EA	CORE & CONNECT TO EX. 4' DIAMETER CONCRETE MANHOLE (2-8" CONNECTIONS)	1	0	0	1
2.07	EA	4" SANITARY SEWER SERVICE WITH 2-WAY CLEANOUT AND CONNECT TO PRIVATE SERVICE (INCLUDING CLASS 'B' SURFACE REPLACEMENT)	11	6	4	21
2.08	LF	CLASS 'B' SURFACE REPLACEMENT	396	135	245	776
2.09	LS	BROADCAST SEEDING (DISTURBED AREAS FOR WASTEWATER SERVICES)		1		1
2.10	EA	PLUG EXISTING 10" WASTEWATER LINE WITH 24" GROUT PLUG	1	0	1	2
2.11	LF	REMOVE EX. 8"/10" WASTEWATER LINE	300	140	245	685
2.12	EA	REMOVE EX. MANHOLE	0	0	2	2
2.13	LS	TEMPORARY BYPASS SYSTEM (RE. FLOW CONTROL / BY-PASS PUMPING NOTES SHEET C003)		1		1

REV.	DESCRIPTION	DATE



CITY OF BELLMEAD

SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

QUANTITY MATRIX

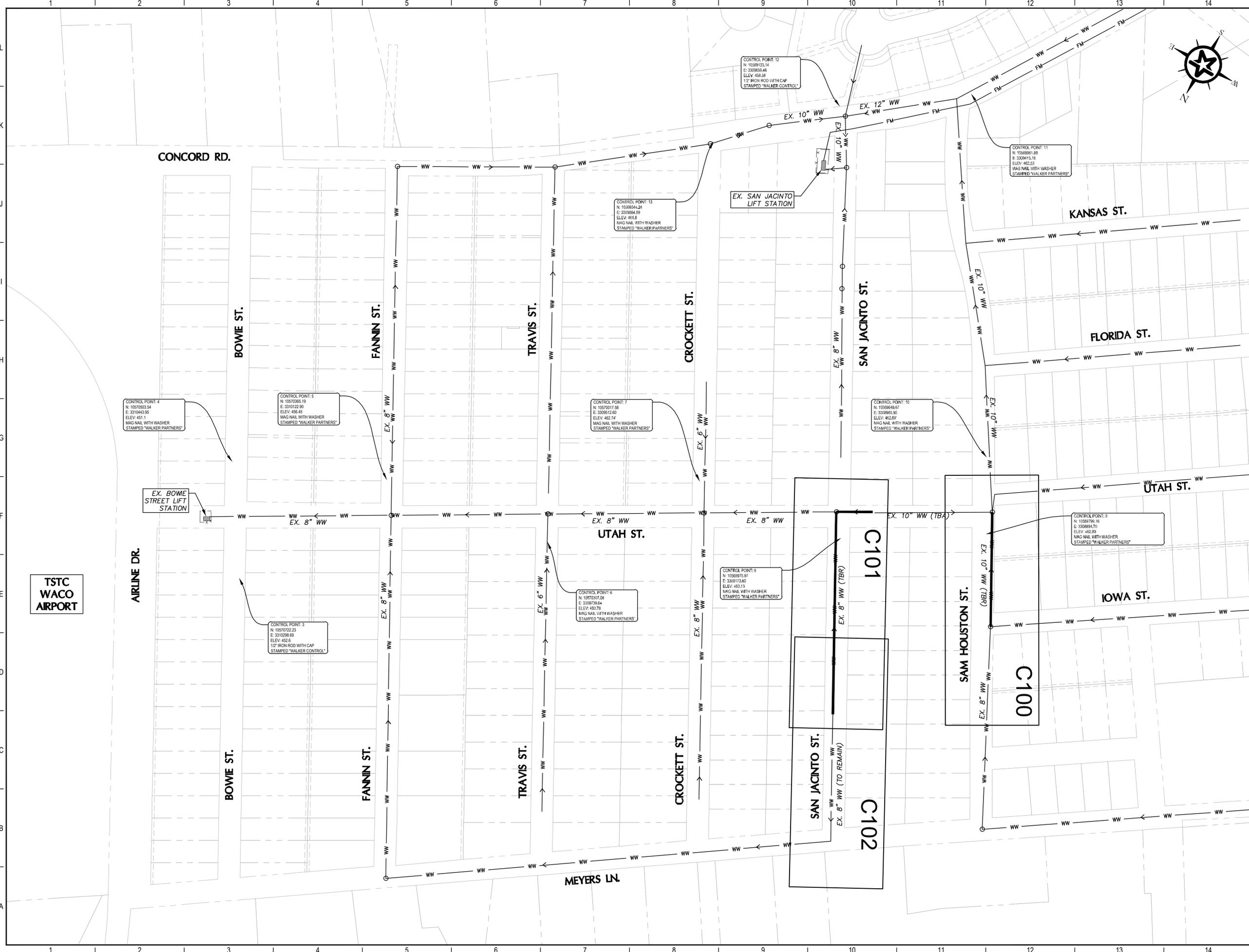
10/10/2023 DATE KYLE P. DUNLOP, P.E. DATE



DESIGNED	KDS
DRAFTED	KPD
CHECKED	ARC
PROJECT NO.	1-03501

DRAWING NO. **C004**

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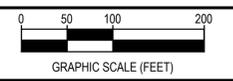
GENERAL NOTES

1. DRAWING NUMBERS CORRESPOND TO WASTEWATER PLAN AND PROFILE SHEETS.

SURVEYOR'S NOTES

THE APPROXIMATE LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON FIELD SURVEY INFORMATION, UTILITY LOCATORS MARKINGS AND EXISTING UTILITY AS-BUILT DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN HEREON ARE IN THE EXACT LOCATION INDICATED. ALL UTILITIES MUST BE FIELD VERIFIED BEFORE PERFORMING ANY WORK.

THE COORDINATES AND ELEVATIONS ARE BASED UPON STATE PLANE COORDINATE SYSTEM, NAD 83, TEXAS CENTRAL ZONE, NAVD 88 (USA GEOID 12B) ACQUIRED FROM GLOBAL POSITIONING SYSTEM OBSERVATIONS. THE COORDINATES SHOWN HEREON ARE SURFACE COORDINATES WITH A COMBINED ADJUSTED SCALE FACTOR (CAF) OF 1.00012. (SURF / CAF = GRID)



REV.	DESCRIPTION	DATE



CITY OF BELLMEAD

SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

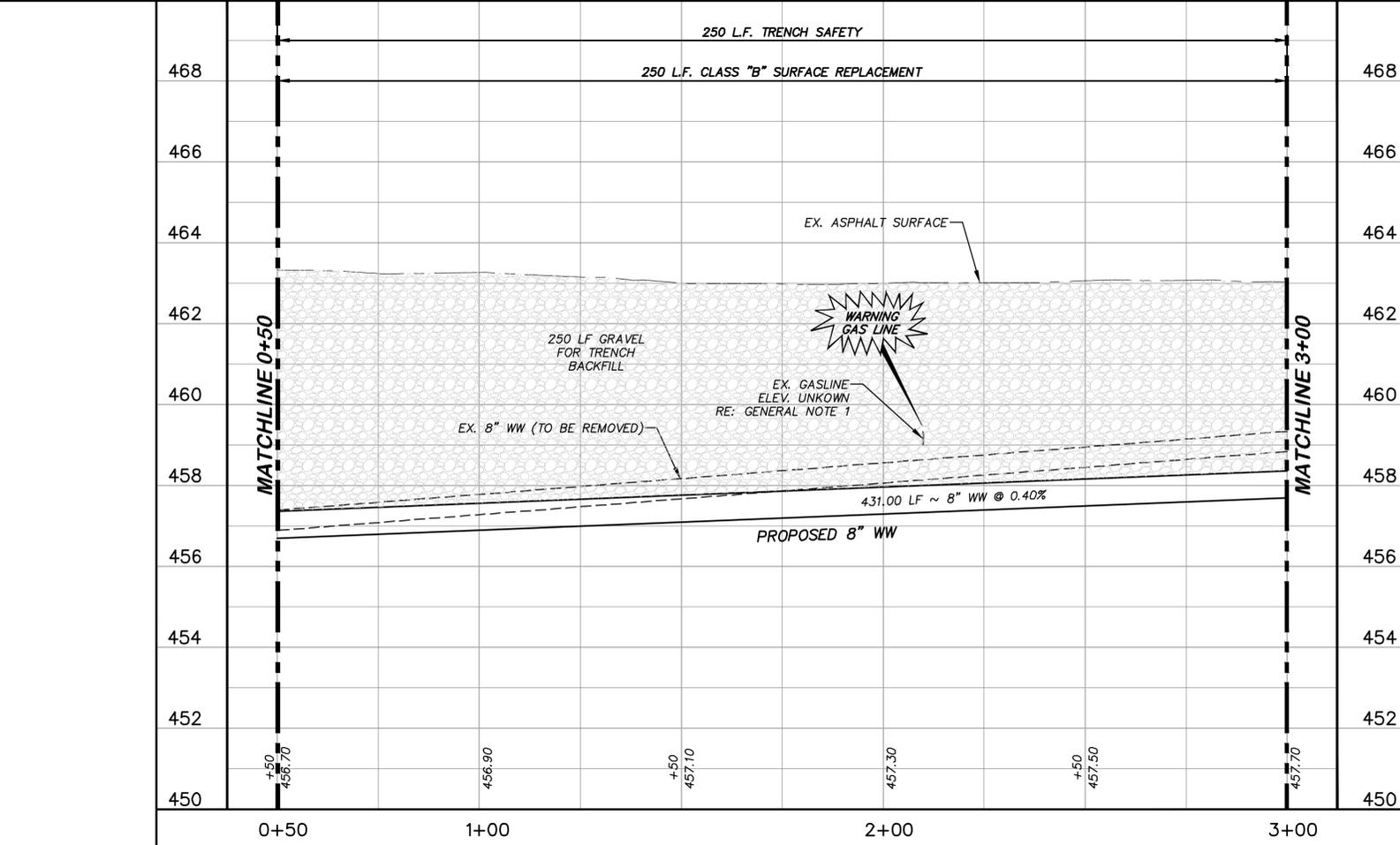
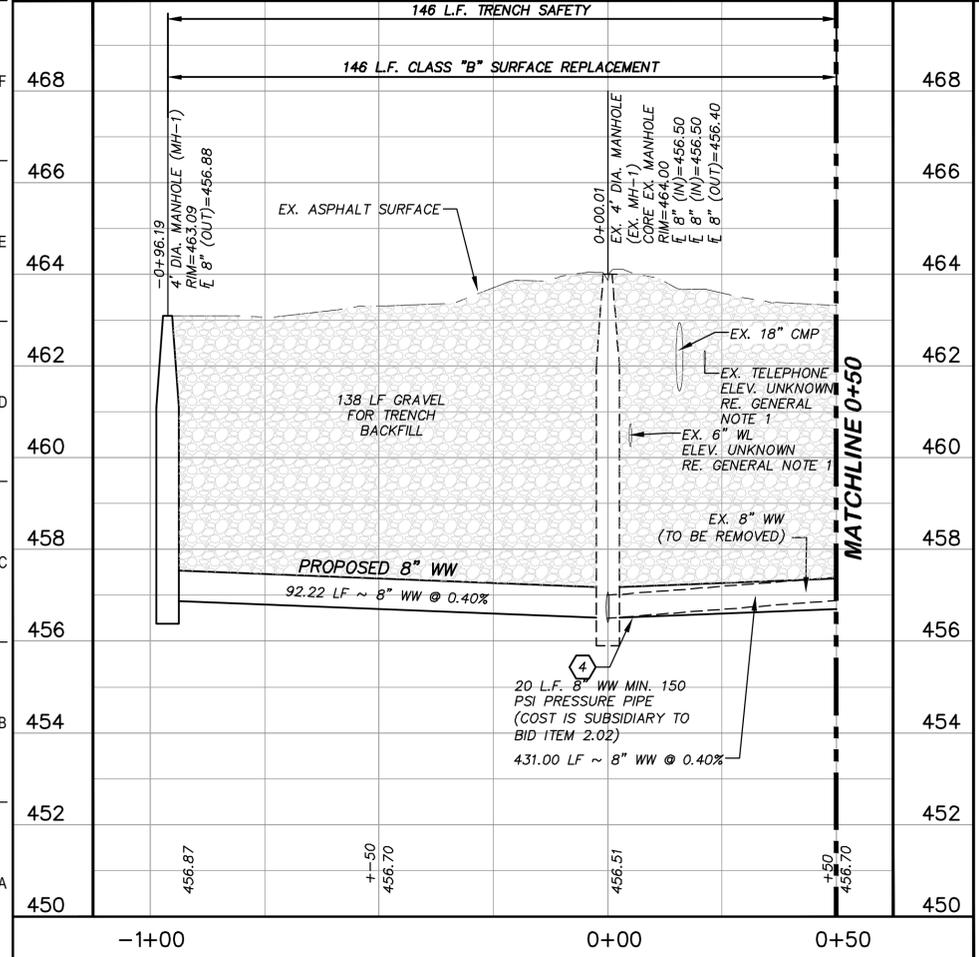
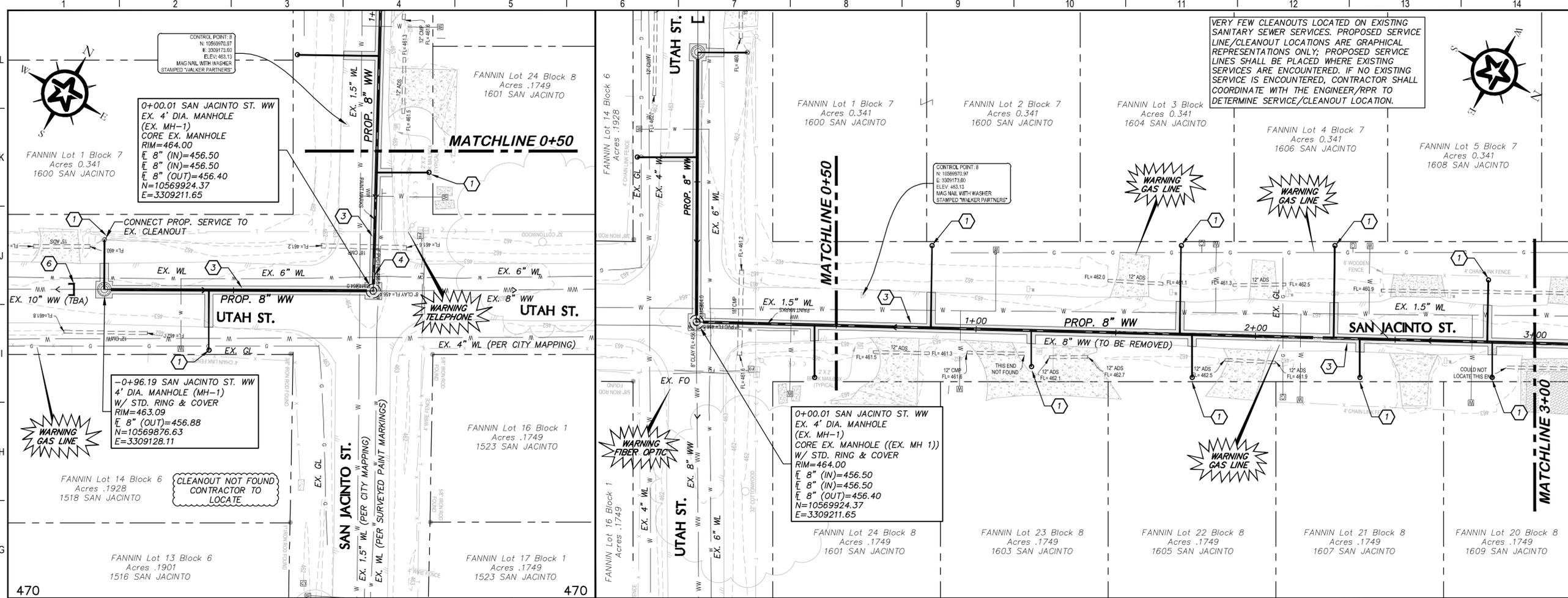
OVERALL PROJECT LAYOUT & SURVEY CONTROL

10/10/2023 DATE *Kyle P. Dunlop, P.E.* KYLE P. DUNLOP



DESIGNED	KDS
DRAWN	KPD
CHECKED	ARC
PROJECT NO.	1-03501
DRAWING NO.	C005

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- ### KEY NOTES
- 4" (MIN.) SANITARY SEWER SERVICE WITH 2-WAY CLEANOUT AND CONNECT TO PRIVATE SERVICE (RE: DETAIL G7/C302)
 - CONNECT EX. WASTEWATER LINE TO PROPOSED WASTEWATER MANHOLE
 - CLASS 'B' SURFACE REPLACEMENT (RE: DETAIL G1/C300)
 - WATER AND WASTEWATER CROSSING (RE: DETAIL A7/C302)
 - PLUG EX. 10" WASTEWATER W/ 24" LENGTH GROUT PLUG

- ### GENERAL NOTES
- CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL UNDERGROUND & ABOVE GROUND UTILITIES. ANY DAMAGE TO UNDERGROUND OR ABOVE GROUND UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL WATER SERVICES ACTIVE AND OPERATIONAL.
 - DRIVEWAYS SHALL REMAIN OPEN AND ACCESSIBLE AFTER HOURS AND ON NO-WORK DAYS.
 - BARRICADES, WARNING SIGNS, AND OTHER DEVICES AS NEEDED TO COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), MUST BE INSTALLED IN ORDER TO ADEQUATELY WARN TRAFFIC AND DELINEATE OBSTRUCTION AND WORK AREAS.

PROFILE LEGEND

N.G. @ PIPE CENTERLINE (℄)

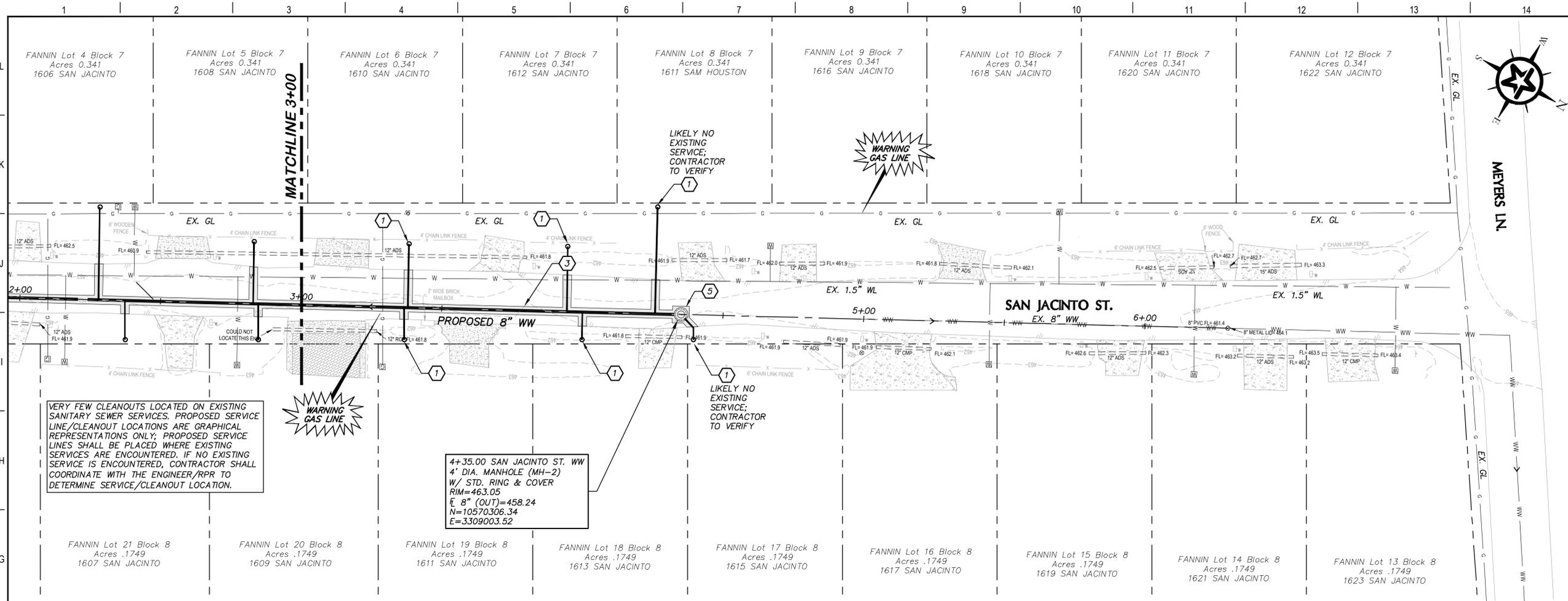
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CITY OF BELLMEAD
 SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS
 WW LINE A PLAN & PROFILE (STA. BEGIN+3+00)

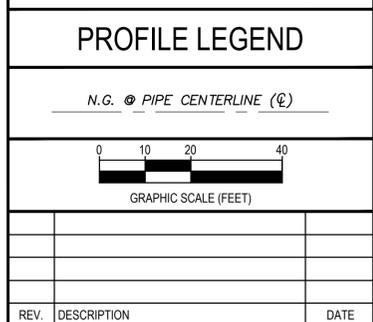
10/10/2023 DATE *Kyle P. Dunlop, P.E.*
 KYLE P. DUNLOP, P.E.
 KYLE P. DUNLOP, P.E.
 147673 LICENSED PROFESSIONAL ENGINEER

DESIGNED	KDS
DRAWN	KPD
CHECKED	ARC
PROJECT NO.	1-03501
DRAWING NO.	C100



- ### KEY NOTES
- 4" (MIN.) SANITARY SEWER SERVICE WITH 2-WAY CLEANOUT AND CONNECT TO PRIVATE SERVICE (RE: DETAIL G7/C302)
 - CONNECT EX. WASTEWATER LINE TO PROPOSED WASTEWATER MANHOLE
 - CLASS 'B' SURFACE REPLACEMENT (RE: DETAIL G1/C300)
 - WATER AND WASTEWATER CROSSING (RE: DETAIL A7/C302)
 - VERIFY FLOWLINES AND ANGLES BEFORE ORDERING MANHOLE

- ### GENERAL NOTES
- CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL UNDERGROUND & ABOVE GROUND UTILITIES. ANY DAMAGE TO UNDERGROUND OR ABOVE GROUND UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL WATER SERVICES ACTIVE AND OPERATIONAL.
 - DRIVEWAYS SHALL REMAIN OPEN AND ACCESSIBLE AFTER HOURS AND ON NO-WORK DAYS.
 - BARRICADES, WARNING SIGNS, AND OTHER DEVICES AS NEEDED TO COMPLY WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), MUST BE INSTALLED IN ORDER TO ADEQUATELY WARN TRAFFIC AND DELINEATE OBSTRUCTION AND WORK AREAS.



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CITY OF BELLMEAD

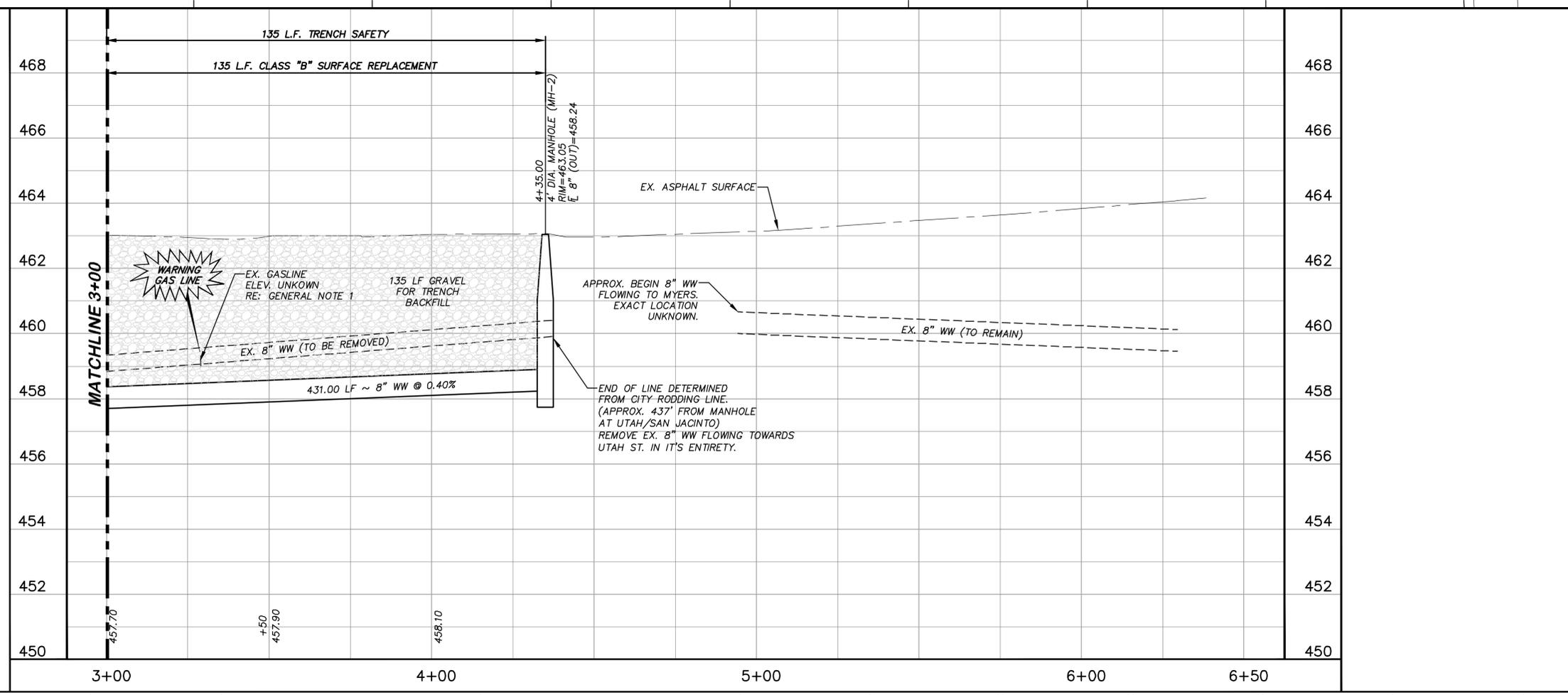
SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

WW LINE A PLAN & PROFILE
(STA. 3+00-END)

10/10/2023
DATE

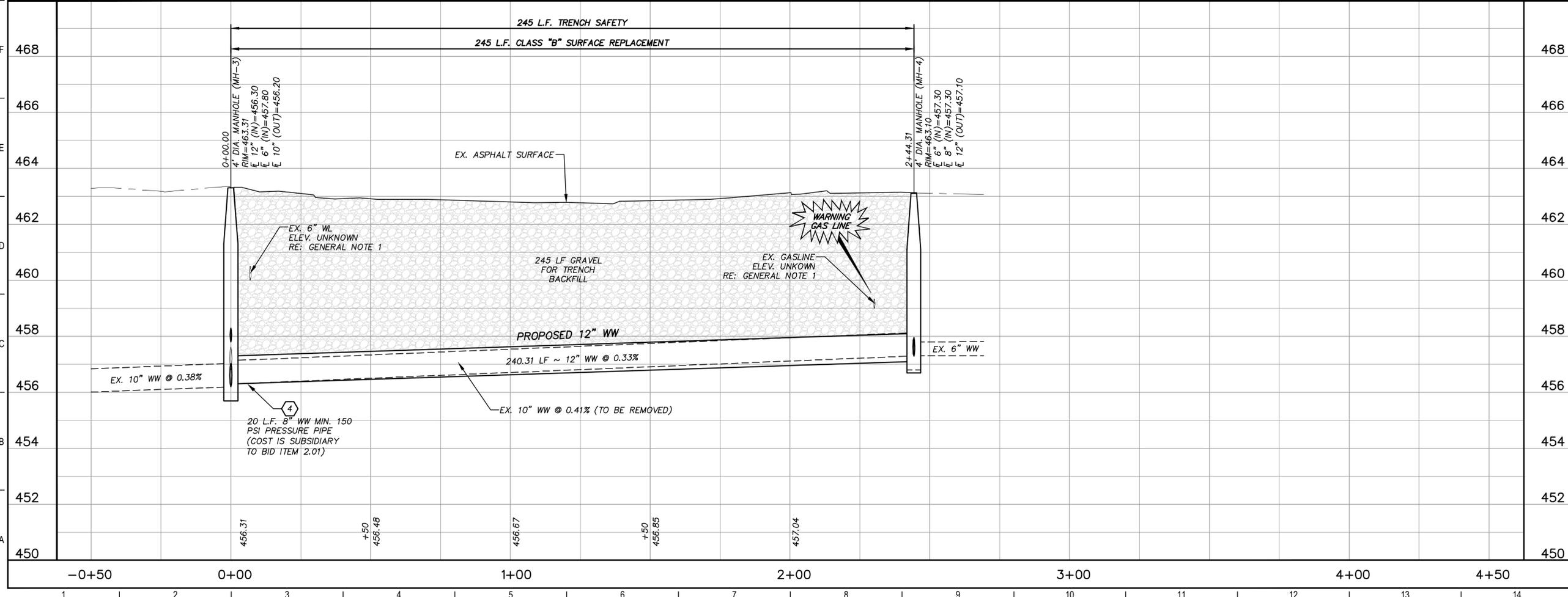
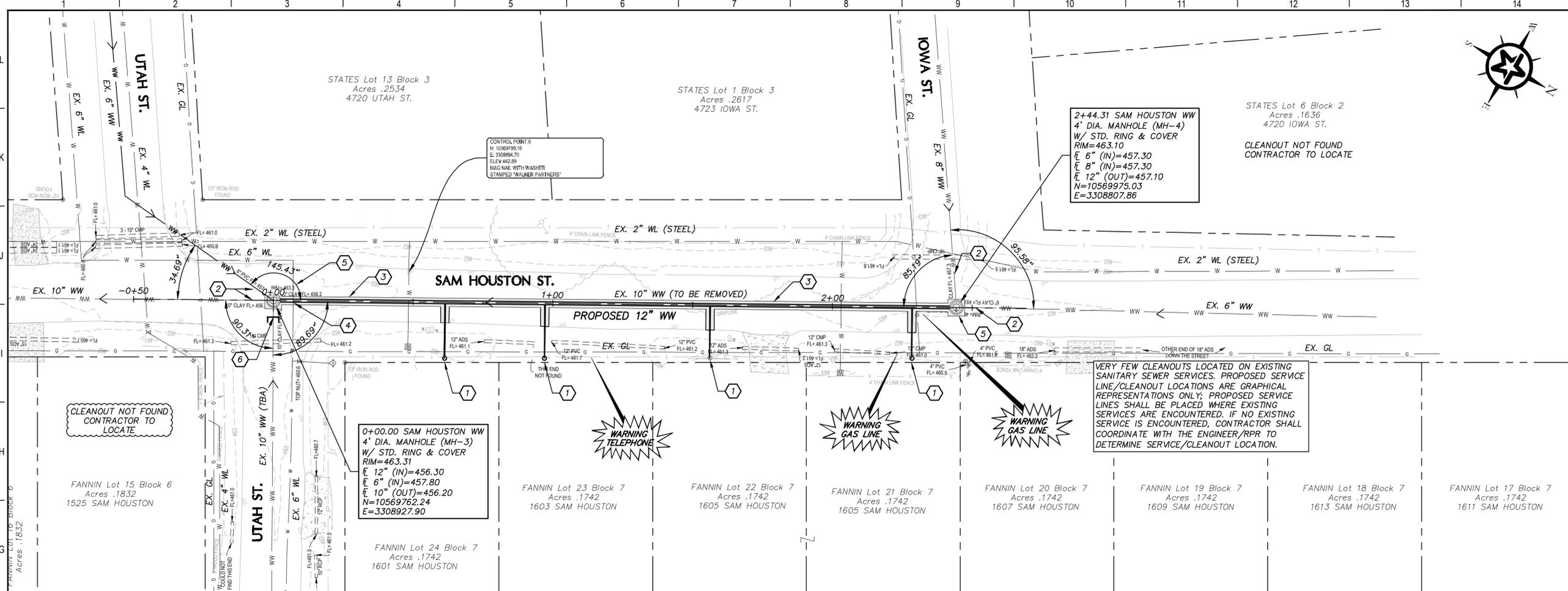
KYLE P. DUNLOP, P.E.
KYLE P. DUNLOP

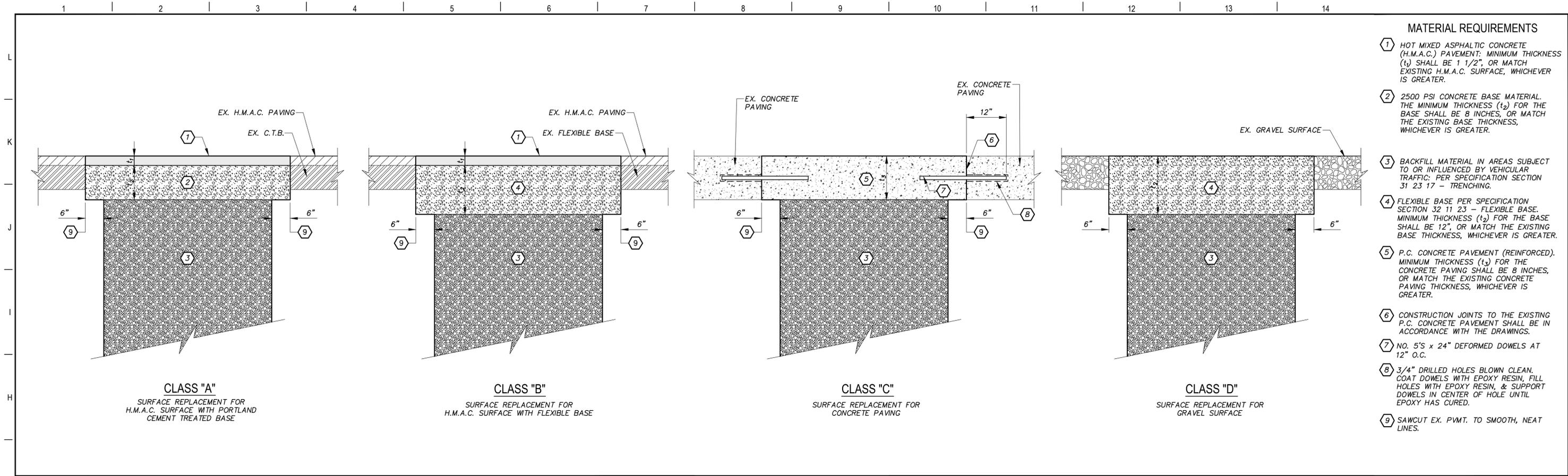
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CHECKED	ARC
PROJECT NO.	1-03501
DRAWING NO.	C101



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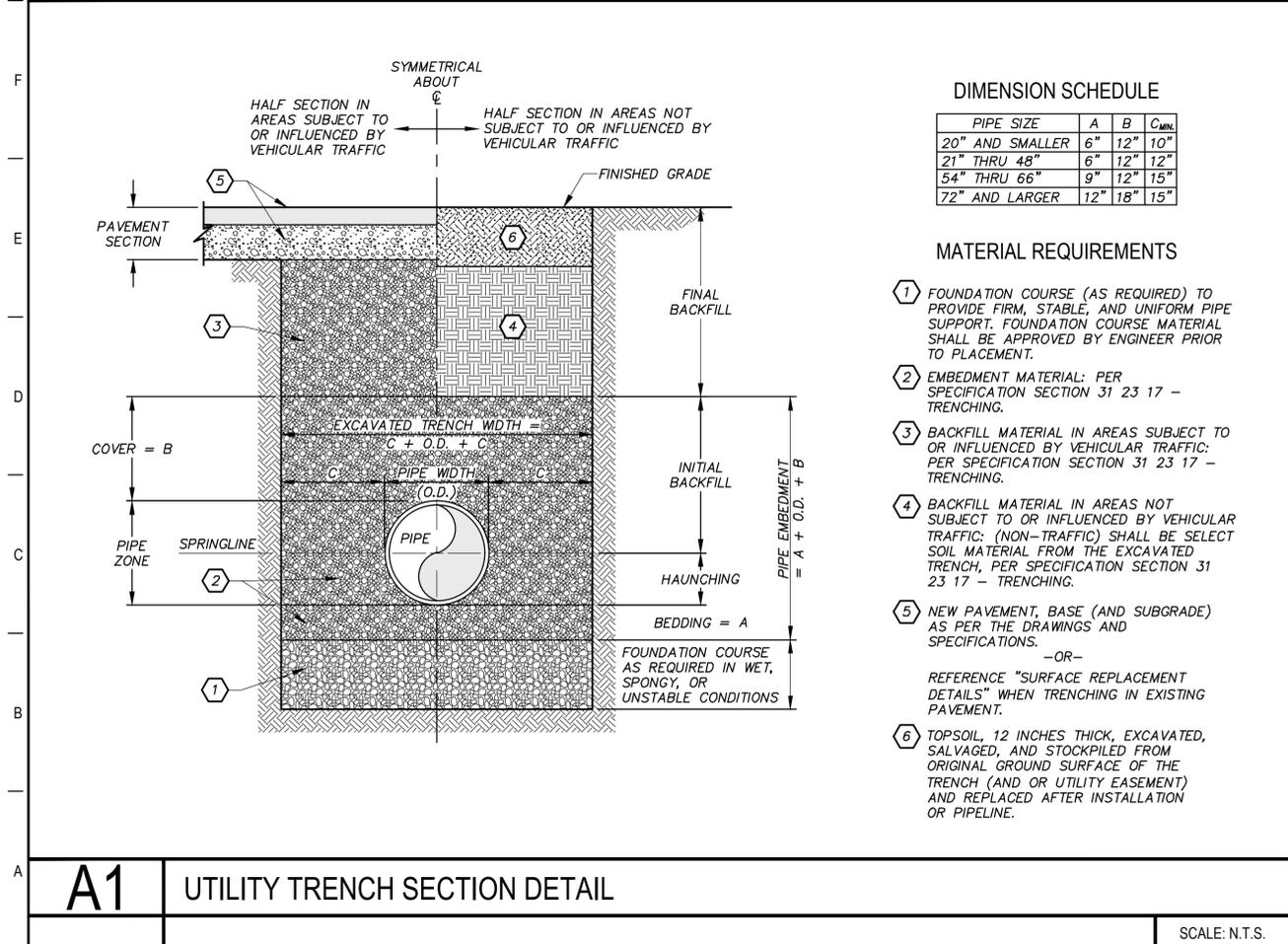




- MATERIAL REQUIREMENTS**
- 1 HOT MIXED ASPHALTIC CONCRETE (H.M.A.C.) PAVEMENT: MINIMUM THICKNESS (t_1) SHALL BE 1 1/2", OR MATCH EXISTING H.M.A.C. SURFACE, WHICHEVER IS GREATER.
 - 2 2500 PSI CONCRETE BASE MATERIAL. THE MINIMUM THICKNESS (t_2) FOR THE BASE SHALL BE 8 INCHES, OR MATCH THE EXISTING BASE THICKNESS, WHICHEVER IS GREATER.
 - 3 BACKFILL MATERIAL IN AREAS SUBJECT TO OR INFLUENCED BY VEHICULAR TRAFFIC: PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
 - 4 FLEXIBLE BASE PER SPECIFICATION SECTION 32 11 23 - FLEXIBLE BASE. MINIMUM THICKNESS (t_3) FOR THE BASE SHALL BE 12", OR MATCH THE EXISTING BASE THICKNESS, WHICHEVER IS GREATER.
 - 5 P.C. CONCRETE PAVEMENT (REINFORCED). MINIMUM THICKNESS (t_4) FOR THE CONCRETE PAVING SHALL BE 8 INCHES, OR MATCH THE EXISTING CONCRETE PAVING THICKNESS, WHICHEVER IS GREATER.
 - 6 CONSTRUCTION JOINTS TO THE EXISTING P.C. CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH THE DRAWINGS.
 - 7 NO. 5'S x 24" DEFORMED DOWELS AT 12" O.C.
 - 8 3/4" DRILLED HOLES BLOWN CLEAN. COAT DOWELS WITH EPOXY RESIN, FILL HOLES WITH EPOXY RESIN, & SUPPORT DOWELS IN CENTER OF HOLE UNTIL EPOXY HAS CURED.
 - 9 SAWCUT EX. PVMT. TO SMOOTH, NEAT LINES.

G1 SURFACE REPLACEMENT DETAILS

SCALE: N.T.S.



DIMENSION SCHEDULE

PIPE SIZE	A	B	C _{MIN}
20" AND SMALLER	6"	12"	10"
21" THRU 48"	6"	12"	12"
54" THRU 66"	9"	12"	15"
72" AND LARGER	12"	18"	15"

MATERIAL REQUIREMENTS

- 1 FOUNDATION COURSE (AS REQUIRED) TO PROVIDE FIRM, STABLE, AND UNIFORM PIPE SUPPORT. FOUNDATION COURSE MATERIAL SHALL BE APPROVED BY ENGINEER PRIOR TO PLACEMENT.
- 2 EMBEDMENT MATERIAL: PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
- 3 BACKFILL MATERIAL IN AREAS SUBJECT TO OR INFLUENCED BY VEHICULAR TRAFFIC: PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
- 4 BACKFILL MATERIAL IN AREAS NOT SUBJECT TO OR INFLUENCED BY VEHICULAR TRAFFIC: (NON-TRAFFIC) SHALL BE SELECT SOIL MATERIAL FROM THE EXCAVATED TRENCH, PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
- 5 NEW PAVEMENT, BASE (AND SUBGRADE) AS PER THE DRAWINGS AND SPECIFICATIONS.
-OR-
REFERENCE "SURFACE REPLACEMENT DETAILS" WHEN TRENCHING IN EXISTING PAVEMENT.
- 6 TOPSOIL, 12 INCHES THICK, EXCAVATED, SALVAGED, AND STOCKPILED FROM ORIGINAL GROUND SURFACE OF THE TRENCH (AND OR UTILITY EASEMENT) AND REPLACED AFTER INSTALLATION OR PIPELINE.

A1 UTILITY TRENCH SECTION DETAIL

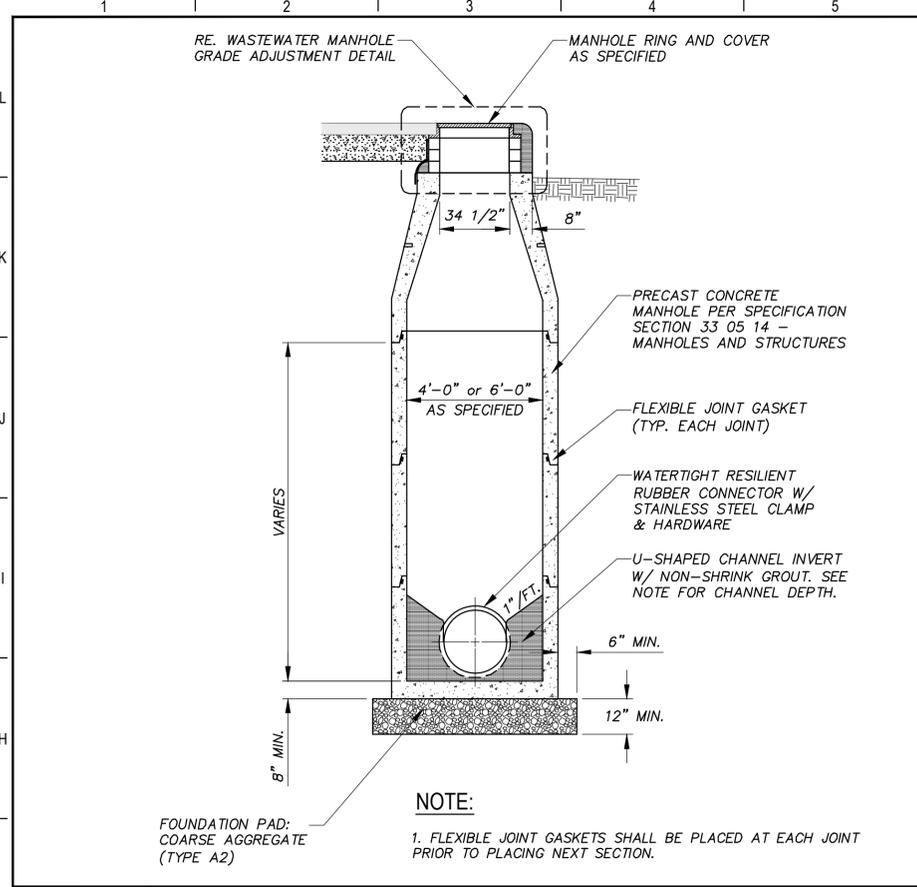
A9 NOT USED

SCALE: N.T.S.

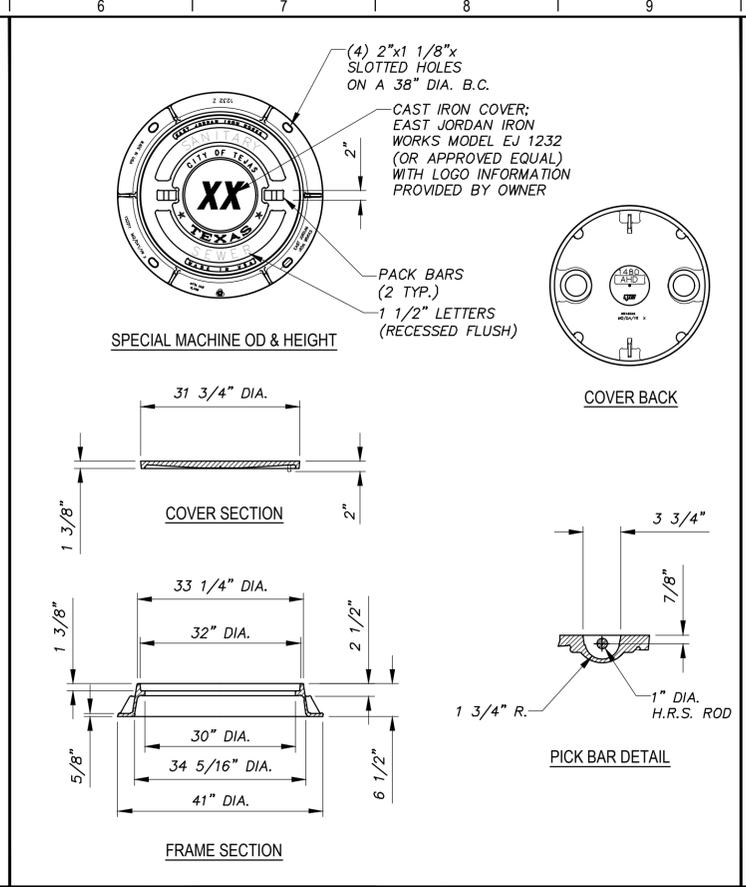
REV.	DESCRIPTION	DATE
CITY OF BELLMEAD		
SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS		
TRENCH DETAILS		
DATE		
10/10/2023	KYLE P. DUNLOP	
DESIGNED	KDS	
DRAFTED	KPD	
CHECKED	ARC	
PROJECT NO.	JPB	
	1-03501	
DRAWING NO. C300		

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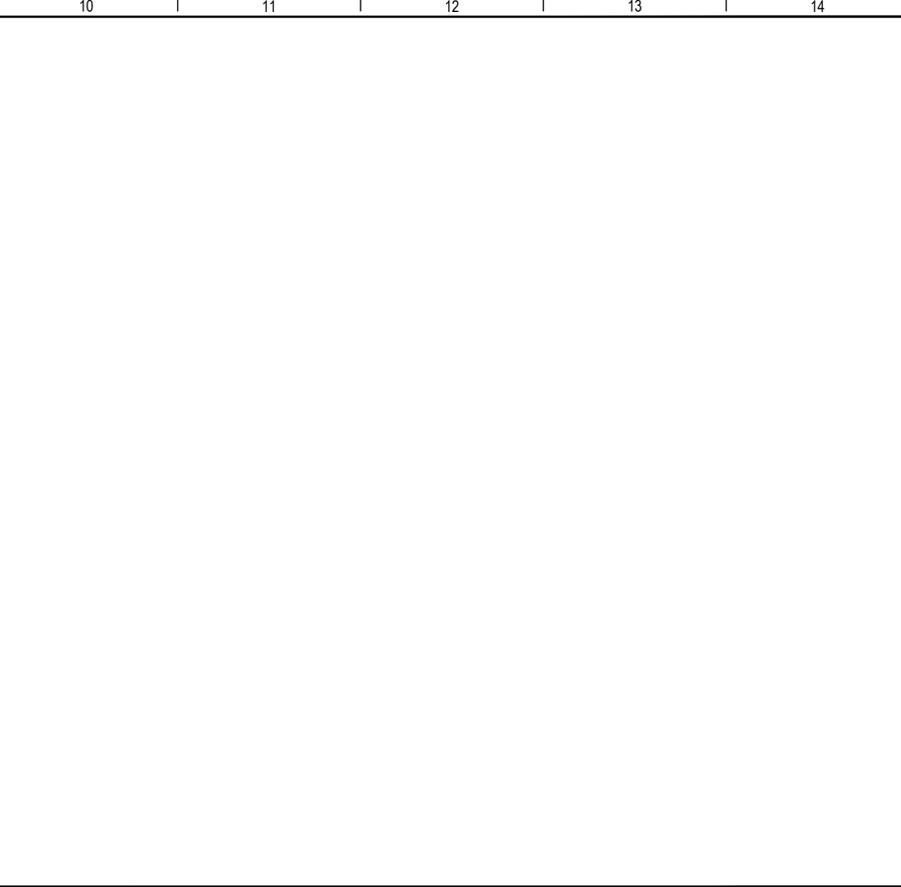
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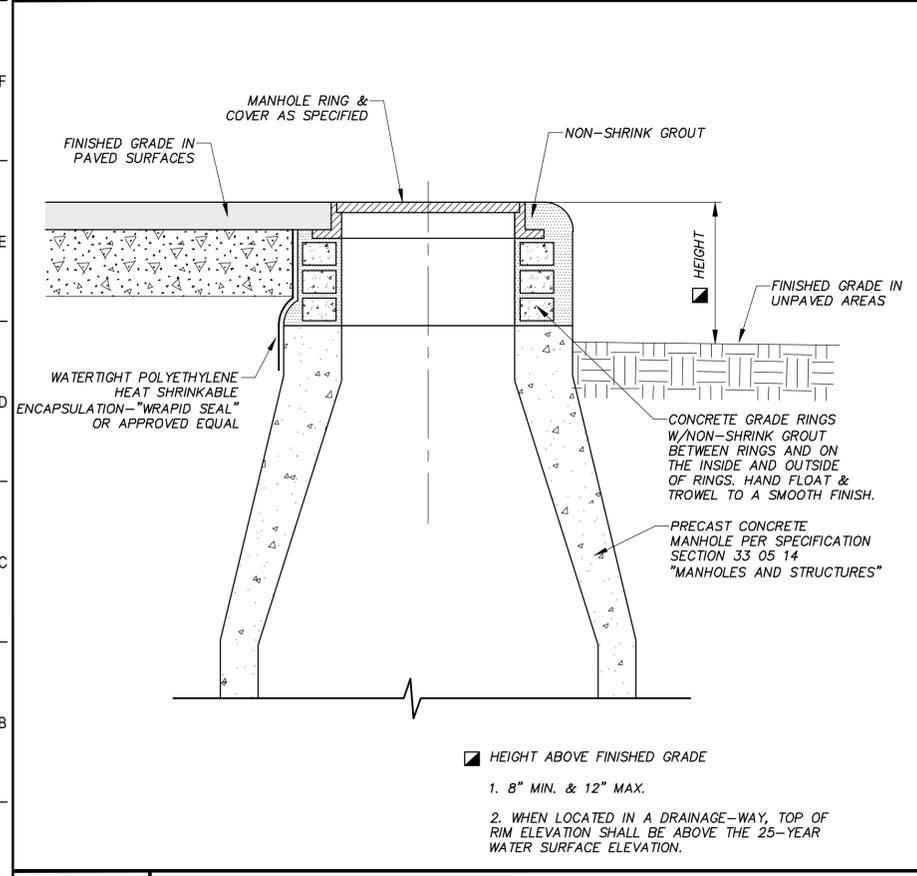
A1 WASTEWATER MANHOLE GRADE ADJUSTMENT DETAIL SCALE: N.T.S.



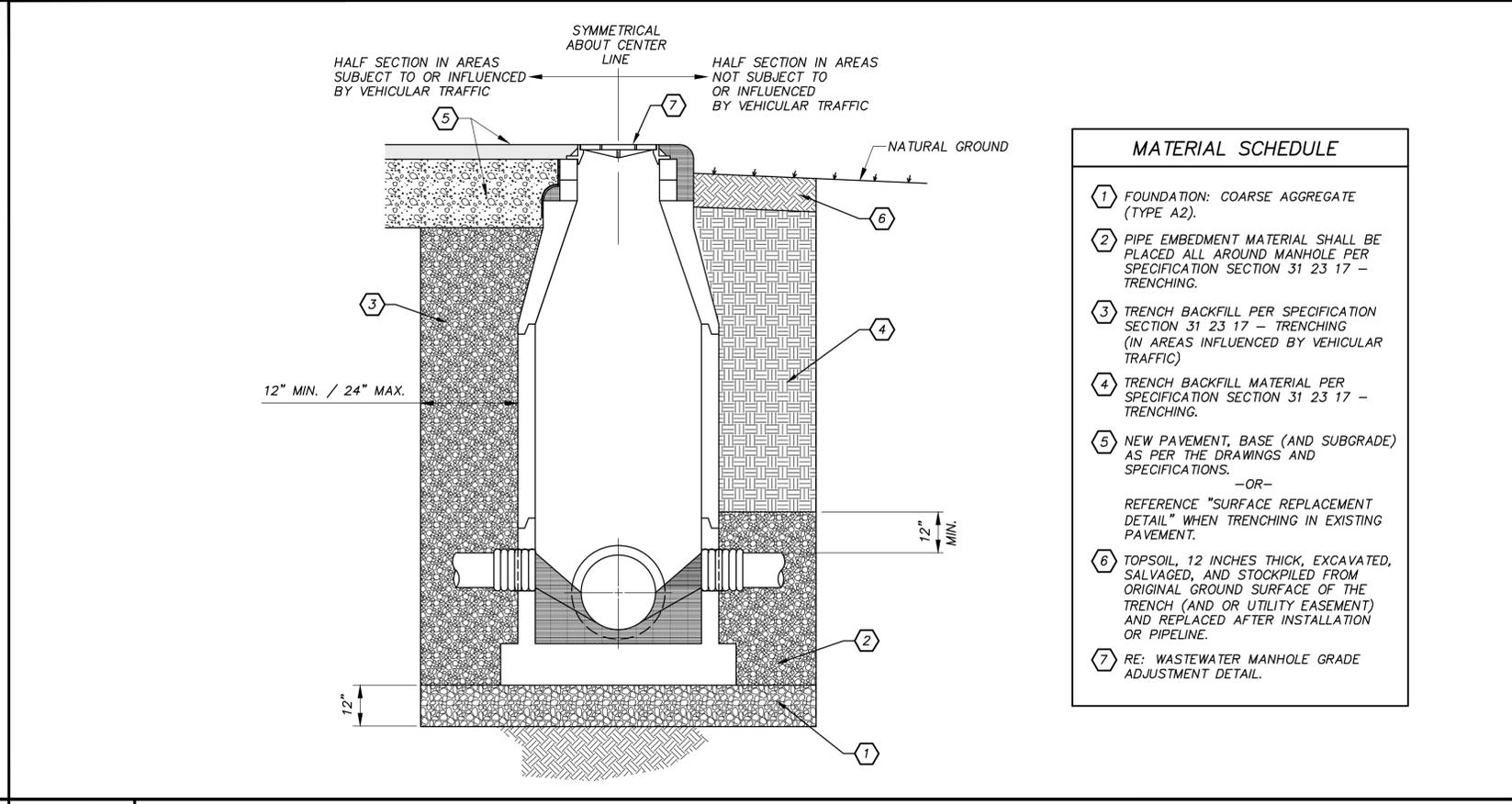
A6 WASTEWATER MANHOLE BACKFILL DETAIL SCALE: N.T.S.



G10 NOT USED



A1 WASTEWATER MANHOLE GRADE ADJUSTMENT DETAIL SCALE: N.T.S.



A6 WASTEWATER MANHOLE BACKFILL DETAIL SCALE: N.T.S.

MATERIAL SCHEDULE	
1	FOUNDATION: COARSE AGGREGATE (TYPE A2).
2	PIPE EMBEDMENT MATERIAL SHALL BE PLACED ALL AROUND MANHOLE PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
3	TRENCH BACKFILL PER SPECIFICATION SECTION 31 23 17 - TRENCHING (IN AREAS INFLUENCED BY VEHICULAR TRAFFIC)
4	TRENCH BACKFILL MATERIAL PER SPECIFICATION SECTION 31 23 17 - TRENCHING.
5	NEW PAVEMENT, BASE (AND SUBGRADE) AS PER THE DRAWINGS AND SPECIFICATIONS. -OR- REFERENCE "SURFACE REPLACEMENT DETAIL" WHEN TRENCHING IN EXISTING PAVEMENT.
6	TOPSOIL, 12 INCHES THICK, EXCAVATED, SALVAGED, AND STOCKPILED FROM ORIGINAL GROUND SURFACE OF THE TRENCH (AND OR UTILITY EASEMENT) AND REPLACED AFTER INSTALLATION OR PIPELINE.
7	RE: WASTEWATER MANHOLE GRADE ADJUSTMENT DETAIL.

- ### MANHOLE NOTES
- PRECAST CONCRETE MANHOLES SHALL BE REINFORCED AND CONCRETE SHALL BE SULFATE RESISTANT WITH AN ANTI-MICROBIAL AGENT AS PER SPECIFICATION SECTION 33 05 14 - MANHOLES AND STRUCTURES.
 - INVERTS SHALL BE SHAPED AND FINISHED BY HAND FLOAT AND TROWEL.
 - INVERT CHANNEL DEPTHS SHALL BE AS FOLLOWS:
 - OUTFLOW PIPE < 15" DIA.: CHANNEL DEPTH = 1/2 OF OUTFLOW PIPE DIA.
 - OUTFLOW PIPE > 15" DIA. BUT < 24" DIA.: CHANNEL DEPTH = 3/4'S OF OUTFLOW PIPE DIAMETER
 - OUTFLOW PIPE > 24" DIA.: CHANNEL DEPTH = OUTFLOW PIPE DIAMETER.
 - 4' DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPES 18" IN DIAMETER AND SMALLER.
 - 6' DIAMETER MANHOLES TO BE CONSTRUCTED ON PIPES 21" THROUGH 36" IN DIAMETER.
 - A MAXIMUM OF 2 INCHES OF NON-SHRINK GROUT MAY BE USED TO BRING RING AND COVER TO GRADE.
 - A MINIMUM OF 3 & MAXIMUM OF 4 GRADE RINGS TO BE APPLIED TO MANHOLES TO ALLOW FOR FUTURE ADJUSTMENT. GRADE RING & FRAME/RING AND COVER SHALL BE SET IN A BED OF NON-SHRINK GROUT.

REV.	DESCRIPTION	DATE

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CITY OF BELLMEAD

SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

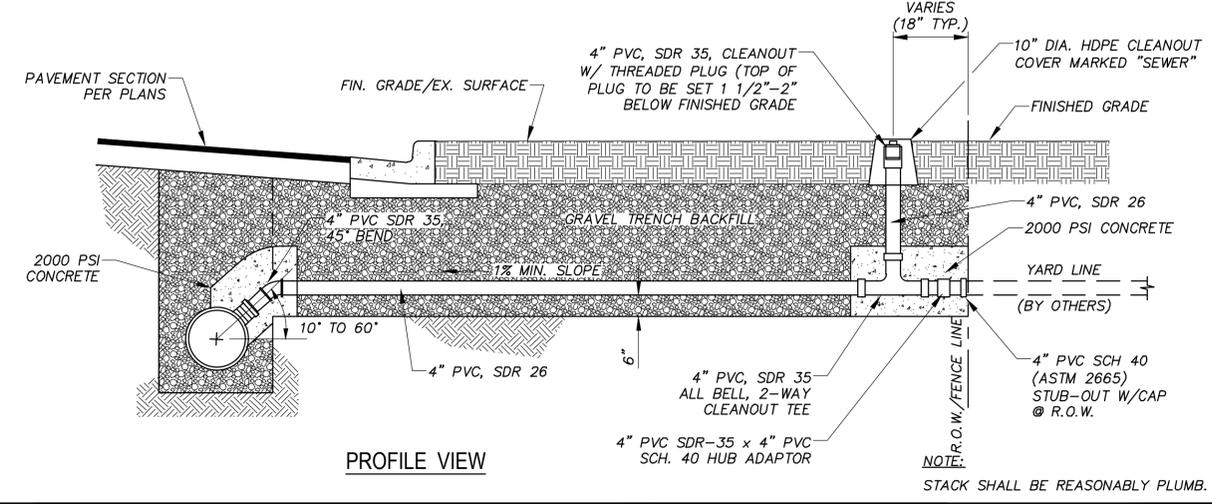
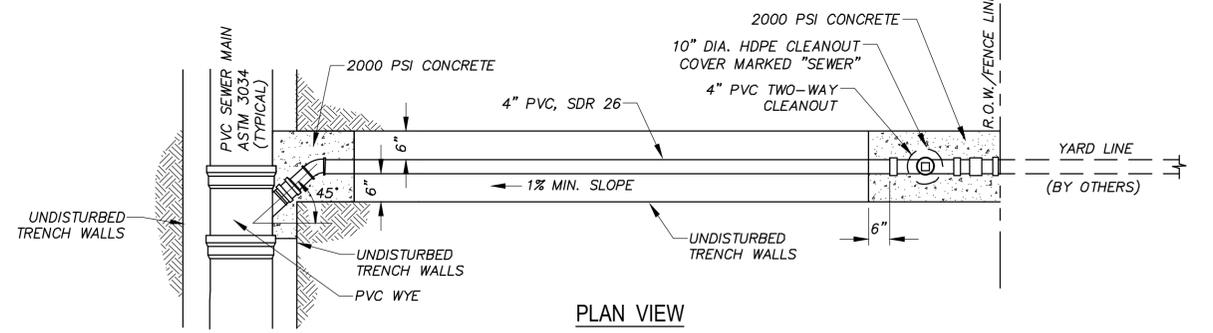
WASTEWATER DETAILS

10/10/2023
DATE

KYLE P. DUNLOP, P.E.
KYLE P. DUNLOP

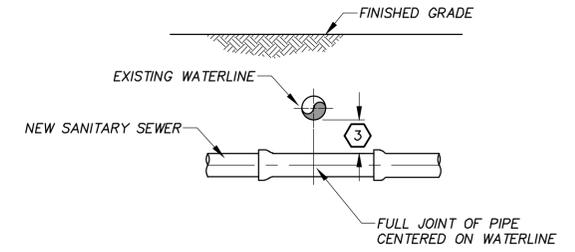
DESIGNED	KDS
DRAFTED	KPD
CHECKED	ARC
PROJECT NO.	1-03501

DRAWING NO. **C301**



G7 4" RESIDENTIAL WASTEWATER SERVICE CONNECTION

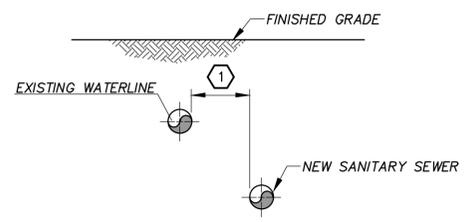
SCALE: N.T.S.



NEW SANITARY SEWER CROSSING EXISTING WATERLINE

KEY NOTES:

- ① ALL WATER AND SEWER LINE CONSTRUCTION RUNNING PARALLEL WITH EACH OTHER SHALL MAINTAIN A 9' HORIZONTAL SEPARATION, PIPE WALL TO PIPE WALL.
- ② SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS - REFER TO INTERNATIONAL PLUMBING CODE FOR APPLICABLE REQUIREMENTS.
- ③ ALL SEWER AND WATERLINE CROSSINGS SHALL COMPLY WITH THE TCEQ CHAPTER 290, PUBLIC DRINKING WATER SECTION 290.44 WATER DISTRIBUTION, SUB SECTION B, NEW WATERLINE INSTALLATION-CROSSING LINES, PARAGRAPHS (1) THROUGH (I) AND ALL SUB PARAGRAPHS THEREIN.



NEW SANITARY SEWER PARALLEL TO EXISTING WATERLINE

A7 WATER & SANITARY SEWER CROSSINGS

SCALE: N.T.S.

G1 NOT USED

A1 NOT USED

REV.	DESCRIPTION	DATE



CITY OF BELLMEAD

SAN JACINTO STREET AND UTAH STREET WW IMPROVEMENTS

WASTEWATER DETAILS

10/10/2023 DATE *Kyle P. Dunlop, P.E.* KYLE P. DUNLOP

DESIGNED	KDS
DRAFTED	KPD
CHECKED	ARC
PROJECT NO.	1-03501
DRAWING NO.	C302

G:\PROJECTS\1-03501\2 ENGINEERING\2.0 CAD\1-03501 SANITARY SEWERAGE DETAILS 2-19-14.DWG, C302 WASTEWATER DETAILS, 10/10/2023 2:41:05 PM, kdunlop

ADDENDUM NO. 1

CITY OF BELLMEAD

SAN JACINTO, UTAH, AND SAM HOUSTON STREETS WASTEWATER IMPROVEMENTS

(CDBG #CDV21-0001)

PROJECT NO.: 1-03501

DATE OF ADDENDUM: OCTOBER 31, 2023

BID OPENING DATE: NOVEMBER 7, 2023

Bidders on this Project are hereby notified that this Addendum shall be attached and made part of the above-named Bid Documents dated October 2023.

The following items are issued to add to, modify, and clarify the Bid Documents including the Technical Specifications and Drawings. These items shall have the full force and effect as the Bid Documents and cost involved shall be included in the appropriate prices. Bids to be submitted on the prescribed date shall conform with any additions, deletions, or revisions listed herein.

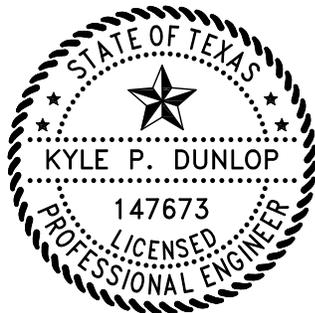
Acknowledgement of this Addendum shall be provided on the appropriate location of the Bid Form.

Questions and Clarifications

1. Coating for manholes?
 - a. *Manholes shall be cast with an antimicrobial admixture agent, ConShield®, or approved equal per Specification 33 05 14.*

3. When will the awarded Contractor expect a Notice to proceed for this project?
 - a. *Tentative Notice of Award will be issued November 14th at City Council, with the Notice to Proceed issued after contracts, insurance, etc. are received by the City. It is anticipated that the NTP will be issued within the first couple weeks of December.*

Please acknowledge receipt of this Addendum by signing the cover page and submitting with the Bid.



Approved by:



Kyle P. Dunlop, P.E. No. 147673
Walker Partners, LLC

**Walker Partners, LLC
Bid Tabulation**

**City of Bellmead
San Jacinto, Utah, & Sam Houston Streets Wastewater Imp. (CDBG CDV21-0001)
Project No.: 1-03501
November 7, 2023 at 2:00 pm**

Bidders

Item No.	Bid Item Description	Estimated		B-Corp Utilities, Inc.		Quality W Contractors, LLC		JNB Construction, LLC		The Uresti Group LTD Co.		Gage and Cade Construction	
		Quantities	Measure	Unit Price	Unit Amount	Unit Price	Unit Amount	Unit Price	Unit Amount	Unit Price	Unit Amount	Unit Price	Unit Amount
1.00	General Conditions												
1.01	MOBILIZATION, PROJECT INCIDENTALS, AND TRAFFIC HANDLING	1	LS	32,290.00	32,290.00	14,302.00	14,302.00	20,000.00	20,000.00	15,000.00	15,000.00	11,400.00	11,400.00
1.02	CLEARING (METHOD B)	776	LF	10.47	8,124.72	4.00	3,104.00	10.00	7,760.00	32.00	24,832.00	13.15	10,204.40
1.03	TRAFFIC CONTROL PLAN	1	LS	1,778.00	1,778.00	1,538.00	1,538.00	1,500.00	1,500.00	6,000.00	6,000.00	30,000.00	30,000.00
1.04	TRAFFIC CONTROL PLAN IMPLEMENTATION	1	LS	2,805.00	2,805.00	8,333.00	8,333.00	3,000.00	3,000.00	12,000.00	12,000.00	5,376.00	5,376.00
1.05	TRENCH SAFETY PLAN	1	LS	826.00	826.00	1,538.00	1,538.00	1,000.00	1,000.00	10,000.00	10,000.00	900.00	900.00
1.06	LOCATE EXISTING UNDERGROUND UTILITIES AND VERIFY SIZE, ORIENTATION, AND ELEVATION OF THE UTILITIES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES	1	LS	6,980.00	6,980.00	2,787.00	2,787.00	2,500.00	2,500.00	5,000.00	5,000.00	840.00	840.00
	Subtotal General Conditions				52,803.72		1 31,602.00		35,760.00		72,832.00		58,720.40
2.00	Waterwater Improvements												
2.01	12" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	241	LF	145.86	35,152.26	134.00	32,294.00	135.00	32,535.00	185.00	44,585.00	245.40	59,141.40
2.02	8" PVC ASTM-D3034 (+5'-10' TRENCH) INCLUDING EXCAVATION AND ALL BACKFILL (STREET TRENCH)	524	LF	105.03	55,035.72	92.00	48,208.00	125.00	65,500.00	125.00	65,500.00	238.00	124,712.00
2.03	TRENCH SAFETY IMPLEMENTATION	776	LF	6.91	5,362.16	4.00	3,104.00	10.00	7,760.00	25.00	19,400.00	4.35	3,375.60
2.04	4' DIAMETER CONCRETE MANHOLE (0-5' DEEP) WITH STANDAR RD RING AND COVER	4	EA	10,077.50	40,310.00	7,245.00	28,980.00	11,000.00	44,000.00	2,500.00	10,000.00	9,553.15	38,212.60
2.05	EXTRA DEPTH FOR 4' DIAMETER MANHOLE OVER 5' DEEP	6	VF	846.66	5,079.96	542.00	3,252.00	700.00	4,200.00	3,500.00	21,000.00	484.30	2,905.80
2.06	CORE & CONNECT TO EX. 4' DIAMETER CONCRETE MANHOLE (2-8" CONNECTIONS)	1	EA	3,900.00	3,900.00	2,787.00	2,787.00	3,500.00	3,500.00	1,500.00	1,500.00	7,427.40	7,427.40
2.07	4" SANITARY SEWER SERVICE WITH 2-WAY CLEANOUT AND CONNECT TO PRIVATE SERVICE (INCLUDING CLASS 'B' SURFACE REPLACEMENT)	25	EA	1,131.24	28,281.00	1,952.00	48,800.00	2,000.00	50,000.00	500.00	12,500.00	4,053.50	101,337.50
2.08	CLASS 'B' SURFACE REPLACEMENT	776	LF	28.96	22,472.96	66.00	51,216.00	25.00	19,400.00	45.00	34,920.00	84.50	65,572.00
2.09	BROADCAST SEEDING (DISTURBED AREAS FOR WASTEWATER SERVICES)	1	LS	1,000.00	1,000.00	2,787.00	2,787.00	3,000.00	3,000.00	12,500.00	12,500.00	8,700.00	8,700.00
2.10	PLUG EXISTING 10" WASTEWATER LINE WITH 24" GROUT PLUG	2	EA	307.00	614.00	697.00	1,394.00	1,000.00	2,000.00	1,000.00	2,000.00	720.00	1,440.00
2.11	REMOVE EX. 8"/10" WASTEWATER LINE	685	LF	2.35	1,609.75	23.00	15,755.00	20.00	13,700.00	45.00	30,825.00	37.65	25,790.25
2.12	REMOVE EX. BRICK MANHOLE	2	EA	590.00	1,180.00	2,787.00	5,574.00	2,500.00	5,000.00	1,500.00	3,000.00	12,744.00	25,488.00
2.13	TEMPORARY BYPASS SYSTEM (RE. FLOW CONTROL / BY-PASS PUMPING NOTES SHEET C003)	1	LS	9,660.47	9,660.47	14,117.00	14,117.00	10,000.00	10,000.00	5,500.00	5,500.00	57,136.70	57,136.70
	Subtotal Wastewater Improvements				209,658.28		3 258,268.00		260,595.00		263,230.00		521,239.25
	TOTAL BID				\$262,462.00		\$289,870.00		\$296,355.00		\$336,062.00		\$579,959.65

- 1 Quality W Contractors' amount: \$28,812.00
- 2 Quality W Contractors' amount: \$48,800.00
- 3 Quality W Contractors' amount: \$261,058.00