

**DRAFT
CONTRACT**

Addendum issued to be
incorporated into
Contract documents at
time of execution



Request for Proposals

S. Elm Street Reconstruction
City Project Number: 502203

Proposals Due:

November 12, 2024 at 2:00 PM (local time)

At:

Keller Town Hall Information Desk

1100 Bear Creek Parkway, Keller, TX 76248

Advertisement Dates:

August 25, 2024

September 15, 2024

October 6, 2024



8/25/24

A handwritten signature in black ink, appearing to be "Sam J. Fries", written over the bottom of the professional engineer seal.

CITY OF KELLER, TEXAS
S. Elm St Reconstruction,
City Project # 502203
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NOTICE TO OFFERORS:

This is a rebid of S. Elm St Reconstruction. Significant Changes to bidding documents include:

Project Manual

- 1. Instructions to Offerors**
- 2. Statement of Qualifications**
- 3. Evaluation Criteria**

Plans

- 1. The following Plan Sheets were had significant revisions or were added:**
 - a. C1.01, C1.04, C1.05, C1.06, C4.01, C6.18, C7.14, C9.41, and Section C16

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Refer to Section II for Project Specific Technical Specifications.

SECTION III: GEOTECHNICAL REPORT

(Bound Separately)

SECTION IV: CONSTRUCTION PLANS AND DETAILS

(Bound Separately)

REQUEST FOR PROPOSALS

ARTICLE 1: GENERAL NOTICE

1.01 The City of Keller, Texas (“Owner”) extends this Request for Competitive Sealed Proposals (“RFP”) to solicit a response to the RFP (“Proposal”) from any interested party (“Offeror”) for the construction of the following project:

S. Elm Street Reconstruction (“Project”)

- A. Major project components include, but are not limited to:
1. Reconstruction the existing S. Elm Street roadway with decorative concrete and street approaches of adjacent side streets.
 2. Reconstruction of a portion of Pecan St and E. Vine St with concrete pavement.
 3. Trail reconstruction with 2.5’ max height retaining wall.
 4. Bridge with decorative shade structure over Bear Creek near Bear Creek Pkwy.
 5. Water/Wastewater Improvements Including
 - a. 12” Water line with services
 - b. 8” Sanitary sewer line with services
 6. Underground roadway drainage system improvements including:
 - a. Reinforced concrete pipe and box,
 - b. Curb inlets, area drains, and drop inlets, and
 - c. System outfall at Bear Creek with a headwall
 7. Custom street lighting and electrical improvements
 8. Gateway feature fabrication and installation
 9. Wayfinding fabrication and installation
 10. Street furniture
 11. Landscaping and irrigation along the road
- B. The range of construction cost estimated for this project is between \$26,900,000 - \$29,700,000.
- C. The estimated project completion date will be dependent on Contractor’s submitted schedule. Schedule and construction dates will be evaluated as part of Evaluation Criteria C.

1.02 This RFP is a competitive sealed proposal method in accordance with the Texas Government Code Chapter 2269, Subchapter D.

1.03 Sealed Proposals must be delivered to the City of Keller at 1100 Bear Creek Parkway, Keller, TX 76248 no later than November 12, 2024, at 2:00 PM to be accepted. The Proposals will be publicly opened, and the names of the Offerors and any monetary proposals made by the Offerors will be read aloud at this time and place. Proposals received after this time will be returned unopened. Address Proposals to the attention of Chad Bartee, P.E. at the address immediately above.

ARTICLE 2: EXAMINATION AND PROCUREMENT OF PROPOSAL DOCUMENTS

2.01 Advertisement and information for the Project can be found at the following website:

<https://www.civcastusa.com/>

2.02 Contract Documents may downloaded or viewed free of charge at this website. It is the downloader’s responsibility to determine that a complete set of documents, as defined in the Instructions to Offerors, are received. Printed copies of the Contract Documents may be purchased at the website for the cost of printing. The cost for printed Contract Documents is not refundable.

2.03 This website will be updated periodically with Addenda, lists of interested parties, reports or other information relevant to submitting a Proposal for the Project.

2.04 Printed copies of the Contract Documents, Construction Drawings, and Geotechnical Report may be examined free of charge at the following addresses:

Engineer	Owner
Kimley-Horn and Associates, Inc	City of Keller
100 W. Oak Street, Suite 203	1100 Bear Creek Parkway
Denton, Texas 76201	Keller, TX 76248
Sam Fries, P.E.	Chad Bartee, P.E.

ARTICLE 3: QUESTIONS REGARDING PROPOSAL PROCESS OR SOLICITATION DOCUMENTS

3.01 To ensure fairness during the procurement process, until the Contract is executed, Offerors and their employees, representatives and agents shall not contact an Owner staff, members of the selection committee, Owner’s City Council, or consultant of the Owner identified immediately below.

A. Kimley-Horn and Associates, Inc (ENGINEER)

3.02 Direct questions regarding distribution of Contract Documents, design, and the RFP for this Project to Kimley-Horn and Associates, Inc, 100 W. Oak Street, Suite 203, Denton, Texas 76201. Contact Sam Fries, P.E. at 940-536-0178

3.03 All Questions must be submitted using the website where documents are procured. Modifications to the Contract Documents prior to the award of the Contract can only be made by Addenda. Response to Requests for Information that would indicate an addition, modification or clarification of the Contract Documents (“Addenda”), other than directing the attention of the requestor to a specific reference in the Contract Documents, will be made by Addenda for the benefit of all Offerors.

A. Questions are due by Close of Business on Thursday, November 7, 2024.

B. The last date and time an addenda will be issued is Monday, November 11, 2024 at 12:00 PM (noon)

ARTICLE 4: PRE-PROPOSAL CONFERENCE

4.01 A non-mandatory Pre-Proposal Conference for the Project will be held on October 15, 2024 at 2:00 PM at Keller Town Hall, 1100 Bear Creek Parkway, Room 106.

ARTICLE 5: BASIS FOR RANKING OF OFFERORS

5.01 The Owner will consider Statement of Qualifications (“Statement of Qualifications”) of the Offerors and the proposed price (“Total Bid For All Items”) contained in Proposal Form Exhibit A when evaluating Proposals to determine which Offeror, in the opinion of the Owner, will provide the best value to the Owner. The Proposals will be evaluated using the following criteria and weighting:

Rating Category	Evaluation Criteria Description	Weighting Points
A	Proposed Contract Price	50
B	Offeror General Information; Project Organization; and Qualifications and Experience of Key Personnel	15
C	Construction Management Plan and Construction Time	15
D	Experience of Offeror with Similar Projects	15
E	Project Resources, Subcontractors, and Suppliers; and Project Safety	5
Total		100

5.02 The evaluation criteria are further defined in the Statement of Qualifications. Refer to Instructions for Offerors for Proposal Submittal Format Requirements.

ARTICLE 6: AWARD OF CONTRACT

6.01 It is the intent of the Owner to award a construction contract for this Project (Standard Form of Agreement: “Agreement”) to the Offeror who provides the best value for the Owner as determined when considering the relative importance of costs and other evaluation criteria described above. The Owner reserves the right to adopt the most advantageous interpretation of the Proposals submitted in the case of ambiguity or lack of clearness in stating Proposal prices, to reject any or all Proposals, and/or waive informalities. Ranking of the Proposals will be completed in 45 days or less. Proposals may not be withdrawn within 60 days from the date on which Proposals are opened.

ARTICLE 7: PROPOSAL SECURITY

7.01 Offerors must submit an acceptable Bid Bond with their Proposal as a guarantee that the Offeror will enter into the Contract for the Project with the Owner within 15 days of Notice of Award of the Contract. The Bid Bond must be payable to City of Keller in the amount of 5 percent of the proposed Contract Price. Offeror must execute the Contract, bonds and certificates of insurance on the forms provided in the Contract Documents.

ARTICLE 8: OTHER CONTRACT REQUIREMENTS

8.01 Performance, Payment, and Maintenance Bonds are required.

ARTICLE 9: SUBSTITUTE OR "OR EQUAL" ITEMS.

9.01 The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Paragraph 6.05.A, 6.05.B, 6.05.C, 6.05.D, 6.05.E, and 6.05.F of the General Conditions and may be supplemented in the Supplementary Conditions.

ARTICLE 10: SUBCONTRACTORS, SUPPLIERS AND OTHERS.

10.01 Contractor's are encouraged to sub-contract with experienced and qualified contractors for the various types of work required to construct this project. There is no requirement for a minimum percentage of self-performance by the Contractor.

10.02 The Owner may at any time require the Contractor to remove any sub-contractor from the project for performance that does not meet the Owner's expectations for communication, project component delivery, schedule, and/or quality. The Contractor will be responsible for selecting a new sub-contractor to replace the one that has been removed.

10.03 Evaluation criteria are further defined in the Statement of Qualifications. Contractor's are required to submit qualifications for key personnel, trade subcontractor's, and other team members. Refer to Instructions for Offerors for Proposal Submittal Format Requirements and the Statement of Qualifications tables for required submittal information.

10.04 While the incorporation of MWBE, DBE, and HUB contractors are encouraged, there is no percentage requirement for MWBE, DBE, or HUB contractor participation.

10.05 No Contractor shall be required to employ any subcontractor, supplier, other person or organization against whom Contractor has reasonable objection.

ARTICLE 11: DEBARMENT

11.01 By submitting a proposal, the offeror certifies that it is not currently debarred from receiving contracts from any political subdivision or agency of the State of Texas and that it is not an agent of a person or entity that is currently debarred from receiving contracts from any political subdivision or agency of the State of Texas.

ARTICLE 12: WAIVER OF SUBROGATION

12.01 The contractor and his subcontractors shall require their insurance carrier, with respect to all insurance policies, to waive all rights of subrogation against the City of Keller and the Keller Town Center Property Owners Association, its commissioners, partners, officials, agents, and employees and against all other contractors and subcontractors.

ARTICLE 13: IDENTIFICATION OF CONTRACTOR VEHICLES & EQUIPMENT

13.01 Contractor will be responsible for ensuring vehicles and equipment are clearly identified in a manner acceptable to the City, and be properly licensed and inspected in accordance with the State of Texas and Tarrant County regulations.

ARTICLE 14: EMPLOYEE SAFETY

14.01 Contractor must provide and enforce the use of appropriate safety equipment.

ARTICLE 15: SUBSTANCE ABUSE

15.01 Possession, consumption of, and/or reporting for work under the influence of alcohol, controlled substances, and/or dangerous drugs by subcontractors, officers, or employees of the Contractor will not be tolerated. Enforcement of this policy is the responsibility of Contractor.

ARTICLE 16: CRIMINAL HISTORY BACKGROUND CHECK

16.01 Prior to each employee commencing work, Contractor must conduct a criminal history check acceptable to the City, and forward all reports to an authorized City representative.

ARTICLE 17: CUSTOMER RELATIONS

17.01 Contractor is responsible for ensuring that its subcontractors or employees conduct themselves in a courteous and professional manner when dealing with City employees, elected or appointed officials, residents, and/or customers of the City. The City reserves the right to reject any Contractor subcontractor or employee and/or request replacement at any time.

END OF SECTION

INSTRUCTIONS TO OFFERORS

ARTICLE 1: DEFINED TERMS

- 1.01 Terms used in these Instructions for Offerors have the meanings indicated in the General Conditions and Supplementary Conditions.

ARTICLE 2: PROPOSALS RECEIVED

- 2.01 Refer to "Request for Proposals" for information on receipt of Proposals.

ARTICLE 3: COPIES OF CONTRACT DOCUMENTS

- 3.01 Obtain a complete set of the Contract Documents as indicated in "Request for Proposals."
- 3.02 Use complete sets of Contract Documents in preparing Proposals; neither the Owner nor the Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.
- 3.03 Owner and Engineer make copies of Contract Documents available on the above terms only for the purpose of obtaining Proposals for completion of Work and do not confer a license or grant permission or authorization for any other use.

ARTICLE 4: SUBMITTAL FORMAT REQUIREMENTS

4.01 Submission Format:

- A. OFFEROR may submit their proposal in either a hardcopy or electronic format. There will be no preferential treatment given to electronic or hardcopy format. Regardless of submission format, all information as specified in Article 4 of Instructions to Offerors and in the Statement of Qualifications are required to be submitted to count as a qualified bid.
1. Offerors may submit all documents electronically only or in hardcopy only format only. There is no way for the Offerors to submit a combination of electronic and hardcopy.
- B. Electronic Submission Formatting: Upload all required documents in PDF format other than the bid form. Utilize the CivCast Bid Form tool to submit the bid prices.
1. The Bid Form tool is accessible via a green button on the upper right-hand corner of the screen and
- C. Hard Copy Submission Formatting: The Offeror shall provide their submittal in the following format. Each section indicated shall be separated by tabs to help maintain consistency across submittals.
1. It is preferred that the submittal be in a binder, however, this is not a requirement.
 2. Title pages are provided. Refer to appropriate sections of the bidding documents.
 3. Where tabs are required:
 - a. Tab must be attached on the right side of the page when printed portrait style.
 - b. Tab may be any form of filing tab including:

- 1). Self-adhesive
- 2). Divider page with tabs
4. All Tables and Forms listed as part of the Statement of Qualifications are required. Offeror may provide supplemental information as desired to provide additional information for evaluation of the submittal.

4.02 Cover Page

- A. Include Project Name
- B. Provide Offeror Firm's Name

4.03 Bid Bond

- A. This section shall have a title page and tab.
 1. Tabs are for hardcopy submission only
- B. A bid bond must be submitted with the bid to be considered a qualified bid.
- C. Electronic Submission Only: Contractor to upload a photocopy to CivCast and provide a hardcopy submission of the bid bond within 48 hours of the bid opening.
- D. Hardcopy Submission Only: This section shall have a title page and tab.

4.04 Proposal Form and Addendums

- A. This section shall have a title page and tab.
 1. Tabs are for hardcopy submission only
- B. Proposal Form
 1. Complete Acknowledgement of Addendums table, and
 2. Complete Article 10: Proposal Form Submittal
- C. Include all Addendums issued with signature acknowledging receipt

4.05 Evaluation Criteria A: Proposed Contract Price

- A. This section shall have a title page and tab.
 1. Tabs are for hardcopy submission only
- B. Contract price information is required. Refer to Statement of Qualifications for requirements based on submission format.

4.06 Evaluation Criteria B through E – Statement of Qualifications

- A. This section shall have a title page and tab.
 1. Tabs are for hardcopy submission only
- B. Submit information as required in "Statement of Qualifications" with the Proposal to demonstrate the Offeror's qualifications and experience to complete the Work. Submittal

shall include all Tables, Figures, and Forms Required as Part of the Statement of Qualifications. Supplemental information may be provided as desired.

- C. Refer to the Statement of Qualifications for required tables, figures, and forms. Submit in the order provided.

4.07 Miscellaneous Bidding Documents

- A. This section shall have a title page and tab.
 - 1. Tabs are for hardcopy submission only
- B. Refer to the Statement of Qualifications for required documents.

ARTICLE 5: EXAMINATION OF CONTRACT DOCUMENTS

5.01 Before submitting a Proposal:

- A. Examine and carefully study the Contract Documents, including any Addenda and the related supplemental data.
- B. Become familiar and satisfied with all federal, state, and local Laws and Regulations that may affect cost, progress, or the completion of Work.
- C. Carefully study and correlate the information available to the Offeror with the Contract Documents, Addenda and the related supplemental data.
- D. Promptly give the Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that the Offeror discovers in the Contract Documents, Addenda and the related supplemental data and confirm that the written resolution provided by the Engineer is acceptable to the Offeror.
- E. Determine that the Contract Documents, Addenda and the related supplemental data are generally sufficient to indicate and convey understanding of all terms and conditions for completion of Work.

ARTICLE 6: PRE-PROPOSAL CONFERENCE

- 6.01 Requirements for a Pre-Proposal Conference will be as stipulated in the Request for Proposals.

ARTICLE 7: INTERPRETATIONS AND ALTERNATE PROPOSALS

- 7.01 Submit all questions about the meaning or intent of the Contract Documents, Addenda and the related supplemental data to the Owner in writing at the website. Interpretations or clarifications considered necessary by the Owner in response to such questions will be issued by Addenda and posted on the website to all parties recorded by the Engineer as having registered as an Offeror, received the Contract Documents, Addenda and the related supplemental data. Questions received less than 10 days prior to the date for opening of Proposals may not be answered. Only answers in Addenda authorized by the Owner will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Submit any offer of alternate terms and conditions or offer of Work not in strict compliance with the Contract Documents to the Engineer no later than 10 days prior to the date for opening of

Proposals. Engineer will issue Addenda as appropriate if any of the proposed changes to the Contract Documents are accepted. A Proposal submitted with clarifications or taking exceptions to the Contract Documents, except as modified by Addenda, may be considered non-responsive.

- 7.03 Offeror may submit a separate and additional Proposal if the Offeror includes exceptions or the Offeror wishes to make a Proposal that is not in accordance with the terms and conditions of the Contract Document, or for Work that is not in strict compliance with the Contract Documents. Describe the intent and substance of the changes in the additional Proposal in adequate detail so they are clearly understood. Alternates will not be considered in the ranking and evaluation of the Proposals. Upon selection of the Proposal that offers the best value to the Owner, and after the award of the Contract, the Owner may consider proposed alternates in negotiating a final Contract Price.
- 7.04 Addenda may be issued to clarify, correct, or change the Contract Documents, Addenda or the related supplemental data as deemed advisable by the Owner.

ARTICLE 8: PROPOSAL SECURITY

- 8.01 A Proposal must be accompanied by an acceptable security payable to the Owner ("Bid Bond") in an amount of 5 percent of the Construction Price. The Bid Bond must be issued by a surety legally authorized to do business in the State of Texas and meeting the requirements of the General Conditions.
- 8.02 This Bid Bond will become void when the Performance and Payment Bonds are provided. Owner may annul the Notice of Award and the Bid Bond of the Offeror will be forfeited if the apparent Successful Offeror fails to execute and deliver the Agreement or Amendment to the Agreement. The Bid Bond of other Offerors whom the Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of 7 days after the Effective Date of the Agreement or 45 days after the date Proposals are opened. Bid Bonds furnished by such Offerors will be returned at that time.
- 8.03 Owner will return the Bid Bond of the Offerors that the Owner believes do not have a reasonable chance of receiving the award within 7 days after Proposals are opened.

ARTICLE 9: CONTRACT TIMES

- 9.01 Provisions for Contract Times are set forth in the Agreement.

ARTICLE 10: LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages are set forth in the Agreement.

ARTICLE 11: RETAINAGE

- 11.01 Provisions concerning the Offeror's rights to deposit securities and or retainage are set forth in the Agreement.

ARTICLE 12: PREPARATION OF PROPOSAL FORM

- 12.01 The Proposal Form is included with the Contract Documents. Obtain additional copies, if needed, from the Owner.
- 12.02 Complete all blanks on the Proposal Form by typing or printing in ink. Indicate Proposal prices for each Proposal item or alternate shown. Execute the Proposal as indicated below:
- A. Execute a Proposal for a corporation in the corporate name with the signature of the president, a vice-president or other corporate officer accompanied by evidence of authority of the individual to sign on behalf of the corporation. Show the corporate address and state of incorporation with the signature.
 - B. Execute a Proposal for a partnership in the partnership name with the signature of a partner. The title of the partner must appear with the signature. The document must be accompanied by evidence of authority for that individual to sign on behalf of the partnership. Show the official address of the partnership with the signature.
 - C. Execute a Proposal for a limited liability company in the name of the firm with the signature of an officer of that company. The document must be accompanied by evidence of authority for that individual to sign on behalf of the company. Show the state in which the firm was formed and the official address of the firm with the signature.
 - D. Show the Offeror's name and official address for a Proposal by an individual.
 - E. Execute a Proposal for a joint venture with a signature of an authorized person from each joint venturer in the manner indicated on the Proposal Form. The document must be accompanied by evidence of authority for each individual to sign on behalf of their respective organizations. Show the official address of the joint venture with the signature.
- 12.03 Type or print all names in ink below the signature.
- 12.04 Acknowledge receipt of all Addenda by filling in the number and date of each Addenda received. Provide a signature as indicated to verify that the Addenda were received. A Proposal that does not acknowledge the receipt of all Addenda may be considered non-responsive.
- 12.05 Provide the name, address and telephone number of the individual to be contacted for any communications regarding the Proposal in the Proposal Form.
- 12.06 Provide evidence of the Offeror's authority and qualification to do business in the state of the Project Site or covenant to obtain such qualification prior to award of the Contract.

ARTICLE 13: CONFIDENTIALITY OF PROPOSAL INFORMATION

- 13.01 In accordance with Texas Government Code 552.110, trade secrets and confidential information in Proposals are not open for public inspection. Proposals will be opened in a manner that avoids disclosure of the contents to competing Offerors and keeps the Proposals secret during considerations. All Proposals are open for public inspection after the Contract is awarded, but trade secrets and confidential information in Proposals are not typically open for public inspection. The Owner will protect this information to the extent allowed by law. Clearly indicate which specific documents are considered to be trade secrets or confidential information by stamping or watermarking all such documents with the word "confidential" prominently on

each page or sheet or on the cover of bound documents. Place "confidential" stamps or watermarks so that they do not obscure any of the required information on the document, either in the original or in a way that would obscure any of the required information in a photocopy of the document. Photocopies of "confidential" documents will be made only for the convenience of the selection committee and will be destroyed after the Effective Date of Agreement. Original confidential documents will be returned to the Offeror after the Effective Date of Agreement if the Offeror indicates that the information is to be returned with the Proposal, and direction for its return are provided by the Offeror. Entire Proposals will not be allowed to be marked as "Confidential".

ARTICLE 14: SUBMITTAL OF PROPOSAL

- 14.01 Each prospective Offeror is furnished one copy of the Contact Documents with one separate unbound copy of the Proposal Form. Complete and submit the unbound copy of the Proposal Form along with all attachments identified in the Proposal Form.
- 14.02 Submit the Proposal no later than the date and time prescribed and at the place indicated in "Request for Proposals." Enclose the Proposal in an opaque sealed envelope plainly marked with the project name, the name and address of the Offeror along with the Bid Bond and other required documents. Enclosed the sealed envelope containing the Proposal in a separate envelope plainly marked on the outside with the notation "PROPOSAL ENCLOSED" if the Proposal is sent by mail or other delivery system. Address the outer envelope to the mailing address shown in "Request for Proposals." Assume full responsibility for ensuring that the Proposal arrived at the prescribed location before the prescribed time.

ARTICLE 15: MODIFICATION OR WITHDRAWAL OF PROPOSAL

- 15.01 Modify or withdraw a Proposal using a document executed in the same manner that a Proposal must be executed. Deliver the document to the place where Proposals are to be submitted prior to the date and time for the opening of Proposals.
- 15.02 An Offeror may withdraw its Proposal within 24 hours after Proposals are opened if the Offeror files a signed written notice with the Owner and promptly thereafter demonstrates to the reasonable satisfaction of the Owner that there was a material and substantial mistake in the preparation of its Proposal. The Bid Bond will be returned if it is clearly demonstrated to the Owner that there was a material and substantial mistake in its Proposal. An Offeror that requests to withdraw its Proposal under these conditions may be disqualified from responding to a reissued Request for Proposals for the Work to be furnished under these Contract Documents.

ARTICLE 16: OPENING OF PROPOSALS

- 16.01 Proposals will be opened at the time and place indicated in "Request for Proposals." The Owner will receive, publicly open and read aloud the names of the Offerors and any monetary proposals made by the Offerors at this time and place as required by Texas Government Code Section 2269.154.

ARTICLE 17: PROPOSALS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Proposals will remain subject to acceptance for 60 days from evaluation period, but the Owner may, at its sole discretion, release any Proposal and return the Bid Bond prior to the end of this period.

ARTICLE 18: EVALUATION OF PROPOSALS

- 18.01 Within 45 days after the date of opening the Proposals, the Owner will evaluate and rank each Proposal with respect to the selection criteria described below. All procurements shall conform to Texas Government Code Chapter 2269. In evaluating Proposals, the Owner will consider whether or not the Proposals comply with the prescribed requirements, and such alternatives, prices and other data, as may be requested in the Proposal Form or may be requested from Offerors prior to a Notice of Award.
- 18.02 In evaluating Proposals, the Owner will consider the Contract Price and the Statement of Qualifications of the Offerors to determine which Proposal offers the best value to the Owner. The Proposals will be evaluated using the information submitted in the Proposal Form and information submitted in the Statement of Qualifications as required by "Statement of Qualifications."
- 18.03 Owner may conduct such investigations as the Owner deems necessary to establish the responsibility, qualifications, and financial ability of consultants, individuals, or entities proposed to furnish parts of the Work in accordance with the Contract Documents.
- 18.04 The evaluation criteria and weighting are as described this RFP
- 18.05 Submission of a Proposal indicates the Offeror's acceptance of the evaluation technique and methodology as well as the Offeror's recognition that some subjective judgments must be made by the Owner during the evaluation.

ARTICLE 19: EVALUATION CRITERIA AND WEIGHTING

- 19.01 The Owner will consider the Contract Price and the Statement of Qualifications of the Offerors to determine which Proposal offers the best value to the Owner. The Proposals will be evaluated using the criteria and weighting described in Article 5: Basis for Ranking of Offerors in the Request for Proposals.
1. The Owner reserves the right to take into account in its evaluation of the Price Proposal, the Total Bid Amount on the Bid Form as to its reasonableness for the actual cost of the work to complete the scope of work for this Project. The Owner may take into account the increased risk for contract performance problems that a significantly low Total Bid Amount could represent.

ARTICLE 20: AWARD OF CONTRACT

- 20.01 The Offeror selected for award of the Contract will be the Offeror whose offer provides the best value to the Owner. The Owner is not bound to accept the lowest priced Proposal if that Proposal is not in the best value to the Owner, as determined by the Owner. If the Owner determines that it is unable to reach a contract satisfactory to the Owner with the selected

Offeror, then the Owner will terminate discussions in writing with the selected Offeror and proceed to the next Offeror in order of selection ranking until an agreement is reached or the Owner has rejected all Proposals.

- 20.02 Owner reserves the right to reject any and all Proposals, including without limitation, nonconforming, non-responsive, or conditional Proposals. The Owner may also reject the Proposal of any Offeror if the Owner believes that it would not be in the best interest of the Owner to make an award to that Offeror. The Owner reserves the right to waive all formalities.
- 20.03 More than one Proposal for the same Work from an individual or entity under the same or different names will not be considered, except as additional Proposals in accordance with Article 7. Reasonable grounds for believing that any Offeror has an interest in more than one Proposal for the Work shall be cause for disqualification of that Offeror and the rejection of all Proposals in which that Offeror has an interest.

ARTICLE 21: BONDS AND INSURANCE

- 21.01 Article 5 of the General Conditions sets forth the Owner's requirements as to performance, payment, maintenance and other bonds and insurance. When the successful Offeror delivers the executed Agreement to the Owner, it must be accompanied by the required bonds and required certificates of insurance.
- 21.02 Performance and Payment Bonds required for this Project will comply fully with provisions of Texas Government Code Chapter 2253. Provisions for administration of Bonds shall conform to Texas Government Code Chapter 2253 and provisions of these Contract Documents.
- 21.03 A Maintenance Bond is required as more fully described in these Contract Documents.

ARTICLE 22: RIGHTS OF THE OWNER

- 22.01 The Proposal of an Offeror shall not deprive the Owner of the right to accept a Proposal, which in its judgment offers the best value to the Owner, reject any and all Proposals, to waive irregularities in the Proposals, or to reject nonconforming, non-responsive, or conditional Proposals. In addition, the Owner reserves the right to reject any Proposal where circumstances and developments have, in the opinion of the Owner, changed the qualifications or responsibility of the Offeror.
- 22.02 Material misstatements in the material submitted for evaluation may be grounds for rejection of the Offeror's Proposal on this Project. Any such misstatement, if discovered after award of the contract to such firm, may be grounds for immediate termination of the Contract. Additionally, the Offeror will be liable to the Owner for any additional costs or damages to the Owner resulting from such misstatements, including costs and attorney's fees for collecting such costs and damages.
- 22.03 The right to suspend and terminate the procurement process or to terminate evaluations of Proposals received at any time.
- 22.04 The right to correspondence with the Offerors to seek an improved understanding of Proposals at any time. The right to request additional information from an Offeror during the evaluation of Proposals.

- 22.05 The right to request an interview with any or all Offerors.
- 22.06 The right to seek or obtain data and information from any source that has the potential to improve the understanding and evaluation of the Proposals.
- 22.07 The right to use assistance of outside technical and legal experts and consultants in the evaluation process.
- 22.08 The right to conduct an independent investigation of any information, including prior experience identified in a Proposal by contacting project references, accessing public information, contacting independent parties or any other means.

ARTICLE 23: EXECUTION OF AGREEMENT

- 23.01 The Notice of Award to the successful Offeror will be accompanied by an electronic version of the unsigned counterparts of the Agreement with the other Contract Documents that are identified in the Agreement.
- 23.02 The Offeror shall provide the required number of fully executed versions of the following documents within 15 days after written notification of award. Refer to the Standard Form of Agreement for additional information.
- A. Agreement
 - B. Bonds: Performance, Payment, and Maintenance Bond.
 - C. Certificate of Insurance
 - D. Disadvantaged Business Enterprises Form(s)
 - E. Certificate of Interested Parties (Form 1295) as required by Texas Government Code Chapter 2252 with the signed Agreement.
 - F. General Conditions
 - G. Supplementary Conditions
 - H. All Addenda
 - I. Proposal Form, Bid Proposal Summary, and Bid Proposal Unit Prices
 - J. Documentation submitted by CONTRACTOR/OFFEROR prior to Notice of Award
 - K. Section II – Specifications
 - L. Section III – Geotechnical Report
 - M. Section IV – Construction Drawings and Details
- 23.03 The Owner will deliver two fully signed counterparts to Successful Offeror within 10 days after receiving the signed documents from the Successful Offeror. The Offeror shall provide the following documents.

ARTICLE 24: CONTRACT NOT TO BE ASSIGNED

- 24.01 Contract may not be assigned in whole or in part by the Offeror without the previous written consent of the Owner.

ARTICLE 25: SALES AND USE TAXES

- 25.01 City or state sales taxes should generally not be included in the Contract Price as the Owner qualifies as an exempt agency. Certain items such as rented equipment may be taxable even though the Owner is a tax exempt agency. Assume responsibility for including any applicable sales taxes in the Contract Price and assumes responsibility for complying with all applicable statutes and rulings of the State of Texas Comptroller.
- 25.02 It is the Owner's intent to have this Contract qualify as a "separated contract." In order for this contract to qualify:

- A. Obtain a sales tax permit from the State of Texas Comptroller if awarded this Contract.
- B. Identify the dollar value of materials exempt from the sales tax. This information must be reported in the "Statement for Materials and Other Charges" on the Proposal Form. Proposals not showing the Statement for Materials and Other Charges may be considered non-responsive.

END OF SECTION

Title Page

TxDOT Bidding Documents for Funding Requirements

(NOT to Be Included with Proposal Submittal)

Special Provision to Item 000

Nondiscrimination



1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws including Title VI of the Civil Rights Act of 1964, as amended, (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

Owner, as a recipient of Federal financial assistance, and under Title VI and related statutes, ensures that no person shall on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment per 42 U.S.C. § 2000d-3), color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any of Owner's programs or activities.

2. DEFINITION OF TERMS

Where the term "contractor" appears in the following six nondiscrimination clauses, the term "contractor" is understood to include all parties to contracts or agreements with the Owner.

3. NONDISCRIMINATION PROVISIONS

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

- 3.1. **Compliance with Regulations.** The Contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- 3.2. **Nondiscrimination.** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- 3.3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- 3.4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Owner or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Owner or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

- 3.5. **Sanctions for Noncompliance.** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Owner shall impose such contract sanctions as it, the Owner may determine to be appropriate, including, but not limited to:
- withholding of payments to the contractor under the contract until the contractor complies, and/or
 - cancellation, termination or suspension of the contract, in whole or in part.
- 3.6. **Incorporation of Provisions.** The contractor shall include the provisions of paragraphs (3.1) through (3.6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Owner may direct as a means of enforcing such provisions including sanctions for non-compliance: provided, however that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Owner to enter into such litigation to protect the interests of the Owner, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Special Provision to Item 000

Certification of Nondiscrimination in Employment



1. GENERAL

By signing this proposal, the Bidder certifies that Bidder has participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, or if Bidder has not participated in a previous contract of this type, or if Bidder has had previous contract or subcontracts and has not filed, Bidder will file with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note—The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

Special Provision to Item 000

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)



1. GENERAL

In addition to the affirmative action requirements of the Special Provision titled "Standard Federal Equal Employment Opportunity Construction Contract Specifications" as set forth elsewhere in this proposal, the Bidder's attention is directed to the specific requirements for utilization of minorities and females as set forth below.

2. GOALS

2.1. Goals for minority and female participation are hereby established in accordance with 41 CFR 60-4.

2.2. The goals for minority and female participation expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area are as follows:

Goals for minority participation in each trade, %	Goals for female participation in each trade, %
See Table 1	6.9

2.3. These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it will apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 will be based on its implementation of the Standard Federal Equal Employment Opportunity Construction Contract Specifications Special Provision and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor must make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority and female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals will be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

2.4. A Contractor or subcontractor will be considered in compliance with these provisions by participation in the Texas Highway-Heavy Branch, AGC, Statewide Training and Affirmative Action Plan. Provided that each Contractor or subcontractor participating in this plan must individually comply with the equal opportunity clause set forth in 41 CFR 60-1.4 and must make a good faith effort to achieve the goals set forth for each participating trade in the plan in which it has employees. The overall good performance of other Contractors and subcontractors toward a goal in an approved plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the goals contained in these provisions. Contractors or subcontractors participating in the plan must be able to demonstrate their participation and document their compliance with the provisions of this Plan.

3. SUBCONTRACTING

The Contractor must provide written notification to the Owner within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation pending concurrence of the Owner in the award. The notification will list the names,

address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

4. COVERED AREA

As used in this special provision, and in the Contract resulting from this solicitation, the geographical area covered by these goals for female participation is the State of Texas. The geographical area covered by these goals for other minorities are the counties in the State of Texas as indicated in Table 1.

5. REPORTS

The Contractor is hereby notified that he may be subject to the Office of Federal Contract Compliance Programs (OFCCP) reporting and record keeping requirements as provided for under Executive Order 11246 as amended. OFCCP will provide direct notice to the Contractor as to the specific reporting requirements that he will be expected to fulfill.

Table 1
Goals for Minority Participation

County	Participation, %	County	Participation, %
Anderson	22.5	Chambers	27.4
Andrews	18.9	Cherokee	22.5
Angelina	22.5	Childress	11.0
Aransas	44.2	Clay	12.4
Archer	11.0	Cochran	19.5
Armstrong	11.0	Coke	20.0
Atascosa	49.4	Coleman	10.9
Austin	27.4	Collin	18.2
Bailey	19.5	Collingsworth	11.0
Bandera	49.4	Colorado	27.4
Bastrop	24.2	Comal	47.8
Baylor	11.0	Comanche	10.9
Bee	44.2	Concho	20.0
Bell	16.4	Cooke	17.2
Bexar	47.8	Coryell	16.4
Blanco	24.2	Cottle	11.0
Borden	19.5	Crane	18.9
Bosque	18.6	Crockett	20.0
Bowie	19.7	Crosby	19.5
Brazoria	27.3	Culberson	49.0
Brazos	23.7	Dallam	11.0
Brewster	49.0	Dallas	18.2
Briscoe	11.0	Dawson	19.5
Brooks	44.2	Deaf Smith	11.0
Brown	10.9	Delta	17.2
Burleson	27.4	Denton	18.2
Burnet	24.2	DeWitt	27.4
Caldwell	24.2	Dickens	19.5
Calhoun	27.4	Dimmit	49.4
Callahan	11.6	Donley	11.0
Cameron	71.0	Duval	44.2
Camp	20.2	Eastland	10.9
Carson	11.0	Ector	15.1
Cass	20.2	Edwards	49.4
Castro	11.0	Ellis	18.2

County	Participation, %	County	Participation, %
El Paso	57.8	Kenedy	44.2
Erath	17.2	Kent	10.9
Falls	18.6	Kerr	49.4
Fannin	17.2	Kimble	20.0
Fayette	27.4	King	19.5
Fisher	10.9	Kinney	49.4
Floyd	19.5	Kleberg	44.2
Foard	11.0	Knox	10.9
Fort Bend	27.3	Lamar	20.2
Franklin	17.2	Lamb	19.5
Freestone	18.6	Lampasas	18.6
Frio	49.4	LaSalle	49.4
Gaines	19.5	Lavaca	27.4
Galveston	28.9	Lee	24.2
Garza	19.5	Leon	27.4
Gillespie	49.4	Liberty	27.3
Glasscock	18.9	Limestone	18.6
Goliad	27.4	Lipscomb	11.0
Gonzales	49.4	Live Oak	44.2
Gray	11.0	Llano	24.2
Grayson	9.4	Loving	18.9
Gregg	22.8	Lubbock	19.6
Grimes	27.4	Lynn	19.5
Guadalupe	47.8	Madison	27.4
Hale	19.5	Marion	22.5
Hall	11.0	Martin	18.9
Hamilton	18.6	Mason	20.0
Hansford	11.0	Matagorda	27.4
Hardeman	11.0	Maverick	49.4
Hardin	22.6	McCulloch	20.0
Harris	27.3	McLennan	20.7
Harrison	22.8	McMullen	49.4
Hartley	11.0	Medina	49.4
Haskell	10.9	Menard	20.0
Hays	24.1	Midland	19.1
Hemphill	11.0	Milam	18.6
Henderson	22.5	Mills	18.6
Hidalgo	72.8	Mitchell	10.9
Hill	18.6	Montague	17.2
Hockley	19.5	Montgomery	27.3
Hood	18.2	Moore	11.0
Hopkins	17.2	Morris	20.2
Houston	22.5	Motley	19.5
Howard	18.9	Nacogdoches	22.5
Hudspeth	49.0	Navarro	17.2
Hunt	17.2	Newton	22.6
Hutchinson	11.0	Nolan	10.9
Irion	20.0	Nueces	41.7
Jack	17.2	Ochiltree	11.0
Jackson	27.4	Oldham	11.0
Jasper	22.6	Orange	22.6
Jeff Davis	49.0	Palo Pinto	17.2
Jefferson	22.6	Panola	22.5
Jim Hogg	49.4	Parker	18.2
Jim Wells	44.2	Parmer	11.0
Johnson	18.2	Pecos	18.9
Jones	11.6	Polk	27.4
Karnes	49.4	Potter	9.3
Kaufman	18.2	Presidio	49.0
Kendall	49.4	Randall	9.3

County	Participation, %	County	Participation, %
Rains	17.2	Reagan	20.0
Real	49.4	Throckmorton	10.9
Red River	20.2	Titus	20.2
Reeves	18.9	Tom Green	19.2
Refugio	44.2	Travis	24.1
Roberts	11.0	Trinity	27.4
Robertson	27.4	Tyler	22.6
Rockwall	18.2	Upshur	22.5
Runnels	20.0	Upton	18.9
Rusk	22.5	Uvalde	49.4
Sabine	22.6	Val Verde	49.4
San Augustine	22.5	Van Zandt	17.2
San Jacinto	27.4	Victoria	27.4
San Patricio	41.7	Walker	27.4
San Saba	20.0	Waller	27.3
Schleicher	20.0	Ward	18.9
Scurry	10.9	Washington	27.4
Shackelford	10.9	Webb	87.3
Shelby	22.5	Wharton	27.4
Sherman	11.0	Wheeler	11.0
Smith	23.5	Wichita	12.4
Somervell	17.2	Wilbarger	11.0
Starr	72.9	Willacy	72.9
Stephens	10.9	Williamson	24.1
Sterling	20.0	Wilson	49.4
Stonewall	10.9	Winkler	18.9
Sutton	20.0	Wise	18.2
Swisher	11.0	Wood	22.5
Tarrant	18.2	Yoakum	19.5
Taylor	11.6	Young	11.0
Terrell	20.0	Zapata	49.4
Terry	19.5	Zavala	49.4

Special Provision to Item 000

Standard Federal Equal Employment Opportunity

Construction Contract Specifications

(Executive Order 11246)



1. GENERAL

1.1. As used in these specifications:

- "Covered area" means the geographical area described in the solicitation from which this Contract resulted;
- "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- "Minority" includes:
 - Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

1.2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it will physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.

1.3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) will be in accordance with that plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the equal employment opportunity (EEO) clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

1.4. The Contractor will implement the specific affirmative action standards provided in Section 1.7.1. through Section 1.7.16. of these specifications. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing Contracts in geographical areas where they do not have a Federal or federally assisted construction Contract will apply the minority and female goals established for the geographical area where the Contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or any Federal procurement contracting officer. The

Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

- 1.5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women will excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- 1.6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
- 1.7. The Contractor will take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications will be based upon its effort to achieve maximum results from its actions. The Contractor will document these efforts fully, and will implement affirmative action steps at least as extensive as the following:
 - 1.7.1. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor will specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - 1.7.2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - 1.7.3. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this will be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 - 1.7.4. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral Process has impeded the Contractor's efforts to meet its obligations.
 - 1.7.5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the U.S. Department of Labor. The Contractor will provide notice of these programs to the sources compiled under 7b above.
 - 1.7.6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and Collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - 1.7.7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other

employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., before the initiation of construction work at any job site. A written record must be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

- 1.7.8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- 1.7.9. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month before the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor will send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- 1.7.10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- 1.7.11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- 1.7.12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- 1.7.13. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- 1.7.14. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities will be provided to assure privacy between the sexes.
- 1.7.15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- 1.7.16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- 1.8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (Section 7.1. through Section 7.16.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Section 7.1. through Section 7.16. of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation will not be a defense for the Contractor's noncompliance.
- 1.9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor

may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

- 1.10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- 1.11. The Contractor will not enter into any Subcontract with any person or firm debarred from Government Contracts pursuant to Executive Order 11246.
- 1.12. The Contractor will carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties will be in violation of these specifications and Executive Order 11246, as amended.
- 1.13. The Contractor, in fulfilling its obligations under these specifications, will implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director will proceed in accordance with 41 CFR 60-4.8.
- 1.14. The Contractor will designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records must at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records must be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.
- 1.15. Nothing herein provided will be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).
- 1.16. In addition to the reporting requirements set forth elsewhere in this Contract, the Contractor and the subcontractors holding subcontracts, not including material suppliers, of \$10,000 or more, will submit for every month of July during which work is performed, employment data as contained under Form PR 1391 (Appendix C to 23 CFR, Part 230), and in accordance with the included instructions.

Special Provision to Item 000

Special Labor Provisions for State Projects



1. GENERAL

This is a "Public Works" Project, as provided under Government Code Title 10, Chapter 2258, "Prevailing Wage Rates," and is subject to the provisions of the Statute. No provisions in the Contract are intended to be in conflict with the provisions of the Statute.

The Owner has ascertained and indicated in the special provisions the regular rate of per diem wages prevailing in each locality for each craft or type of worker. Apply the wage rates contained in the specifications as minimum wage rates for the Contract.

2. MINIMUM WAGES, HOURS AND CONDITIONS OF EMPLOYMENT

All workers necessary for the satisfactory completion of the work are within the purview of the Contract.

Whenever and wherever practical, give local citizens preference in the selection of labor.

Do not require any worker to lodge, board or trade at a particular place, or with a particular person as a condition of employment.

Do not charge or accept a fee of any from any person who obtains work on the project. Do not require any person who obtains work on the project to pay any fee to any other person or agency obtaining employment for the person on the project.

Do not charge for tools or equipment used in connection with the duties performed, except for loss or damage of property. Do not charge for necessary camp water.

Do not charge for any transportation furnished to any person employed on the project.

The provisions apply where work is performed by piece work, station work, etc. The minimum wage paid will be exclusive of equipment rental on any shipment which the worker or subcontractor may furnish in connection with his work.

Take responsibility for carrying out the requirements of this specification and ensure that each subcontractor working on the project complies with its provisions.

Any form of subterfuge, coercion or deduction designed to evade, reduce or discount the established minimum wage scales will be considered a violation of the Contract.

The Fair Labor Standards Acts (FLSA) established one and one-half (1-1/2) pay for overtime in excess of 40 hours worked in 1 week. Do not consider time consumed by the worker in going to and returning from the place of work as part of the hours of work. Do not require or permit any worker to work in excess of 40 hours in 1 week, unless the worker receives compensation at a rate not less than 1-1/2 times the basic rate of pay for all hours worked in excess of 40 hours in the workweek.

The general rates of per diem wages prevailing in this locality for each class and type of workers whose services are considered necessary to fulfill the Contract are indicated in the special provisions, and these rates govern as minimum wage rates on this Contract. A penalty of \$60.00 per calendar day or portion of a calendar day for each worker that is paid less than the stipulated general rates of per diem wages for any work done under the Contract will be deducted. The Owner, upon receipt of a complaint by a worker, will

determine within 30 days whether good cause exists to believe that the Contractor or a subcontractor has violated wage rate requirements and notify the parties involved of the findings. Make every effort to resolve the alleged violation within 14 days after notification. The next alternative is submittal to binding arbitration in accordance with the provisions of the Texas General Arbitration Act (Art. 224 et seq., Revised Statutes).

Notwithstanding any other provision of the Contract, covenant and agree that the Contractor and its subcontractors will pay each of their employees and contract labor engaged in any way in work under the Contract, a wage not less than what is generally known as the "federal minimum wage" as set out in 29 U.S.C. 206 as that Statute may be amended from time to time.

Pay any worker employed whose position is not listed in the Contract, a wage not less than the per diem wage rate established in the Contract for a worker whose duties are most nearly comparable.

3. RECORD AND INSPECTIONS

Keep copies of weekly payrolls for review. Require subcontractors to keep copies of weekly payrolls for review. Show the name, occupation, number of hours worked each day and per diem wage paid each worker together with a complete record of all deductions made from such wages. Keep records for a period of 3 years from the date of completion of the Contract.

Where the piece-work method is used, indicate on the payroll for each person involved:

- Quantity of piece work performed.
- Price paid per piece-work unit.
- Total hours employed.

The Owner may require the Contractor to file an affidavit for each payroll certifying that payroll is a true and accurate report of the full wages due and paid to each person employed.

Post or make available to employees the prevailing wage rates from the Contract. Require subcontractors to post or make available to employees the prevailing wage rates from the Contract.

Special Provision to Item 000

Small Business Enterprise in State Funded Projects



1. DESCRIPTION

The purpose of this Special Provision is to carry out the Texas Department of Transportation's policy of ensuring that Small Business Enterprise (SBE) has an opportunity to participate in the performance of contracts. If the SBE goal is greater than zero, Article A of this Special Provision shall apply to this Contract; otherwise, Article B of this Special Provision applies. The percentage goal for SBE participation in the work to be performed under this contract will be shown in the proposal.

2. DEFINITIONS

Small Business Enterprise (SBE) is a firm (including affiliates) certified by the Texas Department of Transportation whose annual gross receipts do not exceed the U.S. Small Business Administration's size standards for 4 consecutive years. Firms certified as Historically Underutilized Businesses (HUBs) by the Texas Comptroller of Public Accounts and as Disadvantaged Business Enterprises (DBEs) by the Texas Uniform Certification Program automatically qualify as SBEs.

2.1. Article A - SBE Goal is Greater than Zero.

2.1.1. Policy. The Owner is committed to providing contracting opportunities for small businesses. In this regard, it is the Owner's policy to develop and maintain a program in order to facilitate contracting opportunities for small businesses. Consequently, the requirements of the Owner's Small Business Enterprise Program apply to this contract as follows:

2.1.1.1. The Contractor shall make a good faith effort to meet the SBE goal for this contract.

2.1.1.2. The Contractor and any Subcontractors shall not discriminate on the basis of race, color, national origin, age, disability or sex in the award and performance of this contract. These nondiscrimination requirements shall be incorporated into any subcontract and purchase order.

2.1.1.3. After a conditional award is made to the low bidder, the Owner will determine the adequacy of a Contractor's efforts to meet the contract goal, as is outlined under Section 2, "Contractor's Responsibilities." If the requirements of Section 2 are met, the contract will be forwarded to the Contractor for execution.

The Contractor's performance, during the construction period of the contract in meeting the SBE goal, will be monitored by the Owner.

2.1.2. Contractor's Responsibilities. These requirements must be satisfied by the Contractor. A SBE Contractor may satisfy the SBE requirements by performing at least 25% of the contract work with its own organization as defined elsewhere in the contract.

2.1.2.1. The Contractor shall submit a completed SBE Commitment Agreement Form for each SBE they intend to use to satisfy the SBE goal to the Owner so as to arrive not later than 5:00 p.m. on the 10th business day, excluding national holidays, after the conditional award of the contract. When requested, additional time, not to exceed 7 business days, excluding national holidays, may be granted based on documentation submitted by the Contractor.

2.1.2.2. A Contractor who cannot meet the contract goal, in whole or in part, shall document the good faith efforts taken to meet the SBE goal. The Owner will consider as good faith efforts all documented explanations that

are submitted and that describe a Contractor's failure to meet a SBE goal or obtain SBE participation, including:

- 2.1.2.2.1. Advertising in general circulation, trade association, and/or minority/women focus media concerning subcontracting opportunities,
- 2.1.2.2.2. Dividing the contract work into reasonable portions in accordance with standard industry practices,
- 2.1.2.2.3. Documenting reasons for rejection or meeting with the rejected SBE to discuss the rejection,
- 2.1.2.2.4. Providing qualified SBEs with adequate information about bonding, insurance, plans, specifications, scope of work, and the requirements of the contract,
- 2.1.2.2.5. Negotiating in good faith with qualified SBEs, not rejecting qualified SBEs who are also the lowest responsive bidder, and;
- 2.1.2.2.6. Using the services of available minorities and women, community organizations, contractor groups, local, state and federal business assistance offices, and other organizations that provide support services to SBEs.
- 2.1.2.3. The good faith effort documentation is due to the Owner at the time specified in 2.1.2.1. of this Special Provision. The Owner will evaluate the Contractor's documentation. If it is determined that the Contractor has failed to meet the good faith effort requirements, the Contractor will be given an opportunity for reconsideration by the Owner.
- 2.1.2.4. Should the bidder to whom the contract is conditionally awarded refuse, neglect or fail to meet the SBE goal and/or demonstrate to the Owner's satisfaction sufficient efforts to obtain SBE participation, the proposal guaranty filed with the bid shall become the property of the Owner, not as a penalty, but as liquidated damages to the Owner.
- 2.1.2.5. The Contractor must not terminate a SBE subcontractor submitted on a commitment agreement for a contract with an assigned goal without the prior written consent of the Owner.
- 2.1.2.6. The Contractor shall designate a SBE contact person who will administer the Contractor's SBE program and who will be responsible for submitting reports, maintaining records, and documenting good faith efforts to use SBEs.
- 2.1.2.7. The Contractor must inform the Owner of the representative's name, title and telephone number within 10 days of beginning work.
- 2.1.3. Eligibility of SBEs.
 - 2.1.3.1. The Texas Department of Transportation certifies the eligibility of SBEs.
 - 2.1.3.2. The Owner will make available to interested parties a directory of certified SBEs.
 - 2.1.3.3. Only firms certified at the time of letting or at the time the commitments are submitted are eligible to be used in the information furnished by the Contractor required under Section 2.(a) above.
 - 2.1.3.4. Certified HUBs and DBEs are eligible as SBEs.
 - 2.1.3.5. Small Business Size Regulations and Eligibility is referenced on e-CFR (Code of Federal Regulations), Title 13 – Business Credit and Assistance, Chapter 1 – Small Business Administration, Part 121 – Small Business Size Regulations, Subpart A – Size Eligibility Provisions and Standards.
- 2.1.4. Determination of SBE Participation. SBE participation shall be counted toward meeting the SBE goal in this contract in accordance with the following:

- 2.1.4.1. A Contractor will receive credit for all payments actually made to a SBE for work performed and costs incurred in accordance with the contract, including all subcontracted work.
- 2.1.4.2. A SBE Contractor or subcontractor may not subcontract more than 75% of a contract. The SBE shall perform not less than 25% of the value of the contract work with its own organization.
- 2.1.4.3. A SBE may lease equipment consistent with standard industry practice. A SBE may lease equipment from the prime contractor if a rental agreement, separate from the subcontract specifying the terms of the lease arrangement, is approved by the Owner prior to the SBE starting the work in accordance with the following:
- 2.1.4.3.1. If the equipment is of a specialized nature, the lease may include the operator. If the practice is generally acceptable with the industry, the operator may remain on the lessor's payroll. The operator of the equipment shall be subject to the full control of the SBE, for a short term, and involve a specialized piece of heavy equipment readily available at the job site.
- 2.1.4.3.2. For equipment that is not specialized, the SBE shall provide the operator and be responsible for all payroll and labor compliance requirements.
- 2.1.5. Records and Reports.
- 2.1.5.1. The Contractor shall submit monthly reports, after work begins, on SBE payments, (including payments to HUBs and DBEs). The monthly reports are to be sent to the Owner. These reports will be due within 15 days after the end of a calendar month.
- These reports will be required until all SBE subcontracting or supply activity is completed. The "SBE Progress Report" is to be used for monthly reporting. Upon completion of the contract and prior to receiving the final payment, the Contractor shall submit the "SBE Final Report" to the Owner. These forms may be obtained from the Owner and reproduced as necessary. The Owner may verify the amounts being reported as paid to SBEs by requesting, on a random basis, copies of invoices and cancelled checks paid to SBEs. When the SBE goal requirement is not met, documentation supporting Good Faith Efforts, as outlined in Section 2.(b) of this Special Provision, must be submitted with the Final Report.
- 2.1.5.2. SBE subcontractors and/or suppliers should be identified on the monthly report by SBE certification number, name and the amount of actual payment made to each during the monthly period. These reports are required regardless of whether or not SBE activity has occurred in the monthly reporting period.
- 2.1.5.3. All such records must be retained for a period of 3 years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Owner.
- 2.1.6. Compliance of Contractor. To ensure that SBE requirements of this contract are complied with, the Owner will monitor the Contractor's efforts to involve SBEs during the performance of this contract. This will be accomplished by a review of monthly reports submitted by the Contractor indicating his progress in achieving the SBE contract goal and by compliance reviews conducted by the Owner.
- A Contractor's failure to comply with the requirements of this Special Provision shall constitute a material breach of this contract. In such a case, the Owner reserves the right to employ remedies as the Owner deems appropriate in the terms of the contract.
- 2.2. Article B - No SBE Goal.
- 2.2.1. Policy. It is the policy of the Owner that SBEs shall have an opportunity to participate in the performance of contracts. Consequently, the requirements of the Owner's Small Business Enterprise Program apply to this contract as specified in Section 2-5 of this Article.
- 2.2.2. Contractor's Responsibilities. If there is no SBE goal, the Contractor will offer SBEs an opportunity to participate in the performance of contracts and subcontracts.

- 2.2.3. Prohibit Discrimination. The Contractor and any subcontractor shall not discriminate on the basis of race, color, national origin, religion, age, disability or sex in the award and performance of contracts. These nondiscrimination requirements shall be incorporated into any subcontract and purchase order.
- 2.2.4. Records and Reports.
- 2.2.4.1. The Contractor shall submit reports on SBE (including HUB and DBE) payments. The reports are to be sent to the Owner. These reports will be due annually by the 31st of August or at project completion, whichever comes first.
- These reports will be required until all SBE subcontracting or supply activity is completed. The "SBE Progress Report" is to be used for reporting. Upon completion of the contract and prior to receiving the final payment, the Contractor shall submit the "SBE Final Report" to the Owner. These forms may be obtained from the Owner and reproduced as necessary. The Owner may verify the amounts being reported as paid to SBEs by requesting copies of invoices and cancelled checks paid to SBEs on a random basis.
- 2.2.4.2. SBE subcontractors and/or suppliers should be identified on the report by SBE Certification Number, name and the amount of actual payment made.
- 2.2.4.3. All such records must be retained for a period of 3 years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Owner.

E-VERIFY CERTIFICATION

Pursuant to Texas Transportation Code §223.051, all TxDOT contracts for construction, maintenance, or improvement of a highway must include a provision requiring Contractors and subcontractors to use the U.S. Department of Homeland Security's E-Verify system to determine employment eligibility. By signing the contract, the Contractor certifies that prior to the award of the Contract:

- the Contractor has registered with and will, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the Contract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement; and
- the Contractor will require that all subcontractors also register with and, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of the subcontract to determine the eligibility of all persons hired to perform duties within Texas during the term of the agreement.

Violation of this requirement constitutes a material breach of the Contract, subjects a subcontractor to removal from the Contract, and subjects the Contractor or subcontractors to possible sanctions in accordance with Title 43, Texas Administrative Code, Chapter 10, Subchapter F, "Sanctions and Suspension for Ethical Violations by Entities Doing Business with the Department."

This content is from the eCFR and is authoritative but unofficial.

Title 23 –Highways

Chapter I –Federal Highway Administration, Department of Transportation

Subchapter G –Engineering and Traffic Operations

Part 635 –Construction and Maintenance

Subpart D –General Material Requirements

Source: 41 FR 36204, Aug. 27, 1976, unless otherwise noted.

Authority: Sections 1525 and 1303 of Pub. L. 112–141, Sec. 1503 of Pub. L. 109–59, 119 Stat. 1144; 23 U.S.C. 101 (note), 109, 112, 113, 114, 116, 119, 128, and 315; 31 U.S.C. 6505; 42 U.S.C. 3334, 4601 *et seq.*; Sec. 1041(a), Pub. L. 102–240, 105 Stat. 1914; 23 CFR 1.32; 49 CFR 1.85(a)(1).

Editorial Note: Nomenclature changes to part 635 appear at 67 FR 75924, Dec. 10, 2002.

§ 635.410 Buy America requirements.

- (a) The provisions of this section shall prevail and be given precedence over any requirements of this subpart which are contrary to this section. However, nothing in this section shall be construed to be contrary to the requirements of § 635.409(a) of this subpart.
- (b) No Federal-aid highway construction project is to be authorized for advertisement or otherwise authorized to proceed unless at least one of the following requirements is met:
 - (1) The project either:
 - (i) Includes no permanently incorporated steel or iron materials, or
 - (ii) if steel or iron materials are to be used, all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes which protect or enhance the value of the material to which the coating is applied.
 - (2) The State has standard contract provisions that require the use of domestic materials and products, including steel and iron materials, to the same or greater extent as the provisions set forth in this section.
 - (3) The State elects to include alternate bid provisions for foreign and domestic steel and iron materials which comply with the following requirements. Any procedure for obtaining alternate bids based on furnishing foreign steel and iron materials which is acceptable to the Division Administrator may be used. The contract provisions must
 - (i) require all bidders to submit a bid based on furnishing domestic steel and iron materials, and
 - (ii) clearly state that the contract will be awarded to the bidder who submits the lowest total bid based on furnishing domestic steel and iron materials unless such total bid exceeds the lowest total bid based on furnishing foreign steel and iron materials by more than 25 percent.
 - (4) When steel and iron materials are used in a project, the requirements of this section do not prevent a minimal use of foreign steel and iron materials, if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or \$2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel and iron products as they are delivered to the project.

(c)

- (1) A State may request a waiver of the provisions of this section if;
 - (i) The application of those provisions would be inconsistent with the public interest; or
 - (ii) Steel and iron materials/products are not produced in the United States in sufficient and reasonably available quantities which are of a satisfactory quality.
 - (2) A request for waiver, accompanied by supporting information, must be submitted in writing to the Regional Federal Highway Administrator (RFHWA) through the FHWA Division Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RFHWA will have approval authority on the request.
 - (3) Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.
 - (4) The denial of the request by the RFHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.
 - (5) A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RFHWA to the Administrator for action.
 - (6) A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA response to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's action on such a request may be published in the FEDERAL REGISTER for public comment.
 - (7) In determining whether the waivers described in paragraph (c)(1) of this section will be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.
- (d) Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

[48 FR 53104, Nov. 25, 1983, as amended at 49 FR 18821, May 3, 1984; 58 FR 38975, July 21, 1993]

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

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

(ii) The classification is used in the area by the construction industry; and

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

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

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

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

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

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 as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

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

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees 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 Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, 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 any Federal 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 Federal 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.

2. 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. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

The wage rates listed herein are those predetermined by the Secretary of Labor and State Statute and listed in the United States Department of Labor's (USDOL) General Decisions dated 01-05-2024 and are the minimum wages to be paid accordingly for each specified classification. To determine the applicable wage rate zone, a list entitled "TEXAS COUNTIES IDENTIFIED BY WAGE RATE ZONES" is provided in the contract. Any wage rate that is not listed herein and not in the USDOL's general decision, must be requested by the contractor through the completion of an Additional Classification and Wage Rate Request and be submitted for approval. IMPORTANT NOTICE FOR STATE PROJECTS: only the controlling wage rate zone applies to the contract. Effective 01-05-2024.

CLASS. #	CLASSIFICATION DESCRIPTION	ZONE TX02 *(TX20240002)	ZONE TX03 *(TX20240003)	ZONE TX04 *(TX20240004)	ZONE TX05 *(TX20240005)	ZONE TX06 *(TX20240006)	ZONE TX07 *(TX20240007)	ZONE TX08 *(TX20240008)	ZONE TX24 *(TX20240024)	ZONE TX25 *(TX20240025)	ZONE TX27 *(TX20240027)	ZONE TX28 *(TX20240028)	ZONE TX29 *(TX20240029)	ZONE TX30 *(TX20240030)	ZONE TX37 *(TX20240037)	ZONE TX38 *(TX20240038)	ZONE TX42 *(TX20240042)
1428	Agricultural Tractor Operator						\$12.69					\$12.35			\$11.75		
1300	Asphalt Distributor Operator	\$14.87	\$13.48	\$13.88	\$15.72	\$15.58	\$15.55	\$15.72	\$13.28	\$15.32	\$15.62	\$14.36	\$14.25	\$14.03	\$13.75	\$14.06	\$14.40
1303	Asphalt Paving Machine Operator	\$13.40	\$12.25	\$12.35	\$13.87	\$14.05	\$14.36	\$14.20	\$13.26	\$13.99	\$14.68	\$12.92	\$13.44	\$12.53	\$14.00	\$14.32	\$12.99
1106	Asphalt Raker	\$12.28	\$10.61	\$12.02	\$14.21	\$11.65	\$12.12	\$11.64	\$11.44	\$12.69	\$12.05	\$11.34	\$11.67	\$11.40	\$12.59	\$12.36	\$11.78
1112	Batching Plant Operator, Asphalt																
1115	Batching Plant Operator, Concrete																
1214	Blaster																
1615	Boom Truck Operator						\$18.36										
1444	Boring Machine Operator																
1305	Broom or Sweeper Operator	\$11.21	\$10.33	\$10.08	\$11.99		\$11.04	\$11.62		\$11.74	\$11.41	\$10.30		\$10.23	\$10.60	\$12.68	\$11.05
1144	Communications Cable Installer																
1124	Concrete Finisher, Paving and Structures	\$13.55	\$12.46	\$13.16	\$12.85	\$12.64	\$12.56	\$12.77	\$12.44	\$14.12	\$13.04	\$13.38	\$12.64	\$12.80	\$12.79	\$12.98	\$13.32
1318	Concrete Pavement Finishing Machine Operator				\$16.05		\$15.48			\$16.05		\$19.31				\$13.07	
1315	Concrete Paving, Curing, Float, Texturing Machine Operator											\$16.34				\$11.71	
1333	Concrete Saw Operator				\$14.67					\$14.48	\$17.33					\$13.99	
1399	Concrete/Gunite Pump Operator																
1344	Crane Operator, Hydraulic 60 tons or less				\$18.22		\$18.36			\$18.12	\$18.04	\$20.21			\$18.63	\$13.86	
1345	Crane Operator, Hydraulic Over 80 Tons																
1342	Crane Operator, Lattice Boom 80 Tons or Less	\$16.82	\$14.39	\$13.85	\$17.27		\$15.87			\$17.27		\$14.67			\$16.42	\$14.97	\$13.87
1343	Crane Operator, Lattice Boom Over 80 Tons				\$20.52		\$19.38			\$20.52		\$17.49			\$25.13	\$15.80	
1306	Crawler Tractor Operator	\$13.96	\$16.63	\$13.62	\$14.26		\$15.67			\$14.07	\$13.15	\$13.38			\$14.60	\$13.68	\$13.50
1351	Crusher or Screen Plant Operator																
1446	Directional Drilling Locator						\$11.67										
1445	Directional Drilling Operator				\$20.32		\$17.24										
1139	Electrician	\$20.96		\$19.87	\$19.80		\$26.35		\$20.27	\$19.80		\$20.92				\$27.11	\$19.87
1347	Excavator Operator, 50,000 pounds or less	\$13.46	\$12.56	\$13.67	\$17.19		\$12.88	\$14.38	\$13.49	\$17.19		\$13.88			\$14.09	\$12.71	\$14.42
1348	Excavator Operator, Over 50,000 pounds		\$15.23	\$13.52	\$17.04		\$17.71			\$16.99	\$18.80	\$16.22				\$14.53	\$13.52
1150	Flagger	\$9.30	\$9.10	\$8.50	\$10.28	\$8.81	\$9.45	\$8.70		\$10.06	\$9.71	\$9.03	\$8.81	\$9.08	\$9.90	\$10.33	\$8.10
1151	Form Builder/Setter, Structures	\$13.52	\$12.30	\$13.38	\$12.91	\$12.71	\$12.87	\$12.38	\$12.26	\$13.84	\$12.98	\$13.07	\$13.61	\$12.82	\$14.73	\$12.23	\$12.25
1160	Form Setter, Paving & Curb	\$12.36	\$12.16	\$13.93	\$11.83	\$10.71	\$12.94			\$13.16	\$12.54	\$11.33	\$10.69		\$13.33	\$12.34	\$13.93
1360	Foundation Drill Operator, Crawler Mounted				\$17.99					\$17.99						\$17.43	
1363	Foundation Drill Operator, Truck Mounted		\$16.86	\$22.05	\$21.51		\$16.93			\$21.07	\$20.20	\$20.76		\$17.54	\$21.39	\$15.89	\$22.05
1369	Front End Loader Operator, 3 CY or Less	\$12.28	\$13.49	\$13.40	\$13.85		\$13.04	\$13.15	\$13.29	\$13.69	\$12.64	\$12.89			\$13.51	\$13.32	\$12.17
1372	Front End Loader Operator, Over 3 CY	\$12.77	\$13.69	\$12.33	\$14.96		\$13.21	\$12.86	\$13.57	\$14.72	\$13.75	\$12.32			\$13.19	\$13.17	\$13.02
1329	Joint Sealer																
1172	Laborer, Common	\$10.30	\$9.86	\$10.08	\$10.51	\$10.71	\$10.50	\$10.24	\$10.58	\$10.72	\$10.45	\$10.30	\$10.25	\$10.03	\$10.54	\$11.02	\$10.15
1175	Laborer, Utility	\$11.80	\$11.53	\$12.70	\$12.17	\$11.81	\$12.27	\$12.11	\$11.33	\$12.32	\$11.80	\$11.53	\$11.23	\$11.50	\$11.95	\$11.73	\$12.37
1346	Loader/Backhoe Operator	\$14.18	\$12.77	\$12.97	\$15.68		\$14.12			\$15.18	\$13.58	\$12.87		\$13.21	\$14.13	\$14.29	\$12.90
1187	Mechanic	\$20.14	\$15.47	\$17.47	\$17.74	\$17.00	\$17.10			\$17.68	\$18.94	\$18.58	\$17.00	\$16.61	\$18.46	\$16.96	\$17.47

CLASS. #	CLASSIFICATION DESCRIPTION	ZONE TX02 *(TX20240002)	ZONE TX03 *(TX20240003)	ZONE TX04 *(TX20240004)	ZONE TX05 *(TX20240005)	ZONE TX06 *(TX20240006)	ZONE TX07 *(TX20240007)	ZONE TX08 *(TX20240008)	ZONE TX24 *(TX20240024)	ZONE TX25 *(TX20240025)	ZONE TX27 *(TX20240027)	ZONE TX28 *(TX20240028)	ZONE TX29 *(TX20240029)	ZONE TX30 *(TX20240030)	ZONE TX37 *(TX20240037)	ZONE TX38 *(TX20240038)	ZONE TX42 *(TX20240042)
1380	Milling Machine Operator Motor Grader Operator,	\$15.54	\$14.64	\$12.22	\$14.29		\$14.18			\$14.32	\$14.35	\$12.86			\$14.75	\$13.53	\$12.80
1390	Fine Grade	\$17.49	\$16.52	\$16.88	\$17.12	\$18.37	\$18.51	\$16.69	\$16.13	\$17.19	\$18.35	\$17.07	\$17.74	\$17.47	\$17.08	\$15.69	\$20.01
1393	Motor Grader Operator, Rough	\$16.15	\$14.62	\$15.83	\$16.20	\$17.07	\$14.63	\$18.50		\$16.02	\$16.44	\$15.12	\$16.85	\$14.47	\$17.39	\$14.23	\$15.53
1413	Off Road Hauler			\$10.08	\$12.26		\$11.88			\$12.25		\$12.23			\$13.00	\$14.60	
1196	Painter, Structures Pavement Marking Machine Operator	\$16.42		\$13.10	\$13.55		\$19.17	\$12.01		\$13.63	\$14.60	\$13.17		\$16.65	\$10.54	\$11.18	\$13.10
1443	Percussion or Rotary Drill Operator																
1202	Piledriver															\$14.95	
1205	Pipelayer		\$11.87	\$14.64	\$13.17	\$11.17	\$12.79		\$11.37	\$13.24	\$12.66	\$13.24	\$11.17	\$11.67		\$12.12	\$14.64
1384	Reclaimer/Pulverizer Operator	\$12.85			\$11.90		\$12.88			\$11.01		\$10.46					
1500	Reinforcing Steel Worker	\$13.50	\$14.07	\$17.53	\$16.17		\$14.00			\$16.18	\$12.74	\$15.83		\$17.10		\$15.15	\$17.72
1402	Roller Operator, Asphalt	\$10.95		\$11.96	\$13.29		\$12.78	\$11.61		\$13.08	\$12.36	\$11.68			\$11.71	\$11.95	\$11.50
1405	Roller Operator, Other	\$10.36		\$10.44	\$11.82		\$10.50	\$11.64		\$11.51	\$10.59	\$10.30		\$12.04	\$12.85	\$11.57	\$10.66
1411	Scraper Operator	\$10.61	\$11.07	\$10.85	\$12.88		\$12.27		\$11.12	\$12.96	\$11.88	\$12.43		\$11.22	\$13.95	\$13.47	\$10.89
1417	Self-Propelled Hammer Operator																
1194	Servicer	\$13.98	\$12.34	\$14.11	\$14.74		\$14.51	\$15.56	\$13.44	\$14.58	\$14.31	\$13.83		\$12.43	\$13.72	\$13.97	\$14.11
1513	Sign Erector Slurry Seal or Micro-Surfacing Machine Operator																
1708	Machine Operator																
1341	Small Slipform Machine Operator									\$15.96							
1515	Spreader Box Operator	\$12.60		\$13.12	\$14.71		\$14.04			\$14.73	\$13.84	\$13.68		\$13.45	\$11.83	\$13.58	\$14.05
1705	Structural Steel Welder															\$12.85	
1509	Structural Steel Worker						\$19.29									\$14.39	
1339	Subgrade Trimmer																
1143	Telecommunication Technician																
1145	Traffic Signal/Light Pole Worker						\$16.00										
1440	Trenching Machine Operator, Heavy						\$18.48										
1437	Trenching Machine Operator, Light																
1609	Truck Driver Lowboy-Float	\$14.46	\$13.63	\$13.41	\$15.00	\$15.93	\$15.66			\$16.24	\$16.39	\$14.30	\$16.62	\$15.63	\$14.28	\$16.03	\$13.41
1612	Truck Driver Transit-Mix				\$14.14					\$14.14							
1600	Truck Driver, Single Axle Truck Driver, Single or Tandem Axle Dump Truck	\$12.74	\$10.82	\$10.75	\$13.04	\$11.61	\$11.79	\$13.53	\$13.16	\$12.31	\$13.40	\$10.30	\$11.61		\$11.97	\$11.46	\$10.75
1606	Truck Driver, Tandem Axle Tractor with Semi Trailer	\$11.33	\$14.53	\$11.95	\$12.95		\$11.68		\$14.06	\$12.62	\$11.45	\$12.28		\$13.08	\$11.68	\$11.48	\$11.10
1607	Tunneling Machine Operator, Heavy	\$12.49	\$12.12	\$12.50	\$13.42		\$12.81	\$13.16		\$12.86	\$16.22	\$12.50			\$13.80	\$12.27	\$12.50
1441	Tunneling Machine Operator, Light																
1706	Welder		\$14.02		\$14.86		\$15.97		\$13.74	\$14.84					\$13.78		
1520	Work Zone Barricade Servicer	\$10.30	\$12.88	\$11.46	\$11.70	\$11.57	\$11.85	\$10.77		\$11.68	\$12.20	\$11.22	\$11.51	\$12.96	\$10.54	\$11.67	\$11.76

Notes:

*Represents the USDOL wage decision.

Any worker employed on this project shall be paid at the rate of one and one half (1-1/2) times the regular rate for every hour worked in excess of forty (40) hours per week.

For reference, the titles and descriptions for the classifications listed here are detailed further in the AGC of Texas' *Standard Job Classifications and Descriptions for Highway, Heavy, Utilities, and Industrial Construction in Texas* posted on the AGC's Web site for any contractor.

**TEXAS COUNTIES IDENTIFIED BY
WAGE RATE ZONES: 2, 3, 4, 5, 6, 7, 8, 24, 25, 27, 28, 29, 30, 37, 38, 42**

County Name	Zone	County Name	Zone	County Name	Zone	County Name	Zone
Anderson	28	Donley	37	Karnes	27	Reagan	37
Andrews	37	Duval	30	Kaufman	25	Real	37
Angelina	28	Eastland	37	Kendall	7	Red River	28
Aransas	29	Ector	2	Kenedy	30	Reeves	8
Archer	25	Edwards	8	Kent	37	Refugio	27
Armstrong	2	El Paso	24	Kerr	27	Roberts	37
Atascosa	7	Ellis	25	Kimble	37	Robertson	7
Austin	38	Erath	28	King	37	Rockwall	25
Bailey	37	Falls	28	Kinney	8	Runnels	37
Bandera	7	Fannin	28	Kleberg	27	Rusk	4
Bastrop	7	Fayette	27	Knox	37	Sabine	28
Baylor	37	Fisher	37	Lamar	28	San Augustine	28
Bee	27	Floyd	37	Lamb	37	San Jacinto	38
Bell	7	Foard	37	Lampasas	7	San Patricio	29
Bexar	7	Fort Bend	38	LaSalle	30	San Saba	37
Blanco	27	Franklin	28	Lavaca	27	Schleicher	37
Borden	37	Freestone	28	Lee	27	Scurry	37
Bosque	28	Frio	27	Leon	28	Shackelford	37
Bowie	4	Gaines	37	Liberty	38	Shelby	28
Brazoria	38	Galveston	38	Limestone	28	Sherman	37
Brazos	7	Garza	37	Lipscomb	37	Smith	4
Brewster	8	Gillespie	27	Live Oak	27	Somervell	28
Briscoe	37	Glasscock	37	Llano	27	Starr	30
Brooks	30	Goliad	29	Loving	37	Stephens	37
Brown	37	Gonzales	27	Lubbock	2	Sterling	37
Burleson	7	Gray	37	Lynn	37	Stonewall	37
Burnet	27	Grayson	25	Madison	28	Sutton	8
Caldwell	7	Gregg	4	Marion	28	Swisher	37
Calhoun	29	Grimes	28	Martin	37	Tarrant	25
Callahan	25	Guadalupe	7	Mason	27	Taylor	2
Cameron	3	Hale	37	Matagorda	27	Terrell	8
Camp	28	Hall	37	Maverick	30	Terry	37
Carson	2	Hamilton	28	McCulloch	37	Throckmorton	37
Cass	28	Hansford	37	McLennan	7	Titus	28
Castro	37	Hardeman	37	McMullen	30	Tom Green	2
Chambers	38	Hardin	38	Medina	7	Travis	7
Cherokee	28	Harris	38	Menard	37	Trinity	28
Childress	37	Harrison	42	Midland	2	Tyler	28
Clay	25	Hartley	37	Milam	28	Upshur	4
Cochran	37	Haskell	37	Mills	37	Upton	37
Coke	37	Hays	7	Mitchell	37	Uvalde	30
Coleman	37	Hemphill	37	Montague	37	Val Verde	8
Collin	25	Henderson	28	Montgomery	38	Van Zandt	28
Collingsworth	37	Hidalgo	3	Moore	37	Victoria	6
Colorado	27	Hill	28	Morris	28	Walker	28
Comal	7	Hockley	37	Motley	37	Waller	38
Comanche	37	Hood	28	Nacogdoches	28	Ward	37
Concho	37	Hopkins	28	Navarro	28	Washington	28
Cooke	37	Houston	28	Newton	28	Webb	3
Coryell	7	Howard	37	Nolan	37	Wharton	27
Cottle	37	Hudspeth	8	Nueces	29	Wheeler	37
Crane	37	Hunt	25	Ochiltree	37	Wichita	5
Crockett	8	Hutchinson	37	Oldham	37	Wilbarger	37
Crosby	2	Irion	2	Orange	38	Willacy	30
Culberson	8	Jack	28	Palo Pinto	28	Williamson	7
Dallam	37	Jackson	27	Panola	28	Wilson	7
Dallas	25	Jasper	28	Parker	25	Winkler	37
Dawson	37	Jeff Davis	8	Parmer	37	Wise	25
Deaf Smith	37	Jefferson	38	Pecos	8	Wood	28
Delta	25	Jim Hogg	30	Polk	28	Yoakum	37
Denton	25	Jim Wells	27	Potter	2	Young	37
DeWitt	27	Johnson	25	Presidio	8	Zapata	30
Dickens	37	Jones	25	Rains	28	Zavala	30
Dimmit	30			Randall	2		



S. Elm Street Reconstruction

Construction Proposal Submittal

City Project Number: 502203

Offeror Firm's Name: _____

Construction Proposal Submittal Checklist

Required to be Completed by Offeror. Upload to CivCast if Submitting Electronically

Item Included with Submittal?		Submittal Item
Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Submittal Format Complies with Instructions to Offeror's
<input type="checkbox"/>	<input type="checkbox"/>	Cover Page and Construction Proposal Submittal Checklist
<input type="checkbox"/>	<input type="checkbox"/>	Bid Bond
<input type="checkbox"/>	<input type="checkbox"/>	Proposal Form
<input type="checkbox"/>	<input type="checkbox"/>	Addendums
<input type="checkbox"/>	<input type="checkbox"/>	Bid Proposal Summary
<input type="checkbox"/>	<input type="checkbox"/>	Bid Proposal Unit Prices
<input type="checkbox"/>	<input type="checkbox"/>	Statement of Qualifications (All Required Information and Tables)
<input type="checkbox"/>	<input type="checkbox"/>	Safety Record Questionnaire
<input type="checkbox"/>	<input type="checkbox"/>	Vendor Compliance to State Law Certificate
<input type="checkbox"/>	<input type="checkbox"/>	Contractor Compliance to Texas Sales Tax Code
<input type="checkbox"/>	<input type="checkbox"/>	Conflict of Interest Questionnaire Form CIQ
<input type="checkbox"/>	<input type="checkbox"/>	Local Government Officer Conflicts Disclosure Statement Form CIS
<input type="checkbox"/>	<input type="checkbox"/>	Prohibition on Contracts with Companies Boycotting Israel
<input type="checkbox"/>	<input type="checkbox"/>	Disclosure of Lobbying Activities
<input type="checkbox"/>	<input type="checkbox"/>	Disadvantaged Business Enterprises Project Requirements
<input type="checkbox"/>	<input type="checkbox"/>	Contractor's Assurance
<input type="checkbox"/>	<input type="checkbox"/>	Child Support Statement
<input type="checkbox"/>	<input type="checkbox"/>	Acknowledgement of Insurance Requirements
<input type="checkbox"/>	<input type="checkbox"/>	Certification of Absence of Suspension, Debarment, Voluntary Exclusion or Determination of Eligibility
<input type="checkbox"/>	<input type="checkbox"/>	Policy of Non-Discrimination on the Basis of Handicap Status
<input type="checkbox"/>	<input type="checkbox"/>	Acknowledgement of Frontier Construction Contract

Title Page

Bid Bond

**INSERT BID
BOND HERE**

Title Page

Proposal Form and Addendums

PROPOSAL FORM

ARTICLE 1: PROPOSAL RECIPIENT

1.01 This Proposal is submitted to:

City of Keller
1100 Bear Creek Parkway, Keller, TX 76248
Attention: Mr. Chad Bartee, P.E.

1.02 The principal contact person who will serve as the interface between the Owner and the Proposer for all communication during the procurement period is:

A. Name: _____

Title: _____

Address: _____

Phone: _____ Fax: _____

Email: _____

1.03 The undersigned Offeror proposes and agrees, if this Proposal is accepted, to enter into an Agreement with Owner in the form included in the Contract Documents to perform all Work as specified or indicated in Contract Documents for the Contract Price indicated in this Proposal or as modified by Amendment. Offeror agrees to complete the Work within the Contract Price and within the Contract Times established in the Agreement or as modified by Amendment and comply with all other terms and conditions of the Contract Documents.

ARTICLE 2: OFFEROR'S ACKNOWLEDGMENTS

2.01 Offeror accepts all of the terms and conditions of the Request for Proposals and Instructions to Offerors, including without limitation those dealing with the disposition of required Bonds. The Proposal will remain subject to acceptance for 60 days after the opening of Proposals.

2.02 Offeror accepts the provisions of the Agreement as to liquidated damages in the event of its failure to complete Work in accordance with the schedule set forth in the Agreement.

ARTICLE 3: OFFEROR'S REPRESENTATIONS

3.01 In submitting this Proposal, Offeror represents, as set forth in the Agreement, that:

A. The submittal of the Proposal has been duly authorized by, and in all respects binding upon, the Offeror.

B. The undersigned declares that it is the Offeror or by holding the position below indicated is authorized to execute this Proposal Form on behalf of the Offeror and that all representations made on this Proposal Form are true and accurate

- C. All information and statements contained in the Proposal are current, correct and complete and are made with full knowledge that the Owner will rely on such information and statements in determining the Successful Bidder for the Project.
- D. The submission of a Proposal will constitute an incontrovertible representation by the Offeror that the Offeror has complied with every requirement of the RFP, that without exception the Proposal is premised upon completion of Work required by the Contract Documents, Addenda and the related supplemental data, that the Offeror has given the Engineer written notice of all conflicts, errors, ambiguities and discrepancies that the Offeror has discovered in the Contract Documents, Addenda and the related supplemental data and the written resolutions provided by the Engineer are acceptable to the Offeror, and that the Contract Documents, Addenda and the related supplemental data are generally sufficient to indicate and convey understanding of all terms and conditions for completion of Work.
- E. Offeror has examined and carefully studied the Contract Documents, the other related data identified in the Contract Documents, and the following Addenda, receipt of all of which is hereby acknowledged.

Addendum No.	Addendum Date	Signature Acknowledging Receipt

- F. Offeror 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.
- G. Offeror is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and the furnishing of the Work.
- H. Offeror has carefully studied all: (1) 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) which have been identified in SC-4.02, and (2) reports and drawings of Hazardous Environmental Conditions that have been identified in SC-4.06.
- I. Offeror has obtained and carefully studied all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions including 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 Offeror, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by the Offeror, and safety precautions and programs incident thereto and accepts the consequences for not doing so.

- J. Offeror does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Proposal for performance of the Work at the Contract Price proposed, within the Contract Times proposed and in accordance with the terms and conditions of the Contract Documents.
- K. Offeror is aware of the general nature of Work to be performed by the Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- L. Offeror has correlated the information known to the Offeror, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- M. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Proposal is submitted.
- N. Offeror will submit written evidence of its authority to do business in Texas not later than the date of its execution of the Agreement.
- O. In accordance with Texas Government Code Chapter 2270, Offeror acknowledges that it does not boycott Israel and will not boycott Israel during the term of the Contract.
- P. Offeror acknowledges that it is aware and understands the requirements of Chapter 2252.908 of the Texas Government Code including but not limited to Form 1295-Certificate of Interested parties.
- Q. Offeror further represents that this Proposal 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; Offeror has not directly or indirectly induced or solicited any other Offeror to submit a false or sham Proposal; Offeror has not solicited or induced any individual or entity to refrain from making an offer; and Offeror has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Owner.

ARTICLE 4: BASIS OF OFFER

- 4.01 Offeror will complete the Work in accordance with the Contract Documents for the Contract Price shown in the attached "Proposal Form Exhibit A":
 - A. Extended amounts have been computed in accordance with the General Conditions.
 - B. Offeror acknowledges that the estimated quantities are not guaranteed, and final payment for all Unit Price items will be based on actual quantities provided, measured as provided in the Contract Documents.
 - C. Unit Price and figures column will be used to compute the actual Proposal price.

ARTICLE 5: ARTICLE 5 – TIME OF COMPLETION

- 5.01 Offeror agrees that the Work will be Substantially Complete and will be completed and ready for final payment in accordance with the General Conditions on or before the dates or within the number of Calendar Days indicated in the Agreement.

ARTICLE 6: PROPOSAL

6.01 The following documents comprise the Proposal. Refer to Instructions to Offerors for Submittal Format Requirements. Submittal requirements vary for electronic versus hard copy submissions. Refer to the Instructions to Offerors and Statement of Qualifications for additional information.

- A. "Required Bid Bond"
- B. "Proposal Form" (this document)
- C. "Addendums as Issued"
- D. "Bid Proposal Price Summary" and "Bid Form (Unit Prices)"
- E. "Statement of Qualifications" and Required Tables and Figures
- F. "Safety Record Questionnaire"
- G. Miscellaneous Proposal Forms as Listed Below:
 - 1. "Vendor Compliance to State Law Certificate"
 - 2. "Contractor Compliance to Texas Sales Tax Code"
 - 3. "Conflict of Interest Questionnaire Form CIQ"
 - 4. "Government Officer Conflicts Disclosure Statement"
 - 5. "Prohibition on Contracts with Companies Boycotting Israel"
 - 6. "Disclosure of Lobbying Activities"
 - 7. "Disadvantaged Business Enterprises Project Requirements"
 - 8. "Contractor's Assurance"
 - 9. "Child Support Statement"
 - 10. "Acknowledgement of Insurance Requirements"
 - 11. "Certification of Absence of Suspension, Debarment, Voluntary Exclusion or Determination of Eligibility"
 - 12. "Policy of Non-Discrimination on the Basis of Handicapped Status"
 - 13. "Acknowledgement of Frontier Construction Contract"

ARTICLE 7: DEFINED TERMS

7.01 The terms used in this Proposal have the meanings indicated in the RFP, General Conditions and the Supplementary Conditions. The significance of terms with initial capital letters is described in the General Conditions.

ARTICLE 8: STATEMENT OF MATERIALS AND OTHER CHARGES

8.01 Provide the following information with the Proposal:

Statement of Materials and Other Charges	
Materials Incorporated into the Project	\$
All Other Charges	\$
Total Contract Amount	\$

ARTICLE 9: ARTICLE 9 – VENUE

9.01 Offeror agrees that venue shall lie exclusively in Tarrant County, Texas for any legal action.

ARTICLE 10: PROPOSAL FORM SUBMITTAL

10.01 This Proposal Form is submitted by (complete the appropriate section):

If Offeror is an Individual

Name: _____
(typed or printed)

By: _____
(Individual's Signature)

Doing business as: _____

Business Address: _____

Phone: _____ Email: _____

Proposal submitted on the following
date: _____

A Partnership

Partnership Name: _____
(typed or printed)

Name of General Partner: _____
(typed or printed)

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

Doing business as: _____

Business Address: _____

Phone: _____ Email: _____

Proposal submitted on the following date: _____

A Corporation

Corporation Name: _____
(typed or printed)

State of Incorporation: _____

Type: _____
(general business, professional, service, limited liability)

Date of qualification to do business in Texas is: _____

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

Name: _____
(typed or printed)

Title: _____

Attest: _____
(Signature of Corporate Secretary)

Business Address: _____

Phone: _____ Email: _____

Proposal submitted on the following
date: _____

Joint Venture

Joint Venturer Name: _____
(typed or printed)

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

Name: _____
(typed or printed)

Title: _____

Business Address: _____

Phone: _____ Email: _____

Proposal submitted on the following date: _____

Joint Venturer Name: _____
(typed or printed)

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

Name: _____
(typed or printed)

Title: _____

Business Address: _____

Phone: _____ Email: _____

Proposal submitted on the following date: _____

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.

Affidavits

One of the following four affidavits shall be executed and provided with this information. The individual signing the affidavit shall attach evidence of their authority to bind the organization to an agreement.

AFFIDAVIT FOR CORPORATION

State _____) §

County of _____) §

_____, being duly sworn deposes and says
(Name)

that they are _____ of the
(Title)

_____ corporation submitting the foregoing qualification form and related information; have read such documents; and that such documents are true and correct and contain no material misrepresentations; and that they are authorized to make this affidavit on behalf of the Corporation.

(Signature)

Signed and sworn to me before this _____ day of _____, 20__.

(Notary Public)

My commission expires:

AFFIDAVIT FOR PARTNERSHIP

State _____) §

County of _____) §

_____, being duly sworn deposes and says
(Name)

that they are _____ of the
(Title)

_____ company submitting the foregoing qualification form and related information; have read such documents; and that such documents are true and correct and contain no material misrepresentations; and that they are authorized to make this affidavit on behalf of the Partnership.

(Signature)

Signed and sworn to me before this _____ day of _____, 20__.

(Notary Public)

My commission expires:

AFFIDAVIT FOR INDIVIDUAL

State _____) §

County of _____) §

_____, being duly sworn deposes and says
(Name)

that they are _____ of the
(Title)

_____ company submitting the foregoing qualification form and related information; have read such documents; and that such documents are true and correct and contain no material misrepresentations.

(Signature)

Signed and sworn to me before this _____ day of _____, 20__.

(Notary Public)

My commission expires:

JOINT VENTURE STATEMENT

We the undersigned do hereby give notice to our agreement to bid as a joint venture on the Project.

(Name of Joint Venture)

(Name of Firm)

(Signature)

Signed and sworn to me before this _____ day of _____, 20__.

(Notary Public)

My commission expires:

(Name of Firm)

(Signature)

Signed and sworn to me before this _____ day of _____, 20__.

(Notary Public)

My commission expires:

END OF SECTION

Title Page

Statement of Qualifications

Evaluation Criteria A through E Title Page

STATEMENT OF QUALIFICATIONS

ARTICLE 1: REQUIREMENTS FOR THE STATEMENT OF QUALIFICATIONS

- 1.01 The Statement of Qualifications must be submitted and include, as a minimum, the information as described herein. Failure to submit the required information in the Statement of Qualifications may result in the Owner considering the Proposal non-responsive and result in rejection of the Proposal by the Owner. Offerors may be required to provide supplemental information if requested by the Owner to clarify, enhance or supplement the information provided in the Statement of Qualifications.
- 1.02 Offerors must provide the information requested in the Statement of Qualifications using the forms attached to this Section. A copy of these forms can be provided in Microsoft Word to assist with the preparation of the Statement of Qualifications. Information in these forms must be provided completely and in detail. The information in these forms will be used to make direct comparisons with the information provided by other Offerors. Failure to include the information completely and clearly may result in lower scores in the evaluations. Information that cannot be totally incorporated in the form may be included in an appendix to the form. This appendix must be clearly referenced by appendix number in the form, and the appended material must include the appendix number on every sheet of the appendix. The appendix must include only the information that responds to the question or item number to which the appended information applies.
- 1.03 Owner, at its discretion, may also choose to conduct interviews with the top-ranking Offerors to provide the Offerors a better opportunity to demonstrate they can provide the best value to the Owner for this Project.
- A. Should the Owner choose to conduct interviews with any or all of the Offerors, they will be notified of:
1. The time and place for the interview.
 2. Interview format and agenda.
 3. Questions to be asked at the interview.
 4. Individuals that are expected to participate in the interview as a minimum.
- B. Failure to participate in the interview may result in disqualification from consideration for the Project.

ARTICLE 2: STATEMENT OF QUALIFICATIONS SUBMITTAL REQUIREMENTS, EVALUATION CRITERIA AND WEIGHTING STATEMENT OF QUALIFICATIONS SUBMITTAL REQUIREMENTS ARE AS FOLLOWS:

1. Similar Projects are defined as:
 - a. Reconstruction of a downtown or old town roadway.
 - b. Bridge construction with decorative elements.
 - c. Urban roadway with significant number of adjacent businesses or property owners.
 - d. Roadway construction with decorative pavement.

- A. Evaluation Criteria A – Proposed Contract Price
1. Offeror shall submit unit price information per submission format:
 2. Complete the Completion Time Section within the Bid Proposal Summary Form
 - a. Complete the Time of Completion portion. This should match the total time from NTP to Final Acceptance provided as part of Evaluation Criteria C. The summary provided here will be read during Bid Opening.
 - b. There are no Max Days given. Offeror is required to provide a completion time and substantially complete time.
 - c. Completion Time is total time from NTP to Final Acceptance and should include the timeframe to Substantially Complete.
 3. Electronic Submission Only:
 - a. Complete the online bid form tool
 4. Hardcopy Submission Only: Bid Proposal Summary and Unit Prices
 - a. Complete the Bid Proposal Summary Form. Summary will be read during Bid Opening.
 - b. Complete the bid form. An excel bid form has been provided. Bids will be considered incomplete without a bid form indicating unit prices for all bid items.
- B. Evaluation Criteria B – Offeror General Information; Project Organization; and Qualifications and Experience of Key Personnel
1. Table 1 – Offeror General Information
 - a. Offeror shall complete and submit Table 1 and any needed appendix to the form (See section 1.02 above)
 2. Figure 1 – Organizational Chart
 - a. Complete Figure 1 and include with as part of the Statement of Qualifications section. Refer to Instructions to Offerors.
 - b. Key Personnel: Provide the name (or Firm Name) for each of the Offeror's Key Personnel. These individuals or firm should correspond with the information provided in Table 2.
 - c. Major Subcontractor's: Provide the firm name for all the subcontractor's being used for major portions of the project. These items are anticipated to include: paving, storm drain, water, sewer, structural, landscaping, irrigation, electrical, duct bank (if separate from electrical), steel fabricator, survey, and material testing.
 - d. The Offeror may elect to have additional Key Personnel beyond the significant positions indicated on the organizational chart. For those additional individuals, complete the table provided as part of Figure 1.

3. Table 2 – Experience and Qualifications of Proposed Key Personnel

a. Table 2:

- 1). Offeror shall complete and submit Table 2. Table 2 provides a summary of the Key Personnel.
- 2). If one or more of the Key Personnel roles are to be filled by one individual, the individual must be listed for each of the roles. Do not leave information for a role blank. Doing so may result in the disqualification of the Offeror and may void the award of the Contract.
- 3). Project Surveyor: Person or company identified must be available to be on-site within 24 hours.

b. Tables 3 – 10

- 1). Tables 3 – 10 highlight the experience of the proposed Key Personnel within the Offeror's company (not subcontractors).
- 2). If one or more of the Key Personnel roles are to be filled by one individual, complete all applicable tables for each role the individual will be the serving in. Do not leave information for a role blank. Doing so may result in the disqualification of the Offeror and may void the award of the Contract.
- 3). Offerors are to include a list of current projects (not including this project) for each of the Key Personnel proposed. Information to be provided includes the project name, the anticipated completion date, and the percentage of time dedicated to that project.
- 4). Offerors are to include a list of up to 3 previous projects for each Key Personnel. Provide information regarding what role or position the individual had, where the project was located and a description of the project. If there are similarities between the listed project and the current one, please provide that information.
- 5). During construction, Key Personnel may only be changed with the prior written consent of the Owner. The Owner reserves the right to request a resume and conduct an interview with the substitute candidate to demonstrate that he/she is as qualified and experienced or better than the Key Personnel individual. The Owner also reserves the right to reject the substitute candidate.

C. Evaluation Criteria C – Construction Management Plan

1. Table 9 – Construction Management Plan

a. As part of the Project, Offeror is required to:

- 1). Be on-site during office hours,
- 2). Prepare for and assist in conducting regularly scheduled progress meetings,
- 3). Coordinate with adjacent property and business owners,
- 4). Maintain property and business access, and
- 5). Manage subcontractors.

- b. Offeror to provide a Construction Management Plan which explains how they are going to manage all components of the project. It is preferable for the Offeror to provide a narrative that indicates their ability to manage a project of this size and complexity. Key components of the Construction Management Plan may include a narrative explaining how they will manage the following:
 - 1). Traffic and Erosion Control Phasing Plan:
 - a). As part of the construction documents, a detailed traffic control plan has been prepared. There are several phases that could be combined or overlapped. There are also instances where field conditions will require changes to the traffic and erosion control plan.
 - 2). Subcontractor Management Plan:
 - a). Offeror is expected to manage their subcontractors and oversee the quality of their work.
 - 3). Emergency Action Plan:
 - a). Unforeseen conditions come up such as a water line break, unknown utility conflict, flooding, property/business owner issue, etc.
 - 4). Property Owner Management and Notifications Plan:
 - a). Explain the process of providing updates to property and business owners impacted by upcoming project phasing.
 - (1). Note: Advance notice is required anytime on-street parking, street approaches, and driveways are impacted per the traffic control plan.
 - b). As part of the Property Owner Management and Notifications Plan, Offeror is required to explain their on-site representative role.
 - (1). Note: This can include one person who will be on-site for all office hours, or several people that will rotate. Anyone specified must remain knowledgeable enough with the project to be able to meet with and answer property and business owner questions, as well as meet and coordinate with the Owner and Engineer during office hours.
 - 5). Franchise Utility Coordination Plan
 - a). Explain the process of coordinating with the franchise utility companies to ensure there are no schedule delays.
 - (1). Note: It is the Offeror's responsibility to maintain ongoing and regular coordination with the franchise utility companies to ensure the construction schedule is not delayed.
- 2. Site Maintenance and Professionalism Agreement
 - a. Offeror to sign the agreement acknowledging that they are responsible for the site cleanliness and behavior of all personnel on site including subcontractors.
- 3. Construction Time
 - a. Refer to the Proposal Price Summary page for the maximum allowable contract duration.

b. Table 10 – Proposed Construction Time

- 1). Offeror shall provide the number of calendar days from Notice to proceed to Substantial Completion, from Substantial Completion to Final Acceptance, and total contract calendar days. The Offeror shall also fill in the Time of Completion portion of the Proposal Price Summary page. The number of days provided by the Offeror on Table 10 and the Proposal Price Summary page shall match.
- 2). The number of days provided will become the contract days in the Standard Agreement when executed.
- 3). Failure to complete Table 10 will result in the disqualification of the Offeror and may void the award of the Contract.
- 4). Schedule Adherence Narratives
 - a). Offeror shall provide a narrative that demonstrates its ability to complete projects on time.
 - b). Offeror will provide up to two examples of projects where Offeror was able to exceed the contract time. Explain how the Offeror was able to accomplish this.
 - c). Offeror will provide up to two examples of projects where owner expectations for schedule were not met and the lessons learned.

4. Construction Schedule

- a. Offeror shall provide a CPM schedule as part of Evaluation Criteria C. Failure to provide a schedule may result in disqualification of the Offeror.
- b. Preferred schedule format is Primavera P6. Others will be accepted, Primavera P6 is not a requirement.
- c. Construction schedule to include major work activities, durations, milestones, and completion dates. Construction schedule completion dates should correspond with Table 10 and the Proposal Price Summary Page.
- d. There are no maximum days to deliver this project. However, Offerors will be ranked based on the schedule provided and days to completion. It is advised that the Offeror prepares a realistic schedule that accomplishes the City's goal of completing the project within a reasonable timeframe, within budget, and maintaining a high-quality construction experience for the adjacent businesses and property owners.

D. Evaluation Criteria D – Experience of Offeror with Similar Projects:

1. Table 11 – 15 – Project Information for Similar Projects

- a. Experience should include, as a minimum, the satisfactory completion of at least five (5) Similar Projects, within the last five (5) years. Offerors shall complete and submit Table 7 for each of the five (5) Similar Projects.
- b. It is the responsibility of the Offeror to decide the Similar Projects to submit in their Statement of Qualifications.

- c. Offeror may provide supplemental information as desired such as additional project information not requested, photos, project awards, etc.
 - d. Similar Projects with the following components will be given preference; the order of preference is the order presented below with "1" given the highest preference. For projects that feature one or more of these components, provide a description of these components under "General Description of Project".
 - 1). Reconstructing an existing downtown or old town roadway.
 - a). It is preferred to show experience reconstructing a roadway while maintaining traffic.
 - 2). Bridge construction with decorative elements that require fabrication such as a shade structure.
 - 3). Decorative full-depth integral color and stamped concrete
 - 4). Coordination: It is preferable that the Offeror can show one or more of their projects involved:
 - a). Coordination with TxDOT
 - b). Coordination with adjacent business and property owners.
 - c). Coordination with Franchise Utility Owners.
 - (1). As part of the project, the Offeror will be expected to install a duct bank and conduit for Franchise Utility companies and coordinate construction activities with them. For any project that included Franchise Utility coordination, provide information on the Franchise Utility companies the Offeror coordinated with, whether or not the Offeror constructed Franchise Utility Conduit, and any additional pertinent information.
 - 5). Utility Construction
 - a). Drainage
 - b). Water and sewer line construction.
- E. Evaluation Criteria E – Project Resources, Subcontractors, and Suppliers; and Project Safety
- 1. Table 16 – Summary of Project Resources
 - a. Offeror shall complete and submit Table 8. Describe in narrative the Offeror's approach to managing Subcontractors and Suppliers for this Project.
 - 2. Tables 17 – Project Subcontractor Summary
 - 3. Tables 18 – Subcontractor Information
 - a. Offeror shall complete and submit a Table 18 for each subcontractor performing a major project task.
 - b. Examples are provided. If there is a subcontractor performing a major task that is not provided, use the "Additional Subcontractor" Table.

- c. The intent is to provide information indicating the subcontractor's ability to perform the task. Offeror to complete as much of the table as possible.
 - 4. Table 19 – Project Suppliers
 - a. Offeror shall complete and submit Table 21.
 - 5. Project Safety
 - a. Offeror shall also complete and submit the Safety Record Questionnaire.
- F. Miscellaneous Bidding Documents
 - 1. Complete and submit the following required forms as applicable.
 - a. Vendor Compliance to State Law
 - b. Contractor Compliance to Texas State Sales Tax Code
 - c. Form CIQ-Conflict of interest Questionnaire
 - d. Form CIS-Local Government Officer Conflicts Disclosure Statement
 - e. Form TCG 2270 – Prohibition on Contracts with Companies Boycotting Israel
 - f. Disclosure of Lobbying Activities
 - g. Disadvantaged Business Enterprises Project Requirements
 - h. Contractor's Assurance
 - i. Child Support Statement
 - j. Acknowledgement of Insurance Requirements
 - k. "Certification of Absence of Suspension, Debarment, Voluntary Exclusion or Determination of Eligibility"
 - l. Policy of Non-Discrimination on the Basis of Handicapped Status
 - m. Frontier Construction Contract Acknowledgement
- G. Evaluation Criteria and Weighting
 - 1. Refer to Instructions to Offerors Article 19: Evaluation Criteria and Weighting values.

END OF SECTION

Title Page

Proposed Contract Price

Evaluation Criteria A Title Page

City of Keller
S. Elm Street Reconstruction
Project #: 502203
Bid Proposal Summary

BID PROPOSAL SUMMARY

TOTAL BASE BID AMOUNT	_____
	(Total Amount Bid, Numerical Value)
TOTAL BID ALTERNATE #1 AMOUNT	_____
	(Total Amount Bid, Numerical Value)
TOTAL BID ALTERNATE #2 AMOUNT	_____
	(Total Amount Bid, Numerical Value)
TOTAL BID ALTERNATE #3 AMOUNT	\$ 1,500,000.00
	(Total Amount Bid, Numerical Value)

EVALUATION OF BASE BID AND BID ALTERNATE

CONTRACT PRICE OPTION 1 TOTAL BASE BID AMOUNT	_____
	(Total Amount Bid, Numerical Value)
CONTRACT PRICE OPTION 2 TOTAL BASE BID AMOUNT + BID ALTERNATE 1	_____
	(Total Amount Bid, Numerical Value)
CONTRACT PRICE OPTION 1 TOTAL BASE BID AMOUNT + BID ALTERNATE 1 + BID ALTERNATE 2	_____
	(Total Amount Bid, Numerical Value)
CONTRACT PRICE OPTION 1 TOTAL BASE BID AMOUNT + BID ALTERNATE 1 + BID ALTERNATE 2 + BID ALTERNATE 3	_____
	(Total Amount Bid, Numerical Value)

TIME OF COMPLETION

TIME OF COMPLETION: The issuance of Notice to Proceed (NTP) requires the undersigned to commence work under this contract not later than thirty (30) days thereafter and to complete such work with the time proposed below. Refer to the Statement of Qualifications for Construction Time Evaluation Criteria. **Fill in the blanks below with the calendar days for each milestone. Number of days should match Construction Time Table as part of the Statement of Qualifications section.**

NUMBER OF CALENDAR DAYS FROM NTP TO SUBSTANTIAL COMPLETION	_____
	(Calendar Days)
NUMBER OF CALENDAR DAYS FROM SUBSTANTIAL COMPLETION TO FINAL ACCEPTANCE	_____
	(Calendar Days)
TOTAL NUMBER OF CONTRACT CALENDAR DAYS	_____
	(Calendar Days)

BID FORM

Client: City of Keller
 Project: OTK S Elm St. Reconstruction

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
1	MOBILIZATION	LS	1		\$0.00
2	PREPARING ROW	LS	1		\$0.00
3	PROJECT SIGN	EA	2		\$0.00
4	TREE TRIMMING AND PRUNING	LS	1		\$0.00
5	PRE-CONSTRUCTION VIDEO	LS	1		\$0.00
6	OXBLUE CAMERA INSTALLATION AND MAINTENANCE	EA	2		\$0.00
7	CONSTRUCTION ALLOWANCE	LS	1	\$1,000,000.00	\$1,000,000.00
8	CONSTRUCTION STAKING AND SURVEY	LS	1		\$0.00
9	CONSTRUCTION INSPECTIONS AND TESTING	LS	1		\$0.00
10	ON-SITE CONSTRUCTION TRAILER	MO	36		\$0.00
11	ON-SITE CONTRACTOR REPRESENTATIVE	MO	36		\$0.00
12	BARRICADES, SIGNS, AND TRAFFIC HANDLING	MO	36		\$0.00
13	CONSTRUCTING DETOURS	EA	16		\$0.00
14	TEMPORARY ASPHALT (TRENCH REPAIR, W-05, S-13, AND D-20) (INSTALL AND REMOVE)	SY	6,480		\$0.00
15	TEMPORARY ASPHALT (WIDENING AND TEMPORARY ASPHALT TRANSITIONS) (INSTALL AND REMOVE)	SY	4,938		\$0.00
16	TEMPORARY ASPHALT (LEVEL-UPS AS NEEDED, HMAC TY D) (INSTALL AND REMOVE)	SY	600		\$0.00
17	WK ZN PAV MRK (W) 4" (SLD) (INSTALL AND REMOVE)	LF	3,078		\$0.00
18	WK ZN PAV MRK (Y) 4" (SLD) (INSTALL AND REMOVE)	LF	2,456		\$0.00
19	WK ZN PAV MRK (W) 24" (SLD) (INSTALL AND REMOVE)	LF	98		\$0.00
20	SITE STORAGE - 140 S. ELM ST	LS	1		\$0.00
21	SITE STORAGE - 137 TAYLOR ST	LS	1		\$0.00
22	137 TAYLOR ST - ACCESS DRIVE	SY	300		\$0.00
23	137 TAYLOR ST - POST CONSTRUCTION	LS	1		\$0.00
24	CONSTRUCTION TRAILER SITE IMPROVEMENTS ALLOWANCE	LS	1	\$75,000.00	\$75,000.00
25	TEMPORARY DRIVEWAY AND SIDE STREET CULVERT	LF	300		\$0.00
26	ADJUST ALL SURFACE APPURTENANCES TO FINAL GRADE	LS	1		\$0.00
27	STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND EROSION CONTROL ITEMS	LS	1		\$0.00
28	TREE PROTECTION	EA	95		\$0.00
29	REMOVE TREE (2" TO 12" DIA)	EA	24		\$0.00
30	REMOVE TREE (13" TO 24" DIA)	EA	21		\$0.00
31	REMOVE TREE (25" TO 36" DIA)	EA	7		\$0.00
32	REMOVE TREE (37" DIA AND LARGER)	EA	4		\$0.00
33	TRANSPLANT TREE	EA	8		\$0.00
34	REMOVE CONC (DRIVEWAYS)	SY	1,820		\$0.00
35	REMOVING CONC (SIDEWALKS)	SY	1,230		\$0.00
36	REMOVING CONC (CURB AND GUTTER)	LF	1,010		\$0.00
37	REMOVE GRAVEL DRIVEWAY	SY	240		\$0.00
38	REMOVE CONCRETE FLUME	SY	30		\$0.00
39	REMOVE ASPHALT PAVEMENT	SY	13,160		\$0.00
40	REMOVE ASPHALT DRIVEWAY	SY	320		\$0.00
41	REMOVE ASPHALT SIDEWALK	SY	160		\$0.00
42	REMOVING PAVERS (STONE)	SY	20		\$0.00
43	REMOVING PAVERS (BRICK)	SY	140		\$0.00
44	REMOVE MAILBOX	EA	40		\$0.00
45	REMOVE EX BRICK PEDESTAL	EA	1		\$0.00
46	REMOVE WOOD FENCE	LF	130		\$0.00
47	REMOVE WHITE PICKET FENCE	LF	10		\$0.00
48	REMOVE CHAIN LINK FENCE	LF	40		\$0.00
49	REMOVE WROUGHT IRON FENCE	EA	210		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
50	REMOVE SIGN PANEL(S) AND POST	EA	30		\$0.00
51	REMOVE WHEEL STOP	EA	110		\$0.00
52	REMOVE PAVEMENT MARKINGS (4"-24")	LF	500		\$0.00
53	REMOVE PAVEMENT MARKINGS (SYMBOL)	EA	2		\$0.00
54	REMOVE BEAR CREEK CROSSING	LS	1		\$0.00
55	REMOVE STORM PIPE (12" TO 36" DIA)	LF	1,630		\$0.00
56	REMOVE DROP INLET	EA	2		\$0.00
57	REMOVE CURB INLET	EA	2		\$0.00
58	REMOVE PECAN ST TRENCH DRAIN, LATERAL PIPE, AND INLET STRUCTURE	LS	1		\$0.00
59	REMOVE SAFETY END TREATMENT	EA	11		\$0.00
60	REMOVE HEADWALL	EA	2		\$0.00
61	REMOVE CONCRETE RIPRAP	SY	110		\$0.00
62	REMOVE EXISTING 12" WATER LINE	LF	119		\$0.00
63	REMOVE EXISTING 8" WATER LINE	LF	351		\$0.00
64	REMOVE EXISTING 6" WATER LINE	LF	1,682		\$0.00
65	REMOVE EXISTING 4" WATER LINE	LF	563		\$0.00
66	REMOVE EXISTING 8" SANITARY SEWER LINE	LF	2,155		\$0.00
67	REMOVE EXISTING 6" SANITARY SEWER LINE	LF	6		\$0.00
68	REMOVE EXISTING 4" SANITARY SEWER LINE	LF	128		\$0.00
69	REMOVE EXISTING MANHOLE	EA	8		\$0.00
70	REMOVE AND DISPOSE GATE VALVE	EA	25		\$0.00
71	REMOVE AND SALVAGE GATE VALVE	EA	3		\$0.00
72	REMOVE AND SALVAGE FIRE HYDRANT	EA	8		\$0.00
73	PRE-CONSTRUCTION CCTV OF SANITARY SEWER	LS	1		\$0.00
74	12" AWWA C900 PVC DR18 WATER PIPE (OPEN CUT)	LF	1,666		\$0.00
75	12" AWWA C900 PVC DR18 WATER PIPE (BY OTHER THAN OPEN CUT)	LF	96		\$0.00
76	8" AWWA C900 PVC DR18 WATER PIPE (OPEN CUT)	LF	1,385		\$0.00
77	6" AWWA C900 PVC DR18 WATER PIPE (OPEN CUT)	LF	168		\$0.00
78	16" STEEL CASING PIPE (OTHER THAN OPEN CUT)	LF	70		\$0.00
79	8" WATER CARRIER PIPE (OTHER THAN OPEN CUT)	LF	70		\$0.00
80	DUCTILE IRON FITTINGS	TON	9		\$0.00
81	12" RESILIENT SEATED GATE VALVE W/ BOX	EA	15		\$0.00
82	8" RESILIENT SEATED GATE VALVE W/ BOX	EA	24		\$0.00
83	6" RESILIENT SEATED GATE VALVE W/ BOX	EA	16		\$0.00
84	FIRE HYDRANT ASSEMBLY	EA	9		\$0.00
85	2" WATER SERVICE	EA	2		\$0.00
86	1" WATER SERVICE	EA	18		\$0.00
87	5/8" WATER SERVICE METER AND RE-CONNECTION	EA	18		\$0.00
88	TEMPORARY 5/8" WATER SERVICE METER AND RE-CONNECTION	EA	3		\$0.00
89	CONNECT TO EXISTING 6" - 12" WATER LINE	EA	14		\$0.00
90	CONNECT TO EXISTING 6" FIRE LINE	EA	2		\$0.00
91	TEMPORARY WATER SERVICE ALLOWANCE	LS	1	\$50,000.00	\$50,000.00
92	8" ASTM D3034 PVC SDR26 SANITARY SEWER PIPE (OPEN CUT)	LF	2,387		\$0.00
93	8" ASTM D2241 DR-17 PVC SANITARY SEWER PIPE (OPEN CUT)	LF	475		\$0.00
94	5' DIAMETER SANITARY SEWER MANHOLE	EA	8		\$0.00
95	5' DIAMETER SANITARY SEWER INTERNAL DROP MANHOLE	EA	2		\$0.00
96	4' DIAMETER SANITARY SEWER MANHOLE	EA	9		\$0.00
97	SANITARY SEWER SERVICE W/ CLEAN OUT	EA	28		\$0.00
98	SANITARY SEWER SERVICE RECONNECTION	EA	28		\$0.00
99	CLEANOUT CAP ADJUSTMENT	EA	1		\$0.00
100	MANHOLE VACCUUM TESTING	EA	19		\$0.00
101	CONCRETE ENCASE EXISTING UTILITY	LF	10		\$0.00
102	CONNECT TO EXISTING 6" - 12" SANITARY SEWER LINE	EA	8		\$0.00
103	SANITARY SEWER AND WATER TRENCH SAFETY	LF	6,081		\$0.00
104	EXPLORATORY EXCAVATION OF EXISTING UTILITIES	EA	18		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
105	COORDINATION WITH FRANCHISE COMPANIES ALLOWANCE	LS	1	\$10,000.00	\$10,000.00
106	FRANCHISE UTILITY ALLOWANCE	LS	1	\$15,000.00	\$15,000.00
107	EXPLORATRY EXCAVATION OF EXISTING UTILITIES	EA	20		\$0.00
108	REMOVE FRANCHISE UTILITY CONDUIT AND MISCELLANEOUS SURFACE APPURTENANCES	LS	1		\$0.00
109	REMOVE FRANCHISE UTILITY MANHOLES	EA	6		\$0.00
110	REMOVE FRANCHISE UTILITY GROUNDBOXES/HANDHOLES	EA	3		\$0.00
111	REPLACE EX GROUNDBOX/HANDHOLE LID AND ADJUST TO GRADE	EA	4		\$0.00
112	18 CONDUIT COMMUNICATION DUCT BANK	LF	2,500		\$0.00
113	COMMUNICATION DUCT BANK MANHOLE	EA	2		\$0.00
114	CONDT (PVC) (SCH 80) (4") - AT&T	LF	330		\$0.00
115	INSTALL AT&T MANHOLE	EA	1		\$0.00
116	INSTALL AT&T HANDHOLE (AT&T TO PROVIDE)	EA	1		\$0.00
117	INSTALL FRONTIER CONDUIT (CONDUIT PROVIDED BY FRONTIER)	LF	22,320		\$0.00
118	FRONTIER 466 PULLBOX	EA	2		\$0.00
119	FRONTIER 612 UTILITY VAULT	EA	2		\$0.00
120	FRONTIER MANHOLE	EA	6		\$0.00
121	CONDT (PVC) (SCH 80) (2") - SPECTRUM	LF	2,730		\$0.00
122	CONDT (PVC) (SCH 80) (4") - SPECTRUM	LF	50		\$0.00
123	CONDT (PVC) (SCH 80) (1.25") - UPN	LF	590		\$0.00
124	TXDOT GROUND BOX TY D W/APRON - UPN	EA	3		\$0.00
125	TXDOT GROUND BOX TY D W/NO APRON - UPN	EA	1		\$0.00
126	TXDOT GROUND BOX TY A W/APRON - UPN	EA	1		\$0.00
127	CONDT (PVC) (SCH 80) (1.5") - LUMEN	LF	460		\$0.00
128	TXDOT GROUND BOX TY D W/APRON - LUMEN	EA	1		\$0.00
129	TXDOT GROUND BOX TY D W/NO APRON - LUMEN	EA	3		\$0.00
130	CONDT (PVC) (SCH 80) (2") - ONCOR	LF	2,250		\$0.00
131	CONDT (PVC) (SCH 80) (4") - ONCOR	LF	7,253		\$0.00
132	CONDT (PVC) (SCH 80) (6") - ONCOR	LF	4,400		\$0.00
133	ONCOR GROUND BOX W/APRON	EA	7		\$0.00
134	ONCOR 6'X4' JUNCTION BOX	EA	2		\$0.00
135	ONCOR TRANSFORMER FOUNDATION	EA	4		\$0.00
136	ONCOR SWITCHGEAR FOUNDATION	EA	4		\$0.00
137	5" CONCRETE RIPRAP	CY	200		\$0.00
138	RIPRAP (STONE PROTECTION)(24 IN)	CY	100		\$0.00
139	RELOCATE STONE RIPRAP	CY	100		\$0.00
140	CONCRETE FLUME	CY	2		\$0.00
141	WINGWALL (FW-0)	LS	1		\$0.00
142	TXDOT TY II SAFETY END TREATMENT	EA	2		\$0.00
143	4' STORM DRAIN VAULT	EA	2		\$0.00
144	5 SIDED JUNCTION BOX	EA	1		\$0.00
145	5' JUNCTION BOX WITH MANHOLE RISER	EA	2		\$0.00
146	6' JUNCTION BOX WITH MANHOLE RISER	EA	13		\$0.00
147	12"X12" ADS AREA DRAIN	EA	3		\$0.00
148	15"X15" ADS AREA DRAIN	EA	2		\$0.00
149	6" SCH 80 PVC PIPE	LF	153		\$0.00
150	12" SCH 80 PVC PIPE	LF	75		\$0.00
151	LOCATE AND CONNECT EX AREA DRAIN TO PROP STORM	EA	2		\$0.00
152	24" REINFORCED CONCRETE PIPE	LF	1,800		\$0.00
153	24" REINFORCED CONCRETE PIPE (TEMP PIPE THROUGH LINE A2 INLETS PER TCP)	LF	70		\$0.00
154	36" REINFORCED CONCRETE PIPE	LF	330		\$0.00
155	4'WX2'H REINFORCED CONCRETE BOX	LF	940		\$0.00
156	4'WX3'H REINFORCED CONCRETE BOX	LF	1,320		\$0.00
157	5'WX4'H REINFORCED CONCRETE BOX	LF	330		\$0.00
158	5'WX5'H REINFORCED CONCRETE BOX	LF	130		\$0.00
159	4'X4' STORM DRAIN DROP INLET	EA	1		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
160	10' RECESSED CURB INLET	EA	2		\$0.00
161	10' INLET UNDER PAVEMENT	EA	1		\$0.00
162	10' STANDARD CURB INLET	EA	9		\$0.00
163	15' STANDARD CURB INLET	EA	4		\$0.00
164	20' STANDARD CURB INLET	EA	1		\$0.00
165	10' STANDARD CURB INLET (CONNECT TO TOP OF RCB)	EA	10		\$0.00
166	15' STANDARD CURB INLET (CONNECT TO TOP OF RCB)	EA	4		\$0.00
167	20' STANDARD CURB INLET (CONNECT TO TOP OF RCB)	EA	3		\$0.00
168	CONVERT EX CURB INLET TOP TO JUNCTION BOX TOP	EA	1		\$0.00
169	STORM DRAIN TRENCH SAFETY	LF	5,100		\$0.00
170	EXCAVATION (ROADWAY)	CY	22,000		\$0.00
171	EMBANKMENT (FINAL)(DENS CONT)(TY A)	CY	4,000		\$0.00
172	8" FLEXIBLE BASE, TYPE A, GR 1-2 (S. ELM ST)	SY	11,700		\$0.00
173	6" FLEXIBLE BASE, TYPE A, GR 1-2 (SIDE STREETS AND ALLEY)	SY	6,800		\$0.00
174	5" ASPHALT PAVEMENT BASE (TY B) (S. ELM ST)	SY	100		\$0.00
175	4" ASPHALT PAVEMENT BASE (TY B) (SIDE STREETS)	SY	3,300		\$0.00
176	2" ASPHALT PAVEMENT SURFACE COURSE (TY D) (S. ELM ST & SIDE STREETS)	SY	3,400		\$0.00
177	7" ROADWAY INTEGRAL COLORED AND TEXTURED CONCRETE	SY	5,600		\$0.00
178	7" CROSSWALK (SCORED AND ROCK SALT)	SY	850		\$0.00
179	6" CROSSWALK (SCORED AND ROCK SALT)	SY	210		\$0.00
180	7" CONCRETE ROADWAY PAVEMENT WITH MONOLITHIC CURB	SY	2,560		\$0.00
181	7" CONCRETE ROADWAY PAVEMENT	SY	370		\$0.00
182	6" CONCRETE ROADWAY PAVEMENT WITH MONOLITHIC CURB	SY	1,400		\$0.00
183	6" CONCRETE ROADWAY PAVEMENT	SY	300		\$0.00
184	6" CONCRETE DRIVEWAY	SY	1,400		\$0.00
185	6" HIGH EARLY STRENGTH CONCRETE DRIVEWAY	SY	600		\$0.00
186	6" CONCRETE CURB & GUTTER	LF	2,870		\$0.00
187	1.5' WIDE CONCRETE GUTTER	LF	118		\$0.00
188	VARIABLE HEIGHT BACK TO BACK CURB AND GUTTER	LF	50		\$0.00
189	4" MEDIAN COLORED AND TEXTURED CONCRETE	SY	260		\$0.00
190	4" SIDEWALK COLORED AND TEXTURED CONCRETE	SY	390		\$0.00
191	4" SIDEWALK SCORED AND ROCK SALT FINISH CONCRETE	SY	3,850		\$0.00
192	4" SIDEWALK ROCK SALT FINISH CONCRETE	SY	50		\$0.00
193	4" CONCRETE SIDEWALK	SY	3,700		\$0.00
194	SIDEWALK EDGE PROTECTION	LF	125		\$0.00
195	TXDOT TY 1 CURB RAMP	EA	21		\$0.00
196	TXDOT TY 2 CURB RAMP	EA	3		\$0.00
197	TXDOT TY 3 CURB RAMP	EA	1		\$0.00
198	TXDOT TY 7 CURB RAMP	EA	37		\$0.00
199	STAIRS (BY LOCATION)	EA	4		\$0.00
200	PEDESTRIAN RAMP AND RESTORE WOOD RAILING (252 S. ELM ST)	LS	1		\$0.00
201	CONCRETE SIDEWALK FLUME	EA	1		\$0.00
202	3' WIDE MEDIAN CURB CUT AND FLUME	EA	4		\$0.00
203	TRAIL RETAINING WALL	CY	13		\$0.00
204	WOOD FENCE	LF	252		\$0.00
205	WOOD GATE (DOUBLE DOOR)	EA	2		\$0.00
206	CHAIN LINK FENCE	LF	40		\$0.00
207	PEDESTRIAN HAND RAIL (BLACK POWDER COATED)	LF	56		\$0.00
208	SALVAGE AND REINSTALL SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON	EA	1		\$0.00
209	SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON	EA	1		\$0.00
210	SALVAGE AND REINSTALL BUSINESS SIGNS	EA	4		\$0.00
211	4" SOLID WHITE PAVEMENT MARKING	LF	2,900		\$0.00
212	4" SOLID YELLOW PAVEMENT MARKING	LF	6,100		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
213	12" SOLID WHITE PAVEMENT MARKING (CROSSWALK)	LF	1,400		\$0.00
214	24" SOLID WHITE PAVEMENT MARKING	LF	150		\$0.00
215	HANDICAP PARALLEL PARKING STALL PAVEMENT MARKINGS	EA	6		\$0.00
216	HANDICAP ANGLED OR PERPENDICULAR PARKING STALL PAVEMENT MARKINGS	EA	16		\$0.00
217	PAVEMENT MARKING WORD (NO PARKING)	EA	15		\$0.00
218	PAVEMENT MARKING GORE	EA	20		\$0.00
219	WHEEL STOP (PARKING STALL)	EA	82		\$0.00
220	INSTALL STANDARD SIGN AND POST	EA	63		\$0.00
221	SALVAGE SIGN PANELS AND REINSTALL SALVAGED SIGN PANELS ON NEW SIGN POST	EA	4		\$0.00
222	CEM STABIL BKFL (TXDOT ITEM - 0400 6005)	CY	216		\$0.00
223	DRILL SHAFT (18 IN) (TXDOT ITEM - 0416 6001)	LF	62		\$0.00
224	DRILL SHAFT (36 IN) (TXDOT ITEM - 0416 6004)	LF	411		\$0.00
225	CL C CONC (ABUT)(HPC) (TXDOT ITEM - 0420 6014)	CY	75		\$0.00
226	CL C CONC (CAP)(HPC) (TXDOT ITEM - 0420 6030)	CY	63		\$0.00
227	CL C CONC (COLUMN)(HPC) (TXDOT ITEM - 0420 6038)	CY	20		\$0.00
228	REINF CONC SLAB (HPC) (TXDOT ITEM - 0422 6002)	SF	9,150		\$0.00
229	APPROACH SLAB (HPC) (TXDOT ITEM - 0422 6016)	CY	143		\$0.00
230	PRESTR CONC GIRDER (TX28) (TXDOT ITEM - 0425 6035)	LF	1,040		\$0.00
231	RIPRAP (STONE PROTECTION)(24 IN) (TXDOT ITEM - 0432 6035)	CY	1,185		\$0.00
232	STR STEEL (MISC NON-BRIDGE)(BS-EJCP) (TXDOT ITEM - 0442 6007)	LB	636		\$0.00
233	RAIL (TY T402)(HPC) (TXDOT ITEM - 0450 6011)	LF	413		\$0.00
234	CUSTOM PEDESTRIAN RAIL (TXDOT ITEM - 0450)	LF	356		\$0.00
235	SEALED EXPANSION JOINT (4 IN)(SEJ-M) (TXDOT ITEM - 0454 6018)	LF	65		\$0.00
236	INSTALL BRIDGE IDENTIFICATION NUMBER (TXDOT ITEM - 4171 6001)	EA	2		\$0.00
237	RET WALL (CAST-IN-PLACE) (TXDOT ITEM - 0423 6008)	SF	1,218		\$0.00
238	DECORATIVE SHADE STRUCTURE (TXDOT ITEM - SEE PLANS)	LS	1		\$0.00
239	COORDINATION WITH ONCOR STREET LIGHT DIVISION ALLOWANCE	LS	1	\$5,000.00	\$5,000.00
240	ONCOR STREET LIGHT FOUNDATION	EA	36		\$0.00
241	CONDT (PVC) (SCH 80) (2")	LF	19,705		\$0.00
242	ELEC CONDR (NO. 6) (BARE)	LF	9,820		\$0.00
243	ELEC CONDR (NO. 6) (INSULATED)	LF	25,340		\$0.00
244	ELEC CONDR (NO. 4) (BARE)	LF	4,035		\$0.00
245	ELEC CONDR (NO. 4) (INSULATED)	LF	16,560		\$0.00
246	GROUND BOX TY B	EA	42		\$0.00
247	GROUND BOX TY B (122322) W/APRON	EA	13		\$0.00
248	ELC SRV TY D 120/240 060(NS)SS(E)PS(U)	EA	1		\$0.00
249	LEGRAND WIREMOLD OUTDOOR GROUND BOX (5-20R)	EA	43		\$0.00
250	TWX1 LED WALL LUMINAIRE	EA	12		\$0.00
251	GROUND LIGHTING AND ELECTRICAL RESTORATION	LS	1		\$0.00
252	KURBA LARGE VERTICAL RGB & RGBW (FLEXIBLE LED STRIP)	LF	460		\$0.00
253	DECORATIVE BRIDGE RAILING LIGHTING SYSTEM ALLOWANCE	LS	1	\$60,000.00	\$60,000.00
254	SOUND SYSTEM COMPONENT ALLOWANCE	LS	1	\$50,000.00	\$50,000.00
255	FURNISHING AND PLACING TOPSOIL (4")	CY	1,150		\$0.00
256	BLOCK SODDING	SY	1,150		\$0.00
257	IRRIGATION SYSTEM INSTALLATION	LS	1		\$0.00
258	IRRIGATION RESTORATION	LS	1		\$0.00
259	LANDSCAPE RESTORATION	LS	1		\$0.00
260	TREE (3" CALIPER)(CEDAR ELM)	EA	3		\$0.00
261	TREE (3" CALIPER)(EASTERN REDBUD)	EA	7		\$0.00
262	TREE (2" CALIPER, MULTI-TRUNK)(DESERT WILLOW)	EA	17		\$0.00
263	TREE (2" CALIPER, MULTI-TRUNK)(CHASTE TREE)	EA	19		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
264	SHRUB (5 GALLON)	EA	1,951		\$0.00
265	GRASSES (5 GALLON)	EA	1,715		\$0.00
266	LANDSCAPE BOULDERS	TON	145		\$0.00
267	PLANT BED PREP (24")	CY	2,187		\$0.00
268	SHREDDED HARDWOOD MULCH (3" DEPTH)	CY	249		\$0.00
269	RIVER ROCK MULCH (4")	CY	35		\$0.00
270	WAYFINDING SIGN OPTION 1	EA	9		\$0.00
271	WAYFINDING SIGN OPTION 2	EA	8		\$0.00
272	GATEWAY FOUNDATION	EA	4		\$0.00
273	GATEWAY FEATURE (BATES ST)	EA	1		\$0.00
274	GATEWAY FEATURE (FM 1709 LOCATION)	EA	1		\$0.00
275	GATEWAY FEATURE LOGO (OPTION 1 AND 2)	EA	4		\$0.00
276	STREET FURNITURE - BENCH	EA	15		\$0.00
277	STREET FURNITURE - TRASH CAN	EA	13		\$0.00
278	STREET FURNITURE - BICYCLE RACK	EA	20		\$0.00
279	CONCRETE TRASH CAN PAD	EA	22		\$0.00
280	CONCRETE BENCH AND TRASH CAN PAD	EA	7		\$0.00
281	RESIDENTIAL MAILBOX	EA	3		\$0.00
282	MAILBOX BANK AND FOUNDATION	EA	11		\$0.00
283	REMOVABLE BOLLARDS	EA	6		\$0.00
284	BATES STREET RE-SEAL	LS	1		\$0.00
285	BEAR CREEK PARKWAY ROUNDABOUT RE-SEAL	LS	1		\$0.00
Sub-Total Base Bid					\$1,265,000.00

Alternate A1- South Bridge Parking Lot					
A1-1	EARTHWORK	LS	1		\$0.00
A1-2	PREPARING ROW	LS	1		\$0.00
A1-3	REMOVE CONC (DRIVEWAYS)	SY	67		\$0.00
A1-4	REMOVING CONC (SIDEWALKS)	SY	176		\$0.00
A1-5	6" CONCRETE PAVEMENT	SY	2,890		\$0.00
A1-6	6" FLEXIBLE BASE, TYPE A, GR 1-2	SY	3,600		\$0.00
A1-7	6" CONCRETE DRIVEWAY	SY	110		\$0.00
A1-8	4" CONCRETE SIDEWALK	SY	1,000		\$0.00
A1-9	PEDESTRIAN HAND RAIL (BLACK POWDER COATED)	LF	550		\$0.00
A1-10	4" SOLID WHITE PAVEMENT MARKING	LF	1,500		\$0.00
A1-11	HANDICAP ANGLED OR PERPENDICULAR PARKING STALL PAVEMENT MARKINGS	EA	4		\$0.00
A1-12	WHEEL STOP (PARKING STALL)	EA	75		\$0.00
A1-13	INSTALL STANDARD SIGN AND POST	EA	4		\$0.00
A1-14	2'X2' DROP INLET	EA	1		\$0.00
A1-15	COORDINATION WITH TRI-COUNTY ALLOWANCE	LS	1	\$5,000.00	\$5,000.00
A1-16	CONDT (PVC) (SCH 80) (2")	LF	1,040		\$0.00
A1-17	GROUND BOX TY B (122322) W/APRON	EA	4		\$0.00
A1-18	TRI-COUNTY STREET LIGHT FOUNDATION	EA	11		\$0.00
A1-19	FURNISHING AND PLACING TOPSOIL (4")	CY	33		\$0.00
A1-20	BLOCK SODDING	SY	300		\$0.00
A1-21	SHRUB (5 GALLON)	EA	170		\$0.00
A1-22	GRASSES (5 GALLON)	EA	161		\$0.00
A1-23	LANDSCAPE BOULDERS	TON	23		\$0.00
A1-24	PLANT BED PREP (24")	CY	277		\$0.00
A1-25	SHREDDED HARDWOOD MULCH (3" DEPTH)	CY	35		\$0.00
A1-26	WAYFINDING SIGNS	EA	1		\$0.00
A1-27	STREET FURNITURE - BENCH	EA	3		\$0.00
A1-28	STREET FURNITURE - TRASH CAN	EA	3		\$0.00
A1-29	TRANSPLANT TREE	EA	7		\$0.00
Sub-Total Alternative 1 - South Bridge Parking Lot					\$5,000.00

Alternate 2 - Pecan St. Sanitary Sewer Line H					
A2-1	REMOVE EXISTING 6" SANITARY SEWER LINE	LF	425		\$0.00
A2-2	8" ASTM D3034 PVC SDR26 SANITARY SEWER PIPE (OPEN CUT)	LF	418		\$0.00
A2-3	5' DIAMETER SANITARY SEWER MANHOLE	EA	2		\$0.00
A2-4	4' DIAMETER SANITARY SEWER MANHOLE	EA	1		\$0.00

Item No.	Pay Item Description	Unit	Est. Quantity	Unit Bid Price	Amount Bid
Base Bid					
A2-5	MANHOLE VACCUUM TESTING	EA	3		\$0.00
A2-6	TRENCH SAFETY	LF	418		\$0.00
Sub-Total Alternate 2 - Pecan St. Sanitary Sewer Line H					\$0.00
Alternate 3 - Parking Lot					
A3-1	PARKING LOT ALLOWANCE	LS	1	\$ 1,500,000.00	\$1,500,000.00
Sub-Total Alternate 3 - Parking Lot					\$1,500,000.00

END OF SECTION

Evaluation Criteria B:

Offeror General Information; Project Organization; and Qualifications and Experience of Key Personnel

Table 1 – Offeror General Information

Offeror General Information					
Offeror Company Name					
Business Address of Principle Office					
Telephone Numbers					
Main Number					
Fax Number					
Website Address					
Form of Business (check one)		<input type="checkbox"/> A corporation	<input type="checkbox"/> A partnership	<input type="checkbox"/>	<input type="checkbox"/> An individual
If a Corporation					
Date of Incorporation					
State of Incorporation					
Chief Executive Name					
President Name					
Senior Management Names and Position		Name		Position	
Secretary Name					
Treasurer Name					
If a Partnership					
Date of Organization					
State Whether Partnership is General or Limited					
If an Individual					
Name					
Business Address					
Indicators of Offerors Size					
Average Number of Current Full-Time Employees		Average estimate of revenue for the current year		Current Number of Employees (Full-Time and Part-Time)	

Offeror Regional/Local Office

Business address of Office	
Name of Office Manager	
Telephone Numbers	
Main Number	
Fax Number	
Website Address	

Organization History

1. List of names that this Offeror has and currently operates under over the history of the organization, including the names of related companies presently doing business:

Names of Offeror	From Date	To Date

2. List of companies, firms or organizations that own any part of the Offeror.

Name of Companies, Firms, or Organizations	Percent Ownership

Construction Experience

Years of experience as a General Contractor:	
Years of experience in projects similar to the proposed project:	

Other appropriate information
 Provide information as to the history of the Offeror, including lines of business and service offerings, growth over time in terms of number of projects, size of projects, types of projects, firm revenue and number of employees.

Lines of Business and Service Offerings	
Location of home office and other offices	
Number of Employees	

Provide narrative information to indicate the growth of business lines and service offerings.

Provide narrative information to indicate the number and types of projects and dollar volume currently under contract by the Offeror.

Surety References

Name:		Telephone (main number):
Mailing Address (principal place of business):		Telephone (for notice of claim):
		Local Agent for Surety: Name: _____
Physical Address (principal place of business):		Address: _____

		Telephone: _____

Surety is a corporation organized and existing under the laws of the state of Texas? (Yes or No)	
Is surety authorized to provide surety bonds in the state of Texas? (Yes or No)	
Is surety listed in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury? (Yes or No)	
If Applicable, Provide Surety A.M. Best Rating:	

Table 2– Proposed Key Personnel Summary

Position or Role	Individual's Name or Company's Name
Project Manager	
Project Superintendent	
Project Quality Control Manager	
Project/Field Engineer (Lead Person or Company Name)	
Project Safety Manager	
On-Site Representative	
Project Surveyor (Lead Person or Company Name)	
Project Material Testing Lab (Company Name)	
Blank: Write-In Additional Personnel	
Blank: Write-In Additional Personnel	
Blank: Write-In Additional Personnel	
Blank: Write-In Additional Personnel	
Blank: Write-In Additional Personnel	
If Key Personnel are to fulfill more than one of the roles listed above, provide their name next to all roles. Do not leave a role blank.	

Table 3 – Experience of Proposed Project Manager

Project Manager Credentials	
Name of Project Manager	
Education	
Formal Training Certifications	

Experience as a Project Manager	
Years of Experience with this Offeror	
Years of Experience as Project Manager	
Number of Similar Projects as Project Manager	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project

Previous Project Experience	
List Up to 3 Similar Projects as a Project Manager or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Table 4 – Experience of Project Superintendent

Superintendent Credentials	
Name of Superintendent	
Education	
Formal Training Certifications	

Experience as a Superintendent	
Years of Experience with this Offeror	
Years of Experience as Superintendent	
Number of Similar Projects as Superintendent	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project

Previous Project Experience	
List Up to 3 Similar Projects as a Superintendent or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Table 5 – Experience of Project Quality Control Manager

Project Quality Control Manager Credentials	
Name of Quality Control Manager	
Education	
Formal Training Certifications	

Experience as a Quality Control Manager	
Years of Experience with this Offeror	
Years of Experience as Quality Control Manager	
Number of Similar Projects as Quality Control Manager	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project
1.		
2.		
3.		
4.		
5.		

Previous Project Experience	
List Up to 3 Similar Projects as a Quality Control Manager or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Table 6 – Project/Field Engineer

Project/Field Engineer Credentials	
Name of Project/Field Engineer	
Education	
Formal Training Certifications	

Experience as an On-Site Representative	
Years of Experience with this Offeror	
Years of Experience as a Project/Field Engineer	
Number of Similar Projects as a Project/Field Engineer	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project

Previous Project Experience	
List Up to 3 Similar Projects as a Project/Field Engineer or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Table 7 – Experience of Safety Manager

Project Safety Manager Credentials	
Name of Safety Manager	
Education	
Formal Training Certifications	

Experience as an Inspector	
Years of Experience with this Offeror	
Years of Experience as a Safety Manager	
Number of Similar Projects as a Safety Manager	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project

Previous Project Experience	
List Up to 3 Similar Projects as a Safety Manager or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Table 8 – Experience of Lead On-Site Representative

Project Lead On-Site Representative Credentials	
Name of Lead On-Site Representative	
Education	
Formal Training Certifications	

Experience as an On-Site Representative	
Years of Experience with this Offeror	
Years of Experience as an On-Site Representative	
Number of Similar Projects as an On-Site Representative	
Number of Similar Projects in Other Positions	
Number of Projects with the Proposed Team	
Percentage of Time Available to Work on This Project	

Current Projects		
Name of Project	Role/Position on Project	Percent of Time Dedicated to Project

Previous Project Experience	
List Up to 3 Similar Projects as an On-Site Representative or Other Position	
<u>Project Number 1</u>	
Position or Role	
Project Location and Description	
<u>Project Number 2</u>	
Position or Role	
Project Location and Description	
<u>Project Number 3</u>	
Position or Role	
Project Location and Description	

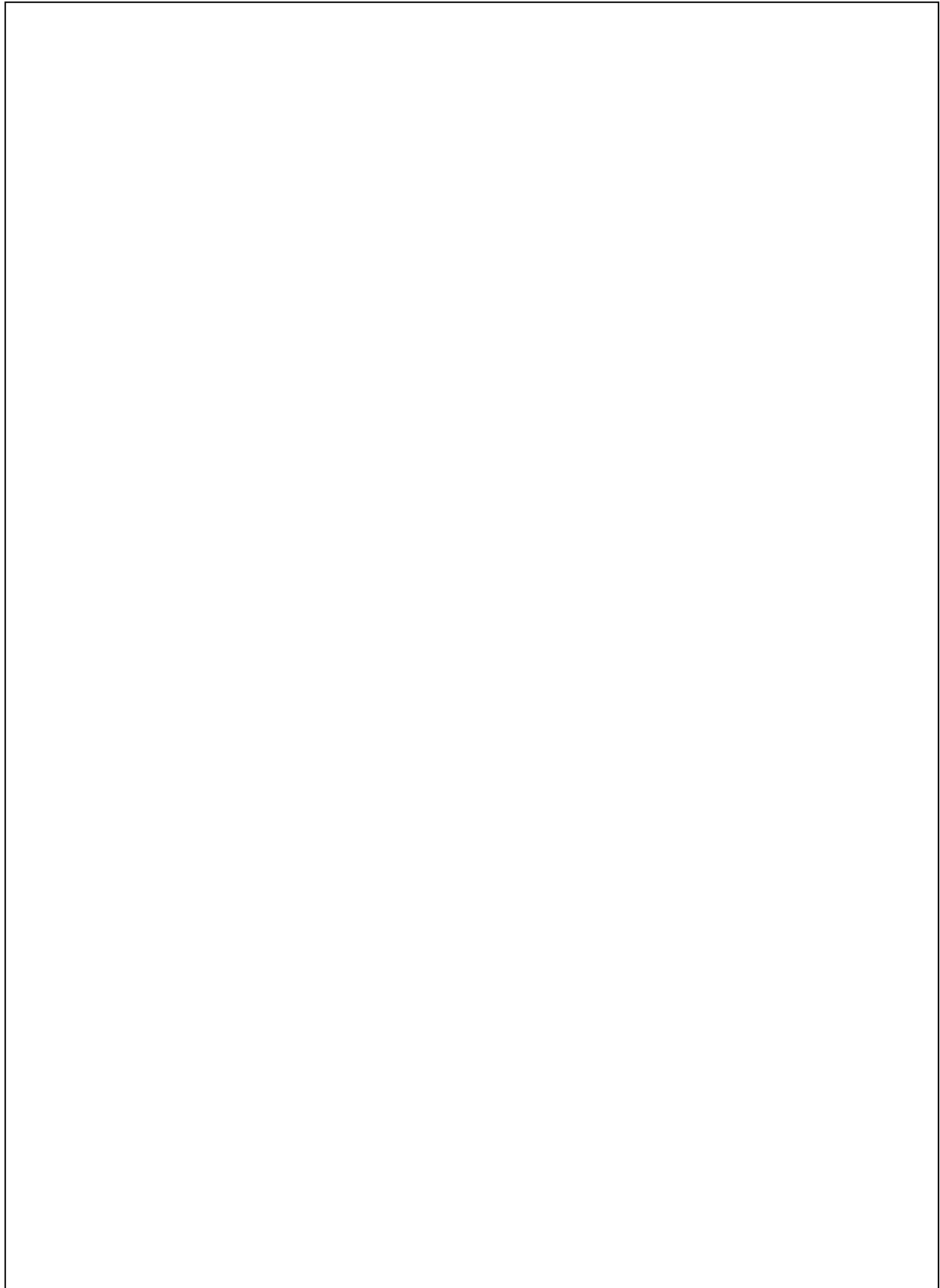
Reference Information	
Listing names indicates approval to contacting the named individuals as a reference.	
Reference Number 1	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	
Reference Number 2	
Name	
Title/ position	
Organization	
Telephone	
Email	
Project	
Candidate role on project	

Evaluation Criteria C:

Construction Management Plan and Construction Time

Table 9 – Construction Management Plan

Property Owner Management Plan
<p>Description: This Construction Management Plan outlines how the Offeror will manage Project. Major components include the Emergency Action Plan, Subcontractor Management Plan, Traffic and Erosion Control Plan, Property Owner Management and Notifications Plan, the Site Maintenance and Professionalism Agreement, and the Critical Path Method Schedule.</p>
<p>This plan will be used to evaluate the Offeror’s abilities to manage a complex project with many stakeholders. Refer to the Statement of Qualifications for explanations on what each narrative or section of the Construction Management Plan needs to include for minimum requirements.</p>
<p>Narrative:</p>



Site Maintenance and Professionalism Agreement

Reference Project: S. Elm Street Reconstruction

As an Offeror for the S. Elm Street Reconstruction Project, I agree to uphold and maintain the site cleanliness, professionalism, and respectfulness expected of my company and all subcontractors that will be performing work on-site.

All members of the construction team, while working on-site, are representatives of the entire project team. I acknowledge that we are performing construction activities adjacent to businesses and residential homes and that we are guests to the area.

I agree to maintain a clean site that is free of loose debris, trash, or other materials that could decrease the appearance of the area within reason. I agree to maintain site safety standards consistent with industry standards including, but not limited to, OSHA, TxDOT, and federal regulations.

I agree that all staff members from senior project managers to construction workers, including subcontractors, will maintain a high level of respect for all business owners, homeowners, and visitors to the area. I agree there will be no foul language by staff on-site or music containing explicit content.

I understand that failure to comply with this agreement may result in a change in behavior or action request, and removal of repeat offenders from the site. For any complaint that is received by a member of City Staff, City Staff will evaluate the complaint by discussing with the person providing the complaint and the person the complaint was directed at. Based on the complaint, an appropriate course of action will be established. The City will not approve any time delays associated with a change in behavior or action request or the removal of repeat offenders from the site.

Signature: _____

Title: _____

this the ____ day of _____, 20____

Table 10 – Construction Time

Construction Time	
Construction Milestone	Number of Calendar Days
Number of Days from NTP to Substantial Completion	
Number of Days from Substantial Completion to Final Acceptance	
Total Number of Contract Calendar Days	
Schedule Adherence Narratives	
1. Provide a narrative that demonstrates the Offeror's ability to complete projects on time.	
2. Provide up to two examples of projects where Offeror was able to exceed the Contract Time. Explain how the Offeror was able to accomplish this.	
1	
2	
3. Provide up to two examples of projects where owner expectations for schedule were not met and the lessons learned.	
1	
2	

Note to Offeror, do not forget to provide a Construction Schedule as part of the Evaluation Criteria C Submission. Refer to Statement of Qualifications.

Evaluation Criteria D:

Experience of Offeror with Similar Projects

Table 11 – Project Information for Similar Projects (Project 1)

Project Owner				Project Name			
General description of project and how this project meets the definition of similar project							
Project Budget and Schedule Performance							
Budget history				Schedule performance			
	Amount	% of Bid Amount				Date/Days	
Bid			Notice to Proceed Date				
Change orders			Contract Substantial Completion Days				
Owner Enhancements			Contract Days from Substantial Completion to Final Completion				
Unforeseen Conditions			Change Order Increase of Days (Total of Substantial and Final Completion Increase)				
Design Issues			Reason for Increase in Contract Days				
Total							
Final Cost			Actual / Estimated Final Completion Date				
Key Project Personnel							
		Project Manager		Project Superintendent	Safety Manager	Quality Control Manager	Project/Field Engineer
Name							
Percentage of time devoted to the project.							
Proposed for this project.							
Did Individual start and complete the project?							
If not, who started or completed the project in their place.							
Reason for change.							
Reference contact information (listing names indicates approval to contacting the named individuals as a reference)							
	Name	Title/ position	Organization		Telephone	Email	
Owner							
Designer							
Construction Manager							
Surety							
Issues / Disputes Resolved or Pending Resolution By Arbitration, Litigation or Dispute Review Boards							
Number of issues Resolved:		Total Dollar Amount Involved in Resolved Issues:		Number of Issues Pending:		Total Dollar Amount Involved in Resolved Issues:	

Statement of Qualifications

Evaluation Criteria D: Experience of Offeror with Similar Projects

Table 12 – Project Information for Similar Projects (Project 2)

Project Owner				Project Name			
General description of project and how this project meets the definition of similar project							
Project Budget and Schedule Performance							
Budget history				Schedule performance			
	Amount	% of Bid Amount				Date/Days	
Bid			Notice to Proceed Date				
Change orders			Contract Substantial Completion Days				
Owner Enhancements			Contract Days from Substantial Completion to Final Completion				
Unforeseen Conditions			Change Order Increase of Days (Total of Substantial and Final Completion Increase)				
Design Issues			Reason for Increase in Contract Days				
Total							
Final Cost			Actual / Estimated Final Completion Date				
Key Project Personnel							
		Project Manager		Project Superintendent	Safety Manager	Quality Control Manager	Project/Field Engineer
Name							
Percentage of time devoted to the project.							
Proposed for this project.							
Did Individual start and complete the project?							
If not, who started or completed the project in their place.							
Reason for change.							
Reference contact information (listing names indicates approval to contacting the named individuals as a reference)							
	Name	Title/ position	Organization		Telephone	Email	
Owner							
Designer							
Construction Manager							
Surety							
Issues / Disputes Resolved or Pending Resolution By Arbitration, Litigation or Dispute Review Boards							
Number of issues Resolved:		Total Dollar Amount Involved in Resolved Issues:		Number of Issues Pending:		Total Dollar Amount Involved in Resolved Issues:	

Table 13 – Project Information for Similar Projects (Project 3)

Project Owner				Project Name			
General description of project and how this project meets the definition of similar project							
Project Budget and Schedule Performance							
Budget history				Schedule performance			
	Amount	% of Bid Amount				Date/Days	
Bid			Notice to Proceed Date				
Change orders			Contract Substantial Completion Days				
Owner Enhancements			Contract Days from Substantial Completion to Final Completion				
Unforeseen Conditions			Change Order Increase of Days (Total of Substantial and Final Completion Increase)				
Design Issues			Reason for Increase in Contract Days				
Total							
Final Cost			Actual / Estimated Final Completion Date				
Key Project Personnel							
		Project Manager		Project Superintendent	Safety Manager	Quality Control Manager	Project/Field Engineer
Name							
Percentage of time devoted to the project.							
Proposed for this project.							
Did Individual start and complete the project?							
If not, who started or completed the project in their place.							
Reason for change.							
Reference contact information (listing names indicates approval to contacting the named individuals as a reference)							
	Name	Title/ position	Organization		Telephone	Email	
Owner							
Designer							
Construction Manager							
Surety							
Issues / Disputes Resolved or Pending Resolution By Arbitration, Litigation or Dispute Review Boards							
Number of issues Resolved:		Total Dollar Amount Involved in Resolved Issues:		Number of Issues Pending:		Total Dollar Amount Involved in Resolved Issues:	

Table 14 – Project Information for Similar Projects (Project 4)

Project Owner				Project Name			
General description of project and how this project meets the definition of similar project							
Project Budget and Schedule Performance							
Budget history				Schedule performance			
	Amount	% of Bid Amount				Date/Days	
Bid			Notice to Proceed Date				
Change orders			Contract Substantial Completion Days				
Owner Enhancements			Contract Days from Substantial Completion to Final Completion				
Unforeseen Conditions			Change Order Increase of Days (Total of Substantial and Final Completion Increase)				
Design Issues			Reason for Increase in Contract Days				
Total							
Final Cost			Actual / Estimated Final Completion Date				
Key Project Personnel							
		Project Manager		Project Superintendent	Safety Manager	Quality Control Manager	Project/Field Engineer
Name							
Percentage of time devoted to the project.							
Proposed for this project.							
Did Individual start and complete the project?							
If not, who started or completed the project in their place.							
Reason for change.							
Reference contact information (listing names indicates approval to contacting the named individuals as a reference)							
	Name	Title/ position	Organization		Telephone	Email	
Owner							
Designer							
Construction Manager							
Surety							
Issues / Disputes Resolved or Pending Resolution By Arbitration, Litigation or Dispute Review Boards							
Number of issues Resolved:		Total Dollar Amount Involved in Resolved Issues:		Number of Issues Pending:		Total Dollar Amount Involved in Resolved Issues:	

Table 15 – Project Information for Similar Projects (Project 5)

Project Owner				Project Name			
General description of project and how this project meets the definition of similar project							
Project Budget and Schedule Performance							
Budget history				Schedule performance			
	Amount	% of Bid Amount				Date/Days	
Bid			Notice to Proceed Date				
Change orders			Contract Substantial Completion Days				
Owner Enhancements			Contract Days from Substantial Completion to Final Completion				
Unforeseen Conditions			Change Order Increase of Days (Total of Substantial and Final Completion Increase)				
Design Issues			Reason for Increase in Contract Days				
Total							
Final Cost			Actual / Estimated Final Completion Date				
Key Project Personnel							
		Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	Project/Field Engineer	
Name							
Percentage of time devoted to the project.							
Proposed for this project.							
Did Individual start and complete the project?							
If not, who started or completed the project in their place.							
Reason for change.							
Reference contact information (listing names indicates approval to contacting the named individuals as a reference)							
	Name	Title/ position	Organization	Telephone	Email		
Owner							
Designer							
Construction Manager							
Surety							
Issues / Disputes Resolved or Pending Resolution By Arbitration, Litigation or Dispute Review Boards							
Number of issues Resolved:		Total Dollar Amount Involved in Resolved Issues:		Number of Issues Pending:		Total Dollar Amount Involved in Resolved Issues:	

Evaluation Criteria E:

Project Resources; Subcontractors, and Suppliers; and Project Safety

Table 16 – Summary of Project Resources

Summary of Project Resources	
What work will the Offeror complete using its own resources?	
What work does the Offeror propose to subcontract on this project?	
Estimate of the amount of the Project that will be performed using in-house resources. _____% of the total project value.	Estimate of the amount of the Project that will be performed by Subcontractors and Suppliers. _____% of the total project value.

Table 17 – Project Subcontractor Summary

Project Subcontractors				
1. Provide a list of subcontractors				
	Subcontractor Company Name	Work to Be Provided	Est. Percent of Contract	HUB/MWBE Firm
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
2. List up to two Key Personnel who have prior experience working with each of the Subcontractors listed above.				
	Subcontractor Company Name	Key Personnel(s) Who's Worked with Subcontractor	Years of Experience Working Together	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Table 18 – Decorative Concrete Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
<p>(This section is optional)</p> <p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Landscape/Irrigation Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
<p>(This section is optional)</p> <p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Masonry Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
(This section is optional)	
<p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Steel Fabricator Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
(This section is optional)	
<p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Water and Sewer Line Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
<p>(This section is optional)</p> <p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Communication Duct Bank and Electrical Conduit Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
(This section is optional)	
<p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Structural (Bridge, Wall, Headwall, and Illumination Foundations) Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
(This section is optional)	
<p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p> <p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p> <p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 18 – Additional Subcontractor

Subcontractor Information	
Company Name	
Address of Office Providing Service	
Construction Experience	
Years of Experience:	
Years of experience in projects similar to the proposed project:	
(This section is optional)	
<p>Provide narrative information for up to 3 similar projects that have been constructed in the last 5 years. Include name of project, project location, brief project description for the services your company provided, and dollar amount associated with the services.</p>	
<p>1.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	
<p>2.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	
<p>3.</p> <p>Reference (Contact Name, Phone Number, Email):</p>	

Table 19 – Project Suppliers

Project Suppliers				
Provide a list of major equipment and materials proposed for use on this project. Attach additional information if necessary.				
Supplier name	Equipment / Material Provided	Furnish Only	Furnish & Install	HUB/MWBE firm

SAFETY RECORD QUESTIONNAIRE

The Owner desires to consider the safety records of potential contractors prior to awarding a proposal on this contract. The Owner uses the following written definition and criteria for accurately determining the safety record of a proposer prior to awarding a proposal on this contract.

The definition and criteria for determining the safety record of a proposer for this consideration shall be:

The Owner shall consider the safety record of the offerors in determining the responsibility thereof. The Owner may consider any incidence involving worker safety or safety of the public, be it related or caused by environmental, mechanical, operational, supervision or any other cause or factor. Specifically, the Owner may consider, among other things:

- a. Complaints to, or final orders entered by, the Occupational Safety and Health Review Commission (OSHRC), against the proposer for violations of OSHA regulations within the past three (3) years.
- b. Citations (as defined below) from an Environmental Protection Agency (as defined below) for violations within the past five (5) years. Environmental Protection Agencies include, but are not necessarily limited to, the U.S. Army Corps of Engineers (USACOE), the U.S. Fish and Wildlife Service (USFWS), the Environmental Protection Agency (EPA), the Texas Commission on Environmental Quality (TCEQ), the Texas Natural Resource Conservation Commission (TNRCC) (predecessor to the TCEQ), the Texas Department of State Health Services (DSHS), the Texas Parks and Wildlife Department (TPWD), the Structural Pest Control Board (SPCB), agencies of local governments responsible for enforcing environmental protection or worker safety related laws or regulations, and similar regulatory agencies of other states of the United States. Citations include notices of violation, notices of enforcement, suspension/revocations of state or federal licenses or registrations, fines assessed, pending criminal complaints, indictments, or convictions, administrative orders, draft orders, final orders, and judicial final judgments.
- c. Convictions of a criminal offense within the past ten (10) years, which resulted in bodily harm or death.
- d. Any other safety related matter deemed by the Owner to be material in determining the responsibility of the offeror and his or her ability to perform the services or goods required by the proposal documents in a safe environment, both for the workers and other employees of offeror and the public.

In order to obtain proper information from offerors so that the Owner may consider the safety records of potential contractors prior to awarding a proposal on this contract, the Owner requires that offerors answer the following four (4) questions and submit them with their proposals:

QUESTION ONE

Has the offeror, or the firm, corporation, partnership, or institution represented by the offeror, or anyone acting for such firm, corporation, partnership or institution, received citations for violations of OSHA within the past three (3) years?

YES _____ NO _____

If the offeror has indicated YES for question number one above, the offeror must provide to City of Keller, with its proposal submission, the following information with respect to each such citation:

Date of offense, location of establishment inspected, category of offense, final disposition of offense, if any, and penalty assessed.

_____ Offeror's Initials

QUESTION TWO

Has the offeror, or the firm, corporation, partnership, or institution represented by the offeror, or anyone acting for such firm, corporation, partnership or institution, received citations for violations of environmental protection laws or regulations, of any kind or type, within the past five years? Citations include notice of violation, notice of enforcement, suspension/revocations of state or federal licenses, or registrations, fines assessed, pending criminal complaints, indictments, or convictions, administrative orders, draft orders, final orders, and judicial final judgments.

YES _____ NO _____

If the offeror has indicated YES for question number two above, the offeror must provide to City of Keller, with its proposal submission, the following information with respect to each such conviction:

Date of offense or occurrence, location where offense occurred, type of offense, final disposition of offense, if any, and penalty assessed.

QUESTION THREE

Has the offeror, or the firm, corporation, partnership, or institution represented by offeror, or anyone acting for such firm, corporation, partnership, or institution, ever been convicted, within the past ten (10) years, of a criminal offense which resulted in serious bodily injury or death?

YES _____ NO _____

If the offeror has indicated YES for question number three above, the offeror must provide to City of Keller, with its proposal submission, the following information with respect to each such conviction:

Date of offense, location where offense occurred, type of offense, final disposition of offense, in any, and penalty assessed.

QUESTION FOUR

Provide your company's Experience Modification Rate, for the past three years and supporting information:

2020 to 2021 _____
2019 to 2020 _____
2018 to 2019 _____

ACKNOWLEDGEMENT

THE STATE OF TEXAS

COUNTY OF TARRANT

I certify that I have made no willful misrepresentations in this Questionnaire nor have I withheld information in my statements and answers to questions. I am aware that the information given by me in this questionnaire will be investigated, with my full permission, and that any misrepresentations or omissions may cause my proposal to be rejected.

Signature

Title

Title Page

Miscellaneous Bidding Documents

VENDOR COMPLIANCE TO STATE LAW

The 1985 Session of the Texas Legislature passed House Bill 620 relative to the award of contracts to non-resident bidders. This law provides that, in order to be awarded a contract as low bidder, non-resident bidders (out-of-state contractors whose corporate offices or principal place of business are outside of the state of Texas) bid projects for construction, improvements, supplies or services in Texas at an amount lower than the lowest Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a non-resident bidder in order to obtain a comparable contract in the state in which the non-resident's principal place of business is located. The appropriate blanks in Section A must be filled out by all out-of-state or non-resident contractors to do so will automatically disqualify that bidder. Resident bidders must check the blank in Section B.

- A. Non-resident vendors in _____ (give state), our principal place of business, are required to be percent lower than resident bidders by state law. A copy of the statute is attached.
- B. _____ Our Principal place of business or corporate offices are in the State of Texas.

BIDDER:

_____ By: _____

Address Signature: _____

City State Zip Title: _____

THIS FORM MUST BE RETURNED WITH YOUR BID

CONTRACTOR COMPLIANCE TO TEXAS SALES TAX CODE

Comply with all requirements of the Texas Sales Tax Code. The Contractor hereby certifies that the Contract Amount is divided as follows:

Material incorporated into the Project (Resold to the Owner as defined in Tax Code) \$ _____

All other charges and costs \$ _____

Total * \$ _____

* The total must equal the total amount of the Contract:

CONTRACTOR:

By: _____
(signature of authorized person)

Address

Signature: _____

City

State

Zip

Title: _____

THIS FORM MUST BE RETURNED WITH YOUR BID

CONFLICT OF INTEREST QUESTIONNAIRE

Pursuant to Chapter 176 of the Texas Local Government Code, a person, or agent of a person, who contracts or seeks to contract for the sale or purchase of property, goods, or services with the City of Keller must file a completed conflict of interest questionnaire. The conflict of interest questionnaire must be filed with the City of Keller no later than the seventh business day after the person or agent begins contract discussions or negotiations with the City of Keller or submits to the City of Keller an application, response to a request for proposal or bid, correspondence, or another writing related to a potential agreement with the City of Keller. An updated conflict of interest questionnaire must be filed in accordance with Chapter 176 of the Local Government Code. An offense under Chapter 176 is a Class C misdemeanor.

The Conflict of Interest Questionnaire is included as part of this document and can be found at:

<https://www.ethics.state.tx.us/forms/CIQ.pdf>

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

FORM CIQ

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

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

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

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

OFFICE USE ONLY

Date Received

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

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

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

Name of Officer

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

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

Yes No

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

Yes No

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

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

7

Signature of vendor doing business with the governmental entity

Date

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor doing business with local governmental entity

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

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

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

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

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
- or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

Pursuant to Chapter 176 of the Texas Local Government Code, a person, or agent of a person, who contracts or seeks to contract for the sale or purchase of property, goods, or services with the City of Keller must file a completed local government officer conflicts disclosure statement when applicable. If required, the questionnaire must be filed with the City of Keller no later than the seventh business day after the person or agent begins contract discussions or negotiations with the City of Keller or submits to the City of Keller an application, response to a request for proposal or bid, correspondence, or another writing related to a potential agreement with the City of Keller.

The Conflict of Interest Questionnaire is included as part of this document and can be found at:

<https://www.ethics.state.tx.us/forms/CIS.pdf>

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

(Instructions for completing and filing this form are provided on the next page.)

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

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 Name of Local Government Officer

2 Office Held

3 Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code

4 Description of the nature and extent of each employment or other business relationship and each family relationship with vendor named in item 3.

5 List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds \$100 during the 12-month period described by Section 176.003(a)(2)(B).

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 AFFIDAVIT

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day
of _____, 20 _____, to certify which, witness my hand and seal of office.

Signature of officer administering oath

Printed name of officer administering oath

Title of officer administering oath

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

Section 176.003 of the Local Government Code requires certain local government officers to file this form. A "local government officer" is defined as a member of the governing body of a local governmental entity; a director, superintendent, administrator, president, or other person designated as the executive officer of a local governmental entity; or an agent of a local governmental entity who exercises discretion in the planning, recommending, selecting, or contracting of a vendor. This form is required to be filed 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 this statement.

A local government officer commits an offense if the officer knowingly violates Section 176.003, Local Government Code. An offense under this section is a misdemeanor.

Refer to chapter 176 of the Local Government Code for detailed information regarding the requirement to file this form.

INSTRUCTIONS FOR COMPLETING THIS FORM

The following numbers correspond to the numbered boxes on the other side.

- 1. Name of Local Government Officer.** Enter the name of the local government officer filing this statement.
- 2. Office Held.** Enter the name of the office held by the local government officer filing this statement.
- 3. Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code.** Enter the name of the vendor described by Section 176.001(7), Local Government Code, if the vendor: a) has an 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), Local Government Code; b) has given to the local government officer or a family member of the officer one or more gifts as described by Section 176.003(a)(2)(B), Local Government Code; or c) has a family relationship with the local government officer as defined by Section 176.001(2-a), Local Government Code.
- 4. Description of the nature and extent of each employment or other business relationship and each family relationship with vendor named in item 3.** Describe the nature and extent of the employment or other business relationship the vendor has with the local government officer or a family member of the officer as described by Section 176.003(a)(2)(A), Local Government Code, and each family relationship the vendor has with the local government officer as defined by Section 176.001(2-a), Local Government Code.
- 5. List gifts accepted, if the aggregate value of the gifts accepted from vendor named in item 3 exceeds \$100.** List gifts accepted during the 12-month period (described by Section 176.003(a)(2)(B), Local Government Code) by the local government officer or family member of the officer from the vendor named in item 3 that in the aggregate exceed \$100 in value.
- 6. Affidavit.** Signature of local government officer.

Local Government Code § 176.001(2-a): "Family relationship" means a relationship between a person and another person within the third degree by consanguinity or the second degree by affinity, as those terms are defined by Subchapter B, Chapter 573, Government Code.

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

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

VERIFICATION REQUIRED BY TEXAS GOVERNMENT CODE CHAPTER 2270

Contract identifier: _____
Department: _____

By signing below, Company hereby verifies the following:

1. Company does not boycott Israel; and
2. Company will not boycott Israel during the term of the contract.

SIGNED BY: _____

Print Name of Person: _____
Signing, Title, and Company _____

Date signed: _____

STATE OF TEXAS §
COUNTY OF _____ §

BEFORE ME, the undersigned Notary Public on this day personally appeared _____(Name), on behalf of _____ (Company) who being duly sworn, stated under oath that he/she has read the foregoing verification required by Texas Government Code Section 2270.002 and said statements contained therein are true and correct..

SWORN AND SUBSCRIBED TO before me, this _____ day of _____, 20____.

NOTARY OF PUBLIC,
FOR THE STATE OF TEXAS

My Commission Expires:

Government Code § 2270.002. Provision Required in Contract
Effective: September 1, 2017

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

- (1) does not boycott Israel; and
- (2) will not boycott Israel during the term of the contract.

The following definitions apply:

(1) "Boycott Israel" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

(2) "Company" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company, or affiliate of those entities or business associations that exists to make a profit.

(3) "Governmental entity" means a state agency or political subdivision of this state.

State law requires verification from a Company for contracts involving goods or services (regardless of the amount) before the City can enter into the contract.

INSTRUCTIONS FOR COMPLETION OF SF-LLL, 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; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include 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. (a) 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

OMB Control Number: 4040-0013

Expiration Date: 2/28/2022

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

1. * Type of Federal Action: <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. * Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. * Report Type: <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------

4. Name and Address of Reporting Entity:
 Prime SubAwardee

* Name

* Street 1 Street 2

* City State Zip

Congressional District, if known:

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency: <input type="text"/>	7. * Federal Program Name/Description: <input type="text"/>
	CFDA Number, if applicable: <input type="text"/>

8. Federal Action Number, if known: <input type="text"/>	9. Award Amount, if known: \$ <input type="text"/>
--------------------------------------------------------------------	--------------------------------------------------------------

10. a. Name and Address of Lobbying Registrant:

Prefix * First Name Middle Name

* Last Name Suffix

* Street 1 Street 2

* City State Zip

b. Individual Performing Services (including address if different from No. 10a)

Prefix * First Name Middle Name

* Last Name Suffix

* Street 1 Street 2

* City State Zip

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 the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* Signature:

* Name: Prefix * First Name Middle Name
* Last Name Suffix

Title: Telephone No.: Date:

DISADVANTAGED BUSINESS ENTERPRISES PROJECT REQUIREMENTS

PROJECT: For the reconstruction of S. Elm Street from Bear Creek Parkway to FM1709 (Keller Parkway) including portions of side-streets.

County: Tarrant

The following goal for disadvantaged business enterprises is established:

DBE Goal: 0%

Certification of DBE Goal Attainment

By signing the proposal, the Offeror certifies that the above DBE goal will be met by obtaining commitments equal to or exceeding the DBE percentage or that the Bidder will provide a good faith effort to substitute the attempt to meet the goal.

Failure to provide commitments to meet the stated goal or provide a satisfactory good faith effort will be considered a breach of the requirements of the proposal. As a result, the bid proposal guarantee of the Bidder will be property of the City of Keller and the Offeror will be excluded for rebidding on the project when it is re-advertised.

CONTRACTOR'S ASSURANCE

(Subcontracts-Federal Aid Projects)

By signing this proposal the contractor is giving assurances that all subcontract agreements of \$10,000 or more on this project will incorporate the following:

- | | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Special Provision | "Certification of Nondiscrimination in Employment" |
| Special Provision | "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity" (Executive Order 11246) |
| Special Provision | "Standard Federal Equal Employment Opportunity Construction Contract Specifications" (Executive Order 11246) |
| Form FHWA 1273 | "Required Contract Provisions Federal-aid Construction Contracts"
(Form FHWA 1273 must also be physically attached to subcontracts and purchase orders of \$10,000 or more) |
| Applicable | "Wage Determination Decision" |

Also, by signing this proposal the contractor is giving assurances that all subcontract agreements will incorporate the Standard Specification and Special Provisions.

CHILD SUPPORT STATEMENT

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

**CITY OF KELLER
ACKNOWLEDGEMENT OF INSURANCE REQUIREMENTS**

I acknowledge that by submitting a bid for this project, I am aware of the insurance requirements outlined in these specifications. If I am awarded the bid, I will comply with all insurance requirements within 10 working days of the bid award, including providing proof that I have insurance which may include, but not be limited to, true and accurate copies of the policies. If I fail to forward all insurance requirements within the 10 working days of the award of the bid, I understand my bid bond will be forfeited.

Signature

Printed name

Name of Company: _____

Address of Company: _____

City, State & Zip: _____

Telephone Number: () _____ Date: _____

****THIS PAGE MUST BE COMPLETED OR BID WILL BE REJECTED****

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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

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

PRODUCER	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL: ADDRESS:
	INSURER(S) AFFORDING COVERAGE NAIC #
	INSURER A :
INSURED	INSURER B :
	INSURER C :
	INSURER D :
	INSURER E :
	INSURER F :

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

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

INSR LTR	TYPE OF INSURANCE	ADDL	SUBR	INSR	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR <hr/> GENL AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC								EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ \$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS								COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$								EACH OCCURRENCE \$ AGGREGATE \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N If yes, describe under DESCRIPTION OF OPERATIONS below				N/A				WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

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

CERTIFICATE HOLDER

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

The State of Texas

County of: _____

CERTIFICATION OF ABSENCE OF SUSPENSION, DEBARMENT,
VOLUNTARY EXCLUSION OR DETERMINATION OF ELIGIBILITY

The undersigned bidder, under penalty or perjury under the laws of the United States or the State of Texas, certifies that, except as noted herein, the bidder's firm and all persons associated therewith in the capacity of owner, partner, stockholder, director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of any part of the firm's operations:

1. are currently suspended, debarred, or voluntarily excluded from or determined to be ineligible for bidding by any federal agency;
2. have not been suspended, debarred, voluntarily excluded from or determined to be ineligible for bidding by any federal agency within the past 3 years;
3. do not have a proposed debarment pending with any federal agency, and
4. have not been indicted, convicted, or had a civil judgement rendered against it or any person indicated above by a court of competent jurisdiction in any manner involving fraud or official misconduct within the past 3 years.

All exceptions to the above are recorded in the following space:

The undersigned bidder understands that exceptions will not necessarily preclude the insurance of a bidding proposal or result in the denial of award of the contract for a federally-funded project. It is also understood that exceptions will be carefully reviewed by the department and by the Federal Highway Administration and may result in rejection of the bid proposal and suspension and debarment of the contractor pursuant to 43 Texas Administrative Code (TAC) Section 9.6, Procedure for Debarment of a Contractor, to 43 TAC Section 9.7, Procedure for Suspension of a Contractor, to 43 TAC Section 9.8, Supplemental Procedures for Suspension or Debarment of a Contractor, and/or Debarment and Suspension (Non-Procurement) 49 CFR Part 29 (1987).

For any exception noted, the following information explains to whom it applies, the initiating agency, and the dates of action.

The undersigned bidder understands that providing false information may result in criminal prosecution or administrative sanctions.

Print Firm Name

Signature / Title

Date

Before me, the undersigned authority, a Notary Public, on this day personally appeared

_____ who, being by me duly sworn, upon oath says that she/he is qualified and authorized to make affidavit for and behalf of _____ bidder, of _____ County, and is fully cognizant of the facts herein set out and affirms to the truth and accuracy of the certifications made herein by signing the document above this _____ day of _____ 20_____.

Notary Public

POLICY OF NON-DISCRIMINATION ON THE BASIS OF HANDICAPPED STATUS

_____ does not discriminate on the basis of
(Name of Company)

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

The following person has been designated to coordinate compliance with the non-discrimination requirements contained in the Department of Housing and Urban Developments regulations implementing Section 504 (24 CFR Part 8, dated June 2, 1988)

Name

Address

City

State

Zip

Telephone Number:

() _____

ACKNOWLEDGEMENT OF FRONTIER CONSTRUCTION CONTRACT

I acknowledge that by submitting a bid for this project, I am aware of the draft form of the "Agreement Between the City of Keller and Frontier Communications Governing the S. Elm St Reconstruction Project". As part of this Agreement, there are requirements for the Contractor. If I am awarded the bid, I will comply with all requirements for the City's Contractor within the Agreement between the City and Frontier.

Signature

Printed Name

Name of Company: _____

Address of Company: _____

City, State, & Zip Code: _____

Telephone Number: (_____) _____

Date: _____

STANDARD FORM OF AGREEMENT

Between the City of Keller and Frontier Communications

THIS AGREEMENT is dated as of the _____ day of _____

in the year 20____ by and between the City of Keller, TX (hereinafter called CITY) and

Frontier Communications Inc (hereinafter called FRONTIER).

CITY and FRONTIER, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. PROJECT DESCRIPTION.

The CITY has completed 90% design on the S. Elm St Reconstruction project. The CITY will advertise for construction in May 2024. Major project components include reconstruction and widening the existing asphalt roadway from 2-lanes to 2-lanes with on-street parking and sidewalk. A new underground storm system will be installed and the water and sanitary sewer lines will be relocated and replaced.

The CITY has determined that it will be necessary to relocate all overhead wires and poles within the S. Elm St corridor including communication and electric. It has been determined that due to space constraints all overhead and underground communications lines be consolidated into a joint duct bank.

Article 2. WORK.

The CITY's CONTRACTOR will install a joint duct bank to accommodate FRONTIER and other communication lines. The CITY's CONTRACTOR will be responsible for installing the duct bank, AS DESIGNED OF PVC conduit SCHED 40 FOR CONDUIT RUN PARALLELING THE ROADWAYS, AND SCHED 80 FOR ALL CROSSINGS OF ROADWAYS (laterals), and place handholes/ground boxes as shown on the construction plans. The CITY's CONTRACTOR will also be responsible for removing or abandoning FRONTIER's existing conduit, manholes, and handholes. If FRONTIER wants to salvage any existing equipment, it is FRONTIER's responsibility to salvage.

FRONTIER shall supply and install all other materials and equipment, including all connections and associated splicing for a complete and operable underground utility system.

FRONTIER will cut-over and transfer existing customers to the new underground utility system and remove their existing overhead wires/conductors and service connections (including any FRONTIER owned poles) within the S. Elm St corridor. FRONTIER will install service poles as needed along S. Elm St to connect the new underground system to existing customers served overhead. THE CITY'S CONTRACTOR WILL PLACE CONDUIT STUB UP'S AT THE NEW FRONTIER SERVICE POLE LOCATIONS THAT WILL BE STAKED IN THE FIELD PRIOR TO JOINT TRENCH WORK IS TO BEGIN.

Article 3. CONSTRUCTION PLANS AND SPECIFICATIONS.

The 90% Construction Plans were provided to FRONTIER on March 11, 2024. The final construction plans and specifications are scheduled to be completed and provided to FRONTIER on April 29, 2024.

The 90% construction plans provided information for:

- the horizontal and vertical location of the communication duct bank,
- proposed laterals based on subsurface utility exploration information, and
- size and type of handholes.

FRONTIER will provide prior to construction advertising final information for:

- additional laterals,
- additional handholes/ground boxes,
- number of duct bank conduits needed, and
- location of overhead service poles.

Article 4. CONSTRUCTION SCHEDULE.

The CITY's will provide FRONTIER with a construction schedule prepared by the CITY's CONTRACTOR. The construction schedule will generally show an estimated timeframe for starting and completing the construction of the communication duct bank, conduits, and handholes. FRONTIER will be allotted a minimum of 120 days (4 months) and a maximum of 180 days (6 months) to construct their improvements. FRONTIER'S CONSTRUCTION SCHEDULE BEGINS ONCE THE NEW JOINT CONDUIT SYSTEM HAS BEEN COMPLETED BY THE CITY'S CONTRACTOR, PULL STRINGS PLACED, AND HAS PASSED FRONTIER INSPECTIONS BY A FRONTIER OSP ENGINEERING INSPECTOR. ALL FRONTIER R.O.W. PERMITTING MUST APPROVED

FRONTIER shall provide any comments to the CITY within five (5) days of receipt. Upon receipt of any comments from FRONTIER, the CITY will provide the comments to the CITY's CONTRACTOR.

The CITY's CONTRACTOR will notify FRONTIER at least three (3) weeks prior to starting construction. The CITY's CONTRACTOR will provide updates every (2) weeks to FRONTIER regarding construction status. The CITY's CONTRACTOR will notify FRONTIER when FRONTIER laterals and handholes are being installed in the event FRONTIER requires a representative to be on-site to monitor construction activities.

The CITY's CONTRACTOR will notify FRONTIER at least four (4) weeks prior to completing construction of the duct bank, conduit, and handholes.

Article 5. COST.

5.1. CITY AND FRONTIER COSTS

The parties acknowledge that Frontier's costs to underground its facilities and establish service to customers as described in this agreement would be the same or less than its costs to aerially relocate the same.

The CITY will pay to construct the improvements specified in the construction plans including the duct bank, PVC conduit, and handholes/ground boxes. No pay will be given to FRONTIER by the CITY.

FRONTIER will pay to construct improvements necessary for a complete and operable system and provide service to customers. No pay will be given by FRONTIER to the CITY.

Both parties agree to perform their services at their own cost. No payment will be given between parties.

5.2. ADDITIONAL COSTS DURING CONSTRUCTION

FRONTIER to submit any design revision requests to the CITY. The CITY will coordinate with the CITY's CONTRACTOR to obtain a price to change order in the revisions. The CITY will inform FRONTIER of the change order price. FRONTIER will have forty-eight (48) hours to accept the change order price and authorize the construction. If FRONTIER does not respond within the specified timeframe, the change order will be withdrawn.

5.3. CLAIMS BY CITY'S CONTRACTOR

FRONTIER agrees to pay the cost of any claim made by the CITY's CONTRACTOR that is determined by the CITY AND FRONTIER ENGINEERING to be due to FRONTIER. These claims may include, but are not limited to, delays due to FRONTIER and FRONTIER not completing their work as outlined in this agreement.

Article 6. RESPONSIBILITIES OF THE CITY

6.1. CITY'S CONTRACTOR DUTIES:

The CITY's CONTRACTOR shall construct the duct bank, conduit, handholes, and other improvements designated on the construction plans per the construction plans AND APPROVED BY FRONTIER INSPECTORS

6.2. COORDINATION WITH FRONTIER:

The CITY's CONTRACTOR will host regularly scheduled meetings at the construction site trailer and will invite FRONTIER to attend starting at four (4) weeks prior to starting construction of the communication duct bank. The CITY's CONTRACTOR will also have an on-site representative available during designated office hours in the construction site trailer. FRONTIER may meet with the CONTRACTOR during that time as needed.

Article 7. RESPONSIBILITIES OF FRONTIER

7.1. PRE-CONSTRUCTION PHASE:

FRONTIER will provide a utility design and final information per Article 3.

7.2. CONSTRUCTION PHASE:

7.2.1 FRONTIER's responsibilities during the construction phase include the following:

1. Attend a Preconstruction Meeting with the CITY, CITY's CONTRACTOR, and ENGINEER.
2. Construct improvements necessary for a complete and operable system and provide service to customers as described in Article 1 and Article 2.
3. Maintain continued coordination with the CITY and the CITY's CONTRACTOR regarding the installation of FRONTIER's construction activities.
4. Complete construction with the timeframe given at the time FRONTIER's construction activities start.
5. Provide an inspector on-site within one (3) working day's notice to inspect the installation and placement of the duct bank, conduit, and handholes. FRONTIER's inspector shall not direct the CITY's CONTRACTOR. The FRONTIER inspector shall communicate all requests to the CITY. IN THE EVENT THAT THE CITY'S REPRESENTATIVE DOES NOT RELAY THE INFORMATION IN A TIMELY MATTER, OR WITH EXPECTED ACCURACY TO THE CITY'S CONTRACTOR, FRONTIER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAY FEES SUBMITTED BY THE CITY OR CITY'S CONTRACTOR AS A RESULT IN THE SHARING OF THAT INFORMATION. ALL CHANGES TO SCHEDULE OR PHASES WILL BE COMMUNICATED IN WRITING.
6. Frontier shall provide the CITY with written notification of any deficiencies regarding the installation of conduit or handhole within one (4 3) working day of FRONTIER's inspection. If FRONTIER does not provide written notification within the specified timeframe, the duct bank, conduit, and handholes will be considered complete and accepted by FRONTIER. Electronic mail will be considered written notification.
7. Upon completion of the duct bank, conduit, and handholes, the CITY will issue a Notice to proceed to FRONTIER. FRONTIER may then begin constructing their improvements.
 - a. FRONTIER will need to construct improvements while other utility companies and the CITY's CONTRACTOR work in the area.
 - b. FRONTIER will be given reasonable access to their existing system and the new underground system.
8. FRONTIER will place any service poles or service equipment in a location mutually agreed upon by the CITY and FRONTIER. Where possible, all service poles and equipment will be placed at the right-of-way line and out of limits of proposed sidewalk or other improvements.
9. FRONTIER will notify the CITY in writing once their construction activities are complete and when the CITY's CONTRACTOR may begin removing existing materials. This notification will serve as FRONTIER's acceptance of the underground system.
10. Where FRONTIER is prevented from completing construction within the allotted timeframe (refer to Article 4) due to delay beyond the control of FRONTIER, the schedule will be extended in an equal amount to the time lost due to such a delay. Delays beyond the control of FRONTIER shall include, but not be limited to, acts or neglect by the CITY, fires, floods, epidemics, abnormal weather conditions, or acts of God.

7.3. TRAFFIC CONTROL:

FRONTIER will provide their own traffic control devices in accordance with the MUTCD. FRONTIER will coordinate their traffic control with other utility companies and the CITY's CONTRACTOR.

If the CITY's CONTRACTOR has adequate traffic control devices in place for FRONTIER to perform construction activities, FRONTIER does not need to provide traffic control.

Article 8. FRONTIER'S ACCEPTANCE AND MAINTENANCE

FRONTIER will maintain its facilities including without limitation their conduits within the duct bank, lateral conduits, handholes, and any other equipment installed as part of this project. The cost of any future improvements, maintenance, repairs, or corrections to any utility facilities constructed as part of this project will be the exclusive responsibility of FRONTIER.

Article 9. DISPUTE RESOLUTION

9.1 Should a dispute arise between the CITY and FRONTIER, the following steps will be taken:

1. The complaining party will provide written notification to the other party. Written notification will include an explanation of the dispute including supporting documentation. The notice shall be given within 30 days of the event/disagreement.
2. The CITY and FRONTIER will work to resolve the dispute through meetings and coordination.
3. If the CITY and FRONTIER are unable to find a resolution, then either party may exercise such rights or remedies as either may otherwise have by Laws or Regulations in respect of any dispute.

Article 10. INSURANCE

Article 11. MISCELLANEOUS

10.1 In addition to this Agreement, FRONTIER understand, acknowledges, and agrees to all requirements part of Keller's Unified Development Code and State Code for franchise utility companies within CITY right-of-way. FRONTIER will also comply with all requirements in the franchise agreement between the CITY and FRONTIER. In the event of a conflict between this Agreement and other documents, this Agreement will take precedence except where it conflicts with State Code. State Code governs.

10.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law) and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.3. CITY and FRONTIER each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal

representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, CITY and FRONTIER have signed this Agreement in duplicate. One counterpart each has been delivered to CITY and FRONTIER.

This Agreement will be effective on _____, 20_____.

CITY

FRONTIER

City of Keller, Texas

By _____

By _____

(CORPORATE SEAL)

(CORPORATE SEAL)

Attest _____

Attest _____

Address for giving notices:

1100 Bear Creek Parkway
P.O. Box 770

Address for giving notices:

Keller, TX 76244

STANDARD FORM OF AGREEMENT

STATE OF TEXAS §
 §
COUNTY OF TARRANT §

THIS AGREEMENT is dated as of the _____ day of _____
in the year 20____ by and between the City of Keller, TX (hereinafter called OWNER) and
_____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

S. Elm Street Reconstruction

The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

S. Elm Street Reconstruction

Article 2. ENGINEER.

The Project has been designed by:

Sam Fries, P.E.
100 W. Oak Street, Suite 203
Denton, Texas 76201

Sam Fries is hereinafter called ENGINEER and is to act as OWNER's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME.

3.1. The Work will be substantially completed within _____ **calendar** days from the date when the Contract Time commences to run as provided in paragraph 2.03 of the General

Conditions, and completed and ready for final payment in accordance with paragraphs 14.07.B and 14.07.C of the General Conditions within ____ **calendar** days from the date when the Contract Time commences to run.

3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1. above plus any extensions thereof allowed in accordance with Article 12.02 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time.

Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER two-thousand dollars (\$2,000) for each day that expires after the time specified in paragraph 3.1. for Substantial Completion until the Work is substantially complete. After Substantial Completion if CONTRACTOR shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER three-thousand dollars (\$3,000) for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.

Article 4. CONTRACT PRICE.

4.1. OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents in current funds as follows:

TOTAL BID OF \$ _____ AS IDENTIFIED IN THE PROPOSAL FORM CONTAINED HEREIN.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, on or about the 25th day of each month during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values established in paragraph 2.05.B.3. of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Conditions.

The retainage amount shall be five (5%) percent on contracts equal to or exceeding \$500,000 in value. For contracts less than \$500,000, the retainage amount shall be ten (10%) percent.

5.1.1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously

made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02.B.5 of the General Conditions.

95 % of Work completed (90% for projects costing less than \$500,000 and 95% for all others).

95 % of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.02.A of the General Conditions).

5.2. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraphs 14.07.B and 14.07.C of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraphs 14.07.B and 14.07.C.

Article 6. INTEREST.

NOT IN THIS CONTRACT

Article 7. CONTRACTOR'S REPRESENTATIONS.

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

7.1. CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

7.2. CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.02.A and 4.02.B of the General Conditions, and accepts the determination set forth in paragraphs SC-4.02 and 4.03 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.

7.3. CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraphs 4.02 and 4.03 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

7.4. CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by

CONTRACTOR in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.04 of the General Conditions.

7.5. CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6. CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

- 8.1. This Agreement.
- 8.2. Performance, Payment and Maintenance Bonds as contained herein.
- 8.3. Certificate of Insurance
- 8.4. Disadvantaged Business Enterprise Form
- 8.5. Form 1295 – Certificate of Interested Parties
- 8.6. General Conditions.
- 8.7. Supplementary Conditions.
- 8.8. Addenda numbers ____ to_____, inclusive.
- 8.9. Proposal Form, Bid Proposal Summary, and Bid Proposal Unit Prices as contained herein.
- 8.10. Section II – Specifications
- 8.11. Section III – Geotechnical Report
- 8.12. Section IV – Construction Drawings and Details.
- 8.13. Documentation submitted by CONTRACTOR prior to Notice of Award (pages ____ to ____, inclusive).
- 8.14. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraph 3.04 of the General Conditions.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.04 of the General Conditions.

Article 9. MISCELLANEOUS.

9.1. Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law) and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

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

Article 10. OTHER PROVISIONS

10.1. CONTRACTOR understands, acknowledges, and agrees that the OWNER may require the CONTRACTOR to remove any sub-contractor from the project for performance that does not meet the OWNER'S expectations for communication, project component delivery, schedule, and/or quality. The CONTRACTOR will be responsible for selecting a new sub-contractor to replace the one that has been removed.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on _____, 20_____.

OWNER

CONTRACTOR

City of Keller, Texas

By _____

By _____

(CORPORATE SEAL)

(CORPORATE SEAL)

Attest _____

Attest _____

Address for giving notices:

1100 Bear Creek Parkway
P.O. Box 770

Address for giving notices:

Keller, TX 76244

PERFORMANCE BOND

STATE OF TEXAS §
 §
 COUNTY OF TARRANT §

KNOW ALL MEN BY THESE PRESENTS: That _____
 _____ of the City of _____,

County of _____, State of _____,

as principal, and _____

authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto City of Keller, Texas (OWNER),

in penal sum of _____ Dollars (\$_____)

for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and

assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the _____ day of _____, 20____, to

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

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

"PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of (Article 5160 for Public Work) (Article 5472d for Private Work)* of the Revised Civil Statutes of Texas as amended and all liabilities on this bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein."

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, or to the work to be performed thereunder.

*Not applicable for federal work. See "The Miller Act," 40 U.S.C. S270.

PERFORMANCE BOND (Cont'd)

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument

this _____

day of _____, 20__.

Principal	Surety
By _____	By _____
Title _____	Title _____
Address _____	Address _____
_____	_____
Phone No. _____	Phone No. _____

The name, address, and phone number of the Resident Agent of Surety is:

PAYMENT BOND (Cont'd)

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

Principal	Surety
By _____	By _____
Title _____	Title _____
Address _____	Address _____
_____	_____
Phone No. _____	Phone No. _____

The name, address, and phone number of the Resident Agent of Surety is:

MAINTENANCE BOND

STATE OF TEXAS

§

COUNTY OF TARRANT

§

§

KNOW ALL MEN BY THESE PRESENTS: That _____
(NAME OF CONTRACTOR)

as principal, and _____
(NAME OF SURETY)

a corporation organized under the laws of _____

and _____ as sureties,

do hereby expressly acknowledge themselves to be held and bound to pay unto the City of Keller, Texas,
(NAME OF OWNER)

a private corporation, the sum of _____
(AMOUNT DETERMINED BY % OF TOTAL CONTRACT PRICE STATED IN SUPPLEMENTARY CONDITIONS)

Dollars (\$ _____) for the payment of which sum well and truly to be made unto said _____
City of Keller, Texas and its successors, said principal and sureties
(NAME OF OWNER)

do hereby bind themselves, their assigns, and successors jointly and severally.

This obligation is conditioned, however, that, whereas said _____
(NAME OF CONTRACTOR)

has this day entered into a written contract with said City of Keller, Texas
(NAME OF OWNER)

to build and construct the S. Elm Street Reconstruction
(DESCRIPTION OF PROJECT AS IT APPEARS ON COVER OF CONTRACT DOCUMENTS)

which contract and the plans and specifications therein mentioned and adopted by the City of Keller, Texas
(NAME OF OWNER)
are hereby expressly made a part thereof as though the same were written and embodied herein.

WHEREAS, under the specifications and contract, it is provided that the Contractor shall maintain and keep in good repair the work constructed and/or equipment furnished by him as contemplated by the plans, specifications, drawings, etc., and perform for a period of TWO (2) year(s) [NOTE: Period to be stated in Supplementary Conditions. If not so stated, the period shall be one (1) year.] from the date of acceptance as shown on the "Certificate of Completion" as issued by the Engineer, or the date of final payment by the Owner, whichever bears the later date, all necessary repairs, reconstruction and renewal of any part of said construction, and to furnish the labor and materials to make good and to repair any defective condition growing out of or on account of the breakage or failure of any substance or the improper function of any part of the construction work. The Contractor shall reimburse the Owner for the costs of all Engineering and special services required to be furnished by the Owner which are directly attributable to the restoration of the constructed work. Said maintenance contemplates the complete restoration of the constructed work to a functional use during the said period as set forth above. It is being understood that the purpose of this section is to require the correction of all defective conditions resulting from materials

furnished or work and labor performed by the said Contractor under the conditions prescribed by the plans and specifications; and in case the said Contractor shall fail or refuse to perform as provided within ten (10) days after proper written notifications have been furnished to him by the Owner, it is agreed that the Owner may do said work and supply such materials and the said Contractor and Sureties herein shall be subject to the liquidated damages mentioned in said Contract for each calendar day's failure on its part to comply with the terms of the said provision of said Contract and this Maintenance Bond.

NOW, THEREFORE, if the said Contractor shall keep and perform its said agreement to maintain said work and keep the same in good repair for the said maintenance period as provided above, then these presents shall be null and void and have no further effect, but if default shall be made by the said Contractor in the performance of its contract to do so maintain and repair damages in the premises, as provided, and it is further understood and agreed that this obligation shall be a continuing one against the principal and sureties hereon, and that successive recoveries may be had hereon for successive breaches until the full amount shall have been exhausted; and it is further understood that the obligation herein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any clause during said time.

IN WITNESS WHEREOF, the said _____
(NAME OF CONTRACTOR)

has caused these presents to be executed by _____
(NAME OF CONTRACTOR'S AUTHORIZED SIGNER)

and the said _____
(NAME OF SURETY)

has caused these presents to be executed by its _____
(ATTORNEY-IN-FACT OR OFFICIAL)

and the said _____
(ATTORNEY-IN-FACT OR OFFICIAL)

has hereto set his hand this the _____ day of _____, 20____.

SURETY

PRINCIPAL

By _____
Signature

By _____

Print Name

ATTEST:

By _____
Witness Signature

SECRETARY

Print Name

NOTE: Date of Maintenance Bond must not be prior to date of Contract. Power of Attorney must be attached.

**INSERT
CERTIFICATE OF
INSURANCE
HERE**

FOR DISADVANTAGED BUSINESS ENTERPRISES ONLY

Disadvantaged Business Enterprises (DBE) are encouraged to participate in the City of Keller BID process. The City of Keller will provide additional clarification of specifications, assistance with BID Proposal Forms, and further explanation of bidding procedures to those DBEs who request it.

Representatives from DBE companies should identify themselves as such and submit a copy of the Certification.

The City recognizes the certifications of both the State of Texas Building and Procurement Commission HUB Program and the North Central Texas Regional Certification Agency. All companies seeking information concerning DBE certification are urged to contact:

State of Texas HUB Program
Texas Building & Procurement Commission
P O Box 13047 OR
Austin, TX 78711-3047
(512) 463-5872

North Central Texas Regional
Certification Agency
616 Six Flags Drive, #416-LB24
Arlington, TX 76011
(817) 640-0606

If your company is already certified, attach a copy of your certification to this form and return with BID.

COMPANY NAME: _____

REPRESENTATIVE: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

TELEPHONE NO. _____ FAX NO. _____

INDICATE ALL THAT APPLY:

- _____ Minority-Owned Business Enterprise
- _____ Women-Owned Business Enterprise
- _____ Disadvantaged Business Enterprise

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.	
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 goods or services 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 AFFIDAVIT I swear, or affirm, under penalty of perjury, that the above disclosure is true and correct.

Signature of authorized agent of contracting business entity

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20_____, to certify which, witness my hand and seal of office.

Signature of officer administering oath Printed name of officer administering oath Title of officer administering oath

ADD ADDITIONAL PAGES AS NECESSARY

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD
GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

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

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of

some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

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

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or

adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 Copies of Documents

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable

to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 Preconstruction Conference

A. Within 20 days after the Contract Times start to run, but before any Work at the Site is started, a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 Initial Acceptance of Schedules

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the

first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 Reference Standards

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for

failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER. This prohibition will survive final payment, completion,

and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS;
SUBSURFACE AND PHYSICAL CONDITIONS;
REFERENCE POINTS

4.01 Availability of Lands

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely

upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 Differing Subsurface or Physical Conditions

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in

paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to

that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 Reference Points

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any

required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and

against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04 CONTRACTOR's Liability Insurance

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person

as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the

certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

5.05 OWNER's Liability Insurance

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and

equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 Waiver of Rights

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any

party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one

of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 Partial Utilization, Acknowledgment of Property Insurer

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 Labor; Working Hours

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 Services, Materials, and Equipment

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and

machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 Substitutes and "Or-Equals"

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers

may be submitted to ENGINEER for review under the circumstances described below.

1. "*Or-Equal*" Items: If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may

decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor,

Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement

between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 Patent Fees and Royalties

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 Permits

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are

no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 Laws and Regulations

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 Taxes

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 Use of Site and Other Areas

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other

areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER.

6.13 Safety and Protection

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or

to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with

respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

E. *ENGINEER's Review*

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any

approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. Resubmittal Procedures

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 Continuing the Work

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 CONTRACTOR's General Warranty and Guarantee

A. The CONTRACTOR warrants to the OWNER and ENGINEER that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defect not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;
2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;
4. use or occupancy of the Work or any part thereof by OWNER;
5. any acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by OWNER.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ARCHITECT, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless

of the negligence of any such individual or entity.

B. In any and all claims against OWNER, ARCHITECT, ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ARCHITECT, ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 Related Work at Site

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and
2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a

Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 Coordination

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 Communications to Contractor

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 Replacement of ENGINEER

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 Furnish Data

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 Pay Promptly When Due

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 Lands and Easements; Reports and Tests

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 Insurance

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 Change Orders

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 Inspections, Tests, and Approvals

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 Limitations on OWNER's Responsibilities

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 Undisclosed Hazardous Environmental Condition

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 Evidence of Financial Arrangements

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 OWNER'S Representative

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 Visits to Site

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work.

Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 Clarifications and Interpretations

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or

interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 Authorized Variations in Work

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 Rejecting Defective Work

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 Shop Drawings, Change Orders and Payments

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or

more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 Decisions on Requirements of Contract Documents and Acceptability of Work

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 Limitations on ENGINEER's Authority and Responsibilities

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for

CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 Authorized Changes in the Work

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved, which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 Unauthorized Changes in the Work

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 Execution of Change Orders

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 Claims and Disputes

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for

an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch

office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 Cash Allowances

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in

Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee*: The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 Delays Beyond CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 Delays Within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to

actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and
3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an

employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 Uncovering Work

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are

unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 OWNER May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or

(ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by

CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 OWNER May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not

be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on

account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to pro-gress payments will be as stipulated in the Agreement.

B. Review of Applications

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive,

extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 CONTRACTOR's Warranty of Title

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 Final Inspection

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *OWNER May Suspend Work*

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

5. CONTRACTOR'S failure to pay subcontractors in a timely fashion.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 OWNER May Terminate For Convenience

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In

such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 CONTRACTOR May Stop Work or Terminate

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in

Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 Giving Notice

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

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to

exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

SUPPLEMENTARY CONDITIONS
for
THE CITY OF KELLER, TEXAS
S. Elm Street Reconstruction

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SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

SC-1.01 DEFINED TERMS:

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions or as amended below.

Add the following language to the end of the definition for CONTRACTOR (1.01.A.15):

"The words "Contractor" or "Offeror" in these documents shall be understood as being synonymous and refer to the same entity.

Add the following language to the end of the definition for ENGINEER (1.01.A.19):

*"The word "Engineer" in these specifications shall be understood as referring to _____
Kimley-Horn and Associates, Inc, Engineer of the
Owner, or such other representative as may be authorized by said Owner to act in any
particular position."*

Add the following language to the end of the definition for OWNER (1.01.A.30):

*"The words "Owner" or "City" in these documents shall be understood as referring to the
City of Keller, Texas. 1100 Bear Creek Parkway, P.O. Box 770, Keller, TX 76244."*

Add the following language to the end of the definition for PROJECT (1.01.A.34):

"The project consists of S. Elm Street Reconstruction."

"The project is located in the City of Keller, Texas."

Add the following language to the end of the definition for SPECIFICATIONS (1.01.A.41):

"Except as herein amended or supplemented, Divisions 100 through 800 of the Public Works Construction Standards, North Central Texas adopted by the North Central Texas Council of Governments (NCTCOG) dated November, 2017, with all amendments shall govern and shall constitute the specifications. They are not physically bound with these contract documents but are incorporated by reference. Where these NCTCOG specifications conflict with the specifications bound in this booklet or the construction plans, the bound specifications and the construction plans will govern."

Add the following language to the end of the definition for SUPPLEMENTARY CONDITIONS (1.01.A.44):

"Where in the Bonds and elsewhere in the contract, the terms "Special Provisions," and "Special Conditions" appear, they shall be read to mean "Supplementary Conditions""

Add the following paragraph to the end of section "1.01 Defined Terms":

"51. No Separate Pay Items—These items will be accomplished by the CONTRACTOR without the CONTRACTOR having a specific pay item for this work. The CONTRACTOR will have to include any costs for these work items in with the cost for pay items listed in the Bid Proposal Unit Price Form."

SC-2.02 COPIES OF DOCUMENTS:

Delete the first sentence of paragraph 2.02 of the General Conditions and replace with the following sentence:

"OWNER shall furnish to CONTRACTOR up to five copies of the Contract Documents as are reasonably necessary for the execution of the Work."

SC-2.03 NOTICE TO PROCEED:

Delete paragraph 2.03 of the General Conditions in its entirety and replace with the following paragraph:

"The Contract Time will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within sixty days after the Effective Date of the Agreement."

SC-2.04 STARTING THE PROJECT:

Delete paragraph 2.04 of the General Conditions in its entirety and replace with the following paragraph:

"CONTRACTOR shall start to perform the Work within ten (10) calendar days of the Notice to Proceed, but no work shall be done at the site prior to the Effective Date of the Agreement."

SC-2.05.B PRELIMINARY SCHEDULES:

Delete paragraph 2.05.B and 2.05.B.1 of the General Conditions in its entirety and replace with the following:

- B. *"Preliminary Schedules: CONTRACTOR shall submit a preliminary schedule to the OWNER for review within five (5) days after the Effective Date of the Agreement and at least ten (10) days prior to the Preconstruction Conference in accordance with 2.06. The submittal shall include:*
 - 1. *a preliminary progress schedule that meets the following minimum requirements:*
 - a. *The project schedule shall be prepared using Microsoft Project, Primavera P6, or other as approved by the OWNER. Electronic files in the scheduling software native format and PDF copies shall be included with all schedule submittals.*

- b. *There shall be at a minimum one schedule Activity for each major bid item in the proposal. Many bid items will need to consist of multiple Activities.*
- c. *The length of this project is such that many Activities or Sets of Activities may be repeated for various stages of construction and segments of the roadway. Any repeated Activity must clearly identify the location and/or stage of construction.*
- d. *The schedule must be based on clearly defined Activities, any project milestones, and correspond to the phases of construction in the Contract Documents. Schedule limits must be easily field verified.*
- e. *All Activities must have Predecessor and Successor activities (except start and finish milestones). Independent or open-ended activities shall not be included.*
- f. *The schedule must clearly identify relationship between Predecessor and Successor activities as “start-to-start”, “start-to-finish”, or “finish-to-finish”.*
- g. *Negative lag times shall not be permitted.*
- h. *Activities with a duration of twenty days or greater shall be broken into sub-activities. (For example, if the activity for “Install Storm Drain Line A” has a duration of 21 days, is should be divided into sub-activities such as “Install Storm Drain Ditch or Install Storm Pipe Sta X+XX to XX+XX”, etc.).”*

2.05.B.2, 2.05.B.3 and 2.05.C shall remain.

SC-2.07.A INITIAL ACCEPTANCE OF SCHEDULES:

Delete 2.07.A and 2.07A.1 of the General Conditions in its entirety and replace with the following:

- A. *“CONTRACTOR to submit a revised schedule based on feedback provided at the Preconstruction Conference. CONTRACTOR shall submit the revised schedule within ten (10) days of the Preconstruction Conference and at least ten (10) days prior to the submission of the first Application for Payment. No progress payment shall be made to CONTRACTOR until the OWNER has approved the schedule.*
 - 1. *The progress schedule will be acceptable to the OWNER if it meets the requirements of 2.05.B. Such acceptance will not impose on the OWNER responsibility for the progress schedule, or for sequencing, scheduling, or progress of the Work. CONTRACTOR is responsible for adhering to the approved schedule. Refer to 6.04 Progress Schedule for additional schedule requirements.”*

2.07.A.2 and 2.07.A.3 shall remain.

SC-3.01.A CONTRACT DRAWINGS AND SPECIFICATIONS:

Add to paragraph 3.01.A of the General Conditions the following:

"Should a discrepancy arise in the contract documents, the drawings shall take precedence over the specifications."

SC-4.02 SUBSURFACE AND PHYSICAL CONDITIONS:

Add to paragraph 4.02 of the General Conditions the following paragraph:

“Subsurface explorations or tests, to ascertain the nature of the subsurface conditions or physical conditions at, or contiguous to, the project site, including the amount of rock, if any, are to be the sole responsibility of the CONTRACTOR.

Whether prospective bidders perform this subsurface exploration jointly or independently shall be left to the discretion of such prospective bidders. Subsurface explorations and tests shall not be attempted without the approval of the OWNER.

The results of a geotechnical investigation performed by CMJ Engineering, Inc (Project No. 103-20-364) are available for the bidder’s information only in preparing a bid for the project.”

SC-4.03 DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS:

Delete 4.03 in its entirety.

SC-4.05 REFERENCE POINTS:

Delete the paragraph 4.05.A of the General Conditions and replace with the following:

“The CONTRACTOR shall provide engineering surveys to establish reference points for construction. The CONTRACTOR will also provide vertical and horizontal surveying and staking for construction. The CONTRACTOR is responsible for preserving and maintaining staking. If in the opinion of the OWNER or ENGINEER, a sufficient number of stakes or markings have been lost, destroyed, or disturbed by CONTRACTOR’s neglect, such that the contracted Work cannot take place, then the CONTRACTOR will be required to re-stake the deficient areas. It is the responsibility of the CONTRACTOR to provide adequate staking performed by qualified personnel to construct the Work per the Contract Documents. Any item that is constructed incorrectly due to improper or inadequate staking will be removed and replaced at the CONTRACTOR’s expense. Refer to SC-20 Pay Items for additional information.”

SC-5.01 PERFORMANCE, PAYMENT, AND OTHER BONDS:

Remove the third sentence of paragraph 5.01.A of the General Conditions and replace it with the following two sentences:

“ Contractor shall also furnish a Maintenance Bond in the amount at least equal to the Contract Price as security that the Contractor will maintain and keep in good repair the work covered by the Contract Documents. The Maintenance Bond shall remain in force for a period of two (2) years after the date of final acceptance of the work by the Owner.”

Add the following paragraph 5.01.D:

“D. Insurance Requirements - CONTRACTOR and Subcontractors of any tier will be required, at their own expense, to maintain in affect at all times during the performance of

the work, insurance coverage with limits not less than those set forth below, with insurers and under forms of policies satisfactory to the OWNER. It shall be the responsibility of the CONTRACTOR and Subcontractors to maintain adequate insurance coverage and to assure that all Subcontractors are adequately insured at all times. Failure of the CONTRACTOR and his Subcontractors to maintain adequate coverage shall not relieve CONTRACTOR of any contractual responsibility or obligation. Deductibles, of any type, are the responsibility of the CONTRACTOR.”

SC-5.02 LICENSED SURETIES AND INSURERS:

Add the following language to the middle of the first sentence of paragraph 5.02.A of the General Conditions:

...duly licensed “by the State of Texas to Provide surety bonds” or authorized...

SC-5.03 CERTIFICATES OF INSURANCE

Add the following paragraph 5.03.B:

“B. Certificates of Insurance and Insurance Endorsements - At the time of the execution of this Contract and each Subcontract, the CONTRACTOR and his Subcontractors shall furnish Certificates of Insurance and Insurance Endorsements as evidence that the policies providing the required coverage and limits of insurance are in full force and effect. The Certificates of Insurance and Insurance Endorsements shall state the City, the Engineer as Additional Insured where applicable. The Certificates of Insurance shall provide that any company issuing an insurance policy for the work under this Contract shall provide not less than 30 days advance notice in writing of cancellation, non-renewable, or material change in the policy of insurance. In addition, the contractor shall provide written notice to OWNER upon receipt of notice of cancellation of any insurance policy. All Certificates of Insurance and Insurance Endorsements shall clearly state that all applicable requirements have been satisfied including certification that the policies are of the “occurrence” type. Certificates of Insurance and Insurance Endorsements for CONTRACTOR and his Subcontractors, terminations, or alterations of such policies shall be mailed to Purchasing Technician, Finance Department, P.O. Box 770, Keller, TX 76244.”

SC-5.04 CONTRACTOR'S LIABILITY INSURANCE:

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations: 5.04.A.1 and 5.04.A.2. Workers' Compensation, etc. under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

- | | | |
|-----|-----------------------------------------------|-------------|
| (1) | State: | Statutory |
| (2) | Applicable Federal (e.g. Longshoreman's): | Statutory |
| (3) | Employer's Liability: | \$1,000,000 |
| (4) | OWNER to be provided a waiver of subrogation. | |

5.04.A.3, 5.04.A.4, 5.04.A.5, and 5.04.A.6. Comprehensive General Liability (under paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions):

This insurance shall be an occurrence type policy written in comprehensive form and shall protect the CONTRACTOR and his Subcontractors and the Additional Insured against all claims arising from bodily injury, sickness, disease, or death of any person other than the CONTRACTOR's employees or damage to property of the City of Keller, the Engineer arising out of the act or omission of the CONTRACTOR or his Subcontractors or their agents, employees, or Subcontractors. This policy shall also include protection against claims insured by usual personal injury liability coverage, a (protective liability) endorsed to insure the contractual liability assumed by the CONTRACTOR and his Subcontractors under the article entitle indemnification and completed operations, products liability, contractual liability, broad form property coverage, premises/operations, and independent contractors.

Type	Amount	Provisions
Commercial Liability to include: -Premises/Operations -Products/Completed Operations -Independent Contractors -Personal Liability -Contractual Liability	\$2,000,000 each occurrence, \$4,000,000 general aggregate; \$4,000,000 umbrella/excess liability (follow form)	OWNER to be listed as additional insured and provided 30-day notice of cancellation or material change in coverage.

5.04.B.1. Comprehensive Automobile Liability:

This insurance shall be written in the comprehensive form and shall protect the CONTRACTOR and his Subcontractors and the Additional Insured against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on and off the site of all motor vehicles licensed for highway use, whether they were owned, non-owned, or hired, the liability shall not be less than:

Type	Amount	Provisions
Business Auto Liability	-\$1,000,000 per occurrence -\$2,000,000 aggregate or -\$2,000,000 combined single limits	OWNER to be named as additional insured. Coverage to be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to the amount provided in ISO form CA 00 01.

5.04.B.4 CONTRACTUAL LIABILITY INSURANCE:

The Contractual Liability required by paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

Type	Amount	Provisions
Contractual Liability	\$2,000,000 each occurrence, \$4,000,000 general aggregate; \$4,000,000 umbrella/excess liability follow form	OWNER to be listed as additional insured and provided 30-day notice of cancellation or material change in coverage.

5.04.B.8 WORKER'S COMPENSATION INSURANCE COVERAGE:

Add the following paragraphs to Article 5 of the General Conditions:

"5.04.B.8 Workers' Compensation Insurance Coverage.

In addition to other insurance requirements stipulated herein, the CONTRACTOR shall comply with all requirements of 28 TAC 110.110 and other requirements outlined in this section. Definitions contained in this section are for this section only.

5.04.B.8.1 Definitions:

Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory workers' compensation insurance coverage for the person's or OWNER's employees providing services on a project, for the duration of the project.

Duration of the project - includes the time from the beginning of the work on the project until the CONTRACTOR's/person's work on the project has been completed and accepted by the OWNER.

Persons providing services on the project ("subcontractor") - includes all persons or entities performing all or part of the services the CONTRACTOR has undertaken to perform on the project regardless of whether that person contracted directly with the CONTRACTOR and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. Services include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

5.04.B.8.2 The CONTRACTOR shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all

employees of the CONTRACTOR providing services on the project, for the duration of the project.

5.04.B.8.3 The CONTRACTOR must provide a certificate of coverage to the OWNER prior to being awarded the contract.

5.04.B.8.4 If the coverage period shown on the CONTRACTOR's current certificate of coverage ends during the duration of the project, the CONTRACTOR must, prior to the end of the coverage period, file a new certificate of coverage with the OWNER showing that coverage has been extended."

"5.04.B.8.5 The CONTRACTOR shall obtain from each person providing services on a project, and provide to the OWNER:

- (1) a certificate of coverage, prior to that person beginning work on the project, so the OWNER will have on file certificates of coverage showing coverage for all persons providing services on the project; and*
- (2) no later than seven days after receipt by the CONTRACTOR, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.*

5.04.B.8.6 The CONTRACTOR shall retain all required certificates of coverage for the duration of the project and for one year thereafter.

5.04.B.8.7 The CONTRACTOR shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the CONTRACTOR knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

5.04.B.8.8 The CONTRACTOR shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

5.04.B.8.9 The CONTRACTOR shall contractually require each person with whom it contracts to provide services on a project, to:

- (1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;*
- (2) provide to the CONTRACTOR, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;*
- (3) provide the CONTRACTOR, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage*

period shown on the current certificate of coverage ends during the duration of the project;

- (4) obtain from each other person with whom it contracts, and provide to the CONTRACTOR:
 - (a) a certificate of coverage, prior to the other person beginning work on the project; and*
 - (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;**
- (5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;*
- (6) notify the OWNER in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and*
- (7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.*

5.04.B.8.10 By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions."

5.04.B.8.11 The CONTRACTOR's failure to comply with any of these provisions is a breach of contract by the CONTRACTOR which entitles the OWNER to declare the contract void if the CONTRACTOR does not remedy the breach within ten days after receipt of the notice of breach from the OWNER.

5.04.B.8.12 The text for the notice prescribed in 5.04.B.8.8 shall read as follows:

REQUIRED WORKERS' COMPENSATION COVERAGE

The law requires that each person working on this site or providing services related to this construction project must be covered by workers' compensation insurance. This includes persons providing, hauling, or delivering equipment or materials, or providing labor or transportation or other service related to the project, regardless of the identity of their employer or status as an employee."

Call the Texas Workers' Compensation Commission at 512-440-3789 to receive information on the legal requirement for coverage, to verify whether your employer has provided the required coverage, or to report an employer's failure to provide coverage."

SC-5.05 OWNER'S LIABILITY INSURANCE:

Delete Paragraph 5.05 of the General Conditions in its entirety and replace with the following:

"The Contractor shall file with Owner a Certificate of Insurance naming the Owner as an additional insured with regard to the contract project and evidencing insurance coverage of limits not less than the limits indicated in SC-5.04 and SC-5.04.B.4."

SC-5.06 PROPERTY INSURANCE:

Delete Paragraph 5.06.A of the General Conditions in its entirety and insert the following in its place:

"5.06.A. CONTRACTOR shall purchase and maintain until final payment property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and Engineer's consultants in the Work (all of whom shall be listed as insured or additional insured parties), shall insure against the perils of fire and extended coverage, shall include "all-risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in these Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all-risk" insurance or otherwise provided in these Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.06.A shall comply with the requirements of GC-5.06.C."

<i>Type</i>	<i>Amount</i>	<i>Provisions</i>
<i>Builder's Risk Policy</i>	<i>100% of construction total.</i>	<i>None</i>

"

SC-6.04 PROGRESS SCHEDULE:

Delete Paragraph 6.04.A of the General Conditions in its entirety and insert the following in its place:

- A. *"CONTRACTOR shall adhere to the progress schedule accepted in accordance with 2.07. The accepted schedule shall be called the Baseline Project Schedule. The Baseline Project Schedule shall become the basis for measuring progress and*

evaluating whether the project is on schedule. Once approved by the OWNER, the Baseline Schedule shall not be changed. The CONTRACTOR shall submit a monthly schedule for review with each Application for Payment. The schedule shall indicate actual start and completion dates for completed and ongoing Activities. Baseline Project Schedule dates must be shown for tracking purposes. The monthly schedule shall also indicate what Activities are behind schedule. All Activities behind schedule require a Recovery Plan which shall meet the following requirements:

1. A Recover Plan may include such measures as adding work crews, leasing additional equipment, or engaging subcontractors.
2. CONTRACTOR shall provide a Recovery Plan version of the Baseline Schedule that reflects proposed changes. This shall be used to document the proposed construction activity revisions and their schedule impacts.
3. Activity durations reflected in the Baseline Project Schedule cannot be reduced without a Recovery Plan description reflecting what additional resources or actions will implemented justifying the schedule change.
4. Any additional costs resulting from Recovery Plan measures shall be at the contractor's sole expense.
5. Once the Recovery Plan and Schedule are approved by the OWNER, the CONTRACTOR shall provide the Recovery Plan Schedule with the monthly Applications for Payment. The Recovery Plan Schedule shall conform to the requirements set forth in 2.05, 2.07 and 6.04.

SC-6.06.A SUBCONTRACTS:

Add the following sentence to paragraph 6.06.A of the General Conditions:

"CONTRACTOR shall not award Work under the Contract to a Subcontractor(s) that is (are) in excess of 50% of the total contract price without written approval of the OWNER."

SC-6.08.A STORMWATER DISCHARGE PERMIT:

Add the following paragraph to GC 6.08.A.

"State law prohibits discharges of pollutants into storm water from construction activities without a Texas Pollutant Discharge Elimination System Permit (TPDES). Operator(s) of construction sites where 1 or more acres are disturbed, smaller sites that are part of a larger common plan of development or sale where there is a cumulative disturbance of at least 1 acre, or any site designated by the Director, must submit an NOI to obtain coverage under an TPDES Storm Water Construction General Permit.

For the purpose of this project the contractor shall be the "PRIMARY OPERATOR". If required to submit a Notice of Intent (NOI) for storm water discharges associated with construction activities under the TPDES General Permit with the TCEQ, the contractor shall submit the NOI to the City and the TCEQ (if required) at least two (2) days prior to the preconstruction conference. In addition to submitting the NOI, the Contractor shall prepare, submit to the City, and retain on-site a Storm Water Pollution Prevention Plan in accordance with the TCEQ General Permit No. 150000 requirements."

SC-6.10.A TAXES:

Add the following paragraphs to paragraph 6.10.A of the General Conditions:

"The Contractor's attention is directed to Amendment No. 7 in Section 6a, Article 20.01, Chapter 20, Title 122A, Taxation-General of the Revised Civil Statutes of Texas and the recent amendments contained in H.B. 11 as passed by the Legislature of the State of Texas and enacted August 13, 1991.

These statutes provide that all items used by a Contractor, and incorporated into the project, can be purchased free of State and City sales tax when the project is being performed by an exempt agency. Excluded are equipment rentals and other items which are consumed by the Contractor but are not incorporated into the project.

This contract is issued by an organization which qualifies for exemption pursuant to the provisions of Article 20.04 (F) of the Texas Limited Sales, Excise and Use Tax Act.

The Contractor performing this contract may purchase all materials, supplies, equipment used in the performance of this contract by issuing to his supplier an exemption or resale certificate.

It shall be the sole responsibility of the Contractor under the terms of this agreement to determine the applicability of the revisions to the tax code and pay all applicable taxes associated with this project without additional or separate pay for the same from the Owner."

SC-6.12 RECORD DOCUMENTS:

Add the following sentence to paragraph 6.12.A. of the General Conditions:

"Drawings submitted upon completion of the project will be submitted by the CONTRACTOR on full size set of construction plans."

SC-6.13 SAFETY AND PROTECTION:

Revise paragraph 6.13.A.3 of the General Conditions to include lawn irrigation systems and read as follows:

...other property at the site or adjacent thereto, including trees, shrubs, lawns, "lawn irrigation systems." walks, pavements...

Add the following paragraphs to Article 6.13.B of the General Conditions:

"The Contractor shall comply with the provisions of the Occupational Safety and Health Act of 1970, and the standards and regulations issued thereunder and warrant that all work, materials, and products furnished under this contract will conform to and comply with said standards and regulations which are in existence on the date of this contract. The Contractor further agrees to indemnify and hold harmless the Owner and the Engineer for all damages suffered by the Owner and the Engineer as a result of the Contractor's failure to comply with the Act and the Standards issued thereunder and for the failure of any material and/or equipment furnished under this contract to so comply.

The Contractor shall also comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., if not in conflict with those of the Occupational Safety and Health Act of 1970 and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment or work under the contract.

The Contractor alone shall be responsible for the safety, efficiency, and adequacy of his equipment and employees, and for any damage which may result from their failure or their improper construction, maintenance or operation.

Per Texas House Bill 1569 effective as of September 1, 1989, it shall be the responsibility of the contractor to provide and maintain a viable trench safety system at all times during construction activities. The contractor is directed to become knowledgeable and familiar with the standards as set forth by the Occupational Safety and Health Administration (OSHA) for trench safety that will be in effect during the period of construction of the project and the contract is responsible for conforming to such regulations as prescribed by OSHA standards. A bid item for trench excavation safety protection and shoring is included in the proposal."

SC-6.17 SHOP DRAWINGS AND SAMPLES:

Amend the first sentence of paragraph 6.17.A of the General Conditions to read as follows:

"After checking and verifying all field measurements and after complying with applicable procedures specified herein, CONTRACTOR shall submit an electronic version of all required shop drawings, submittals, and samples to ENGINEER for review and approval in accordance with the Construction Drawings and Specifications, or for other appropriate action, if so indicated in the Supplementary Conditions. The ENGINEER will review the shop drawings, submittal, or sample and will provide the CONTRACTOR with a response that will bear a stamp that CONTRACTOR has satisfied CONTRACTOR'S responsibility under the Contract Documents with respect to the review of the submission."

SC-12.03.A CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES:

Add to Paragraph 12.03.A. the following:

"Extensions of time due to weather delays shall be determined in accordance with the following formula:

$$E = R - P \text{ where } R > P \text{ and}$$

E = extra precipitation

P = average precipitation days

R = total precipitation days

Average Precipitation Days (P) are defined as those days of rain, sleet, hail, snow, or any combination thereof, and shall be based upon the average precipitation for each month of the year as defined in the Local Climatological Data Summaries issued by the National Climatic Center in Asheville, North Carolina, and for this contract shall be as follows:

AVERAGE PRECIPITAION

<i>Month</i>	<i>J</i>	<i>F</i>	<i>M</i>	<i>A</i>	<i>M</i>	<i>J</i>	<i>J</i>	<i>A</i>	<i>S</i>	<i>O</i>	<i>N</i>	<i>D</i>
<i>No. of Days</i>	7	7	7	8	9	6	5	5	7	6	6	6

Partial months shall be prorated uniformly for the entire month and the sum of all the months used will be rounded to the nearest whole number. This number shall be “P”.

Total Precipitation Days (R) are defined as those days of rain, sleet, hail, snow, or any combination thereof, if determined by the Owner’s Project Representative / City Inspector that the Contractor’s construction cannot progress substantially due to precipitation and thus be put in the Daily Inspection Log Book as a precipitation day. The sum of all the precipitation days shall be “R”.

The total number of extra precipitation days (E) shall be granted to the Contractor as extension of time due to weather delays, and no additional time due to drying time for saturated soil will be allowed.”

SC-13.03 TESTS AND INSPECTIONS:

Delete the paragraph 13.03.B of the General Conditions and replace with the following:

- A. *“Contractor shall give the OWNER 2 days’ notice of readiness of the Work (or specific parts thereof) for all required inspections and tests. The Contractor shall cooperate with inspection and testing personnel to facilitate required inspections and tests.*
- B. *If Contract Documents, Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or accepted, CONTRACTOR shall assume full responsibility for performing, coordinating, and obtaining such inspections, tests, retests, or approvals, pay all costs in connection therewith, and furnish the OWNER with the required certificates of inspection or approval.*
- C. *Contractor shall be responsible for arranging, obtaining, and paying for all material testing, re-tests, and approvals required:*
 - 1. *by the Contract Documents,*
 - 2. *to attain the OWNER’s acceptance of materials or equipment to be incorporated in the Work;*
 - 3. *by manufacturers of equipment furnished under the Contract Documents;*
 - 4. *for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and*
 - 5. *for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor’s purchase thereof for incorporation in the Work.*

Such tests will be performed by an independent third-party testing laboratory, or other qualified individuals or entities acceptable to OWNER.

CONTRACTOR to provide material testing reports sealed by a profession engineer or professional geoscientist licensed in the state of Texas.

- D. The OWNER may arrange for the services of another independent testing laboratory to perform any quality control inspections or tests for any part of the Work, as determined solely by the OWNER. This does not alleviate the CONTRACTOR's requirements to provide inspections and testing as stated in 13.03 D.*
- 1. The OWNER will coordinate such testing to the extent possible, with Contractor;*
 - 2. Should any testing under this Section 13.03 E result in a "fail", "did not pass" or other similar negative result, the CONTRACTOR shall be responsible for paying for any and all retests. Contractor's cancellation without cause of OWNER initiated testing shall be deemed a negative result and require a re-test.*
 - 3. Any amounts owed for any retest under this Section 13.03 E shall be paid directly to the testing laboratory by the CONTRACTOR. The OWNER will forward all invoices for retests to the CONTRACTOR.*
 - 4. If the CONTRACTOR fails to pay the invoices, the OWNER will not issue Final Payment until all invoices are paid.*
- E. If the Contract Documents require the Work (or part thereof) to be approved by OWNER or another designated individual or entity, the Contractor shall assume full responsibility for arranging and obtaining such approvals.*
- F. Contractor shall have the right to make a Contract Claim regarding any retest or invoice issued under Section 13.03.E."*

SC-13.07 TWO YEAR CORRECTION PERIOD:

Revise the title of paragraph 13.07 of the General Conditions to read "TWO YEAR CORRECTION PERIOD" and revise the content of paragraphs 13.07, 13.07.A, 13.07.B, 13.07.C and 13.07.D to reflect "two (2) years" where one (1) year is indicated.

SC-14.01 SCHEDULE OF VALUES:

Delete paragraph 14.01 of the General Conditions in its entirety and replace with the following paragraph:

"The schedule of values submitted as provided in paragraph 2.05.B.3 will serve as the basis for progress payments, subject to acceptance by the ENGINEER, and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed."

SC-14.02.A.1 APPLICATIONS FOR PAYMENTS:

Add the following paragraph to the end of paragraph 14.02.A.1 of the General Conditions to read as follows:

"Prior to submitting Application for Payment to the ENGINEER for review, the CONTRACTOR shall submit an updated set of Record Documents with application for

progress payment. Record Documents submitted throughout the Project will be filed as received. At the Project Completion, CONTRACTOR to submit a compiled set of Record Documents to be converted to Project As-Builts which will be reviewed by the ENGINEER."

SC-14.02.C REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT:

Revise the last sentence of paragraph 14.02.C.1 of the General Conditions to read as follows:

"Thirty (30) days after presentation of the Application for Payment with Engineer's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due and when due will be paid by Owner to Contractor."

SC-17 MISCELLANEOUS:

Add the following paragraphs to Article 17 of the General Conditions:

"17.06 The use of explosives will not be allowed under this contract for the construction of the proposed facilities without approval of the ENGINEER and OWNER.

17.07 The Contractor is encouraged to abide by the Buy American Provision of Public Law 95-217 (Section 215) of Public Law 92-500 as amended) generally requiring that preference be given to the use of domestic construction materials in the performance of this contract.

17.08 The Contractor will not be required to furnish a field office on this contract."

SC-14.04.A SUBSTANTIAL COMPLETION:

Revise the first sentence of paragraph 14.04.A of the General Conditions to read as follows:

"The Work is considered substantially complete when all construction items except the landscape and irrigation items are fully constructed. To further clarify, Substantial Completion includes the construction of all utilities, paving, pedestrian elements, irrigation and electric sleeves, pavement marking, signing, illumination, electrical items, and stamped and stained concrete. Once the CONTRACTOR considers the Work to be substantially complete, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire work is substantially complete (except for landscape and irrigation) and request that ENGINEER issue a certificate of Substantial Completion."

SC-18 WAGE RATES:

Add a new Article entitled ARTICLE 18 - WAGE RATES to include the following:

"18.01 All bidders will be required to comply with Chapter 2258, Prevailing Wage Rates of Vernon's Texas Codes Annotated with respect to the payment of prevailing wage rates. This applies to the construction of a public work, including a building, highway, road, excavation, and repair work or other project development or improvement, paid for in whole or in part from public funds, without regard to whether the work is done under the

public supervision or direction. A worker is employed on a public work if the worker is employed by the contractor or any subcontractor in the execution of the contract for the project.

A worker employed on a public work by or on behalf of the City shall be paid not less than the general prevailing rate of per diem wages for the work of a similar character in the locality in which the work is performed, and not less than the general prevailing rate of per diem wages for legal holiday and overtime work.

The State of Texas has adopted the Federal Davis-Bacon wage rates for the use in Texas and the City pursuant to and in accordance with the Texas Government Code, Section 2258.022. You may access the U. S. Department of Labor web site at the following web address to obtain these rates to be used in Tarrant County:

<http://www.gpo.gov/davisbacon/allstates.html>

It shall be the responsibility of the successful bidder to obtain the proper wage rates from this site for Tarrant County for the type of work defined in these bid specifications.”

SC-19 ADDITIONAL CONTRACTOR'S RESPONSIBILITIES:

Add a new ARTICLE 19 – ADDITIONAL CONTRACTOR’S RESPONSIBILITIES to the General Conditions as follows:

"19.01 Revegetation of Unpaved Areas

The Contractor shall revegetate all unpaved areas disturbed by construction activities using topsoil and sod prior to acceptance of the project. Revegetation shall be acceptable when vegetation growth achieves one (1) inch in height, with 85% coverage, and no greater than 10 square feet bare.

19.02 Protection of Trees, Plants, and Soil

All property along and adjacent to the CONTRACTOR’S operations, including lawns, yards, shrubs, trees, etc., shall be preserved or restored after completion of the work, to a condition equal to or better than existed prior to start of the work. Trees which are to remain are identified on the drawings and boring may be required to preserve the designated trees. Landscaping is considered to include all plants, shrubs, trees, bedding, edging, landscape rocks, and any other element included in a landscaped area.

The Contractor shall protect and maintain all existing landscaping outside the limits of disturbance. For landscape beds outside of the right-of-way and utility easement, it is the CONTRACTOR’S responsibility to document the existing landscaping. Any damage done to the existing landscape beds that are not designated for removal shall be considered subsidiary to other items. It is the CONTRACTOR’S responsibility to protect all existing landscape items to avoid the need for restoration.

Any trees or other landscaped features removed without the approval of the property owner and the ENGINEER or that are scarred or damaged by the CONTRACTOR'S operations shall be restored or replaced at the CONTRACTOR'S expense.

Trimming or pruning to facilitate the work will be permitted only by experienced workmen in an approved manner and only with the property owner's permission. Pruned limbs of 1" (one) diameter or larger, shall be thoroughly treated as soon as possible with a tree wound dressing. Trees shall be trimmed and pruned in accordance with Technical Specification 32 90 00.

The CONTRACTOR shall take all precautions required to prevent soil erosion during construction. If excessive erosion occurs, the Contractor shall take immediate measures to prevent further erosion and restore the disturbed surface with topsoil at completion of the work. No separate payment will be made for soil erosion.

19.03 Underground Facilities

All underground facilities along and adjacent to the CONTRACTOR'S operations including site storm drains (area drains, trench drains, etc), septic tanks, drainfields, sprinkler systems, butane tanks, etc., shall be preserved or restored after completion of the work, to a condition equal to or better than existed prior to start of the work. No separate payment will be made for damage to underground facilities aside from irrigation damage.

The CONTRACTOR shall protect and maintain all existing irrigation features outside the limits of disturbance. It is the CONTRACTOR'S responsibility to document the existing working condition of all existing irrigation systems. Refer to Bid Item BATES-91 IRRIGATION SYSTEM INSTALLATION for additional irrigation installation and restoration requirements.

19.04 Confinement of Work

The Contractor shall confine his construction activity and storage of material and equipment to the limits of the right-of-way and utility easements.

19.05 Impairment of Access

Contractor shall make every reasonable effort to assure that adequate access is maintained to adjacent properties during the project. If conditions exist, occur or are encountered by the CONTRACTOR that will result in or cause any delay in the CONTRACTOR'S performance of any part of the work beyond the time specified in the Agreement, Contractor shall take all reasonable steps necessary to assure that such prolonged performance does not materially or substantially impair access to adjoining businesses and properties, whether such impairment is inherently caused by the nature of the work, by the placement of temporary barriers by the CONTRACTOR or by any other cause. CONTRACTOR covenants and agrees to indemnify, hold harmless and defend OWNER, its officers, agents, servants and employees from and against any and all claims, damages, losses and expenses, including but not limited to attorneys fees and court costs and other incidental

litigation expenses, occasioned by or arising out of any claim or lawsuit, whether real or asserted, relating to such unnecessary or unreasonable impairment of access, whether based upon inverse condemnation, unnecessary or illegal taking of property or any other cause of action.

19.06 TxDOT Requirements

The CONTRACTOR shall comply with the rules, regulations, and policies of the Texas Department of Transportation related construction within TxDOT right-of-way. The CONTRACTOR shall be responsible for installing erosion and sedimentation controls and instituting traffic control measures consistent with TxDOT requirements.

The CONTRACTOR is responsible for notifying the OWNER in advance of performing work within TxDOT right-of-way and obtaining approval of a Lane Closure Request Form for constructing the inlet and street approach at FM 1709."

SC-20 PAY ITEMS:

Add a new Article to the General Conditions entitled ARTICLE 20 - PAY ITEMS with the following paragraphs to be included:

"Any and all Work specifically called for in the Contract Documents or which is required for the proper construction of items called for in the Contract Documents is to be performed by CONTRACTOR unless specifically indicated otherwise. The cost of all work for which there is no separate pay item in the proposal shall be included in the price for a related pay item such that work called for or required by the Contract Documents will be constructed for the Contract Price.

The following descriptions are intended to clarify the nature of the work required for this project, the provisions of the standard technical specifications shall apply, except as otherwise noted herein:

Each pay item includes all labor, materials, equipment and incidentals necessary to construct that item. The contract shall be awarded based on the "TOTAL BID" or the "TOTAL BASE BID" and "TOTAL ALTERNATE BID" depending on whether the project can be constructed with the alternate bid items included, for the funding that the Owner has budgeted."

BASE BID ITEMS

1 – MOBILIZATION

The work under this item shall be performed in accordance with TxDOT Item 500. This mobilization item includes mobilization for the construction of all items other than the improvements associated with the bid alternates.

MOBILIZATION shall be a maximum of 3% of the total base price.

MEASUREMENT AND PAYMENT: Mobilization will be measured as a lump sum item as the work progresses. Partial payments for mobilization shall be paid for at the Total Unit Price as shown in the bid proposal with the regular monthly estimates

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.

- When 1% and less than 5% of the adjusted contract amount for construction items are completed, 50% of the mobilization lump sum will be paid.
- When 5% and less than 10% of the adjusted contract amount for construction items is completed, 75% of the mobilization lump sum bid will be paid. Previous payments under this section will be deducted from this amount.
- When 10% or more of the adjusted contract amount for construction items is completed, 95% of the mobilization lump sum bid will be paid. Previous payments under this section will be deducted from this amount.
- Payment for the remainder of the lump sum bid for "Mobilization" will be made on the final estimate.

2 – PREPARING ROW

Preparing ROW shall be in accordance with TxDOT Item 100 and the pay item descriptions within the special provisions of this contract. This pay item will include removal of improvements or obstructions specified as subsidiary to Preparing ROW within the Construction Drawings as well as items removal items not specifically provided for in other pay items of the Bid Form/Proposal which may include, but are not limited to: removing fence, asphalt and concrete pavement, drive approaches, curb and gutter, trees, landscaping, tree stumps, shrubbery, plantings, fences, brick features, irrigation items, landscape items, stepping stones, pavers, and other items located within the right-of-way.

The work will also include removal of above ground foliage and tree formations, and complete removal of all root systems below grade for trees/shrubs less than 3 inches in caliper which are not specifically identified for removal on the plans, but are in conflict with the proposed improvements or will have exposed roots due to grading. The City's representative shall authorize any tree/shrub removal which is not specifically identified in the plans.

Only trees, landscaping, and plantings located within the right-of-way and designated for removal on the plans shall be removed.

This Item includes all safety measures and additional traffic control as needed to complete the work. All trees and plant materials shall be properly disposed of offsite.

Pavements and sidewalks shall be patched if necessary to allow for vehicular and pedestrian traffic. All excavated areas shall be backfilled and compacted to prevent additional damage to pavement or other structures.

MEASUREMENT AND PAYMENT: The lump sum unit price shall include, but not be limited to all labor, equipment, and materials necessary for the removal of existing items and the preparation and maintenance of the right-of-way for the duration of construction.

SHOP DRAWING SUBMITTAL: None

3 – PROJECT SIGN

The Contractor shall install up to two (2) Project Signs along S. Elm St. One near Bear Creek Parkway and the other near FM 1709. The exact locations to be determined and approved by the Owner prior to installation. The Project Signs shall be prepared and installed in accordance with the drawings. The Contractor shall maintain the Project Signs for the duration of construction.

Project Signs to be removed within 15 calendar days after the Owner's acceptance of the project.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each project sign furnished.

SHOP DRAWING SUBMITTAL: Required. Provide a Mock-Up of the Project Sign prior to construction.

4 – TREE TRIMMING AND PRUNING

Trees or shrubs which overhang the proposed sidewalk shall be trimmed to be clear of the sidewalk to a height of 72". Tree/shrub trimming is subsidiary to this item. All other trees and landscaping shall be protected from damage as shown in the Construction Drawings. Trimming shall be performed in accordance with the Construction Drawings.

MEASUREMENT AND PAYMENT: The lump sum unit price shall include, but not be limited to all labor, equipment, and materials necessary for the trimming and pruning of tree canopies and roots.

SHOP DRAWING SUBMITTAL: None

5 – PRE-CONSTRUCTION VIDEO

The CONTRACTOR shall perform video of the site including all areas in the vicinity of an to be affected by construction. The CONTRACTOR shall provide a digital copy of the video to the OWNER, and the CONTRACTOR shall retain a copy of all site videos until the end of the maintenance surety period.

1. Pre-Construction: CONTRACTOR shall video the site prior to any construction activities starting.
2. Pre-Franchise Utility Installation: CONTRACTOR shall video the site prior to Phase 3 starting. This video will be used to establish the state of the site prior to the franchise utility companies starting their construction activities.
3. Post-Franchise Utility Installation: CONTRACTOR shall video the site after the franchise utility companies have demobilized, after contract time has started again, prior to removing Phase 3 traffic control and prior to setting up Phase 4 traffic control, and prior to starting any construction activities associated with Phase 4 – 8.
4. Post-Construction: CONTRACTOR shall video the site once it has been cleaned and the CONTRACTOR has fully demobilized.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of each per construction video performed.

SHOP DRAWING SUBMITTAL: None

6 – UNIVERSAL MOUNT FOR POLE AND CAMERA INSTALLATION

There are two locations along the corridor that cameras will be installed. The OWNER will provide the camera and solar power system for both locations. The camera and solar power system are from OxBlue and are the 8MP Sapphire Series Static Cellular Camera and a 24HR Level 3 Solar Power System.

CONTRACTOR to coordinate the final location with the CITY prior to installation.

The CONTRACTOR is responsible for purchasing a 30-foot wooden pole and mounting the camera to the pole using a non-penetrating universal mount. The CONTRACTOR is also responsible for ordering a replacement mount if the one provided is not sufficient.

CONTRACTOR may hire OxBlue to install the equipment.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

7 – CONSTRUCTION ALLOWANCE

This pay item shall be used at the discretion of the OWNER for unforeseen or missed items. Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid and understand the intent is not to utilize this item. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: None

8 – CONSTRUCTION STAKING AND SURVEY

This pay item shall be used by the CONTRACTOR for administering construction staking and survey as stated under SC-4.05 REFERENCE POINTS. All costs associated with inspections and testing will be subsidiary to this item. CONTRACTOR shall have a survey team available to provide survey and staking during construction within 24 hour notice to provide information to OWNER when field revisions or questions occur.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum.

SHOP DRAWING SUBMITTAL: Survey and staking points and AutoCAD files to be provided as requested.

9 – CONSTRUCTION INSPECTIONS AND TESTING

This pay item shall be used by the CONTRACTOR for administering construction material testing and inspections as stated under SC-13.03 TESTS AND INSPECTIONS. All costs associated with inspections and testing will be subsidiary to this item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum.

SHOP DRAWING SUBMITTAL: Submittals shall be provided for each item to be tested.

10 – ON-SITE CONSTRUCTION TRAILER

Furnish an on-site construction trailer for use as a field office in accordance with TxDOT Item 504. This pay item shall be used by the CONTRACTOR for providing an on-site trailer for the duration of construction in the location established by the OWNER as shown in the Construction Drawings. All costs associated with placing and maintaining a construction trailer will be subsidiary to this item. Refer to bid item Construction Trailer Site Improvements for any necessary site improvements.

Site trailer location to be identified prior to Notice to Proceed. The CONTRACTOR is not responsible for obtaining a location for the site trailer.

CONTRACTOR to provide a construction trailer with the following amenities:

1. Office for OWNER
2. Meeting space for field meetings and property owner meetings. Meeting space should accommodate at least 6 people.
3. Restroom facility that is cleaned and serviced at a minimum twice a week. Cleanliness to be maintained to the satisfaction of the OWNER.
4. CONTRACTOR is responsible for providing the following utilities to the site trailer: water, sewer, electric, and internet.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum.

SHOP DRAWING SUBMITTAL: None

11 – ON-SITE CONTRACTOR REPRESENTATIVE

This pay item shall be used by the CONTRACTOR for providing an on-site representative for the duration of construction. On-site representative must meet the requirements outlined in the Instructions to Offerors, Statement of Qualifications, and the Construction Drawings.

CONTRACTOR is responsible for logging when they are on-site. Logs shall be submitted with progress payment applications to verify monthly payment amount.

MEASUREMENT AND PAYMENT: Payment for this item will be measured as a monthly item as the work progresses. Monthly payment will be prorated based on whether or not the on-site representative is on-site for the duration of the required office hours per the Construction Drawings.

If for some reason, the on-site representative is not able to be on-site or is not needed on-site, the monthly payment will be adjusted based on the following:

- On-site representative is required to be on-site for 90% of the office hours to be counted a full day.

- When the on-site representative is absent for more than 5 days in a month, 75% of the monthly sum will be paid.
- When on-site representative is absent between 5 and 10 days in a month, 50% of the monthly sum bid will be paid. Previous payments under this section will be deducted from this amount.
- If the on-site representative is absent more than days 10 in a month, 0% of the monthly sum bid will be paid. Previous payments under this section will be deducted from this amount.

SHOP DRAWING SUBMITTAL: Monthly office hour logs.

12 – BARRICADES, SIGNS, AND TRAFFIC HANDLING

The work under this item shall be performed in accordance with TxDOT Item 502.

This item shall include the furnishing and installing traffic control devices in accordance with the Traffic Control Plan in the Construction Drawings for the Base Bid and Bid Alternatives 1 and 2. Traffic control shall comply with the Texas Manual of Uniform Traffic Control Devices, TxDOT Item 502, and City Ordinances.

The standard details shall be considered the minimum requirements necessary to construct the project. Additional measures may be needed to address local traffic control issues and additional sequencing not covered. Prior to construction, the CONTRACTOR shall submit schedule and any additional phasing or traffic control information needed.

A schedule shall also be submitted to address times of completion of each stage of the construction sequence and projected dates of road closings, detours, and utility interruptions. The CONTRACTOR shall update this schedule on a monthly basis.

The CONTRACTOR shall follow the sequence of construction. Any deviations from the Plans must be submitted in writing to the OWNER for approval. Proper notification must be given to all affected property owners in advance of all construction operations per the plans.

Access to adjacent properties must be maintained except for short periods of time when construction actually blocks the driveway. When possible, the CONTRACTOR shall place gravel or take other means to ensure all-weather access to properties after working hours and during weekends and holidays.

MEASUREMENT AND PAYMENT: The lump sum unit price shall include, but not be limited to all labor, equipment, and materials necessary to implement, maintain, move and remove traffic control devices during all phases of construction.

SHOP DRAWING SUBMITTAL: Required. Provide supplemental information for custom signs, barricade/signing placement, and any proposed modifications to the Traffic Control Plan or Sequence of Traffic Control included in the Construction Drawings. Contractor to provide shop drawings at least 10 days prior to installation of traffic control devices.

13 – CONSTRUCTING DETOURS

The work under this item shall be performed in accordance with TxDOT Item 508. This item includes the portable message boards and all signage as shown for all detours provided.

MEASUREMENT AND PAYMENT: Detour routes will be measured and paid for by each for the duration the detour route will be used for each phase used. The unit price shall include, but not be limited to all labor, equipment, and materials necessary to implement, maintain, move and remove traffic control devices for each detour route.

SHOP DRAWING SUBMITTAL: Required. Provide supplemental information for custom signs, portable message board text, and any proposed modifications to the detour routes. Contractor to provide shop drawings at least 10 days prior to installation of detour routes.

14 – TEMPORARY ASPHALT (TRENCH REPAIR, W-05, S-13, AND D-20)

Install trench section in accordance with City Details, Construction Drawings, and other bid item descriptions. Refer to the Construction Drawings for additional information.

Removal of trench repair is considered subsidiary to this item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard of Temporary Asphalt installed per the construction drawings.

SHOP DRAWING SUBMITTAL: Required. Provide mix designs at least 10 days prior to ordering materials.

15 – TEMPORARY ASPHALT (WIDENING AND TEMPORARY ASPHALT TRANSITIONS)

Install asphalt and subgrade in accordance with Construction Drawings and other bid item descriptions. Refer to the Construction Drawings for additional information.

Removal of temporary asphalt is considered subsidiary to this item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard of Temporary Asphalt installed and removed per the construction drawings.

SHOP DRAWING SUBMITTAL: Required. Provide mix designs at least 10 days prior to ordering materials.

16 – TEMPORARY ASPHALT (LEVEL-UPS AS NEEDED, HMAC TY D)

Install asphalt level-up in accordance with Construction Drawings and NCTCOG 302.9. Refer to the Construction Drawings for additional information.

Removal of temporary asphalt is considered subsidiary to this item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard of Temporary Asphalt installed and removed per the construction drawings.

SHOP DRAWING SUBMITTAL: Required. Provide mix designs at least 10 days prior to ordering materials.

17-19 – WORK ZONE PAVEMENT MARKINGS

The work under these items shall be performed in accordance with TxDOT Item 662. These items include installation and removal of broken and solid white work zone pavement markings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot of work zone pavement markings installed and removed. No separate pay will be given for the installation or removal.

SHOP DRAWING SUBMITTAL: None

20 – 140 S ELM ST TEMPORARY SITE IMPROVEMENTS

CONTRACTOR may use 140 S. Elm St to store construction equipment and materials. CONTRACTOR to construct gravel staging area, fencing, driveway, and other site improvements per the Construction Drawings. All improvements associated with the site storage area are considered subsidiary to SITE STORAGE – 140 S ELM ST.

The site location has proposed improvements on it. CONTRACTOR to fully clear the site of gravel, debris, fencing, and any other construction material before completing permanent improvements. All activities associated with clearing the site and preparing for construction of proposed improvements is subsidiary to SITE STORAGE – 140 S ELM ST.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum

SHOP DRAWING SUBMITTAL: None

21-23 – 137 TAYLOR ST TEMPORARY SITE IMPROVEMENTS

CONTRACTOR to perform site improvements at 137 Taylor St in accordance with the Construction Drawings.

CONTRACTOR may use a portion of 137 Taylor St to store construction equipment and materials. CONTRACTOR to construct gravel staging area, fencing, driveway, and other site improvements per the Construction Drawings. All improvements associated with the site storage area are considered subsidiary to SITE STORAGE – 137 TAYLOR ST.

CONTRACTOR to construct an access drive for use by the business Sweet Memories Cakes and Catering. This driveway to be the minimum width shown. CONTRACTOR to verify the turn to access the parking lot is large enough and the pavement width is wide enough to allow a delivery truck. CONTRACTOR to coordinate with property owner on size requirements. CONTRACTOR to field adjust as necessary. All improvements associated with constructing the asphalt access drive is considered subsidiary to 137 TAYLOR ST – ACCESS DRIVE.

Upon construction completion, site shall be restored to equal or better conditions. Refer to Construction Drawings for post-construction requirements. Installing topsoil, sod, regrading, removal of access drive, removal of site storage, removal of pavement markings, installation of pavement markings, installation of wheel stops, and any other activities post-construction to restore the site is considered subsidiary to 137 TAYLOR ST – POST CONSTRUCTION. Refer to SITE IMPROVEMENT PLAN in the Construction Drawings.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: None

24 – CONSTRUCTION TRAILER SITE IMPROVEMENTS ALLOWANCE

Improve the site designated for the site trailer per the Construction Drawings. This bid item does not include the rental and maintenance of the site trailer. Items included in this bid item are for performing site construction such as on-site parking, sidewalks, drive isles, storage fencing, gravel, etc.

Construction Trailer shall have the following site requirements:

- (3) designated parking stalls
 - CONTRACTOR may need to construct parking stalls if existing parking stalls are not located within construction site trailer limits.
- Sidewalk shall be provided from parking stalls to site trailer entrance.
- Drive isles shall be provided to access site trailer
 - CONTRACTOR may need to construct a driveway or drive isle as needed to access the site.
- Material Storage
 - The location identified for the site trailer may be large enough to accommodate a site trailer and material storage. If the CONTRACTOR wants to utilize the site for material storage, a fencing and a gravel surface is required. Refer to 137 Taylor St site improvements.

A location will be identified prior to the Notice to Proceed. The site will be large enough to accommodate a site trailer and on-site parking. The site may not be large enough for material storage.

This pay item shall be used at the discretion of the OWNER for the Construction Trailer Site Improvements. Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid and understand that the entire allowance may not be used. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: None

25 – TEMPORARY DRIVEWAY AND SIDE STREET CULVERT

Place temporary culvert per Construction Drawings. CONTRACTOR to provide culvert pipe matching the size and material of existing storm pipe.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot of driveway culvert installed and removed. No separate pay will be given for the installation or removal.

SHOP DRAWING SUBMITTAL: None

26 – ADJUST ALL SURFACE APPURTENANCES TO FINAL GRADE

Due to construction phasing, proposed manholes, groundboxes/handholes, meters, valves, etc may not be able to be placed at final grade elevations. The work under this item shall include adjusting all surface appurtenances to final grade for all surface appurtenances that require multiple adjustments. If an appurtenance can be placed at it's final grade elevation, that placement will be subsidiary to the installation of that item. No separate pay will be given for items constructed or installed at final grade.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price lump sum.

SHOP DRAWING SUBMITTAL: None

27 – STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND EROSION CONTROL ITEMS

This item shall include the furnishing and implementation of the SWPPP and erosion control in accordance with the Traffic and Erosion Control Plan in the Construction Drawings for the Base Bid and Bid Alternatives 1 and 2. The work under this item shall be performed in accordance with TxDOT Item 506.

It will be the responsibility of the Contractor to develop a SWPPP in accordance with local, state, and federal laws. It is also the responsibility of the Contractor to obtain any necessary local, state, and federal permits required to perform the work. The Contractor may use the drawings to develop the SWPPP. The Contractor shall submit the plan to the Owner in accordance with NCTCOG Specification Item 105.3. The SWPPP is to be kept on the construction site and implemented throughout the construction duration.

Implementation of the SWPPP, installation of erosion control devices, maintenance of such devices, removal of the devices after completion of the project, all required documentation, and any required application fees for any and all necessary permits shall be included in the price of this item. The Contractor shall submit any permits obtained to the OWNER AND ENGINEER.

The only item paid for separately is Tree Protection. All other items are considered subsidiary to this bid item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price of lump sum for the preparation of the SWPPP and its implementation, including any site postings from the beginning of construction through final

acceptance and establishment of grass coverage. Payment will be made on a monthly basis by dividing the lump sum contract price by the total contract time in months for the project.

SHOP DRAWING SUBMITTAL: None. Standard submittals are still required for SWPPP based on local, state, and federal requirements.

28 – TREE PROTECTION

The work under these items shall be performed in accordance with TxDOT Item 1004, the City Details, and Construction Drawings. Refer to the Construction Drawings for proposed tree protection fencing locations.

If construction activities are still occurring with equipment that could damage a tree at the time planting activities occur, tree protection fencing is required for all newly planted, existing, and transplanted trees. Once trees are transplanted, CONTRACTOR shall install fencing around transplanted trees. Once proposed trees are installed, CONTRACTOR shall install fencing around newly planted trees.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per tree protected and shall include the installation and removal of the tree protection.

SHOP DRAWING SUBMITTAL: None

29-32 – REMOVE TREE (VARIOUS SIZES)

The work under this item shall be performed in accordance with TxDOT Item 100.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each tree removed.

SHOP DRAWING SUBMITTAL: None

33 – TRANSPLANT TREE

The work under this item shall be performed in accordance with the Construction Drawings. Item to include the extraction, storage, and planting of the tree to be transplanted. No separate pay will be given for the extraction and storing of the tree while waiting to be planted.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each tree transplanted.

SHOP DRAWING SUBMITTAL: None

34-69 – REMOVAL ITEMS

Refer to the Construction Drawings for the location of removal items and additional information. Perform removals in accordance with TxDOT Items 104, 105, and 644 and NCTCOG Item 203.1 and the Construction Drawings.

Removal of temporary asphalt is subsidiary to items 17 through 19.

Remove existing mailboxes in accordance with TxDOT Item 560 and the Construction Drawings. The use of a temporary mailbox will be as needed and will be subsidiary to REMOVE MAILBOX. Refer to Construction Drawings for additional bid item information.

Bid item REMOVE CONC (CURB AND GUTTER) includes the removal of sections with curb and gutter, only gutter, roll/mountable curb with gutter, and any other types of curbing or gutter within the removal limits. No separate pay will be given for the various types of curbing and gutter.

Bid item REMOVE CULVERT PIPE (12" TO 36" DIA) includes the removal of all types and sizes of storm pipe within the project limits.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: None

70 – REMOVE AND DISPOSE OF GATE VALVE

Remove and dispose of existing gate valve and gate box.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

71 – REMOVE AND SALVAGE OF GATE VALVE

Remove and salvage existing gate valve. Return the gate valve to the City.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

72 – REMOVE AND SALVAGE FIRE HYDRANT

Remove and salvage existing fire hydrant. Return the fire hydrant to the City.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per each fire hydrant assembly removed.

SHOP DRAWING SUBMITTAL: None

73 – PRE-CONSTRUCTION CCTV OF SANITARY SEWER

Perform CCTV of existing sanitary sewer lines along the limits of the Project to determine all sanitary sewer service connection locations.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price lump sum.

SHOP DRAWING SUBMITTAL: None

74-77 – AWWA C900 PVC DR 18 WATER PIPE (6", 8", AND 12")

Construct PVC water pipe for each size specified in accordance with Technical Specification 33 11 12, City Details, and the Construction Drawings. Refer to Construction Drawings for proposed pipe locations.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

78 – STEEL CASING PIPE (16")

Construct steel casing pipe for each size specified in accordance with City Details and the Construction Drawings. Refer to Construction Drawings for proposed pipe locations.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

79 – WATER CARRIER PIPE (8")

Construct water carrier pipe for each size specified in accordance with Technical Specification 33 11 12, City Details, and the Construction Drawings. Refer to Construction Drawings for proposed pipe locations.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

80 – DUCTILE IRON FITTINGS

The work under these items shall be performed in accordance with Technical Specification 33 11 12 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per ton.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

81-83 – RESILIENT SEATED GATE VALVE W/BOX (6", 8", AND 12")

Construct resilient seated gate valve with box for each size specified in accordance with Technical Specification 33 12 20, City Details, and the Construction Drawings. Refer to the Construction Drawings for locations.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

84 – FIRE HYDRANT ASSEMBLY

This item shall consist of all the work, labor, equipment, and materials to furnish and install Fire Hydrants Assembly, complete in place. Hydrant extensions and incidentals necessary

to complete the work including connection to the proposed main, pipe from proposed main to fire hydrant location, gate valve, concrete blocking, and all other items necessary to install a fire hydrant at the locations shown in the Construction Drawings, City Details, and Technical Specification 33 12 40.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per each fire hydrant assembly installed.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

85 – 2" WATER SERVICE

Construct 2" water service in accordance with City Details and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

86 – 1" WATER SERVICE

Construct 1" water service in accordance with City Details and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

87 – 5/8" WATER SERVICE METER AND RE-CONNECTION

Install City provided 5/8" water service meter and re-connect to existing private water service in accordance with City Details and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

88 – TEMPORARY 5/8" WATER SERVICE METER AND RE-CONNECTION

Install City provided 5/8" temporary water service meter and re-connect to existing private water service in accordance with City Details and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

89 – CONNECT TO EXISTING 6" – 12" WATER LINE

This item shall consist of all the work, labor, equipment, and materials to connect to existing water lines as indicated in the Construction Drawings and in accordance with Technical Specification 33 12 25.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Temporary water service plan, if required for connection.

90 – CONNECT TO EXISTING 6" FIRE LINE

This item shall consist of all the work, labor, equipment, and materials to connect to existing fire lines as indicated in the Construction Drawings and in accordance with Technical Specification 33 12 25.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None. Plan for fire watch on properties affected.

91 – TEMPORARY WATER SERVICE ALLOWANCE

This item shall consist of all the work, labor, equipment, materials, and submittals and incidentals required as part of providing temporary water service during construction to affected properties as indicated in the Construction Drawings and in accordance with Technical Specification 33 04 30. This does not include the Temporary 5/8" Water Service Meter And Re-Connection listed above.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per lump sum. Refer to Technical Specification 33 04 30 for additional information.

SHOP DRAWING SUBMITTAL: Required. Submit Temporary Water Service Plan for City review and acceptance per Technical Specification 33 04 30.

92-93 – 8" SANITARY SEWER PIPE

Construct sanitary sewer pipe in accordance with Technical Specification 33 31 20, City Details, and the Construction Drawings.

All labor, equipment, materials, and submittals required as part of bypass pumping, if necessary, will be considered subsidiary to pipe installation.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

94-96 – SANITARY SEWER STANDARD AND INTERNAL DROP MANHOLE (4' AND 5')

Construct sanitary sewer manhole for each size and type in accordance with Technical Specification 33 39 10, Technical Specification 33 39 20, City Details, and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets for pre-cast or concrete mix designs for cast-in-place. Product data sheets for materials of drop piping.

97 – SANITARY SEWER SERVICE W/CLEANOUT

Construct sanitary sewer service with cleanout in accordance with Technical Specification 33 31 50, City Details, and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

98 – SANITARY SEWER RECONNECTION

Construct sanitary sewer service with cleanout in accordance with Technical Specification 33 31 50, City Details, and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

99 – CLEANOUT CAP ADJUSTMENT

Adjust sanitary sewer cleanout cap in accordance with Technical Specification 33 31 50, City Details, and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

100 – MANHOLE VACCUUM TESTING

Test manholes in accordance with Technical Specification 33 01 30.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Method of testing and equipment being used.

101 – CONCRETE ENCASE EXISTING UTILITY

Provide concrete encasement in accordance with NCTCOG 504.5.2.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per linear foot.

SHOP DRAWING SUBMITTAL: None

102 – CONNECT TO EXISTING 6” – 12” SANITARY SEWER LINE

This item shall consist of all the work, labor, equipment, and materials to connect to existing sanitary sewer lines as indicated in the Construction Drawings and in accordance with Technical Specification 33 31 20.

All labor, equipment, materials, and submittals required as part of temporary water service, if necessary, will be considered subsidiary to the connection.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

103 – SANITARY SEWER AND WATER TRENCH SAFETY

Provide trench safety in accordance with NCTCOG 107.20 and OSHA regulations.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per linear foot.

SHOP DRAWING SUBMITTAL: None

104 – EXPLORATORY EXCAVATION OF EXISTING UTILITIES

The work under these items shall be performed in accordance with Technical Specification 33 05 30 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

105 – COORDINATION WITH FRANCHISE COMPANIES ALLOWANCE

This pay item shall be used at the discretion of the OWNER for all items associated with coordination with the franchise utility companies. This includes all coordination with communication, electrical, and gas companies within the project limits. Coordination with Oncor as part of this item includes installation of all electrical improvements apart of the street lights.

Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: None.

106 – FRANCHISE UTILITY ALLOWANCE

This pay item shall be used at the discretion of the OWNER for unforeseen or missed items as well as any revisions to the franchise utility design between bidding and construction due to ongoing coordination with the franchise companies. Any work

performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid and understand the intent is not to utilize this item. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: None

107 – EXPLORATORY EXCAVATION OF EXISTING UTILITIES

The work under these items shall be performed in accordance with TxDOT Item 7153 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

108 – REMOVE CONDUIT AND MISCELLANEOUS SURFACE APPURTENANCES

Refer to the Construction Drawings for the location of removal items and additional information. Perform removals in accordance with NCTCOG Item 203.1 and the Construction Drawings. Remove all existing electrical and communication conduit within the limits of the project.

Removal of Miscellaneous Surface Appurtenances includes the removal of any franchise utility item not categorized as a conduit, manhole, or groundbox/handhole. This could include, but is not limited to: markers, signs, miscellaneous concrete/foundations, abandoned equipment, etc.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: None

100-110 – REMOVE MANHOLES AND GROUNDBOXES/HANDHOLES

Refer to the Construction Drawings for the location of removal items and additional information. Perform removals in accordance with NCTCOG Item 203.1 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

111 – REPLACE EX GROUNDBOX/HANDHOLE LID AND ADJUST TO GRADE

The work under this item shall be performed in accordance with the Construction Drawings. Locations designated to have the lid replaced, CONTRACTOR to replace the lid with a lid that fits the existing handhole and that says "COMMUNICATIONS". CONTRACTOR to coordinate with the owning franchise utility company to verify they do not want to provide a handhole/groundbox lid.

Coordination with franchise companies is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

112 – 18 CONDUIT COMMUNICATION DUCT BANK

The work under this item shall be performed in accordance with the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

113 – COMMUNICATION MANHOLE

The work under this item shall be performed in accordance with the Construction Drawings. Manhole may be precast or cast-in place. Manhole to have a riser with Communication manhole cover.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Detail from product supplier if using precast. Detail showing conduit penetrations, reinforcing, and dimensions if casting in place. Details to be signed and sealed.

114-116 – AT&T ITEMS

Refer to the Construction Drawings for the location of AT&T conduit, manhole, and groundbox/handhole items and additional information. Install conduit in accordance with the Construction Drawings and TxDOT Item 618.

Install AT&T equipment including manholes and handholes in accordance with the Construction Drawings and AT&T Specifications. AT&T will provide the handhole for installation. CONTRACTOR to install handhole. CONTRACTOR to construct AT&T manhole per Construction Drawings.

Coordination with AT&T is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Provide product information for conduit. Conduit to have colored stripe per AT&T requirements.

117-120 – FRONTIER ITEMS

Refer to the Construction Drawings for the location of Frontier conduit, manhole, vaults, pullboxes, and groundbox/handhole items and additional information. Frontier will provide conduit for installation. CONTRACTOR to install conduit in accordance with the Construction Drawings, TxDOT Item 618, and Frontier Specifications.

Install Frontier equipment including manholes, pullboxes, and vaults in accordance with the Construction Drawings and Frontier Specifications. CONTRACTOR to provide stub-ups at proposed handhole/groundbox locations. Frontier to install handholes/groundboxes.

Manholes, risers, and vaults to have a riser with Frontier manhole cover. If a manhole riser is unable to be provided due to depth or other site constraint, CONTRACTOR may request an alternative surface access.

Coordination with Frontier is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required

1. Conduit: Provide product information for conduit. Conduit to have colored stripe per Frontier requirements.
2. Manholes, Vaults, and Pullboxes: Detail from product supplier if using precast. Detail showing conduit penetrations, reinforcing, and dimensions if casting in place. Details to be signed and sealed.

121-122 – CONDT (PVC) (SCH 80) (2" AND 4") - SPECTRUM

Refer to the Construction Drawings for the location of Spectrum conduit, pedestals, and vault items and additional information. Install conduit in accordance with the Construction Drawings and TxDOT Item 618.

CONTRACTOR to provide stub-ups at proposed pedestal and vault locations. Spectrum to install pedestals and vaults.

Coordination with Spectrum is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None

123-126 – UPN ITEMS

Refer to the Construction Drawings for the location of UPN conduit and groundbox/handhole items and additional information. CONTRACTOR to install conduit in accordance with the Construction Drawings and TxDOT Item 618. CONTRACTOR to install groundbox/handhole items in accordance with the Construction Drawings and TxDOT Item 624.

Coordination with UPN is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required

1. Conduit: Provide product information for conduit. Conduit to have colored stripe per Lumen requirements.
2. Groundboxes/Handholes: Provide information in accordance with TxDOT Item 624.

127-129 – LUMEN ITEMS

Refer to the Construction Drawings for the location of Lumen conduit and groundbox/handhole items and additional information. CONTRACTOR to install conduit in accordance with the Construction Drawings and TxDOT Item 618. CONTRACTOR to install groundbox/handhole items in accordance with the Construction Drawings and TxDOT Item 624.

Coordination with Lumen is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required.

3. Conduit: Provide product information for conduit. Conduit to have colored stripe per Lumen requirements.
4. Groundboxes/Handholes: Provide information in accordance with TxDOT Item 624.

130-132 – CONDT (PVC) (SCH 80) (2", 4", AND 6") - ONCOR

Refer to the Construction Drawings for the location of Oncor conduit and additional information. Install conduit in accordance with the Construction Drawings and TxDOT Item 618.

Coordination with Oncor is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None.

133 –ONCOR 6'X4' JUNCTION BOX

Refer to the Construction Drawings for the location of Oncor Junction Box. Install in accordance with Construction Drawings and Oncor Specifications.

Coordination with Oncor is subsidiary to bid item Coordination with Franchise Companies.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Detail from product supplier if using precast. Detail showing conduit penetrations, reinforcing, and dimensions if casting in place. Details to be signed and sealed.

134-136 – ONCOR SWITCHGEAR AND TRANSFORMER FOUNDATION

The work under this item shall be performed in accordance with the Construction Drawings and Oncor Specifications.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

137 – 5" CONCRETE RIPRAP

Construct concrete riprap in accordance with City Details and the Construction Drawings. Refer to the Construction Drawings for the location concrete riprap.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

138 – RIPRAP (STONE PROTECTION)(24IN)

Construct rock riprap in accordance with TxDOT Item 432, TxDOT Details, and the Construction Drawings. Refer to the Construction Drawings for the location of rock riprap.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard.

SHOP DRAWING SUBMITTAL: None

139 – RELOCATE STONE RIPRAP

Remove, clean, and relocate stone riprap specified in the Construction Drawings to the storm drain System A or B outfall. CONTRACTOR to coordinate with the OWNER for final location. Refer to the Construction Drawings for the location of rock riprap.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard.

SHOP DRAWING SUBMITTAL: None

140 – CONCRETE FLUME

Construct concrete flume in accordance with City Details and the Construction Drawings. Refer to the Construction Drawings for the location concrete riprap.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

141 – WINGWALL (FW-0)

Install wingwall in accordance with TxDOT Item 466 and the Construction Drawings. Refer to Construction Drawings for the location of wingwall.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: None

142 – TXDOT TY II SAFETY END TREATMENT

Install safety end treatment in accordance with TxDOT Item 467 and the TxDOT detail for Safety End Treatments. Refer to Construction Drawings for the location of TxDOT Safety End Treatments.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

143-146 – STORM DRAIN JUNCTION BOX, VAULTS, AND MANHOLE RISERS

Construct curb inlets in accordance with Construction Drawings. Refer to the Construction Drawings for additional details, types, locations, and sizes. Refer to Construction Drawings for information on cast-in-place and pre-cast parts.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: None

147-148 – ADS AREA DRAINS

Construct the ADS area drains in accordance with manufacturer's recommendations and the Construction Drawings. Refer to the Construction Drawings for ADS area drain locations, system components, and construction information.

This item shall include all labor, materials, equipment, and incidentals necessary to install the trench drain system as shown in the plans.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per each.

SHOP DRAWING SUBMITTAL: Required.

1. ADS Area Drain: Provide a product information sheet for the area drain. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

149-150 – 6” AND 12” SCH 80 PVC PIPE

The work under this item shall be performed in accordance with NCTCOG 501.14 and the Construction Drawings. Refer to the Construction Drawings for 6” PVC Storm Pipe locations. 6” PVC is used to connect the proposed ADS Area Drains and any existing area drains to the proposed storm drain system. Connect PVC storm pipe to RCP or RCB using a concrete collar. Concrete collar is subsidiary to pipe installation.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None.

151 – LOCATE AND CONNECT EX AREA DRAIN TO PROP STORM

Refer to the Construction Drawings for existing area drain locations. This item is used to connect existing area drains to the proposed storm system as needed with materials other than PVC Pipe.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

152-158 – REINFORCED CONCRETE PIPE AND BOX

Install reinforced drainage pipe and box in accordance with TXDOT Item 464 and 465 and the Construction Drawings. Connections to proposed reinforced concrete pipe, reinforced concrete box, drop inlets, manholes, and storm vaults is considered subsidiary to pipe and box installation. No separate pay will be provided for connections to existing features.

Removal of all abandoned utility lines within the proposed storm drain trench will be quantified separately under the pertinent removal items.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None

159-168 – INLETS (VARIOUS TYPES AND SIZES)

Construct curb inlets in accordance with City Details, TxDOT Details, and the Construction Drawings. Refer to the Construction Drawings for locations of various types of curb inlets and sizes.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

169 – STORM DRAIN TRENCH SAFETY

Provide trench safety in accordance with NCTCOG 107.20 and OSHA regulations.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per linear foot.

SHOP DRAWING SUBMITTAL: None

170 – EXCAVATION (ROADWAY)

The work under this item shall be performed in accordance with TxDOT Item 110.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard of excavated soil.

SHOP DRAWING SUBMITTAL: None

171 – EMBANKMENT (FINAL)(DENS CONT)(TY A)

The work under this item shall be performed in accordance with TxDOT Item 132.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per cubic yard of embanked soil.

SHOP DRAWING SUBMITTAL: None

172-173 – FLEXIBLE BASE, TYPE A, GR 1-2 (6" AND 8")

Construct flexible base subgrade in accordance with NCTCOG Specification 301.5. Refer to the Construction Drawings for subgrade thickness and additional details. Refer to the geotechnical report for additional information

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard.

SHOP DRAWING SUBMITTAL: None

174-176 – ASPHALT PAVEMENT (TY D AND TY B)

Install Type B asphalt pavement in accordance with NCTCOG 302.8. Install Type D asphalt pavement in accordance with NCTCOG 302.9. Refer to the Construction Drawings for pavement thickness, locations for asphalt paving, and grading information.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per square yard of 2" Asphalt Surface Course (TY D) or per square yard of 4" Asphalt Base Course (TY B) installed.

SHOP DRAWING SUBMITTAL: Required. Provide an asphalt mix design in accordance with NCTCOG. Provide mix designs at least 10 days prior to ordering materials.

177-179 – ROADWAY INTEGRAL COLORED AND TEXTURED CONCRETE AND ROCK SALT AND SCORED CONCRETE

The work under these items shall be performed in accordance with Technical Specification 32 13 13 and the Construction Drawings. Refer to the Construction Drawings for decorative concrete pavement thickness, locations for decorative concrete, grading, and construction details.

These items shall include all the work necessary to construct the decorative concrete in accordance with the construction drawings. No separate pay will be given for sealant, integral color, antiquing release, stamps, rock salt, or any other materials, labor, and incidental item needed to construct the concrete.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per square yard per type of decorative concrete.

SHOP DRAWING SUBMITTAL: Required.

1. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
2. Jointing Plan: Contractor is required to submit a jointing plan prior to starting construction. Jointing plan to include location of joints, type of joints, and joint filler with proposed sealant, as well as required information per Construction Drawings.

180-183 – CONCRETE ROADWAY PAVEMENT (WITH AND WITHOUT MONOLITHIC CURB)

Refer to the Construction Drawings and City Details for thickness, locations with monolithic curb, grading, and construction information. Install concrete pavement in accordance with NCTCOG 305.2.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

184-185 – CONCRETE DRIVEWAY

Refer to the Construction Drawings and City Details for proposed driveway locations, grading, and construction information. Install concrete pavement in accordance with NCTCOG 303 and 305.2.

Install High Early Strength concrete in accordance with TxDOT Specification Item 360.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per square yard of 6" Concrete Driveway or 6" HIGH-EARLY STRENGTH CONCRETE DRIVEWAY installed.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

186-187– 6" CONCRETE CURB & GUTTER AND 1.5' WIDE CONCRETE GUTTER

The work under these items shall be performed in accordance with TxDOT Item 529 and the TxDOT Detail CCCG-22.

Construct the 1.5' wide concrete gutter section per the TxDOT Detail CCCG-22 for Type II curb and gutter without the curb section.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

188 – VARIABLE HEIGHT BACK TO BACK CURB AND GUTTER

Construct variable height back to back curb and gutter in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the back to back curb and gutter.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

189-192 – 4" DECORATIVE SIDEWALK AND MEDIAN

The work under these items shall be performed in accordance with Technical Specification 32 13 13 and the Construction Drawings. Refer to the Construction Drawings for decorative sidewalk locations, grading, and construction details.

These items shall include all the work necessary to construct the decorative sidewalk in accordance with the construction drawings. No separate pay will be given for sealant, integral color, antiquing release, stamps, rock salt, or any other materials, labor, and incidental item needed to construct the concrete.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

193 – 4" CONCRETE SIDEWALK

Construct concrete sidewalk in accordance with City Details and the Construction Drawings. Refer to the Construction Drawings for the location of concrete sidewalk.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

194 – SIDEWALK EDGE PROTECTION

Construct sidewalk edge protection in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the sidewalk edge protection.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

195-198 – CURB RAMPS

The work under these items shall be performed in accordance with TxDOT Item 531 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

199 – STAIRS (BY LOCATION)

Construct stairs in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the stairs. Contractor to establish number of stairs needed per location to meet elevation changes and ADA requirements.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each location that has stairs. No separate pay will be given for each stair.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

200 – PEDESTRIAN RAMP AND RESTORE WOOD RAILING (252 S. ELM ST)

Re-construct existing ramp as needed to maintain an 8 percent or less running slope from top of sidewalk to ramp tie-in location in accordance with PROWAG. Remove, salvage, and reinstall existing wood railing. If wood railing is not salvageable, replace wood railing and paint to match existing.

The intent is that the ramp and wood railing match the existing condition to the property owner's satisfaction. Coordinate with the property owner to replace the ramp. A temporary ramp may be required to provide access to the building. Any temporary ramp, temporary railing, or other temporary devices are considered subsidiary to this item.

Refer to Construction Drawings for the location of the ramp and wood railing.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete. Provide a mock-up as needed for the wood railing and ramp reconstruction limits.

201 – CONCRETE SIDEWALK FLUME

Construct concrete sidewalk flume in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the sidewalk flume.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

202 – 3' WIDE MEDIAN CURB CUT AND FLUME

Construct median curb cut and flume in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the curb cut and flume. Pay limit to include the curb cut, concrete flume through the curb cut, and 6" curb within limits of the flume.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

203 – TRAIL RETAINING WALL

Construct trail retaining wall in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the trail retaining wall.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per square yard of the face of retaining wall visible from the top of sidewalk to the top of wall. Footings and connection to proposed sidewalk are subsidiary to this item.

SHOP DRAWING SUBMITTAL: Required. Provide a concrete mix design for review and approval at least 10 days prior to ordering concrete.

204-205 – WOOD FENCE AND DOUBLE DOOR

Install wood fence and doors in the locations shown on the Construction Drawings. Contractor to select and install posts, fencing, and gates/doors that matches the existing fence.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form.

SHOP DRAWING SUBMITTAL: None

206 – CHAIN LINK FENCE

Install chainlink fence and metal posts in the location shown on the Construction Drawings. Contractor to select metal posts and chainlink fence that matches the existing fence.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None

207 – PEDESTRIAN HAND RAIL (BLACK POWDER COATED)

Construct pedestrian handrail in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the pedestrian handrail. This handrail bid item is for locations along the roadway outside the limits of the bridge. Refer to bridge bid items for the bridge pedestrian handrail.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Refer to Construction Drawings.

1. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
2. Powder Coating: Provide paint and material samples. Samples to match black powder coating elements on Bates St.

208-209 – SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB)

The work under these items shall be performed in accordance with the Construction Drawings. For locations designated for new RRFB, install a new RRFB and foundation per Construction Details. For locations designated for salvage and reinstall. Salvage the existing RRFB and install on a new foundation. Refer to Construction Drawings for foundation information.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None

210 – SALVAGE AND REINSTALL BUSINESS SIGNS

This pay item shall be used to salvage, store, and reinstall business signs and ground lighting associated with the sign within the project limits. CONTRACTOR to document existing sign foundations (if any) and reinstall to equal or better conditions.

CONTRACTOR to document existing sign condition to verify that the reinstalled sign is consistent with existing conditions and was not damaged during construction activities. CONTRACTOR to reinstall ground lights to existing working order. CONTRACTOR to establish electrical connection consistent with existing conditions. Salvage, storing, and reinstalling ground lights associated with the business sign and the electrical connection is subsidiary to this item.

CONTRACTOR to coordinate with the property owner to discuss storage location, environment, and any other questions the property owner might have. Property owner may request to store their own sign. CONTRACTOR to document in writing the request and that the property owner accepts responsibility of the business sign for the construction duration. CONTRACTOR to document that the sign that was removed to be stored is the same sign to be reinstalled. Any changes to the existing sign that alters the reinstallation process shall be discussed with the OWNER prior to reinstallation.

Payment for salvaging and reinstalling the existing business signs shall be by lump sum price indicated on the Bid Proposal Unit Price Form. The lump sum price includes all labor, materials, tools, equipment, incidentals, and expenses incurred in the performance of the work.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Provide a shop drawing for how sign will be reinstalled and the foundation type to be saved to the project file.

211-218 – PAVEMENT MARKINGS

The work under these items shall be performed in accordance with TxDOT Items 666, 677, and 678 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form.

SHOP DRAWING SUBMITTAL: None.

219 – WHEEL STOP (PARKING STALL)

CONTRACTOR to provide a product for review and approval for concrete wheel stops. For proposed wheel stop locations show on the Construction Drawings, install a concrete wheel stop per product recommendations. CONTRACTOR to place when stope to maintain a 3' gap between the edge of sidewalk or face of curb.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for concrete wheel stop.

220 – INSTALL STANDARD SIGN AND POST

For proposed sign locations shown on the Construction Drawings, install street sign posts and panels. The sign panels shown for each sign post are subsidiary to the post installation.

Sign panels shall conform to TMUTCD requirements and the Construction Drawings. Install sign posts in accordance with Construction Drawings. Refer to the Construction Drawings for the location of proposed street signs.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

221 – SALVAGE SIGN PANELS AND REINSTALL SALVAGED SIGN PANELS ON NEW SIGN POST

Refer to the Construction Drawings for the location of sign panels to be salvaged. CONTRACTOR to remove, salvage, clean, and store the sign panels until they are to be installed on new sign posts. Installation of salvaged sign panels and is subsidiary to this item. Installation of a new sign post is subsidiary to this item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each location proposed to have salvaged sign panels installed on a new post.

SHOP DRAWING SUBMITTAL: None

222-238 – BRIDGE ITEMS

Construct all bridge items in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the bridge components.

MEASUREMENT AND PAYMENT: Refer to Proposal Form Exhibit A.

SHOP DRAWING SUBMITTAL: Required. Refer to Construction Drawings.

1. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
2. Bridge Shade Structure: Provide a signed and sealed shop drawings from steel fabricator.

239 – COORDINATION WITH ONCOR STREET LIGHT DIVISION

This pay item shall be used at the discretion of the OWNER for all items associated with coordinating the installation of Oncor Street Lights. The CONTRACTOR is responsible for coordinating with Oncor for the installation of street lights including the mounting plate, pole, conduit, wiring, street light transformer, and other items associated with street light installation.

Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: None.

240 – ONCOR STREET LIGHT FOUNDATION

The work under these items shall be performed in accordance with TxDOT Standard Specifications, 2014 Items 416: Drilled Shaft Foundations, 421: Hydraulic Cement Concrete, 440: Reinforcement for Concrete and the Construction Drawings.

CONTRACTOR to coordinate with Oncor for anchor bolt pattern.

MEASUREMENT AND PAYMENT: Measurement and payment for the work performed and materials furnished complete and in place as provided herein shall be made on the basis of the price bid per Linear Foot (LF) and shall be total compensation for furnishing and/or operating all labor, excavation; furnishing, placing, and removing casing; furnishing, processing, and recovering slurry;

furnishing, and placing reinforcing steel; pumping; furnishing and placing concrete, including additional concrete required to fill an oversize casing or oversize excavation; conducting slump loss tests; backfilling; disposing of cuttings and slurry; shop drawings and submittals; and materials, tools, equipment, labor, and incidentals. When the bottom of a drilled shaft is placed at an elevation below plan grade, no direct payment will be made for extra reinforcement placed to support the cage. The extra reinforcement will be considered subsidiary to the price bid per foot of shaft. No payment will be made for "Drilled Shaft" until the concrete has been placed.

SHOP DRAWING SUBMITTAL: Required.

1. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
2. Drill Shaft: Provide drill shaft installation plan, dimensioned plan layout, dowel and anchor bolt plans, drilled shaft sizes, casing sizes, top elevation, and details of reinforcing steel.
3. Steel Reinforcement: Provide drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, tie spacing and support for concrete reinforcement. All clear cover shall be 3" case against Earth and 2" where formed unless otherwise noted.

241-245 – PVC AND ELECTRICAL CONDUIT

The work under these items shall be performed in accordance with TxDOT Items 618 and 620 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: None.

246-247 – GROUND BOX TY B

The work under these items shall be performed in accordance with TxDOT Item 624 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

248-250 – ILLUMINATION AND ELECTRICAL ITEMS

The work under these items shall be performed in accordance with TxDOT Items 628 and the Construction Drawings.

Provide street light foundations, electrical receptacles, wall luminaires, wiring, and all other illumination and electrical items specified in accordance with the Construction Drawings and manufacturer recommendations. Street light poles to be provided by Oncor and shall be powder coated black. Street lights on bridge to be powder coated black to match Oncor standards. CONTRACTOR to match the Oncor street light arm for the bridge street lights. Powder coating if needed will be considered subsidiary to the pertinent items.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required.

1. Cambridge Steel Post: Provide a product information sheet for the street light proposed. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.
2. LEGRAND Outdoor Groundboxes: Provide a product information sheet for the outdoor electrical receptacle groundboxes proposed. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.
3. Lithonia TWX1 LED Wall Luminaires: Provide a product information sheet for the wall mounted luminaires. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

251 –GROUND LIGHTING AND ELECTRICAL RESTORATION

Ground Lighting Restoration shall consist of restoring all existing private ground lighting or electrical systems affected by the construction in the parkways to an equal or better conditions. Lighting adjustments include relocating any ground or monument lights to be clear of proposed improvements, installing new conduit and wire, and verifying the ground lights are at an equal or better than condition than existing.

CONTRACTOR may have to purchase new ground lights, conduit, wire, groundboxes/handholes, or other equipment. No separate pay will be given for the purchasing or installing of individual equipment, supplies, materials to adjust the lighting.

The Contractor shall coordinate all lighting adjustments with the property owner prior to installation per 19.03 of the Supplementary Conditions. Payment for restoration work shall be made by lump sum price indicated on the Bid Proposal Unit Price Form. The lump sum price includes all labor, materials, tools, equipment, incidentals, and expenses incurred in the performance of the work.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Provide product information sheets for all products purchased and installed as part of this item.

252-253 – DECORATIVE BRIDGE RAILING AND KURBA LED STRIP LIGHT

These pay items are for the installation of the KURBA LED strip lights on the pedestrian handrail on the bridge over Bear Creek. CONTRACTOR to install the KURBA LED strip light per manufacturer's recommendations.

The bid item for Decorative Bridge Railing Lighting System Allowance will be utilized to purchase and install controller system for the strip lights. The OWNER will provide necessary drawings and product information during construction that will indicate the proposed controller system equipment. The CONTRACTOR is responsible for coordinating with the OWNER for final drawings and proposed bid items, incorporating the new items into the schedule, and constructing and installing all proposed controller system items.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Provide product information for all decorative lighting items.

254 – SOUND SYSTEM ITEMS

This pay item shall be used at the discretion of the OWNER for all items associated with installation of speakers, speaker wire, PVC conduit, or any other equipment associated with a sound system.

Refer to the Construction Drawings for additional information.

Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

SHOP DRAWING SUBMITTAL: Required.

1. Provide sound system design prepared by Brain Damage Productions or approved equal sound system designer.
2. Provide product information for all proposed sound system items.

255-256 – TOPSOIL AND SOD

Install 4 inches of topsoil and sodding in accordance with NCTCOG 204.2 and 204.5 and the Construction Drawings. CONTRACTOR to install topsoil and sodding within limits of disturbance. CONTRACTOR is responsible for watering and establishing sod prior to final payment is issued.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: None

257 – IRRIGATION SYSTEM INSTALLATION

CONTRACTOR to construct irrigation sleeves prior to paving operations are completed. No separate pay will be provided for boring irrigation lines. Construction of all proposed irrigation items including irrigation to the planter beds on the bridge is subsidiary to this item. Install proposed irrigation in accordance with the Construction Drawings.

Removal of all existing irrigation items that conflict with the proposed improvements is considered subsidiary to this item. Existing irrigation systems within public right-of-way shall be connected to the proposed irrigation system. Connecting the existing irrigation system to the proposed system is subsidiary to this bid item.

CONTRACTOR to restore all existing private irrigation to pre-construction working order. Refer to the irrigation restoration bid item.

The Contractor shall coordinate all irrigation adjustments with the property owner prior to installation per 19.02 and 19.03 of the Supplementary Conditions.

All materials, labor, equipment, and incidentals to remove existing irrigation items, install the proposed irrigation system, and restore any damaged private irrigation items shall be included with this bid item.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Refer to Technical Specification 32 80 00

258-259 – LANDSCAPE AND IRRIGATION RESTORATION

Landscape and Irrigation Restoration shall consist of restoring all existing private landscape and irrigation systems affected by the construction in the parkways to an equal or better condition. All existing water meters and irrigation equipment shall be moved outside the limits of proposed paving improvements (sidewalk, driveways, and roadway). This work shall include, but not be limited to, any relocation/replacement of landscape plants, bedding material, edging material, spray heads, control valves, piping, sleeving, and all other irrigation equipment that may be encountered during construction.

The Contractor shall coordinate all landscape and irrigation adjustments with the property owner prior to installation per 19.02 and 19.03 of the Supplementary Conditions. Payment for restoration work shall be made by lump sum price indicated on the Bid Proposal Unit Price Form. The lump sum price includes all labor, materials, tools, equipment, incidentals, and expenses incurred in the performance of the work.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Provide restoration design, planting schedule, or other information necessary to communicate restoration activities.

260-269 – LANDSCAPE ITEMS

Refer to the Construction Drawings for material and installation information. Provide the City with product information and sample materials for review prior to ordering. Do not order materials without written approval from the City.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Refer to Technical Specification 32 90 00 and Construction Drawings

270-271 – WAYFINDING SIGNS

Construct wayfinding signs in accordance with the Construction Drawings. Refer to Construction Drawings for the location of the wayfinding sign and foundation.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Refer to Construction Drawings.

3. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
4. Wayfinding Sign: Provide a signed and sealed shop drawings from steel fabricator.
5. Powder Coating: Provide paint and material samples. Samples to match black powder coating elements on Bates St.

272-275 – GATEWAY FEATURE ITEMS

The work under these items shall be performed in accordance with TxDOT Standard Specifications, 2014 Items 416: Drilled Shaft Foundations, 420: Concrete Substructures, 421: Hydraulic Cement Concrete, 440: Reinforcement for Concrete, 441: Steel Structures and the Construction Drawings.

Provide steel gateway structure, concrete foundation and piers, and logo in accordance with the Construction Drawings and manufacturer recommendations.

MEASUREMENT AND PAYMENT: Measurement and payment for the work performed and materials furnished complete and in place as provided herein shall be made on the basis of the price bid per each (EA) and shall be total compensation for furnishing and/or operating all labor, drilled shaft construction in accordance with item 64; form and falsework; placing, finishing and curing concrete; backfilling; applying ordinary surface finish; furnishing and placing base plates; expansion-joint materials; shop drawings and submittals; equipment, labor, tools and incidentals.

SHOP DRAWING SUBMITTAL: Required.

1. Concrete Design Mixture: For each concrete mixture, submit proposed mix design for review and approval at least 10 days prior to ordering material.
2. Drill Shaft: Provide drill shaft installation plan, dimensioned plan layout, dowel and anchor bolt plans, drilled shaft sizes, casing sizes, top elevation, and details of reinforcing steel.
3. Footing/Foundation Cap: Provide dimensioned plan layout, top elevation, and details of reinforcing steel.
4. Steel Reinforcement: Provide drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, tie spacing and support for concrete reinforcement. All clear cover shall be 3" cast against Earth and 2" where formed unless otherwise noted.
5. Steel Fabrication: Provide material samples and fabricator drawings as required in the Construction Drawings.

276-278 – STREET FURNITURE

Install the proposed street furniture per the Construction Drawings. Refer to the Construction Drawings for general locations. Obtain approval from the City prior to placement. Trash cans should be installed near the street benches where possible. Bike rack placement to follow Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for the proposed street furniture. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

279-280 – CONCRETE PADS

Construct concrete pads in accordance with the Construction Drawings. Where necessary, CONTRACTOR to install a curb around the back-side of the concrete pad to make grades flatter for adjacent landscape beds. Curb is subsidiary to this bid item and will not be paid for separately.

Curbing is not shown. CONTRACTOR to field verify if curbing is necessary based on surrounding grades. Curbing is necessary if the adjacent grades to connect to proposed sidewalk or adjacent landscaping areas is steeper than a 6:1 slope.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: None.

281 – RESIDENTIAL MAILBOX

Install residential mailboxes in accordance with the Construction Drawings. Where possible, CONTRACTOR to salvage and reinstall existing mailboxes or purchase similar mailboxes. CONTRACTOR to install any mailbox purchased per manufacturer's recommendations.

If it is not possible to salvage and reinstall existing mailbox or purchase a similar mailbox to the existing mailbox, CONTRACTOR to purchase and install residential mailbox per TxDOT Construction Details and Construction Drawings.

This item includes all materials, labor, and incidentals necessary to construct and install the proposed mailbox bank and foundation. No separate pay will be given to purchase the mailboxes or to salvage the existing mailboxes.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Provide a product sheet for all mailbox types purchased.

282 – MAILBOX BANK AND FOUNDATION

Construct and install the mailbox bank and foundation in accordance with the Construction Drawings. This item includes all materials, labor, and incidentals necessary to construct and install the proposed mailbox bank and foundation. No separate pay will be given to purchase the mailbox bank.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for the mailbox bank. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

283 – REMOVABLE BOLLARDS

Install the proposed removable bollards and any necessary foundation required per the manufacturer's recommendations and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for the removable bollard and any necessary foundation. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

284 – BATES STREET RE-SEAL

Clean and re-seal Bates Street from US 377 to S. Elm St per the Construction Drawings and manufacturer's recommendations and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for all products used to clean and re-seal Bates St. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

285 – BEAR CREEK PARKWAY ROUNDABOUT RE-SEAL

Clean and re-seal the truck apron and crosswalks per the Construction Drawings and manufacturer's recommendations and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: Required. Provide a product information sheet for all products used to clean and re-seal roundabout elements. CONTRACTOR may supply the product provided in the Construction Drawings or an approved equal.

BID ALTERNATE #1 (SOUTH BRIDGE PARKING LOT) BID ITEMS

A1-1 – EARTHWORK

Earthwork, embankment, and borrow shall be paid by lump sum for all three earthwork items. No separate pay will be given for each item.

Perform Excavation activities in accordance with TxDOT Item 110. Perform Embankment and Borrow activities in accordance with TxDOT Item 132.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: None

A1-2 – PREPARING ROW

Refer to Bid Item Description for Item 2.

This bid item includes the removal of everything within the bid alternate limits other than the existing driveway and sidewalk. No separate pay will be given for the removal of anything within the bid alternate limits.

MEASUREMENT AND PAYMENT: Payment for this item shall be at the contract unit price per lump sum.

SHOP DRAWING SUBMITTAL: None

A1-5 THROUGH A1-30 – BID ALTERNATE #1 ITEMS

Refer to Bid Item Descriptions for corresponding items in the base bid.

MEASUREMENT AND PAYMENT: Refer to Bid Proposal Unit Price Form

SHOP DRAWING SUBMITTAL: Refer to corresponding bid item descriptions.

BID ALTERNATE #2 (PECAN ST SANITARY SEWER) BID ITEMS

A2-1 – REMOVE EXISTING 6” SANITARY SEWER LINE

Refer to the Construction Drawings for the location of removal items and additional information. Perform removals in accordance with NCTCOG Item 203.1 and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: None

A2-2 – 8” SANITARY SEWER PIPE

Construct sanitary sewer pipe in accordance with Technical Specification 33 31 20, City Details, and the Construction Drawings.

All labor, equipment, materials, and submittals required as part of bypass pumping, if necessary, will be considered subsidiary to pipe installation.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per linear foot.

SHOP DRAWING SUBMITTAL: Required. Product data sheets.

A2-3 & A2-4 – SANITARY SEWER MANHOLE

Construct sanitary sewer manhole for each size and type in accordance with Technical Specification 33 39 10, Technical Specification 33 39 20, City Details, and the Construction Drawings.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Product data sheets for pre-cast or concrete mix designs for cast-in-place.

A2-5 – MANHOLE VACCUUM TESTING

Test manholes in accordance with Technical Specification 33 01 30.

MEASUREMENT AND PAYMENT: Payment for these items shall be at the contract unit price per each.

SHOP DRAWING SUBMITTAL: Required. Method of testing and equipment being used.

A2-6 – TRENCH SAFETY

Provide trench safety in accordance with NCTCOG 107.20 and OSHA regulations.

MEASUREMENT AND PAYMENT: This item shall be on the bases of price bid per linear foot.

SHOP DRAWING SUBMITTAL: None

BID ALTERNATE #3 (PARKING LOT CONSTRUCTION) BID ITEMS

A3-1 – PARKING LOT CONSTRUCTION ALLOWANCE

This pay item shall be used at the discretion of the OWNER for the construction of a parking lot adjacent to the project limits.

The OWNER will issue drawings during construction that will indicate proposed parking lot improvements. The CONTRACTOR is responsible for coordinating with the OWNER for final drawings and proposed bid items, incorporating the new items into the schedule, and constructing and installing all proposed parking lot items.

The OWNER will issue final drawings as early as possible to allow time to order equipment and materials. It is anticipated that construction of the parking lot would be performed towards the end of construction. However, the OWNER does not guarantee this anticipated sequencing and the CONTRACTOR is responsible for incorporating all parking lot construction components into their schedule.

Any work performed without prior authorization from the OWNER shall not be paid under this item. The bidder shall include this amount within their bid. This amount associated with this item is not required to be included in the required 5% bid surety. At the completion of the project, funds not utilized in this item shall be removed from the contract.

MEASUREMENT AND PAYMENT: Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.

NOTICE OF AWARD

Date _____

TO: _____

Reference Project: S. Elm Street Reconstruction

Dear _____:

On _____, 2021, the Keller City Council awarded the subject project to your firm for the amount of the submitted Base Bid (\$_____).

The City of Keller's consulting engineer, Kimley-Horn, will send you four copies of the contract documents for signatures, insurance, bonds, etc. Please return the completed contract documents to my attention. Within ten days thereafter, and upon City execution of the Agreement, you will be contracted to schedule a Preconstruction Conference. Two of the original copies of the finalized contract documents will be provided to you.

Please let me know if you have any questions or require additional information. The City looks forward to working with _____ on this project.

Sincerely,

Chad Bartee, P.E.
City Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award
is hereby acknowledged by

Title _____

this the ____ day of _____, 20__

NOTICE TO PROCEED

Date

TO: _____

Reference Project: S. Elm Street Reconstruction

Dear _____:

You are hereby notified to commence work in accordance with the Bates Street Reconstruction project that was executed on _____. You have _____ number of calendar days to complete the project. Your Notice to Proceed indicates that you are to begin work on _____ and your completion date is thereby _____. You must start work within 10 days of the Notice to Proceed date and you must notify the City seventy-two (72) hours in advance of construction.

Sincerely,

Chad Bartee, P.E.
City Engineer

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed
is hereby acknowledged by

Title _____

this the ____ day of _____, 20____

CONTRACTOR'S AFFIDAVIT OF FINAL PAYMENT AND RELEASE

THE STATE OF TEXAS
COUNTY OF TARRANT

BEFORE ME, the undersigned authority, on this day personally appeared _____

_____ ("Affiant"), who, after being by me duly sworn, deposes and says that they are

(Title / Company Name)

a _____
(Corporation/Partnership/Trade Name)

of _____ County, State of Texas, which said Contractor was awarded the **S. Elm Street Reconstruction** (Project Name/Number) at **S. Elm Street within Old Town Keller** ("Project Location"), for a total consideration of

\$ _____ dollars to be paid to the said Contractor (the "Contract"), and that Affiant has full power of authority to make this affidavit.

That **the City of Keller** (the "Owner") has approved the final estimate on said Work, and that the said Contractor has fully satisfied and paid any and all claims that may be covered by Chapter 53 of the Texas Property Code, and Article 5160 of the Revised Civil Statutes of the State of Texas, or any other applicable statutes or charter provisions, and that all just bills for labor and materials have been paid and discharged by said Contractor insofar as they pertain to the Work in question.

That in addition to any funds which may have been previously paid by the Owner, the Contractor hereby accepts the amount of \$ _____ dollars as FULL AND FINAL PAYMENT under the aforementioned contract, and hereby waives and

releases any right Affiant and/or the Contractor may have to pursue claims of any nature against the Owner arising out of or in any manner connected with the performance of the Work and/or the Contractor, including but not limited to claims of third parties that supplied material and/or labor for the Work for or through the Contractor ("Subcontractors"), as well as claims for delay, additional compensation or for recovery of liquidated damages which may have been withheld by the Owner. The Contractor shall defend, hold harmless and indemnify the Owner from any such claims of such Subcontractors. The Contractor further releases the Owner from any claim or liability arising from any act or neglect of the Owner related to or connected with the Contract. This affidavit is given pursuant to the final payment provisions of the Contract, and shall not be deemed to alter or modify the terms and provisions of said Contract.

(Contractor Name)

By _____
(Affiant Signature)

(Printed Name)

SUBSCRIBED AND SWORN TO BEFORE ME, this the _____ day of _____, A.D. 20____.

(Notary Public, in and for the State of Texas)

(Notary Seal) _____
(Printed Name of Notary)

My Commission Expires: _____

CERTIFICATE OF CONSTRUCTION COMPLETION / FINAL ACCEPTANCE

Contractor: _____

Date: _____

This is to certify that a final inspection of the project described below was conducted on _____, 20__.

Contract was entered into on _____, 20__ between the City of Keller and _____ for the construction of S. Elm Street Reconstruction.

This is to further certify that:

1. The work has been completed in accordance with the plans and specifications and all addenda, change orders and supplemental agreements thereto.
2. The sum of \$_____, deducted from the final payment to the Contractor is a fair and equitable settlement for the foregoing excepted/deleted work.
3. The Contractor has presented on behalf of itself and its sureties, satisfactory evidence that he or she will repair, replace, and make good any faulty workmanship and/or materials discovered in the work within a period of 12 months from the date of issuance of "Construction Completion / Final Acceptance".
4. The contractual warranty period will expire on _____.

5.	Amount of Original Contract	\$_____
	Present Amount of Contract	\$_____
	Less Previous Payments	\$_____
	Less Deductions (from #2 above)	\$_____
	Less Liquidated Damages	\$_____
	FINAL PAYMENT (Balance)	\$_____

6. The Final Payment in the amount above is now due and payable.

Certified by:

Engineer

Contractor

Owner

Title

Title

Title

Kimley-Horn and Associates, Inc

Firm

City of Keller

**SECTION II:
SPECIAL OR TECHNICAL SPECIFICATIONS**

Project Specific Technical Specifications:

Technical Specifications: The Special Specifications listed below have been included by the Engineer. Hard copies are included in the Project's Contract Documents:

28 21 15	Specialty OxBlue Camera
32 13 13	Concrete Paving
33 01 30	Sewer and Manhole Testing
33 01 31	Closed Circuit Television (CCTV)
33 04 30	Temporary Water Services
33 04 40	Cleaning and Acceptance Testing
33 04 50	Cleaning of Pipes
33 05 13	Frame, Cover, and Grade Rings
33 05 17	Concrete Collars
33 05 26	Utility Markers-Locators
33 05 30	Location of Existing Utilities
33 11 05	Bolts, Nuts, and Gaskets
33 11 11	Ductile Iron Fittings
33 11 12	Polyvinyl Chloride (PVC) Pressure Pipe
33 12 20	Resilient Seated (Wedge) Gate Valve
33 12 25	Connection to Existing Water Mains
33 12 40	Fire Hydrants
33 31 20	Polyvinyl Chloride (PVC) Gravity Sanitary Sewer Pipe
33 31 50	Sanitary Sewer Service Connections and Service Line
33 39 10	Cast-in-Place Concrete Manholes
33 39 20	Precast Concrete Manholes
33 39 60	Liners for Sanitary Sewer Structures

NCTCOG Specifications: 2023 Public Works Construction Standards North Central Texas, Fifth Edition, Amended August 2023 specifications listed below are included for this Project by reference. It is the Contractor's responsibility to use the latest version for use on this Project.

107	Legal Relations and Contractor Responsibilities
203	Site Preparation
204	Landscaping
301	Subgrade, Subbase, and Base Preparation
302	Asphalt Pavement
305	Miscellaneous Roadway Construction
501	Underground Conduit Materials
502	Appurtenances
702	Concrete Structures
804	Painting and Other Protective Treatments: Pavement Marking

TxDOT Specifications: Adopted by the Texas Department of Transportation February 1, 2014. Standard specifications are incorporated into the contract by reference. It is the Contractor's responsibility to use the latest version for use on this Project.

Specifications

100	Preparing Right of Way
104	Removing Concrete
105	Removing Treated and Untreated Base and Asphalt Pavement
110	Excavation
132	Embankment
170	Irrigation System (618)(620)(622)(624)(628)
247	Flexible Base

360 Concrete Pavement (421)(422)(440)
 400 Excavation and Backfill for Structures (401)(421)
 416 Drilled Shaft Foundations(421)(440)(448)
 420 Concrete Substructures
 422 Concrete Superstructures
 423 Retaining Walls (420)(421)(440)(445)(458)(556)
 425 Precast Prestressed Concrete Structural Members
 (420)(421)(426)(427)(434)(440)(442)(445)(448)
 432 Riprap (420)(421)(431)(440)
 442 Metal for Structures
 450 Railing
 454 Bridge Expansion Joints (442)
 462 Reinforced Concrete Box
 464 Reinforced Concrete Pipe
 465 Junction Boxes, Manholes, and Inlets (420)(421)(440)(471)
 466 Headwalls and Wingwalls (420)(421)(440)
 467 Safety End Treatment (420)(421)(432)(440)(442)(445)(460)(464)
 479 Adjusting Manholes and Inlets
 500 Mobilization (360)(420)(421)(440)
 502 Barricades, Signs, and Traffic Handling
 504 Field Office and Laboratory
 506 Temporary Erosion, Sedimentation, and Environmental Controls (161)(432)(556)
 508 Constructing Detours
 528 Colored Textured Concrete and Landscape Pavers (420)(421)(440)
 529 Concrete Curb, Gutter, and Combined Curb and Gutter (360)(420)(421)(440)
 531 Sidewalks (360)(420)(421)(440)
 560 Mailbox Assemblies
 618 Conduit (400)(476)
 620 Electrical Conductors
 624 Ground Boxes (420)(421)(432)(440)(618)(620)
 628 Electrical Services (441)(445)(449)(618)(620)(627)(656)
 644 Small Roadside Sign Assemblies(421)(440)(441)(442)(445)(636)(643)(656)
 662 Work Zone Pavement Markings (666)(668)(672)
 677 Eliminating Existing Pavement Markings and Markers (300)(302)(316)
 678 Pavement Surface Preparation for Markings (677)
 7153 Exploratory Excavation of Existing Utilities

Special Specifications

1004 Tree Protection
 4171 Install Bridge Identification Numbers

Special Provisions

SP247-005 Flexible Base
 SP360-001 Concrete Pavement
 SP420-001 Concrete Substructure
 SP425-001 Precast Prestressed Concrete Structural Members
 SP442-001 Metal for Structures
 SP450-001 Railing
 SP464-001 Reinforced Concrete Pipe
 SP465-001 Junction Boxes, Manholes, and Inlets
 SP502-008 Barricades, Signs, and Traffic Handling
 SP506-005 Temporary Erosion, Sedimentation, and Environmental Controls

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SECTION 28 21 15
SPECIALTY OXBLUE CAMERA SPECIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. A professional grade 8 Megapixel camera system providing on demand live video streaming for real-time access at 1080p over a cellular network with storage and remote customer access to stored still images. All hardware, software, and time-lapse video movie production services to be provided by a proven construction camera System Vendor.
- B. Vendor Information
 - 1. Company
 - a. OxBlue Corporation
1777 Ellsworth Industrial Boulevard NW
Atlanta, GA 30318
 - 2. Contact Information
 - a. Natasha Kharazmi
(404) 554-1490
nkharazmi@oxblue.com
www.OxBlue.com

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. 8 MP Static Video Camera
 - a. Measurement
 - 1) Measured per each 8 MP Static Video Camera installed.
 - b. Payment
 - 1) The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price per each 8 MP Static Video Camera installed.
 - c. The price bid shall include:
 - 1) Purchasing the camera as specified in the Drawings and this section.
 - 2) Paying for the 1 year service contract.
 - 2. 24 HR Solar Power System
 - a. Measurement
 - 1) Measured per each 24 HR Solar Power System installed.
 - b. Payment
 - 1) The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price per each 24 HR Solar Power System installed.
 - c. The price bid shall include:
 - 1) Furnishing and installing the solar power system as specified in the Drawings, this section, and OxBlue’s recommendations.

- 1 3. Universal Mount for Pole
- 2 a. Measurement
- 3 1) Measured per each Universal Mount for Pole installed.
- 4 b. Payment
- 5 1) The work performed and materials furnished in accordance with this item
- 6 and measured as provided under “Measurement” will be paid for at the unit
- 7 price per each Universal Mount for Pole installed.
- 8 c. The price bid shall include:
- 9 1) Purchasing the universal mount as specified in the Drawings and this
- 10 section.
- 11 4. Camera Installation
- 12 a. Measurement
- 13 1) Measured per lump sum Camera Installation.
- 14 b. Payment
- 15 1) The work performed and materials furnished in accordance with this item
- 16 and measured as provided under “Measurement” will be paid for at the unit
- 17 price per lump sum Camera Installation.
- 18 c. The price bid shall include:
- 19 1) Furnishing and installing the 8MP Static Video Camera with the Universal
- 20 Mount per the Drawings, this Section, and OxBlue’s recommendations and
- 21 instructions on a 30’ wood pole. The price bid shall include:
- 22 a) Materials and equipment required to assemble the camera, mount, and
- 23 solar power system.
- 24 b) 30-foot-tall wood pole
- 25 c) Materials and equipment required to attach the mount, camera, and
- 26 solar power system to the 30-foot-tall wooden pole.
- 27 d) Removal of the camera and solar power system and returning them to
- 28 the City.
- 29 e) Disposal of the 30-foot wood pole
- 30 f) Preparing the site

31 **1.3 REFERENCES [NOT USED]**

32 **1.4 ADMINISTRATIVE REQUIREMENTS**

33 **1.5 SUBMITTALS [NOT USED]**

34 **1.6 CLOSEOUT SUBMITTALS (PROVIDED BY OXBLUE)**

- 35 A. Submit all digital still images without alteration, manipulation, editing, or modifications
- 36 using image-editing software.
- 37 B. Submit a professionally produced high-definition time-lapse movie of the project.
- 38 Editing shall include image stabilization, color correction, removal of inclement
- 39 weather footage, and removal of images outside the desired daily time range to be
- 40 determined by the Owner.
- 41 C. All images and time-lapse footage shall be the property of the City of Keller.

42 **1.7 DELIVERY, STORAGE, AND HANDLING**

- 43 A. All domestic shipping fees shall be included in the equipment price provided by
- 44 OxBlue.

1 **1.8 PROJECT CONDITIONS [NOT USED]**

2 **1.9 WARRANTY**

- 3 A. Manufacturer Warranty: Manufacturer agrees to repair or replace components of system
4 that do not comply with requirements or that fail in materials or workmanship within
5 specified warranty period.
- 6 1. Warranty Period: Static Video Camera shall have a three-year hardware warranty
7 provided by the manufacturer.

8 **PART 2 - PRODUCTS**

9 **2.1 MATERIALS**

- 10 A. Contractor to order the following items from OxBlue:
- 11 1. One 8MP Static Video Camera
12 2. One 24-hour Solar Power System
13 3. One Universal Mount for pole, wall or parapet
- 14 B. Contractor to provide:
- 15 1. One 30-foot wooden pole to mount the camera and solar power system to.
- 16 C. Informational Product Specifications for the OxBlue Camera System:
- 17 1. Camera
- 18 a. Resolution: 8 Megapixel (3264X2448)
19 b. 3x Optical zoom
20 c. 109° horizontal field of view
21 d. 57° vertical field of view
- 22 2. Video
- 23 a. Live HD video streaming
24 b. Current weather detection
25 c. Aspect ratio of video 16:9 (widescreen)
26 d. Stream profile: H.264
27 e. 1080p streaming resolution
28 f. Dynamically sized viewing window
- 29 3. Data Connectivity and Storage
- 30 a. Cellular data services provided by the System Vendor
31 b. Onboard Memory: Up to 4 Week Video Storage. Resolution can be adjusted
32 but will impact storage time.
33 c. Remote Storage: Archive a still image approximately every 10 minutes.
- 34 4. Power Connection
- 35 a. 120 / 240 VAC (optional 12 VDC version for compatible OxBlue solar power
36 station available)
- 37 5. Dimensions and Weight
- 38 a. Camera Dimensions: 10.25" L (26.00 cm) X 5.19" W (13.20 cm) X 5.19" H
39 (13.20 cm)
40 b. Weight: 2.2 lb. (1.0 kg) installed
- 41 6. Mount
- 42 a. Pole/wall mount provided by the System Vendor

- 1 b. Contractor to provide a temporary wooden pole to mount the camera to.
- 2 7. Operating Environment and Controls
- 3 a. -40 to 140°F (-40 to 60°C)
- 4 b. 120 / 240 VAC units come standard with blower, and defroster; 12 VDC units
- 5 come standard with blower.
- 6 8. Video Controls
- 7 a. Snap shot function
- 8 b. Ability to zoom in/out
- 9 9. Software
- 10 a. Responsive software interface for use on computer, tablet and mobile screens
- 11 b. Display Owner or Project logo on desktop software interface
- 12 c. Dashboard display of all cameras
- 13 d. Camera search capability
- 14 e. Visual calendar showing actual photos from each day of the project
- 15 f. Access to each individual photo archived
- 16 g. Ability to schedule the automated delivery of images & time-lapses to users via
- 17 email
- 18 h. Display weather data with each image
- 19 i. Ability to compare images from two cameras or two specific times
- 20 simultaneously
- 21 j. Ability to overlay and compare images from different times
- 22 k. Interactive map showing project location
- 23 l. Provide iPhone/iPad app and Android app
- 24 10. Hosting and Website Integration
- 25 a. Provide links to thumbnails of most recent image
- 26 b. Provide API access for use in software and website integration
- 27 11. Data Security and Infrastructure
- 28 a. Multiple access options shall be available, including publicly available links,
- 29 username authentication, IP restrictions, and HTTPS communication protocols
- 30 b. Actual access method used shall be specified by the Owner
- 31 c. Data shall be stored on redundant servers owned and managed by the System
- 32 Vendor
- 33 d. Optional time delay feature for time-lapse videos and images on websites
- 34 12. Solar Power Station for Camera
- 35 a. Turnkey system designed specifically for use with the camera
- 36 b. 5-day minimum solar autonomy based on lowest monthly average solar hours
- 37 for the region
- 38 c. Charge control with digital display meter showing system status
- 39 d. 1-yr minimum system warranty with up to 25-yr solar module warranty
- 40 e. Domestic freight included in solar power station cost

41 **PART 3 - EXECUTION**

42 **3.1 INSTALLATION**

- 43 A. Contractor Installed:
- 44 1. Using vendor supplied directions, mount the camera and solar station to a 30-foot
- 45 wooden pole per the location on the plans/drawings.

- 1 B. OxBlue Installed:
- 2 1. The Contractor may choose to pay OxBlue to install the camera and solar station
- 3 onto the 30-foot wooden pole provided by the Contractor per the location on the
- 4 plans and drawings.

5 **3.2 TIME-LAPSE MOVIE TECHNOLOGY AND SERVICES**

- 6 A. Automatically Generated Time-Lapse Movies
- 7 1. System shall automatically generate up-to-date high-definition time-lapse movies
- 8 throughout the duration of the project. Automatically generated time-lapse movies
- 9 shall be available for download at any time. The online system shall intelligently
- 10 select frames in order to produce time-lapse movies of an appropriate duration for
- 11 viewing on the Web, typically 30-60 seconds.
- 12 B. User Created Custom Time-Lapse Movies
- 13 1. System shall allow users with appropriate permissions to create custom time-lapse
- 14 movies at any time during the project. Users shall be able to control start and end
- 15 dates, filter daily images by time, and specify time-lapse movie duration.
- 16 C. Professionally Produced Time-Lapse Movie
- 17 1. At the completion of the project the System Vendor shall create a professionally
- 18 produced time-lapse movie of the project. As part of the service, the time-lapse
- 19 movie shall be prepared based on the Owner's instructions for resolution, duration,
- 20 date range, time range, and audio.

21 **3.3 REPAIR [NOT USED]**

22

1 **3.4 CLOSEOUT ACTIVITIES**

2 A. Remove the camera, mount, and solar system from the wooden pole.

3 B. Dispose of the wooden pole.

4 C. Return all OxBlue equipment to the City.

5 **END OF SECTION**

Revision Log		
DATE	NAME	SUMMARY OF CHANGE
[2019 JAN 01]		

6

1 **SECTION 32 13 13**
2 **CONCRETE PAVING**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

5 A. Section Includes:

- 6 1. Material requirements and construction methods for concrete and decorative
7 concrete paving.
- 8 2. All materials, labor, equipment, tools, and superintendence necessary for Concrete
9 Paving not covered within this specification or within the references shall be in
10 accordance with *Texas Department of Transportation Standard Specifications for*
11 *Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and
12 528.

13 **1.2 PRICE AND PAYMENT PROCEDURES**

14 A. Measurement and Payment

- 15 1. Decorative Concrete
 - 16 a. Refer to *Texas Department of Transportation Standard Specifications for*
17 *Construction and Maintenance of Highways, Streets, and Bridges*, Item 528.
 - 18 b. Refer to the **Bid Proposal Unit Price Form, the Construction Drawings, and**
19 **the Special Provisions to the General Conditions**

20 **1.3 REFERENCES**

21 A. Reference Standards

- 22 1. Reference standards cited in this Section refer to the current reference standard
23 published at the time of the latest revision date logged at the end of this Section
24 unless a date is specifically cited.
- 25 2. *Texas Department of Transportation Standard Specifications for Construction*
26 *and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528.
- 27 3. American Society for Testing and Materials (ASTM):
 - 28 a. C94, Standard Specification for Ready Mix Concrete
 - 29 b. C979, Standard Specification for Pigments for Integrally Colored Concrete.

30 B. Abbreviations and Acronyms

- 31 1. ACI – American Concrete Institute
- 32 2. ASTM – American Society for Testing and Materials

33 **1.4 ADMINISTRATIVE REQUIREMENTS**

34 A. Pre-Paving Meeting

- 35 1. Hold meeting 1 week prior to performing any tasks included under Concrete
36 Paving.
- 37 2. Invite the City and appropriate representatives.
- 38 3. Prior to pre-paving meeting, prepare the following:
 - 39 a. Paving Plan

- 1) Paving widths
 - 2) Jointing plan:
 - a) Locations and labels for all joint types including longitudinal and transverse construction joint locations
 - 3) Confirm rebar sizes for pavement reinforcing.
 - 4) Confirm hand-pour location and equipment to be used for forming, pouring, compacting, and finishing concrete.
 - 5) Texturizing method (broom or tining) and direction (longitudinal or transverse)
 - 6) Consolidation methods at joints
 - b. Paving Process
 - 1) Process to balance production, delivery, paving, and compaction to achieve continuous placement operations and good ride quality.
 - c. All Action and Information Submittals to be reviewed and approved prior to Pre-Paving Meeting.
4. During the Pre-Paving Meeting, determine whether tining or a broom finish is preferred by the City unless otherwise specified in the Drawings.
- B. Night Work and Noise
1. Comply with all City Noise Ordinance in accordance with the General Conditions.
 2. Night work will require prior City approval in accordance with the General Conditions.

1.5 SUBMITTALS

- A. Refer to *Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528 for the following submittals:
1. Concrete Mix Design
- B. Samples
1. Provide 3-foot by 3-foot square mock-up 4-inches thick of the integral stamped and stained concrete of selected color and stamp pattern with specified releasing agents at the site for review by City.
 - a. If the sample is not satisfactory, City may request up to 3 additional samples to be prepared.
 - b. Leave sample on-site until decorative concrete has been completed.
 - c. Remove sample within 72 hours after decorative concrete activities have been completed.
 2. Testing Laboratory
 - a. Submit for review and approval the following information for each testing laboratory used on the project:
 - 1) Testing Laboratory Name
 - 2) Location
 - 3) What tests will be performed at the lab if multiple labs are used.
 - 4) ACI Certification – All labs and Contractor personnel performing concrete testing must be ACI certified.
 3. Test and Evaluation Reports
 - a. All test reports generated during testing.

1 C. Shop Drawings:

2 1. Jointing Layout

3 a. Provide a jointing layout if one is not provided in the Drawings.

4 2. Product Data

5 a. Provide the following from each manufacturer:

6 1) Curing compounds

7 2) Evaporation retardant

8 3) Joint fillers

9 4) Chemical additives

10 5) Epoxy

11 6) For Decorative Concrete:

12 a) Material Safety Data Sheets (if applicable, required for Epoxy and
13 Curing Compounds)

14 b) Stamp pattern and size

15 c) Integral color shade name and number

16 d) Dosage recommendations

17 e) Manufacturer recommended storing data (if applicable)

18 f) Application recommendations (if applicable)

19 g) Manufacturer's recommended storage and handling instructions

20 h) Manufacturer's curing and sealing recommendations.

21 **1.6 DELIVERY, STORAGE, AND HANDLING**

22 A. Refer to *Texas Department of Transportation Standard Specifications for*
23 *Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528.

24 **1.7 PROJECT CONDITIONS**

25 A. Do not commence operations until temporary erosion and sedimentation control
26 measures are in place in accordance with the Construction Drawings.

27 B. Refer to *Texas Department of Transportation Standard Specifications for*
28 *Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528.

29 **PART 2 - PRODUCTS**

30 **2.1 MATERIALS**

31 A. Refer to *Texas Department of Transportation Standard Specifications for*
32 *Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528,
33 except as noted below.

34 B. Provide concrete in accordance with TxDOT Items 360 and 528.

35 C. Provide reinforcing steel in accordance with TxDOT Items 360 and 528.

36 D. Integral Color

37 1. Provide integrally colored concrete. Do not use surface stains or dyes to color the
38 concrete unless otherwise approved by the City or specified in the Drawings.

39 2. Use non-fading synthetic iron oxide pigments with resistance to ultraviolet
40 radiation.

41 3. Provide pigments for colored concrete in accordance with ASTM C979.

4. Add integral concrete colorant according to manufacturer's instructions. Provide a copy of manufacturer instructions to City in accordance with this Section.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Refer to *Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528.

3.2 INSTALLATION

- A. Refer to *Texas Department of Transportation Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges*, Items 360 and 528.

B. Non-Conforming Work

1. General

- a. The City may at any time reject a material if it is found to be non-conforming to this specification.
- b. The City may require the Contractor at any time to remove and replace installed Concrete Pavement if any material it was made with is found to be non-conforming. This would be at no cost to the City.
- c. Any rejection of materials or source locations will be at no cost to the City.

3.3 REPAIR

- A. Repair the following items to remain at no cost to the City if any damage is caused due to concrete paving activities:

1. Adjacent concrete or asphalt pavement to remain
2. Adjacent sidewalk to remain
3. Adjacent curb or curb and gutter to remain
4. Subgrade or base material
5. Utility pipe
6. Irrigation systems including but not limited to sprinkler heads, conduit, and pipe.
7. Landscape beds or planters
8. Sod
9. Decorative hardscape or landscape features
10. Retaining walls

END OF SECTION

Revision Log		
DATE	NAME	SUMMARY OF CHANGE
[2019 JAN 01]		

1 **SECTION 33 01 30**
2 **SEWER AND MANHOLE TESTING**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

- 5 A. Section Includes:
- 6 1. Testing for sanitary sewer pipe and manholes prior to placing in service
 - 7 a. Low Pressure Air Test and Deflection (Mandrel) Test
 - 8 1) Excludes pipe with flow
 - 9 2) Hydrostatic Testing is not allowed.
 - 10 b. Vacuum Testing for sanitary sewer manholes
 - 11 2. Before any newly constructed sanitary sewer pipe and manholes are placed into
 - 12 service it shall be cleaned and tested.
 - 13 3. Pipe testing will include low pressure air test for 60-inch pipe and smaller.
 - 14 4. Pipe testing will include low pressure air test of joints for 27-inch or larger pipe.
 - 15 5. Pipe testing will include deflection (mandrel) test for pipe.
 - 16 6. Hydrostatic testing is not allowed.
 - 17 7. Manhole testing will include vacuum test.
- 18 B. Related Specification Sections include, but are not necessarily limited to:
- 19 1. Section I – Bidding and Contractual Documents
 - 20 2. NCTCOG 5th Edition Specifications
 - 21 3. Section 33 04 50 – Cleaning of Sewer Mains

22 **1.2 PRICE AND PAYMENT PROCEDURES**

- 23 A. Measurement and Payment
- 24 1. Pipe Testing
 - 25 a. Measurement
 - 26 1) This Item is considered subsidiary to the sanitary sewer main (pipe)
 - 27 completed in place.
 - 28 b. Payment
 - 29 1) The work performed and the materials furnishing in accordance with this
 - 30 Item are subsidiary to the unit price bid per linear foot of sanitary sewer
 - 31 main (pipe) complete in place, and no other compensation will be allowed.
 - 32 2. Manhole Testing
 - 33 a. Measurement
 - 34 1) Measurement for testing manholes shall be per each vacuum test.
 - 35 b. Payment
 - 36 1) The work performed and the materials furnished in accordance with this
 - 37 Item shall be paid for at the unit price bid per each vacuum test completed.
 - 38 c. The price bid shall include:
 - 39 1) Mobilization
 - 40 2) Plugs
 - 41 3) Clean-up

1 **1.3 REFERENCES [NOT USED]**

2 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

3 **1.5 SUBMITTALS**

4 A. Submittals shall be in accordance with the General Conditions.

5 B. All submittals shall be approved by the City prior to delivery.

6 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]**

7 **1.7 CLOSEOUT SUBMITTALS**

8 A. Test and Evaluation Reports

9 1. All test reports generated during testing (pass and fail)

10 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

11 **1.9 QUALITY ASSURANCE**

12 A. Certifications

13 1. Mandrel Equipment

14 a. If requested by City, provide Quality Assurance certification that the equipment
15 used has been designed and manufactured in accordance to the required
16 specifications.

17 2. Joint Testing

18 a. Testing Service - Engage a qualified independent testing agency to perform
19 joint evaluation tests

20 b. Equipment - If requested by City, provide Quality Assurance certification that
21 the equipment used has been designed and manufactured in accordance to the
22 required specifications.

23 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

24 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

25 **1.12 WARRANTY [NOT USED]**

26 **PART 2 - PRODUCTS [NOT USED]**

27 **PART 3 - EXECUTION**

28 **3.1 INSTALLERS [NOT USED]**

29 **3.2 EXAMINATION [NOT USED]**

30 **3.3 PREPARATION**

31 A. Low Pressure Air Test (Pipe 60 inch and smaller)

32 1. Clean the sewer main before testing, as outlined in Section 33 04 50.

33 2. Plug ends of all branches, laterals, tees, wyes, and stubs to be included in test.

34 B. Low Pressure Joint Air Test (Pipe 27 inch or larger)

1. Clean the sewer main before testing, as outlined in Section 33 04 50.
 2. Assemble individual joint tester over each joint from within the pipe.
- C. Deflection (mandrel) test (Pipe)
1. Perform as last work item before final inspection.
 2. Clean the sewer main and inspect for offset and obstruction prior to testing.
3. Materials
- a. Mandrel used for deflection test
 - 1) Use of an uncertified mandrel or a mandrel altered or modified after certification will invalidate the deflection test.
 - 2) Mandrel requirements
 - a) Odd number of legs with 9 legs minimum
 - b) Effective length not less than its nominal diameter
 - c) Fabricated of rigid and nonadjustable steel
 - d) Fitted with pulling rings and each end
 - e) Stamped or engraved on some segment other than a runner indicating the following:
 - (1) Pipe material specification
 - (2) Nominal size
 - (3) Mandrel outside diameter (OD)
 - f) Mandrel diameter must be 95 percent of inside diameter (ID) of pipe.
 - g) Mandrel equipment shall be suitable for the pipe material to prevent damage to the pipe. Consult manufacturer for appropriate mandrel equipment.
- D. Vacuum test (Manhole)
1. Plug lifting holes and exterior joints.
 2. Plug pipes and stubouts entering the manhole.
 3. Secure stubouts, manhole boots, and pipe plugs to prevent movement while vacuum is drawn.
 4. Plug pipes with drop connections beyond drop.
 5. Place test head inside the frame at the top of the manhole.

3.4 INSTALLATION

A. Low pressure air test (Pipe 60" Inch and Smaller)

1. Install plug with inlet tap.
2. Connect air hose to inlet tap and a portable air control source.
3. After the stabilization period (3.5 psig minimum pressure) start the stop watch.
4. Determine time in seconds that is required for the internal air pressure to reach 2.5 psig. Minimum permissible pressure holding time per diameter per length of pipe is computed from the following equation:

$$T = \frac{(0.0850 * D * K)}{Q}$$

Where:

T = shortest time, seconds, allowed for air pressure to drop to 1.0 psig

K = $0.000419 * D * L$, but not less than 1.0

D = nominal pipe diameter, inches

- 1 L = length of pipe being tested (by pipe size), feet
 2 Q = 0.0015, cubic feet per minute per square foot of internal surface
 3 5. UNI-B-6, Table 1 provides required time for given lengths of pipe for sizes 4-inch
 4 through 60-inch based on the equation above.
 5

6 UNI-B-6, Table 1

7 Minimum specified time required for a 1.0 psig pressure drop for size and length of pipe
 8 indicated for q = 0.0015

1	2	3	4	Specification Time for Length (L) Shown (min:sec)							
				100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft
Pipe Diameter (in.)	Minimum Time (min: sec)	Length for Minimum Time (ft)	Time for Longer Length (sec)								
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:40	5:40
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:34	7:36	8:52	10:08
10	9:26	239	2.374 L	9:26	9:26	9:26	9:26	9:53	11:52	13:51	15:49
12	11:20	199	3.418 L	11:20	11:20	11:20	11:24	14:15	17:05	19:56	22:47
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42:00	31:09:00	35:36:00	40:04:00
18	17:00	133	7.692 L	17:00	19:13	25:38:00	32:03:00	38:27:00	44:52:00	51:16:00	57:41:00
21	19:50	114	10.470 L	19:50	26:10:00	34:54:00	43:37:00	52:21:00	61:00:00	69:48:00	78:31:00
24	22:40	99	13.674 L	22:47	34:11:00	45:34:00	56:58:00	68:22:00	79:46:00	91:10:00	102:33:00
27	25:30:00	88	17.306 L	28:51:00	43:16:00	57:41:00	72:07:00	86:32:00	100:57:00	115:22:00	129:48:00
30	28:20:00	80	21.366 L	35:37:00	53:25:00	71:13:00	89:02:00	106:50:00	124:38:00	142:26:00	160:15:00
33	31:10:00	72	25.852 L	43:05:00	64:38:00	86:10:00	107:43:00	129:16:00	150:43:00	172:21:00	193:53:00
36	34:00:00	66	30.768 L	51:17:00	76:55:00	102:34:00	128:12:00	153:50:00	179:29:00	205:07:00	230:46:00
42	39:48:00	57	41.883 L	69:48:00	104:42:00	139:37:00	174:30:00	209:24:00	244:19:00	279:13:00	314:07:00
48	45:34:00	50	54.705 L	91:10:00	136:45:00	182:21:00	227:55:00	273:31:00	319:06:00	364:42:00	410:17:00
54	51:02:00	44	69.236 L	115:24:00	173:05:00	230:47:00	288:29:00	346:11:00	403:53:00	461:34:00	519:16:00
60	56:40:00	40	85.476 L	142:28:00	213:41:00	284:55:00	356:09:00	427:23:00	498:37:00	569:50:00	641:04:00

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 12 6. Stop test if no pressure loss has occurred during the first 25 percent of the
 13 calculated testing time.
 14 B. Low pressure joint air test (27 Inch or larger pipe)
 15 1. All pipe joints, for all pipe materials, shall be tested in accordance with ASTM
 16 C1103 as follows:
 17 2. Equipment shall be the product of manufacturers having more than five years of
 18 regular production of successful joint testers. Joint tester shall be as manufactured
 19 by Cherne Industrial, Inc., of Edina, Minnesota, or approved equal.
 20 3. Follow equipment manufacturer's recommendations when performing tests; only
 21 experienced technicians shall perform tests.
 22 4. The testing equipment shall be assembled and positioned over the center of the pipe
 23 joint and the end element tubes inflated to a maximum of 25 psi.
 24 5. Pressurize the center joint test area to 4.0 psig and allow the temperature and
 25 pressure to stabilize at the minimum of 2.5 psig for a period of 2.0 minutes prior to
 26 testing.
 27 6. To test, adjust the pressure to 3.5 psig and measure the time required to decrease the
 28 pressure from 3.5 psig to 2.5 psig.
 29 7. The joint is acceptable if the time for the pressure to drop from 3.5 psig to 2.5 psig
 30 is greater than 10 seconds.

1 C. Deflection (mandrel) test (Pipe)

- 2 1. For pipe 36 inches and smaller, the mandrel is pulled through the pipe by hand to
3 ensure that maximum allowable deflection is not exceeded.
4 2. Maximum percent deflection by pipe size is as follows:
5

Nominal Pipe Size Inches	Percent Deflection Allowed
12 and smaller	5.0
15 through 30	4.0
Greater than 30	3.0

6

7 D. Vacuum test (Manhole)

- 8 1. Test manhole prior to coating with epoxy or other material.
9 2. Draw a vacuum of 10 inches of mercury and turn off the pump.
10 3. With the valve closed, read the level vacuum level after the required test time.
11 4. Minimum time required for vacuum drop of 1 inch of mercury is as follows:
12

1
2

Depth of Manhole, feet	4-foot Dia Seconds	5-foot Dia Seconds	6-foot Dia Seconds
8	20	26	33
10	25	33	41
12	30	39	49
14	35	45	57
16	40	52	67
18	40	59	73
**	T=5	T=6.5	T=8

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** For manholes over 18 feet deep, add “T” seconds as shown for each respective diameter for each 2 feet of additional depth of manhole to the time shown for 18 foot depth. (Example: A 30 foot deep, 4-foot diameter. Total test time would be 70 seconds. 40+6(5)=70 seconds)

5. Manhole vacuum levels observed to drop greater than 1 inch of mercury will have failed the test.

10 **3.5 REPAIR / RESTORATION [NOT USED]**

11 **3.6 RE-INSTALLATION [NOT USED]**

12 **3.7 FIELD QUALITY CONTROL**

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A. Non-Conforming Work

1. Low pressure air test (Pipe 60 Inch and smaller)
 - a. Should the air test fail, find and repair leak(s) and retest.
2. Low pressure joint air test (Pipe 27 inch or larger)
 - a. 100 percent of all joints shall be field tested, prior to the placement of backfill over the spring line of the pipe, after the pipe has been substantially locked in to place by embedment. If the pipe does not pass the field air test, the joint will be pulled and refitted or rejected and removed from the project. After full placement of backfill and proper compaction, 100% of all joints will be tested again, as the installation progresses. At no time shall pipe installation exceed 300 feet beyond the last joint tested.
 - b. No more than 2 percent of the total number of joints failing to meet the requirements of this test shall be field repaired by joint grout injection, or band clamps, or other method. Any joints over 2% requiring field repairs shall be rejected and removed from the project site. Rejected pipe shall be removed from the project. Installation shall be stopped until defective joints are repaired or replaced.
3. Should Deflection (mandrel) test (Pipe)
 - a. Should the mandrel fail to pass, the pipe is considered overdeflected.
 - b. Uncover overdeflected pipe. Reinstall if not damaged.
 - c. If damaged, remove and replace.
4. Vacuum test (Manhole)
 - a. Should the vacuum test fail, repair suspect area and retest.

- 1 1) External repairs required for leaks at pipe connection to manhole.
- 2 a) Shall be in accordance with Section 03 80 00.
- 3 2) Leaks within the manhole structure may be repaired internally or
- 4 externally.

5 **3.8 SYSTEM STARTUP [NOT USED]**

6 **3.9 ADJUSTING [NOT USED]**

7 **3.10 CLEANING [NOT USED]**

8 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

9 **3.12 PROTECTION [NOT USED]**

10 **3.13 MAINTENANCE [NOT USED]**

11 **3.14 ATTACHMENTS [NOT USED]**

12 **END OF SECTION**

13

14

1 **SECTION 33 01 31**

2 **CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION – SANITARY SEWER**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

5 A. Section Includes:

- 6 1. Requirements and procedures for Closed Circuit Television (CCTV) Inspection of
7 sanitary sewer.
8 2. Pre- and Post-CCTV is required for this project on sanitary sewer lines.
9 3. Final Manhole CCTV is required.

10 B. Related Specification Sections include, but are not necessarily limited to:

- 11 1. Section I – Bidding and Contractual Documents
12 2. NCTCOG 5th Edition Specifications
13 3. Section 33 04 50 – Cleaning of Sewer Mains

14 **1.2 PRICE AND PAYMENT PROCEDURES**

15 A. Pre-CCTV Inspection

16 1. Measurement

- 17 a. Measurement for this Item will be by the linear foot of line televised for CCTV
18 Inspection performed prior to any line modification or replacement determined
19 from the distance recorded on the video log.

20 2. Payment

- 21 a. The work performed and materials furnished in accordance with this Item and
22 measured as provided under “Measurement” will be paid for at the unit price
23 bid per linear foot for “Pre-CCTV Inspection”.
24 1) Contractor will not be paid for unaccepted video.

25 3. The price bid shall include:

- 26 a. Mobilization
27 b. Cleaning
28 c. Digital file

29 B. Post-CCTV Inspection

30 1. Measurement

- 31 a. Measurement for this Item will be by the linear foot of line televised for CCTV
32 Inspection performed following repair or installation determined from the
33 distance recorded on the video log.

34 2. Payment

- 35 a. The work performed and materials furnished in accordance with this Item and
36 measured as provided under “Measurement” will be subsidiary to the
37 installation of gravity sanitary sewer pipe.
38 1) Contractor will only be paid for video that is accepted in writing by the
39 City

40 3. The price bid shall include:

- 41 a. Mobilization

- 1 b. Cleaning
- 2 c. Digital file
- 3 C. Final-CCTV Inspection
- 4 1. Measurement
- 5 a. Measurement for this Item will be by the linear foot of line televised for CCTV
- 6 Inspection performed following repair or installation determined from the
- 7 distance recorded on the video log.
- 8 2. Payment
- 9 a. The work performed and materials furnished in accordance with this Item and
- 10 measured as provided under “Measurement” will be subsidiary to the
- 11 installation of gravity sanitary sewer pipe.
- 12 1) Contractor will only be paid for video that is accepted in writing by the
- 13 City.
- 14 3. The price bid shall include:
- 15 a. Mobilization
- 16 b. Cleaning
- 17 c. Digital file
- 18 D. Final Manhole CCTV Inspection
- 19 1. Measurement
- 20 a. Measurement for this Item will be per each manhole or junction structure
- 21 televised for CCTV Inspection performed following repair, manhole coating,
- 22 final adjustments to grade, and/or installation determined from the video log.
- 23 2. Payment
- 24 a. The work performed and materials furnished in accordance with this Item and
- 25 measured as provided under “Measurement” will be subsidiary to the
- 26 installation of manholes.
- 27 1) Contractor will only be paid for video that is accepted in writing by the
- 28 City.
- 29 3. The price bid shall include:
- 30 a. Mobilization
- 31 b. Cleaning
- 32 c. Digital file

33 **1.3 REFERENCES**

34 A. Reference Standards

- 35 1. Reference standards cited in this Specification refer to the current reference
- 36 standard published at the time of the latest revision date logged at the end of this
- 37 Specification, unless a date is specifically cited.
- 38 2. NCTCOG 5th Edition Specifications.

39 B. Definitions

- 40 1. Pre-CCTV – CCTV Inspection performed by Contractor on existing mains prior to
- 41 any line modification or replacement.
- 42 2. Post CCTV – CCTV Inspection performed by Contractor following installation of
- 43 new mains but before completion of other infrastructure (i.e. streets, sidewalks,
- 44 final grading, etc.)

1 3. Final CCTV – CCTV Inspection performed by Contractor on mains and manholes
2 after all construction is complete. Includes CCTV of the manholes (including grade
3 rings, casting, etc.) after street construction, final grading, and manhole coating, if
4 the coating is required.

5 C. Final Manhole CCTV – CCTV Inspection performed by Contractor on manholes and/or
6 junction structures, after all construction is complete. Includes CCTV of the manholes/
7 (including grade rings, casting, etc.) after street construction, final grading, and
8 manhole coating, if the coating is required.

9 **1.4 ADMINISTRATIVE REQUIREMENTS**

10 A. Coordination

11 1. Sanitary Sewer Lines

12 a. Meet with City of Keller staff to confirm that the appropriate equipment,
13 software, standard templates, defect codes and defect rankings are being used,
14 if required.

15 B. Schedule

- 16 1. Include Pre, Post, Final Manhole, and Final CCTV schedule as part of the
17 Construction Progress Schedule.
- 18 2. Allow time for City review (2 weeks minimum – Notification needs to be sent to
19 Project Manager, City Inspector, & Field Operations). Post-CCTV can be scheduled
20 and submitted for review after each sewer main construction has been completed.
- 21 3. If CCTV is accepted by City Project Manager, proceed with work. If rejected,
22 coordinate with City per Part 1.4 A.

23 **1.5 SUBMITTALS**

24 A. Submittals shall be in accordance with the General Conditions.

25 B. All CCTV submittals shall be submitted to the City Inspector to be uploaded to
26 common location for review and comment by City staff. Alternatively, the Inspector
27 can provide Contractor access to upload directly to common location. City staff shall be
28 notified when CCTV upload is completed.

29 C. If inspected with Infrastructure Technologies IT Pipes Software per CCTV Manual
30 provide video data per the CCTV Manual. Provide additional copy of video in video
31 file MP4 with H.264 code – Advanced Video Coding and compression standard.

32 D. If inspected with other software provide video data in video file MP4 with H.264 code –
33 Advanced Video Coding and compression standard.

34 E. Inspection Report shall include:

35 1. Asset

- 36 a. Date of Inspection
- 37 b. City
- 38 c. Project Name (Address accepted if project name does not exist)
- 39 d. Upstream Manhole Station – as shown on drawings or GIS ID (If Available)
- 40 e. Downstream Manhole Station – as shown on drawings or GIS ID (If Available)
- 41 f. Pipe Diameter
- 42 g. Material
- 43 h. Pipe Length
- 44 i. Date Constructed

- 1 j. Pipe Wall Thickness
- 2 k. Grade percentage
- 3 l. Inspector Name
- 4 2. Inspection
- 5 a. Inspection Number (i.e. 1st, 2nd,etc...)
- 6 b. Crew Number
- 7 c. Operator Name
- 8 d. Operator Comments
- 9 e. Reason for Inspection
- 10 f. Equipment Number
- 11 g. Camera Travel Direction is Upstream to Downstream – Deviation will require
- 12 written justification, with the exception of stubouts & abandonment plugs that
- 13 will always be recorded from the downstream side.
- 14 h. Inspected Length (feet)
- 15 i. Work Order Number (if required)
- 16 j. City Project Number (if required)
- 17 k. City Contract Name
- 18 l. Consultant Company Name
- 19 m. Consultant Contact Name
- 20 n. Consultant Contact Phone Number
- 21 o. Contractor Company Name
- 22 p. Contractor Contact Name
- 23 q. Contractor Contact Phone Number
- 24 F. CCTV overlay screen shall include (opening text to CCTV inspection)
- 25 1. Date of inspection
- 26 2. City Name
- 27 3. City Project number
- 28 4. Project name
- 29 5. Upstream SS Manhole (or Plug) station
- 30 6. Downstream SS Manhole station
- 31 7. Diameter
- 32 8. Grade/Slope
- 33 9. Material
- 34 10. Length
- 35 11. Contractor
- 36 12. Inspectors name
- 37 13. Travel direction
- 38 14. Date Construction

39 **1.6 INFORMATIONAL SUBMITTALS**

- 40 A. Pre- and Post-CCTV submittals

- 1 1. CCTV video results shall be submitted to City that can be uploaded to shared
2 common location by the inspection staff, upon confirmation that the submittal is
3 complete (partial submissions are not accepted, except in special situations that are
4 approved by the City). For pre-CCTV submittals, approval of the submittal shall be
5 provided by the Project Manager prior to construction start when connecting to
6 existing sewer.
 - 7 2. Alternatively, the Inspector can provide Contractor access to upload directly to
8 common location. City staff shall be notified when CCTV upload is completed in
9 order to confirm submittal is complete. Inspection Report (separate report file for
10 each individual shall be submitted to Inspector or directly uploaded to shared
11 common location.
- 12 B. Additional information that may be requested by the City:
- 13 1. Listing of cleaning equipment and procedures
 - 14 2. Listing of flow diversion procedures
 - 15 3. Listing of CCTV equipment
 - 16 4. Listing of backup and standby equipment
 - 17 5. Listing of safety precautions and traffic control measures

18 **1.7 CLOSEOUT SUBMITTALS**

- 19 A. Final CCTV shall not be completed until all manholes and surface covers are set to final
20 grade. All as built changes to plan and profile drawings (redlines), are required to be
21 reflected on the final CCTV inspection information. Final CCTV shall not be
22 completed until all as built corrections have been made.
- 23 1. Final-CCTV Submittals
 - 24 a. CCTV video results shall be submitted to City that can be uploaded to shared
25 common location by the inspection staff, upon confirmation that the submittal
26 is complete (partial submissions are not accepted, except in special situations
27 that are approved by the City). Alternatively, the Inspector can provide
28 Contractor access to upload directly to common location. City staff shall be
29 notified when CCTV upload is completed in order to confirm submittal is
30 complete. Sanitary sewer video file(s) in MP4 with H.264 code Advanced
31 Video Coding and compression standard
 - 32 b. City Project Number displayed within text of sanitary sewer video.
 - 33 c. Construction Plans identifying the line segments that were videoed. Include
34 cover sheet, 1 digital copy of the redlines, overall line layout sheet(s), and plan
35 and profile sheet(s).
 - 36 1) One (1) 11”X 17” copy
 - 37 d. Sanitary sewer line segment from drawings matches line segments on
38 Inspection Report. Recommend some minimum guidance for standardization of
39 line segment submittals, to include proper identification of Project: name, CPN,
40 line identification and stations, as well as format (e.g. PDF?) and minimum
41 annotations required to explain deviations from policies as specified in this
42 document, or any anomalies that are considered within tolerance.
 - 43 e. Inspection Report (separate report file for each individual shall be submitted to
44 Inspector or directly uploaded to shared common location.
 - 45 f. Allow two (2) weeks to review before requesting final inspection. After
46 review by the City Inspector and City Staff, if applicable a combined set of
47 punch list items will be submitted to the Contractor for correction.

1 g. CCTV Spreadsheet log in excel format.

2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

3 **1.9 QUALITY ASSURANCE [NOT USED]**

4 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

5 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

6 **1.12 WARRANTY [NOT USED]**

7 **PART 2 - PRODUCTS**

8 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

9 **2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS**

10 A. Equipment

11 1. Closed-Circuit Television Camera

- 12 a. The television camera used shall be one specifically designed and constructed
13 for sewer inspection. Lighting for the camera shall be suitable to allow a clear
14 picture of the entire periphery of the pipe. The camera shall be operative in
15 100 percent humidity/submerged conditions. The equipment will provide a
16 view of the pipe ahead of the equipment and of features to the side of the
17 equipment through turning and rotation of the lens. The camera shall be
18 capable of tilting at right angles along the axis of the pipe while panning the
19 camera lens through a full circle about the circumference of the pipe. The
20 lights on the camera shall also be capable of panning 90-degrees to the axis of
21 the pipe.
- 22 b. The radial view camera must be solid state color and have remote control of the
23 rotational lens. The camera shall be capable of viewing the complete
24 circumference of the pipe and manhole structure, including the cone-section or
25 corbel. The camera lens shall be an auto-iris type with remote controlled
26 manual override.

27 2. Video Capture System

- 28 a. The video and audio recordings of the sewer inspections shall be made using
29 digital video equipment. A video enhancer may be used in conjunction with,
30 but not in lieu of, the required equipment. The digital recording equipment
31 shall capture sewer inspection on USB drive, with each sewer segment (from
32 upstream manhole to downstream manhole) inspection recorded as an
33 individual file in MP4 with H.264 code format.
- 34 b. The system shall be capable of printing pipeline inspection reports with
35 captured images of defects or other related significant visual information on a
36 standard color printer.
- 37 c. The system shall store digitized color picture images and be saved in digital
38 format on a USB drive.
- 39 d. The system shall be able to produce data reports to include, at a minimum, all
40 observation points and pertinent data.
- 41 e. Camera footage, date & manhole numbers shall be maintained in real time and
42 shall be displayed on the video monitor as well as the video character
43 generators illuminated footage display at the control console.

1 **2.3 ACCESSORIES [NOT USED]**

2 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

3 **PART 3 - EXECUTION**

4 **3.1 INSTALLERS [NOT USED]**

5 **3.2 EXAMINATION [NOT USED]**

6 **3.3 PREPARATION**

7 A. General

- 8 1. Prior to inspection obtain pipe and manhole asset identification numbers from the
9 plans or City to be used during inspections. Inspections performed using
10 identification numbers other than the line number (or existing sanitary sewer
11 main/lateral) and station numbers from plans or from assigned numbers from the
12 City will not be accepted.
- 13 2. CCTV Inspection shall not commence until the sewer section to be televised has
14 been completely cleaned in conformance with Section 33 04 50.
- 15 3. CCTV Inspection shall not commence until the sewer section to be televised has
16 been completely cleaned in conformance with Section 33 04 50. (Sewer system
17 should be connected to existing sewer system and should be active).
- 18 4. A final CCTV Inspection of newly installed sewers (not yet in service) shall not
19 commence until completion of the following items:
- 20 a. Manhole final grade is set (after street paving, under Final CCTV, Final
21 Manhole CCTV)
 - 22 b. Manhole lining is complete (after street paving, under Final CCTV, Final
23 Manhole CCTV)
 - 24 c. Sewer main is cleaned
 - 25 d. Sewer air test is complete.
 - 26 e. Vacuum test of manholes
 - 27 f. Installation of all lateral services and completion of low pressure testing of all
28 new services
 - 29 g. All sewer main and manhole work is complete
 - 30 h. Once reviewed and accepted by the City the sewer system should be connected
31 to existing sewer system and ready for use upon final acceptance of the project.

32 B. General

- 33 1. Use manual winches, power winches, TV cable, and power rewinds that do not
34 obstruct the camera view, allowing for proper evaluation.

35 C. Pipe

- 36 1. Begin inspection immediately after cleaning of the main.
- 37 2. Move camera through the line in either direction at a moderate rate, stopping when
38 necessary to permit proper documentation of the main's condition.
- 39 3. Do not move camera at a speed greater than 30 feet per minute.
- 40 4. During investigation stop camera at each defect along the main.
- 41 a. Record the nature, location and orientation of the defect or infiltration location
42 as specified in the CCTV Manual.

- 1 5. Service connections, Pan the Camera to get a complete overview of service
2 connection including zooming into service connection Include location (i.e. 1
3 o'clock, etc...)
- 4 6. Joint defects, Include comment on condition, signs of damage, etc. Note offset
5 and/or separation at a joint. Includes joints where one pipe is not correctly aligned
6 with the connecting section of pipe causing a lip that could impede flow or a
7 section of pipe that is aligned but has pulled apart horizontally and may not
8 connect to the other section of pipe.
- 9 7. Notate visible pipe defects such as cracks, broken or deformed pipe, holes, offset
10 joints, obstructions, sags or debris (show as % of pipe diameter). If debris has been
11 found in the pipe during the post or final-CCTV inspection, additional cleaning is
12 required, and pipe shall be re-televised.
- 13 8. Notate Infiltration/Inflow locations.
- 14 9. Notate Pipe material transitions.
- 15 10. Notate other locations that do not appear to be typical for normal pipe conditions.
16 For example, locations could include conflicts between the replaced main with
17 other utilities (including paving and storm sewer), causing pipe deflections, sags,
18 etc. holding water. This could also include any damage to the main and/or services
19 after the main has been replaced. These locations could occur between the Post-
20 CCTV and Final-CCTV submittals.
- 21 11. Note locations where camera is underwater and level as a % of pipe diameter.
22 Camera underwater – Point in which the camera lens is 100% submerged
23 underwater and/or 50% of the pipe's diameter. Camera emerged – Point in which
24 the camera lens has emerged from being underwater. Severity is described in
25 ranges by linear feet. This would include pipe deflections causing a considerable
26 increase (i.e. double or more) in the depth of flow in the pipe (to at least between
27 1/3 to 1/2 of the pipe diameter). See attached example photos at the end of this
28 Specification showing the depth changes in % full of pipe.
- 29 12. Provide accurate distance measurement.
30 a. The meter device is to be accurate to the nearest 1/10 foot.
- 31 13. CCTV recording segments are to be single continuous file item.
32 a. A single segment is defined from manhole to manhole.
33 b. Only single segment video's will be accepted and preferably include manhole
34 inspections (manhole to manhole).
35 c. Individual manhole inspection will require written justification, included
36 under the Final-CCTV bid item.
- 37 14. Pre-Installation Inspection for Sewer Mains to be rehabilitated
38 a. Perform Pre-CCTV inspection immediately after cleaning of the main and
39 before rehabilitation work
40 1) No cleaning equipment in the main during CCTV.
41 2) Water shall be present (or flowing) while recording CCTV to confirm
42 system functionality.
43 b. If, during inspection, the CCTV will not pass through the entire section of main
44 due to blockage or pipe defect, set up so the inspection can be performed from
45 the opposite manhole.

- 1 c. City Project Manager (PM) shall review and may consult with City Operations
- 2 Staff and provide comments on identified defects. Contractor shall present
- 3 proposed repair method(s) for approval by the City PM, before proceeding with
- 4 construction.
- 5 d. Provisions for repairing or replacing the impassable location are addressed in
- 6 Section 33 31 20.
- 7 15. Post-and Final Installation Inspection
- 8 a. Prior to inserting the camera, flush and clean the main in accordance to Section
- 9 33 04 50. Water should be present/flowing during the recording operation, to
- 10 demonstrate the functioning of the installed system.
- 11 16. Documentation of CCTV Inspection
- 12 a. Sanitary Sewer Lines
- 13 1) Follow the CCTV Manual (CCTV standard manual supplied by City upon
- 14 request) for the inspection video, data logging and reporting or Part 1.5 E of
- 15 this section.
- 16 D. Manhole
- 17 1. Final Manhole CCTV Inspection recording segments, will reveal condition of
- 18 manhole in its entirety, including corrosion protection if applicable. Camera should
- 19 pan the entire manhole while lowering to include complete view of invert. This
- 20 requirement applies to new manhole installations and rehabilitated manholes after
- 21 epoxy lining installed, if applicable.
- 22 2. Notate Infiltration/Inflow locations for Pre-construction CCTV recordings.
- 23 3. Post-Installation CCTV Inspection is only done after all construction is complete.
- 24 E. Complete manhole installation before inspection begins.

- 25 **3.4 REPAIR / RESTORATION [NOT USED]**
- 26 **3.5 RE-INSTALLATION [NOT USED]**
- 27 **3.6 FIELD [or] SITE QUALITY CONTROL [NOT USED]**
- 28 **3.7 SYSTEM STARTUP [NOT USED]**
- 29 **3.8 ADJUSTING [NOT USED]**
- 30 **3.9 CLEANING**
- 31 A. See Section 33 04 50.
- 32 **3.10 CLOSEOUT ACTIVITIES [NOT USED]**
- 33 **3.11 PROTECTION [NOT USED]**
- 34 **3.12 MAINTENANCE [NOT USED]**
- 35 **3.13 ATTACHMENTS**

36 **END OF SECTION**

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SECTION 33 04 30
TEMPORARY WATER SERVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Temporary Water Service needed to maintain service during water main replacement project
- B. Products Installed But Not Furnished Under This Section
 - 1. Fire Hydrant Meters
- C. Related Specification Sections include, but are not necessarily limited to:
 - 1. Section I – Bidding and Contractual Documents
 - 2. NCTCOG 5th Edition Specifications
 - 3. Specification 33 04 40 – Cleaning and Acceptance Testing of Water Mains

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Measurement
 - a. Measurement for Temporary Water Services will be measured by:
 - 1) Lump sum
 - 2. Payment
 - a. The work performed and materials furnished in accordance with this Item and measured under “Measurement” will be considered an allowance. Payment for allowance work shall be made by the lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said work is commenced, subject to all other conditions of the contract. The CONTRACTOR will only charge the fraction of the allowance that yields the agreed upon price which will be considered payment in full for all labor, materials, tools, equipment, and incidentals.
 - 3. The price bid shall include:
 - a. Temporary water service line
 - b. Connections
 - c. Fittings
 - d. Valves
 - e. Corporation stops
 - f. Temporary asphalt for crossings
 - g. Traffic Control
 - h. Disinfection
 - i. Removal of temporary services

1.3 REFERENCES

- A. Reference Standards

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.
2. NCTCOG 5th Edition Specifications.
3. NSF International
 - a. 61, Drinking Water System Components – Health Effects
4. ASTM International (ASTM):
 - a. D3035, Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter

1.4 ADMINISTRATIVE REQUIREMENTS

A. Scheduling

1. Provide advance notice for service interruption and meet requirements of the General Conditions.

1.5 SUBMITTALS

- ##### **A. Contractor to submit temporary water service plans within project limits. The temporary water service plan shall include necessary information to ensure conformance with the requirements listed under Parts 2 and 3 of this specification.**

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE [NOT USED]

1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

1.11 FIELD [SITE] CONDITIONS [NOT USED]

1.12 WARRANTY [NOT USED]

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED PRODUCTS

- ##### **A. Fire Hydrant Meters**

2.2 EQUIPMENT, PRODUCT TYPE, AND MATERIALS

A. Description

1. Regulatory Requirements
 - a. All Temporary Water Service components in contact with potable water shall conform to the requirements of NSF 61.

B. Materials

1. Service Couplings, Fittings, and Corporation Stops
 - a. Conform to NCTCOG 5th Edition Specifications and City Standard Details.
2. Service lines
 - a. Polyethylene tubing

- 1 b. Conform to ASTM D3035 and SDR 11
- 2 3. Temporary Water Service Main
- 3 a. Galvanized steel pipe
- 4 b. Conform to Schedule 40.
- 5 4. Driveway Approach
- 6 a. Asphalt
- 7 1) Type B Asphalt in accordance with NCTCOG 5th Edition Specifications
- 8 C. Design Criteria
- 9 1. Service lines
- 10 a. ¾-inch minimum pipe size
- 11 b. Minimum flow rate of 5 GPM at a dynamic pressure of 35 psi
- 12 2. Temporary Water Service Main
- 13 a. 2-inch minimum pipe size

14 **2.3 ACCESSORIES [NOT USED]**

15 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

16 **PART 3 - EXECUTION**

17 **3.1 INSTALLERS [NOT USED]**

18 **3.2 EXAMINATION [NOT USED]**

19 **3.3 PREPARATION [NOT USED]**

20 **3.4 INSTALLATION**

21 A. General

- 22 1. Install Temporary Water Services in accordance with provisions herein and in
- 23 accordance with City Standard Details.
- 24 2. Perform disinfection test of temporary water service main and water services in
- 25 accordance with Section 33 04 40.

26 B. Temporary Water Service Installation

- 27 1. Connect to existing water supply
- 28 a. Fire hydrant
- 29 1) Connect to fire hydrant with hydrant meter and 2-inch gate valve.
- 30 b. If a fire hydrant is not available, tap existing water main.
- 31 1) Connect to water main with 2-inch service tap and a corporation stop in
- 32 accordance with NCTCOG 5th Edition Specifications and City Standard
- 33 Details.
- 34 2) Record water usage with a hydrant meter.
- 35 3) Do not tap existing water main, unless approved by the City.
- 36 2. Water service
- 37 a. Connect ¾-inch water service to 2-inch temporary water service main.
- 38 b. Remove existing meters, tag with address and provide to City Inspector.
- 39 c. Connect ¾-inch temporary water service to existing private service.
- 40 d. Cover domestic meter box with protective guard or barricade.

1 C. Intersection and Driveway Approach Crossing for Temporary Water Service

2 1. Crossing for Temporary Water Service Main

- 3 a. Cover temporary service line with sufficient asphalt to protect service line and
4 to provide a driveable crossing.
5 b. If required to bury temporary service line due to high volume traffic, or other
6 reasons required by the City, excavate, embed and backfill in accordance with
7 NCTCOG 5th Edition Specifications and City Standard Details.

8 **3.5 REPAIR / RESTORATION [NOT USED]**

9 **3.6 RE-INSTALLATION [NOT USED]**

10 **3.7 FIELD [or] SITE QUALITY CONTROL**

11 A. Field Tests and Inspections

- 12 1. Check each water service installation for leaks with full flow through the curb stop
13 at the time the main is tested in accordance with Section 33 04 40.

14 **3.8 SYSTEM STARTUP [NOT USED]**

15 **3.9 ADJUSTING [NOT USED]**

16 **3.10 CLEANING [NOT USED]**

17 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

18 **3.12 PROTECTION [NOT USED]**

19 **3.13 MAINTENANCE [NOT USED]**

20 **3.14 ATTACHMENTS [NOT USED]**

21 **END OF SECTION**

1 SECTION 33 04 40
2 CLEANING AND ACCEPTANCE TESTING OF WATER MAINS

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. General

6 1. Before any newly constructed potable water mains will be permitted to be
7 placed into service in the Fort Worth Water Department's Water Distribution
8 System, it shall be cleaned (purged) and tested, or cleaned, disinfected, and
9 tested until the bacteria count within the water main meets the standards
10 established by the Fort Worth Water Department and the requirements of
11 Chapter 290 of the Texas Administrative Code (TAC) established by the Texas
12 Commission on Environmental Quality (TCEQ).

13 B. Related Specification Sections include, but are not necessarily limited to:

- 14 1. Division 0 – Bidding Requirements, Contract Forms, and Conditions of the
15 Contract
- 16 2. Division 1 – General Requirements
- 17 3. Section 33 01 31 – Closed Circuit Television (CCTV) Inspection

18 1.2 PRICE AND PAYMENT PROCEDURES

19 A. Measurement and Payment

20 1. Measurement

21 a. This Item is considered subsidiary to the water main being Cleaned and
22 Tested.

23 2. Payment

24 a. The work performed and the materials furnished in accordance with this
25 Item are subsidiary to cleaning, disinfection, hydrostatic testing, and
26 bacteriological testing and shall be subsidiary to the unit price bid per
27 linear foot of water pipe complete in place, and no other compensation
28 will be allowed.

1 1.3 REFERENCES

2 A. Reference Standards

- 3 1. Reference standards cited in this Specification refer to the current reference
4 standard published at the time of the latest revision date logged at the end of
5 this Specification, unless a date is specifically cited.
- 6 2. NCTCOG 5th Edition Specifications.
- 7 3. American Water Works Association/American (AWWA):
- 8 a. C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type.
- 9 b. C303, Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type.
- 10 c. C651, Disinfecting Water Mains.
- 11 d. C655, Field De-Chlorination.

12 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

13 1.5 SUBMITTALS

14 A. Submittals

- 15 1. Cleaning Plan – Prior to the start of construction, submit a water main cleaning
16 plan detailing the methods and schedule, including:
- 17 a. A detailed description of cleaning procedures
- 18 b. Pigging entry and exit ports
- 19 c. Flushing procedures
- 20 d. Plans and hydraulic calculations to demonstrate adequate flushing
21 velocities
- 22 e. Control of water
- 23 f. Disposal
- 24 2. Disinfection Plan – prior to the start of construction submit a disinfection plan
25 including:
- 26 a. The method mixing and introducing chlorine
- 27 b. Flushing

1 c. De-chlorination

2 d. Sampling

3 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

4 1.7 CLOSEOUT SUBMITTALS [NOT USED]

5 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

6 1.9 QUALITY ASSURANCE [NOT USED]

7 1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

8 1.11 FIELD [SITE] CONDITIONS [NOT USED]

9 1.12 WARRANTY [NOT USED]

10 PART 2 - PRODUCTS

11 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

12 2.2 PRODUCT TYPES

13 A. Pigs

14 1. Open cell polyurethane foam body

15 2. Densities between 2 pounds per cubic foot up to 8 pounds per cubic foot

16 3. May be wrapped with polyurethane spiral bands

17 4. Abrasives are not permitted, unless expressly approved by the City in writing
18 for the particular application.

19 5. Must pass through a reduction up to 65 percent of the cross sectional area of
20 the nominal pipe diameter

21 6. Pigs shall be able to traverse standard piping arrangements such as 90 degree
22 bends, tees, crosses, wyes, and gate valves.

- 1 2.3 ACCESSORIES [NOT USED]
- 2 2.4 SOURCE QUALITY CONTROL [NOT USED]
- 3 PART 3- EXECUTION
- 4 3.1 INSTALLERS [NOT USED]
- 5 3.2 EXAMINATION [NOT USED]
- 6 3.3 PREPARATION [NOT USED]
- 7 3.4 ERECTION/INSTALLATION/APPLICATION [NOT USED]
- 8 3.5 REPAIR/RESTORATION [NOT USED]
- 9 3.6 RE-INSTALLATION [NOT USED]
- 10 3.7 FIELD [or] SITE QUALITY CONTROL [NOT USED]
- 11 3.8 SYSTEM STARTUP [NOT USED]
- 12 3.9 ADJUSTING [NOT USED]
- 13 3.10 CLEANING
- 14 A. General
- 15 1. All water mains shall be cleaned prior to bacteriological testing.
- 16 a. Pig all 36-inch and smaller water mains.
- 17 b. Pig or manually sweep 42-inch and larger mains.
- 18 c. Flushing is only permitted when specially designated in the Drawings, or if
- 19 pigging is not practical and approved by the City.
- 20 B. Pigging Method
- 21 1. If the method of pigging is to be used, prepare the main for the installation and
- 22 removal of a pig, including:
- 23 a. Furnish all equipment, material and labor to satisfactorily expose cleaning
- 24 wye, remove cleaning wye covers, etc.
- 25 b. Where expulsion of the pig is required through a dead-ended conduit:

- 1) Prevent backflow of purged water into the main after passage of the pig.
 - 2) Install a mechanical joint to provide a riser out of the trench on 12-inch and smaller mains to prevent backwater re-entry into the main.
 - 3) Additional excavation of the trench may be performed on mains over 12 inches, to prevent backwater re-entry into the main.
 - 4) Flush any backflow water that inadvertently enters the main.
- c. Flush short dead-end pipe sections not swabbed by a pig.
- d. Once pigging is complete:
- 1) Pigging wyes shall remain in place unless otherwise specified in the Contract Documents.
 - 2) Install cleaning wye, blind flanges or mechanical joint plugs.
 - 3) Plug and place blocking at other openings.
 - 4) Backfill
 - 5) Complete all appurtenant work necessary to secure the system and proceed with disinfection.

17 C. Flushing Method

1. Prepare the main by installing blow-offs at appropriate locations, of sufficient sizes and numbers, and with adequate flushing to achieve a minimum velocity in the main of 2.5 feet per second.
 - a. Minimum blow-off sizes for various main sizes are as follows:
 - 1) 4-inch through 8-inch main – ¾-inch blow-off
 - 2) 10-inch through 12-inch main – 1-inch blow-off
 - 3) 16-inch and greater main – 2-inch blow-off
 - b. Flushing shall be subject to the following limitations:
 - 1) Limit the volume of water for flushing to 3 times the volume of the water main.
 - 2) Do not unlawfully discharge chlorinated water.
 - 3) Do not damage private property.

- 1 4) Do not create a traffic hazard.
- 2 c. Once Flushing is complete:
- 3 1) Corporations stops used for flushing shall be plugged.
- 4 D. Daily main cleaning
- 5 1. Wipe joints and then inspect for proper installation.
- 6 2. Sweep each joint and keep clean during construction.
- 7 3. Install a temporary plug on all exposed mains at the end of each working day or
- 8 an extended period of work stoppage.
- 9 E. Hydrostatic Testing
- 10 1. All water main that is to be under pressure, shall be hydrostatically tested to
- 11 meet the following criteria:
- 12 a. Furnish and install corporations for proper testing of the main.
- 13 1) Furnish adequate and satisfactory equipment and supplies necessary
- 14 to make such hydrostatic tests.
- 15 2) The section of line to be tested shall be gradually filled with water,
- 16 carefully expelling the air and the specified pressure applied.
- 17 b. The City will furnish water required for the testing at its nearest City line.
- 18 c. Expel air from the pipe before applying the required test pressure.
- 19 d. Test Pressure
- 20 1) Test pressures should meet the following criteria:
- 21 a) Not less than 1.25 (187 psi minimum) times the stated working
- 22 pressure of the pipeline measured at the highest elevation along
- 23 the test section.
- 24 b) Not less than 1.5 (225 psi minimum) times the stated working
- 25 pressure at the lowest elevation of the test section.
- 26 e. Test Conditions
- 27 1) Must be at least 2 hour duration
- 28 2) Add water as necessary to sustain the required test pressure.

- 1 3) Test fire hydrants to the fire hydrant valve.
- 2 a) Leave the isolation valve on the fire hydrant lead line open during
- 3 the hydrostatic testing.
- 4 4) Test service lines to curb stop
- 5 a) Leave the corporation stop on the service line open during the
- 6 hydrostatic testing.
- 7 5) Close isolation valves for air release valves.
- 8 6) Makeup water must come from a container of fixed 55 gallon container
- 9 that does not have a water source.
- 10 f. Measure all water used in the pressure test through an approved meter, or
- 11 measure the difference in volume within a 55 gallon container.
- 12 1) Do not test against existing water distribution valves unless expressly
- 13 provided for in the Drawings, or approved by the City.
- 14 2) If the City denies approval to test against existing water distribution
- 15 system valve, then make arrangements to plug and test the pipe at no
- 16 additional cost.

2. Allowable Leakage

- a. No pipe installation should be accepted if the amount of makeup water is greater than that determined using the following formula:

In inch-pound units,

$$L = \frac{SD \sqrt{P}}{148,000}$$

Where:

L = testing allowance (make up water), gallons per hour

S = length of pipe tested, ft.

D = nominal diameter of pipe, in.

P = average test pressure during the hydrostatic test, psi

- 1 b. For any pipeline that fails to pass hydrostatic test:
- 2 1) Identify the cause
- 3 2) Repair the leak
- 4 3) Restore the trench and surface
- 5 4) Retest
- 6 c. All costs associated with repairing the pipeline to pass the hydrostatic test
- 7 is the sole responsibility of the Contractor and included in the price per
- 8 linear foot of pipe.
- 9 d. If the City determines that an existing system valve is responsible for the
- 10 hydrostatic test to fail, the Contractor shall make provisions to test the
- 11 pipeline without the use of the system valve.
- 12 e. There shall be no additional payment to the Contractor if the existing valve
- 13 is unable to sustain the hydrostatic test and shall be included in the price
- 14 per linear foot of pipe.

15 F. Disinfection

16 1. General

- 17 a. Disinfection of the main shall be accomplished by the "continuous feed"
- 18 method or the "slug" method as determined by the Contractor.
- 19 b. The free chlorine amounts shown are minimums. The Contractor may
- 20 require higher rates.
- 21 1) Calcium hypochlorite granules shall be used as the source of chlorine.
- 22 c. Continuous Feed Method
- 23 1) Apply water at a constant rate in the newly laid main.
- 24 a) Use the existing distribution system or other approved source of
- 25 supply.
- 26 2) At a point not more than 10 feet downstream from the beginning of the
- 27 new main, water entering the new main shall receive a dose of
- 28 chlorine.
- 29 a) Free chlorine concentration: 50 mg/L minimum, or as required by
- 30 TCEQ, whichever is greater.

- 1 b) Chlorine applications shall not cease until the entire conduit is
2 filled with heavily chlorinated water.
- 3 3) Retain chlorinated water in the main for at least 24 hours.
- 4 a) Operate valves and hydrants in the section treated in order to
5 disinfect the appurtenances.
- 6 b) Prevent the flow of chlorinated water into mains in active service.
- 7 c) Residual at the end of the 24-hour period: 10 mg /L free chlorine,
8 minimum, for the treated water in all portions of the main.
- 9 4) Flush the heavily chlorinated water from the main and dispose of in a
10 manner and at a location accepted by the City.
- 11 5) Test the chlorine residual prior to flushing operations.
- 12 a) If the chlorine residual exceeds 4 mg/L, the water shall remain in
13 the new main until the chlorine residual is less the 4 mg/L.
- 14 b) The Contractor may choose to evacuate the water into water
15 trucks, or other approved storage facility, and treat the water with
16 Sodium Bisulfate, or another de-chlorination chemical, or method
17 appropriate for potable water and approved by the City until the
18 chlorine residual is reduced to 4 mg/L or less.
- 19 c) After the specified chlorine residual is obtained, the water may
20 then be discharged into the drainage system or utilized by the
21 Contractor.
- 22 d. Slug Method
- 23 1) Water from the existing distribution system or other approved source of
24 supply shall be made to flow at a constant rate in the newly laid main.
- 25 2) At a point not more than 10 feet downstream from the beginning of the
26 new main, water entering the new main shall receive a dose of
27 chlorine.
- 28 a) Free chlorine concentration: 100 mg/L minimum, or as required by
29 TCEQ, whichever is greater.
- 30 b) The chlorine shall be applied continuously and for a sufficient time
31 to develop a solid column or "slug" of chlorinated water that shall
32 expose all interior surfaces to the "slug" for at least 3 hours.

- 1 3) Operate the fittings and valves as the chlorinated water flows past to
- 2 disinfect the appurtenances.
- 3 4) Prevent the flow of chlorinated water into mains in active service.
- 4 5) Flush the heavily chlorinated water from the main and dispose of in a
- 5 manner and at a location accepted by the City.
- 6 6) Upon completion, test the chlorine residual remaining in the main.
- 7 a) Chlorine levels of 4 mg/l or less should be maintained.

8 2. Contractor Requirements

- 9 a. Furnish all equipment, material and labor to satisfactorily prepare the
- 10 main for the disinfection method approved by the City with adequate
- 11 provisions for sampling.
- 12 b. Make all necessary taps into the main to accomplish chlorination of a new
- 13 line, unless otherwise specified in the Contract Documents.
- 14 c. After satisfactory completion of the disinfection operation, as determined
- 15 by the City, remove surplus pipe at the chlorination and sampling points,
- 16 plug the remaining pipe, backfill and complete all appurtenant work
- 17 necessary to secure the main.

18 G. De-Chlorination

- 19 1. General. All chlorinated water shall be de-chlorinated before discharge to the
- 20 environment. Chemical amounts, as listed in ANSI/AWWA C651: "Disinfecting
- 21 Water Mains", shall be used to neutralize the residual chlorine concentrations
- 22 using de-chlorination procedures listed in ANSI/AWWA C655: "Field De-
- 23 Chlorination". De-Chlorination shall continue until chlorine residual is non-
- 24 detectable.
- 25 2. Testing. Contractor shall continuously test for the chlorine residual level
- 26 immediately downstream of the de-chlorination process, during the entire
- 27 discharge of the chlorinated water. Contractor shall periodically conduct
- 28 chlorine residual testing and check for possible fish kills at locations where
- 29 discharged water enters the existing watershed.
- 30 3. Fish Kill. If a fish kill occurs associated with the discharge of water from the
- 31 distribution system or any other construction activities:
- 32 a. The Contract shall immediately alter activities to prevent further fish kills.

- 1 b. The Contractor shall immediately notify the City Inspector.
- 2 c. The Contractor shall coordinate with City to properly notify TCEQ.
- 3 d. Any fines assessed by the TCEQ (or local, state or federal agencies) for fish
- 4 kills shall be the responsibility of the Contractor.

5 H. Bacteriological Testing (Water Sampling)

6 1. General

- 7 a. Notify the City when the main is suitable for sampling.
- 8 b. The City shall then take water samples from a suitable tap for analysis by
- 9 the City's laboratory, unless otherwise specified in the Contract
- 10 Documents.
- 11 1) No hose or fire hydrant shall be used in the collection of samples.

12 2. Water Sampling

- 13 a. Complete microbiological sampling prior to connecting the new main into
- 14 the existing distribution system in accordance with AWWA C651.
- 15 b. Collect samples for bacteriological analysis in sterile bottles treated with
- 16 sodium thiosulfate.
- 17 c. Collect 2 consecutive sets of acceptable samples, taken at least 24 hours
- 18 apart, from the new main.
- 19 d. Collect at least 1 set of samples from every 1,000 linear feet of the new
- 20 main (or at the next available sampling point beyond 1,000 linear feet as
- 21 designated by the City), plus 1 set from the end of the line and at least 1 set
- 22 from each branch.
- 23 e. If trench water has entered the new main during construction or, if in the
- 24 opinion of the City, excessive quantities of dirt or debris have entered the
- 25 new main, obtain bacteriological samples at intervals of approximately
- 26 200 linear feet.
- 27 f. Obtain samples from water that has stood in the new main for at least 16
- 28 hours after formal flushing.

29 3. Repetition of Sampling

- 30 a. Unsatisfactory test results require a repeat of the disinfection process and
- 31 re-sampling as required above until a satisfactory sample is obtained.

1 3.11 CLOSEOUT ACTIVITIES [NOT USED]

2 3.12 PROTECTION [NOT USED]

3 3.13 MAINTENANCE [NOT USED]

4 3.14 ATTACHMENTS [NOT USED]

5 END OF SECTION

1 SECTION 33 04 50
2 CLEANING OF PIPES

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. General

6 1. Before any television inspection, pipes shall be cleaned to remove all debris,
7 solids, sand, grease, grit, etc. from the sewer and manholes.

8 B. Related Specification Sections include, but are not necessarily limited to:

9 1. Section I – Bidding and Contractual Documents

10 2. NCTCOG 5th Edition Specifications

11 3. Section 33 01 31 – Closed Circuit Television (CCTV) Inspection – Sanitary
12 Sewer

13 1.2 PRICE AND PAYMENT PROCEDURES

14 A. Cleaning of Pipe

15 1. Measurement and Payment

16 a. Measurement

17 1) This Item is considered subsidiary to the pipe being cleaned.

18 b. Payment

19 1) The work performed and the materials furnished in accordance with
20 this Item are subsidiary to the unit price bid per linear foot of pipe
21 complete in place, and no other compensation will be allowed.

22 1.3 REFERENCES [NOT USED]

23 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

24 1.5 SUBMITTALS [NOT USED]

25 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]

- 1 1.7 CLOSEOUT SUBMITTALS [NOT USED]
- 2 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]
- 3 1.9 QUALITY ASSURANCE [NOT USED]
- 4 1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]
- 5 1.11 FIELD [SITE] CONDITIONS [NOT USED]
- 6 1.12 WARRANTY [NOT USED]

- 7 PART 2 - PRODUCTS [NOT USED]

- 8 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS
- 9 2.2 PRODUCT TYPES
- 10 A. Use only the type of cleaning material which will not create hazards to health or
- 11 property or affect treatment plant processes.

- 12 2.3 ACCESSORIES
- 13 2.4 SOURCE QUALITY CONTROL

- 14 PART 3 - EXECUTION

- 15 3.1 INSTALLERS [NOT USED]
- 16 3.2 EXAMINATION [NOT USED]
- 17 3.3 PREPARATION [NOT USED]
- 18 3.4 ERECTION/INSTALLATION/APPLICATION [NOT USED]
- 19 3.5 REPAIR/RESTORATION [NOT USED]
- 20 3.6 RE-INSTALLATION [NOT USED]
- 21 3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]
- 22 3.8 SYSTEM STARTUP [NOT USED]
- 23 3.9 ADJUSTING [NOT USED]

1 3.10 CLEANING

2 A. General

- 3 1. All materials, equipment, and personnel necessary to complete the cleaning
4 of pipes and manholes must be present on the jobsite prior to isolating the
5 manhole or line segment and beginning the cleaning process.

- 6 2. Maintain clean work and surrounding premises within the work limits so as to
7 comply with Federal, State, and local environmental and anti-pollution laws,
8 ordinances, codes, and regulations when cleaning and disposing of waste
9 materials, debris, and rubbish.

- 10 3. Keep the work and surrounding premises within work limits free of
11 accumulations of dirt, dust, waste materials, debris, and rubbish.

- 12 4. Suitable containers for storage of waste materials, debris, and rubbish shall be
13 provided until time of disposal.
 - 14 a. It is the sole responsibility of the Contractor to secure a licensed legal
15 dump site for the disposal of this material.
 - 16 b. Under no circumstances shall sewage or solids removed from the main or
17 manhole be dumped onto streets or into ditches, catch basins, storm
18 drains, or sanitary sewers.

- 19 5. The cleaning process shall remove all grease, sand, silts, solids, rags, debris,
20 etc. from each sewer segment, including the manhole(s).

- 21 6. Selection of cleaning equipment and the method for cleaning shall be based
22 on the condition of the sanitary sewer mains at the time work commences and
23 will be subject to approval by the City.

- 24 7. All cleaning equipment and devices shall be operated by experienced
25 personnel.

- 26 8. Satisfactory precautions shall be taken to protect the pipes and manholes
27 from damage that might be inflicted by the improper use of the cleaning
28 process or equipment.

- 29 9. Any damages done to a sewer main and/or structure by the Contractor shall be
30 repaired by the Contractor at no additional cost and to the satisfaction of the
31 City.

- 1 10. Cleaning shall also include the manhole wall washing by high pressure water
2 jet.

- 3 11. The Contractor may be required to demonstrate the performance capabilities
4 of the cleaning equipment proposed for use on the project.
 - 5 a. If the results obtained by the proposed pipe cleaning equipment are not
6 satisfactory, the Contractor shall use different equipment and/or
7 attachments, as required, to meet City satisfaction.
 - 8 b. More than 1 type of equipment/attachments may be required at a location.

- 9 12. When hydraulic or high velocity cleaning equipment is used, a suitable sand
10 trap, weir, dam, or suction shall be constructed in the downstream manhole in
11 such a manner that all the solids and debris are trapped for removal.

- 12 13. Whenever hydraulically-propelled cleaning tools which depend upon water
13 pressure to provide their cleaning force, or any tool which retard the flow of
14 water in the pipes are used, precautions shall be taken to insure that the water
15 pressure created does not cause any damage or flooding to public or private
16 property being served by the manhole section involved.

- 17 14. Any damage of property, as a result of flooding, shall be the liability and
18 responsibility of the Contractor.

- 19 15. The flow of wastewater present in the sanitary sewer main shall be utilized to
20 provide necessary fluid for hydraulic cleaning devices whenever possible.

- 21 16. When additional quantities of water from fire hydrants are necessary to avoid
22 delay in normal working procedures, the water shall be conserved and not
23 used unnecessarily.
 - 24 a. No fire hydrant shall be obstructed or used when there is a fire in the area.
 - 25 b. It is the responsibility of the Contractor to obtain the fire hydrant, water
26 meter and all related charges for the set-up, including the water usage bills
27 from respective water purveyor agency.
 - 28 c. All expenses shall be considered incidental to the cleaning of the existing
29 pipes.

30 B. Methods

31 1. Hydraulic Cleaning

- 1 a. Hydraulic-propelled devices which require a head of water to operate must
2 utilize a collapsible dam.
- 3 b. The dam must be easily collapsible to prevent damage to the sewer main,
4 property, etc.
- 5 c. When using hydraulically-propelled devices, precautions shall be taken to
6 insure that the water pressure created does not cause damage or flood
7 public or private property.
- 8 d. Do not increase the hydraulic gradient of the sanitary sewers beyond the
9 elevation that could cause overflow of sewage into area waterways or
10 laterals.
- 11 e. The flow of wastewater present in the sanitary sewer main shall be utilized
12 to provide necessary fluid for hydraulic cleaning devices whenever
13 possible.

14 2. High-Velocity Cleaning

- 15 a. Cleaning equipment that uses a high velocity water jet for removing debris
16 shall be capable of producing a minimum volume of 50 gpm, with a
17 pressure of 1,500 psi, for a pipe and 3,500 psi for the (manhole) structure
18 at the pump.
 - 19 1) Any variations to this pumping rate must be approved, in advance, by
20 the City.
 - 21 2) To prevent damage to older sewer mains and property, a pressure less
22 than 1500 psi can be used.
 - 23 3) A working pressure gauge shall be used on the discharge of all high
24 pressure water pumps.
 - 25 4) For sewers 18 inches and larger in diameter, in addition to conventional
26 nozzles, use a nozzle which directs the cleaning force to the bottom of
27 the pipe.
 - 28 5) Operate the equipment so that the pressurized nozzle continues to
29 move at all times.
 - 30 6) The pressurized nozzle shall be turned off or reduced anytime the hose
31 is on hold or delayed in order to prevent damage to the line.

32 3. Mechanical Cleaning

- 1 a. Mechanical cleaning, in addition to normal cleaning when required, shall
2 be with approved equipment and accessories driven by power winching
3 devices.

- 4 b. Submit the equipment manufacturer's operational manual and guidelines
5 to the City, which shall be followed strictly unless modified by the City.

- 6 c. All equipment and devices shall be operated by experienced operators so
7 that they do not damage the pipe in the process of cleaning.

- 8 d. Buckets, scrapers, scooters, porcupines, kites, heavy duty brushes, and
9 other debris-removing equipment/accessories shall be used as
10 appropriate and necessary in the field, in conjunction with the approved
11 power machines.

- 12 e. The use of cleaning devices such as rods, metal pigs, porcupines, root
13 saws, snakes, scooters, sewer balls, kites, and other approved equipment,
14 in conjunction with hand winching device, and/or gas, electric rod
15 propelled devices, shall be considered normal cleaning equipment.

16 3.11 CLOSEOUT ACTIVITIES [NOT USED]

17 3.12 PROTECTION [NOT USED]

18 3.13 MAINTENANCE [NOT USED]

19 3.14 ATTACHMENTS [NOT USED]

20 END OF SECTION

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SECTION 33 05 13
FRAME, COVER, AND GRADE RINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Cast iron frame, cover and grade rings used as access ports into water, sanitary sewer and storm drain structures such as manholes or vaults.
2. Compression Molded Composite Frames and Covers used as access ports into sanitary sewer structures such as manholes and junction boxes.

B. Related Specification Sections include but are not necessarily limited to

1. Section I – Bidding and Contractual Documents
2. NCTCOG 5th Edition Specifications

1.2 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Measurement
 - a. This Item is considered subsidiary to the structure containing the frame, cover and grade rings.
2. Payment
 - a. The work performed and the materials furnished in accordance with this Item are subsidiary to the unit price bid per each structure complete in place, and no other compensation will be allowed.

1.3 REFERENCES

A. Reference Standards

1. Reference standards cited in this specification refer to the current reference standard published at the time of the latest revision date logged at the end of this specification, unless a date is specifically cited.
2. NCTCOG 5th Edition Specifications.
3. ASTM International (ASTM)
 - a. ASTM A48 – Standard Specification for Gray Iron Castings
 - b. ASTM A536 - Standard Specification for Ductile Iron Castings
 - c. ASTM C478 - Specification for Precast Reinforced Concrete Manhole Sections
4. American Association of State Highways and Transportation Officials (AASHTO)
 - a. AASHTO HS-25 – AASHTO Highway Bridge Specification: Axial Loading to meet or exceed 21,280 pounds/wheel load
 - b. AASHTO M306 – Standard Specification for Drainage, Sewer, Utility and Related Castings

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

A. Submittals shall be in accordance with the General Conditions.

1 B.All submittals shall be accepted by the City prior to delivery and/or fabrication for
2 specials.

3 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS**

4 A.Product Data

- 5 1. All castings shall be cast with:
 - 6 a. Approved foundry's name
 - 7 b. Part number
 - 8 c. Country of origin
- 9 2. All moldings shall display:
 - 10 a. Approved Molder
 - 11 b. Molding date
 - 12 c. Wording that material is non-metallic
 - 13 d. Country of origin
- 14 3. Provide manufacturers:
 - 15 a. Specifications
 - 16 b. Load tables
 - 17 c. Dimension diagrams
 - 18 d. Anchor details
 - 19 e. Installation instructions

20 B.Certificates

- 21 1. Manufacturer shall certify that all castings or moldings conform to the ASTM and
22 AASHTO designations.

23 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

24 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

25 **1.9 QUALITY ASSURANCE [NOT USED]**

26 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

27 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

28 **1.12 WARRANTY [NOT USED]**

29 **PART 2 - PRODUCTS**

30 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

31 **2.2 EQUIPMENT, PRODUCT TYPES, MATERIALS**

32 A.Manufacturers

- 33 1. The manufacturer must comply with this Specification and related Sections.

34 B.Cast Iron Covers

- 35 1. Use castings for frames that conform to ASTM A48, Class 35B or better.
- 36 2. Use castings for covers that conform to ASTM A536, Grade 65-45-12 or better.
- 37 3. Use clean casting capable of withstanding application of AASHTO HS-20 vehicle
38 loading with permanent deformation.

- 1 4. Covers
- 2 a. Size to set flush with the frame with no larger than a 1/8 inch gap between the
- 3 frame and cover
- 4 b. Provide with 2 inch wide pick slots in lieu of pick holes.
- 5 c. Provide gasket in frame and cover.
- 6 d. Standard Dimensions
- 7 1) Sanitary Sewer
- 8 a) Provide a clear opening of 30 inches for all sanitary sewer frames and
- 9 cover assemblies unless otherwise specified in the Contract Documents.
- 10 e. Standard Labels
- 11 1) Water
- 12 a) Cast lid with the word "WATER" in 2-inch letters across the lid.
- 13 2) Sanitary Sewer
- 14 a) Cast lid with the word "SANITARY SEWER" IN 2-inch letters across
- 15 the lid.
- 16 f. Hinge Covers
- 17 1) Provide water tight gasket on all hinged covers.
- 18 2) Water
- 19 a) Provide hinged covers for all water structures.
- 20 3) Sanitary Sewer
- 21 a) Provide hinged covers for all manholes or structures constructe over
- 22 24-inch sewer lines and larger and for manholes where rim elevations
- 23 are greater than 12 inches above the surface.

24 C.Composite Covers

- 25 1. All composite moldings shall consist of a thermosetting resin matrix blended and/or
- 26 combined with reinforcing fiber rovings, short fiber filaments, or equivalent
- 27 nonmetallic reinforcing structure(s). The thermosetting resin matrix shall be a
- 28 polymer, vinyl ester, or a blend of these. The moldings shall be true to pattern in
- 29 locations affecting their strength and value for the service intended. Before the
- 30 moldings are removed from the molding operation, they shall be thoroughly
- 31 deflashed and cleaned at the parting lines, holes, notches and all exposed edges.
- 32 2. Use clean molding capable of withstanding application of AASHTO HS-25 vehicle
- 33 loading with permanent deformation. Composite frames shall have a minimum wall
- 34 thickness of 0.75 inches in sections exposed to traffic and potential traffic wheel
- 35 impact.
- 36 3. Metal reinforcements or metal hinges molded within the composite shall not be
- 37 permitted.
- 38 4. All composite moldings shall have UV stabilizers (concentrations from 0.05% to
- 39 5%) added prior to shaping the product by injection molding.
- 40 5. Covers
- 41 a. Composite covers shall be compression molded under high pressures (>0.5
- 42 tons/sq inch of x-y surface area) and high temperatures (>200 degrees F).
- 43 Components for locking systems below the cover exposed to sewer
- 44 environment shall be made of noncorrosive materials such as nonmagnetic 316
- 45 stainless steel (Austenite) or a polymer.
- 46 b. Size to set flush with the frame with no larger than a 1/8 inch gap between the
- 47 frame and cover
- 48 c. Provide with 2 inch wide pick slots in lieu of pick holes.
- 49 d. Provide gasket in frame and cover.

- 1 e. Standard Dimensions
- 2 1) Sanitary Sewer and Water
- 3 a) Provide a clear opening of 30 inches for all sanitary sewer frames and
- 4 cover assemblies unless otherwise specified in the Contract Documents.
- 5 f. Standard Labels
- 6 1) Sanitary Sewer
- 7 a) Cast lid with the word "SANITARY SEWER" in 1-1/2-inch
- 8 (minimum) or 2-inch (maximum) letters across the lid.
- 9 2) Water
- 10 a) Cast lid with the word "WATER" in 1-1/2-inch (minimum) or 2-
- 11 inch (maximum) letters across the lid.
- 12 b)
- 13 g. Hinge Covers
- 14 1) Hinged covers shall be double-hinged allowing a minimal 180° full
- 15 opening.
- 16 2) Provide water tight gasket on all hinged covers.
- 17 3) Sanitary Sewer
- 18 a) Provide hinged covers for all manholes or structures constructed over
- 19 all sewer lines.

20 D. Grade Rings

- 21 1. Provide grade rings in sizes from 2-inch up to 8-inch.
- 22 2. Precast concrete grade rings are not permitted.
- 23 3. Riser adjustment to surface grade may be constructed using circular Sonotube®
- 24 forms.

25 E. Joint Sealant

- 26 1. Provide a pre-formed or trowelable bitumastic sealant in an extrudable or flat tape
- 27 form.
- 28 2. Provide sealant that is not dependent on a chemical action for its adhesive
- 29 properties or cohesive strength.
- 30 3. Provide adhesive as recommended by manufacturer on composite covers/grade
- 31 rings.

32 **2.3 ACCESSORIES [NOT USED]**

33 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

34 **PART 3 - EXECUTION**

35 **3.1 INSTALLERS [NOT USED]**

36 **3.2 EXAMINATION [NOT USED]**

37 **3.3 PREPARATION [NOT USED]**

38 **3.4 INSTALLATION**

39 A. Grade Rings

- 40 1. Place as shown in the City Standard Details.
- 41 2. Clean surfaces of dirt, sand, mud or other foreign matter before placing sealant.

1 3. Seal each composite grade ring with sealant specified in this Specification and as
2 shown on the City Standard Details.

3 B.Frame and Cover

4 1. Water

5 a. For water structures install frame, cover and grade rings in accordance with
6 applicable City Standard Detail.

7 2. Sanitary Sewer

8 a. For sanitary sewer structures install frame, cover and grade rings in accordance
9 with applicable City Standard Detail.

10 3. Hinge Cover

11 a. Provide hinge cover on elevated manholes, junction boxes, in the flood plain
12 and where specified on the Drawings.

13 C.Joint Sealing

14 1. Seal frame, grade rings and structure with specified sealant.

15 D.Concrete Collar

16 1. Provide concrete collar around all frame and cover assemblies constructed at grade.

17 **3.5 REPAIR / RESTORATION [NOT USED]**

18 **3.6 RE-INSTALLATION [NOT USED]**

19 **3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]**

20 **3.8 SYSTEM STARTUP [NOT USED]**

21 **3.9 ADJUSTING [NOT USED]**

22 **3.10 CLEANING [NOT USED]**

23 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

24 **3.12 PROTECTION [NOT USED]**

25 **3.13 MAINTENANCE [NOT USED]**

26 **3.14 ATTACHMENTS [NOT USED]**

27 **END OF SECTION**

1 **SECTION 33 05 17**
2 **CONCRETE COLLARS**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

5 A. Section Includes:

- 6 1. Concrete Collars for Manholes

7 B. Related Specification Sections include but are not necessarily limited to:

- 8 1. Section I – Bidding and Contractual Documents
9 2. NCTCOG 5th Edition Specifications
10 3. Section 33 05 13 – Frame, Cover, and Grade Rings

11 **1.2 PRICE AND PAYMENT PROCEDURES**

12 A. Measurement and Payment

13 1. Manhole

14 a. Measurement

- 15 1) Measurement for this Item shall be per each.

16 b. Payment

- 17 1) The work performed and the materials furnished in accordance with this
18 Item shall be paid for at the unit price bid per each “Concrete Collar for
19 Manhole” installed.

20 c. The price bid will include:

- 21 1) Concrete Collar
22 2) Excavation
23 3) Forms
24 4) Reinforcing steel (if required)
25 5) Concrete
26 6) Backfill
27 7) Pavement removal
28 8) Hauling
29 9) Disposal of excess material
30 10) Placement and compaction of backfill
31 11) Clean-up
32 12) Additional pavement around perimeter of concrete collar as required for
33 rim adjustment on existing manhole.

34 2. Valve

35 a. Measurement

- 36 1) Measurement for this Item shall be per each.

37 b. Payment

- 38 1) The work performed and the materials furnished in accordance with this
39 Item shall be paid for at the unit price bid for each “Concrete Collar for
40 Valve” installed.

41 2) The price bid will include:

- 42 a) Concrete Collar
43 b) Excavation

- 1 c) Forms
- 2 d) Reinforcing steel (if required)
- 3 e) Concrete
- 4 f) Backfill
- 5 g) Pavement removal
- 6 h) Hauling
- 7 i) Disposal of excess material
- 8 j) Placement and compaction of backfill
- 9 k) Clean-up
- 10 l) Additional pavement around perimeter of concrete collar as required
- 11 for rim adjustment on existing manhole.

12 **1.3 REFERENCES**

13 A. Reference Standards

- 14 1. Reference standards cited in this Specification refer to the current reference
- 15 standard published at the time of the latest revision date logged at the end of this
- 16 Specification, unless a date is specifically cited.
- 17 2. ASTM International (ASTM):
- 18 a. D4258, Standard Practice for Surface Cleaning Concrete for Coating.
- 19 b. D4259, Standard Practice for Abrading Concrete.

20 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

21 **1.5 SUBMITTALS [NOT USED]**

22 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]**

23 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

24 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

25 **1.9 QUALITY ASSURANCE [NOT USED]**

26 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

27 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

28 **1.12 WARRANTY [NOT USED]**

29 **PART 2 - PRODUCTS**

30 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

31 **2.2 EQUIPMENT, PRODUCT TYPES, MATERIALS**

32 A. Materials

- 33 1. Concrete – Conform to NCTCOG 5th Edition Specifications.
- 34 2. Reinforcing Steel – Conform to NCTCOG 5th Edition Specifications.
- 35 3. Frame and Cover – Conform to Section 33 05 13.
- 36 4. Grade Ring – Conform to Section 33 05 13.

1 **2.3 ACCESSORIES [NOT USED]**

2 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

3 **PART 3 - EXECUTION**

4 **3.1 INSTALLERS [NOT USED]**

5 **3.2 EXAMINATION**

6 A. Evaluation and Assessment

- 7 1. Verify lines and grades are in accordance to the Drawings.

8 **3.3 PREPARATION [NOT USED]**

9 **3.4 INSTALLATION**

10 A. Final Rim Elevation

- 11 1. Install concrete grade rings for height adjustment.
- 12 a. Construct grade ring on load bearing shoulder of manhole.
- 13 b. Use sealant between rings as shown on Drawings.
- 14 c. Sono Tube or approved equivalent may be used to perform the adjustment as
- 15 substitute for grade rings.
- 16 2. Set frame on top of manhole or grade rings using continuous water sealant o clean
- 17 smooth surface (when sono tube is used in lieu of grade rings, sealant is not
- 18 required).
- 19 3. Remove debris, stones and dirt to ensure a watertight seal.
- 20 4. Do not use steel shims, wood, stones or other unspecified material to obtain the
- 21 final surface elevation of the manhole frame.

22 **3.5 REPAIR / RESTORATION [NOT USED]**

23 **3.6 RE-INSTALLATION [NOT USED]**

24 **3.7 FIELD QUALITY CONTROL [NOT USED]**

25 **3.8 SYSTEM STARTUP [NOT USED]**

26 **3.9 ADJUSTING [NOT USED]**

27 **3.10 CLEANING [NOT USED]**

28 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

29 **3.12 PROTECTION [NOT USED]**

30 **3.13 MAINTENANCE [NOT USED]**

31 **3.14 ATTACHMENTS [NOT USED]**

32 **END OF SECTION**

33

1 SECTION 33 05 26
2 UTILITY MARKERS/LOCATORS

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

6 1. Buried and surface utility markers for utility construction

7 B. Related Specification Sections include, but are not necessarily limited to:

8 1. Section I – Bidding and Contractual Documents

9 2. NCTCOG 5th Edition Specifications

10 1.2 PRICE AND PAYMENT PROCEDURES

11 A. Measurement and Payment

12 1. Measurement

13 a. Measurement for this Item will be by lump sum.

14 2. Payment

15 a. The work performed and materials furnished in accordance with this Item
16 will be subsidiary to the pipeline installation.

17 3. The price bid shall include:

18 a. Furnishing and installing Utility Markers as specified by the Drawings

19 b. Mobilization

20 c. Pavement removal

21 d. Excavation

22 e. Hauling

23 f. Disposal of excess material

24 g. Furnishing, placement and compaction of backfill

1 h. Clean-up

2 1.3 REFERENCES

3 A. Reference Standards

4 1. Reference standards cited in this Specification refer to the current reference
5 standard published at the time of the latest revision date logged at the end of
6 this Specification, unless a date is specifically cited.

7 2. NCTCOG 5th Edition Specifications.

8 3. American Public Works Association (AWPA):

9 a. Uniform Color Code.

10 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

11 1.5 SUBMITTALS

12 A. Submittals shall be in accordance with the General Conditions.

13 B. All submittals shall be approved by the City prior to delivery.

14 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

15 A. Product Data

16 1. Buried Marker

1 1.7 CLOSEOUT SUBMITTALS [NOT USED]

2 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

3 1.9 QUALITY ASSURANCE [NOT USED]

4 1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]

5 1.11 FIELD [SITE] CONDITIONS [NOT USED]

6 1.12 WARRANTY [NOT USED]

7 PART 2 - PRODUCTS

8 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

9 2.2 MATERIALS

10 A. Manufacturers

- 11 1. The manufacturer must comply with this Specification and related Sections.
- 12 2. Provide new Utility Markers/Locators from a manufacturer regularly engaged in
- 13 the manufacturing of Utility Markers/Locators.

14 B. Materials

15 1. Buried Markers (Detectable Warning Tape)

16 a. Provide detectable warning tape as follows:

17 1) 5.0 mil overall thickness

18 2) Width – 3 inch minimum

19 3) Weight – 27.5 pounds per inch per 1,000 square feet

20 4) Triple Layer with:

21 a) Minimum thickness 0.35 mils solid aluminum foil encased in a

22 protective inert plastic jacket

23 (1) 100 percent virgin low density polyethylene

24 (2) Impervious to all known alkalis, acids, chemical reagents and

25 solvents within soil

26 (3) Aluminum foil visible to both sides

- 1 5) Locatable by conductive and inductive methods
- 2 6) Printing encased to avoid ink rub-off
- 3 7) Color and Legends
- 4 a) Potable water lines
- 5 (1) Color – Blue (in accordance with APWA Uniform Color Code)
- 6 (2) Legend – Caution Potable Water Line Below (repeated every 24
- 7 inches)
- 8 b) Reclaimed water lines
- 9 (1) Color – Purple (in accordance with APWA Uniform Color Code)
- 10 (2) Legend – Caution Reclaimed Water Line Below (repeated every
- 11 24 inches)
- 12 c) Sewer Line
- 13 (1) Color – Green (in accordance with APWA Uniform Color Code)
- 14 (2) Legend – Caution Sewer Line Below (repeated every 24 inches)
- 15 2.3 ACCESSORIES [NOT USED]
- 16 2.4 SOURCE QUALITY CONTROL [NOT USED]
- 17 PART 3 - EXECUTION
- 18 3.1 INSTALLERS [NOT USED]
- 19 3.2 EXAMINATION [NOT USED]
- 20 3.3 PREPARATION [NOT USED]
- 21 3.4 INSTALLATION
- 22 A. Buried Markers (Detectable Warning Tape)
- 23 1. Install in accordance with manufacturer’s recommendations below natural
- 24 ground surface and directly above the utility for which it is marking.
- 25 a. Allow 18 inches minimum between utility and marker.

1 b. Bury to a depth of 3 feet or as close to the grade as is practical for optimum
2 protection and detectability.

3 3.5 REPAIR / RESTORATION [NOT USED]

4 3.6 RE-INSTALLATION [NOT USED]

5 3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]

6 3.8 SYSTEM STARTUP [NOT USED]

7 3.9 ADJUSTING [NOT USED]

8 3.10 CLEANING [NOT USED]

9 3.11 CLOSEOUT ACTIVITIES [NOT USED]

10 3.12 PROTECTION [NOT USED]

11 3.13 MAINTENANCE [NOT USED]

12 3.14 ATTACHMENTS [NOT USED]

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14 END OF SECTION

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1 SECTION 33 05 30
2 LOCATION OF EXISTING UTILITIES

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

6 1. Locating and verifying the location and elevation of the existing underground
7 utilities that may conflict with a facility proposed for construction by use of:

8 a. Exploratory Excavation

9 b. Vacuum Excavation

10 B. Related Specification Sections include, but are not necessarily limited to:

11 1. Section I – Bidding and Contractual Documents

12 2. NCTCOG 5th Edition Specifications

13 1.2 PRICE AND PAYMENT PROCEDURES

14 A. Measurement and Payment

15 1. Exploratory Excavation of Existing Utilities

16 a. Measurement

17 1) Measurement for this Item shall be per each excavation performed as
18 identified in the Drawings, or as directed.

19 b. Payment

20 1) The work performed and materials furnished in accordance with this
21 Item and measured as provided under "Measurement" will be paid for
22 at the unit price bid per each "Exploratory Excavation for Existing
23 Utilities" specified.

24 c. The price bid shall include:

25 1) Grade survey

26 2) Pavement removal

27 3) Excavation

- 1 4) Utility Location
- 2 5) Hauling
- 3 6) Disposal of excess material
- 4 7) Furnishing, placing and compaction of embedment
- 5 8) Furnishing, placing and compaction of backfill
- 6 9) Clean-up
- 7 10) Surface restoration

8 2. Vacuum Excavation of Existing Utilities

9 a. Measurement

- 10 1) Measurement for this Item shall be per each excavation performed as
11 identified in the Drawings, or as directed.

12 b. Payment

- 13 1) The work performed and materials furnished in accordance with this
14 Item and measured as provided under "Measurement" will be paid for
15 at the unit price bid per each "Vacuum Excavation" specified.

16 c. The price bid shall include:

- 17 1) Grade survey
- 18 2) Pavement removal
- 19 3) Vacuum Excavation
- 20 4) Utility Location
- 21 5) Hauling
- 22 6) Disposal of excess material
- 23 7) Furnishing, placing and compaction of embedment
- 24 8) Furnishing, placing and compaction of backfill
- 25 9) Clean-up
- 26 10) Surface restoration

27 1.3 REFERENCES

28 A. Definitions

1 1. Exploratory Excavation: A method used to locate existing underground utility
2 as shown on the plans through the use of standard excavation equipment.

3 2. Vacuum Excavation: Method used to locate existing underground utility as
4 shown on the plans through the use of geophysical prospecting equipment
5 such as vacuum excavation.

6 B. Reference Standards

7 1. Reference standards cited in this Specification refer to the current reference
8 standard published at the time of the latest revision date logged at the end of
9 this Specification, unless a date is specifically cited.

10 2. NCTCOG 5th Edition Specifications.

11 3. American Society of Civil Engineers (ASCE)

12 a. ASCE Publication CI/ASCE 38 (Standard Guideline for the Collection and
13 Depiction of Existing Subsurface Utility Data)

14 1.4 ADMINISTRATIVE REQUIREMENTS

15 A. Coordination

16 1. Coordinate with City Inspector at least 48 hours prior to commencing on site
17 for Exploratory Excavation of Existing Utilities.

18 2. Coordinate location of all other existing utilities within vicinity of excavation
19 prior to commencing Exploratory Excavation.

20 3. Coordinate staking of Exploratory Excavations with City at least 1 week prior to
21 commencement.

22 B. Sequencing

23 1. Exploratory Excavations shall be conducted prior to the construction of the
24 entire project.

25 C. Scheduling

26 1. For critical utility locations, the City may choose to be present during
27 excavation.

28 2. Alter schedule for Exploratory Excavation of Existing Utilities to accommodate
29 City personnel.

- 1 1.5 SUBMITTALS [NOT USED]
- 2 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS [NOT USED]
- 3 1.7 CLOSEOUT SUBMITTALS
 - 4 A. Report of Utility Location
 - 5 1. Horizontal location of utility as surveyed
 - 6 2. Vertical elevation of utility as surveyed
 - 7 a. Top of utility
 - 8 b. Spring line of utility
 - 9 c. Existing ground
 - 10 3. Material type, diameter and description of the condition of existing utility
- 11 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]
- 12 1.9 QUALITY ASSURANCE [NOT USED]
- 13 1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]
- 14 1.11 FIELD [SITE] CONDITIONS [NOT USED]
- 15 1.12 WARRANTY [NOT USED]
- 16 PART 2 - PRODUCTS [NOT USED]
- 17 PART 3 - EXECUTION
 - 18 3.1 INSTALLERS [NOT USED]
 - 19 3.2 EXAMINATION
 - 20 A. Verification of Conditions
 - 21 1. Verify location of existing utilities in accordance with the General
 - 22 Requirements, the General Notes and the Drawings.
 - 23 3.3 PREPARATION
 - 24 A. Coordinate with City Survey, if applicable.

1 3.4 INSTALLATION

2 A. Exploratory Excavation

- 3 1. Verify location of existing utility at location denoted on the Drawings, or as
4 directed by the City.
- 5 a. Expose utility to spring line, as necessary.
- 6 b. Excavate and Backfill Trench for the Exploratory Excavation in accordance
7 with NCTCOG 5th Edition Specifications and the Drawings.

8 B. Vacuum Excavation

- 9 1. Verify location of existing utility at location denoted on the Drawings, or as
10 directed by the City.
- 11 2. Designate the horizontal position of the existing underground utilities that are
12 to be located using geophysical prospecting equipment.
- 13 a. Acquire record documentation from and coordinate with utility companies,
14 as necessary to locate utility.
- 15 3. Perform excavation in general accordance with the recommended practices
16 and procedures described in ASCE Publication CI/ASCE 38.

17 C. Upon completion of the utility locating, submit a report of the findings.

18 D. If location of utility is in conflict with the Drawings, notify the City Project Manager
19 and Engineer for appropriate design modifications.

20 E. Place embedment and backfill in accordance with NCTCOG 5th Edition
21 Specifications and the Drawings.

22 F. Once necessary data is obtained, immediately restore surface to existing
23 conditions to:

- 24 1. Obtain a safe and proper driving surface, if applicable
- 25 2. Ensure the safety of the general public
- 26 3. The satisfaction of the City

27 3.5 REPAIR / RESTORATION [NOT USED]

28 3.6 RE-INSTALLATION [NOT USED]

1 3.7 FIELD [or] SITE QUALITY CONTROL [NOT USED]

2 3.8 SYSTEM STARTUP [NOT USED]

3 3.9 ADJUSTING [NOT USED]

4 3.10 CLEANING [NOT USED]

5 3.11 CLOSEOUT ACTIVITIES [NOT USED]

6 3.12 PROTECTION [NOT USED]

7 3.13 MAINTENANCE [NOT USED]

8 3.14 ATTACHMENTS [NOT USED]

9 END OF SECTION

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SECTION 33 11 05
BOLTS, NUTS, AND GASKETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. All nuts, bolts and gaskets associated with pressurized water utility lines including:
 - a. T-Bolts and Nuts
 - b. Flange Bolts and Nuts
 - c. Threaded Rods
 - d. Push-on Gaskets
 - e. Mechanical Joint Gaskets
 - f. Flange Gaskets
 - g. Flange Isolation Kits
 - h. Petrolatum Tape Systems
- B. Related Specification Sections include, but are not necessarily limited to:
 - 1. Section I – Bidding and Contractual Documents
 - 2. NCTCOG 5th Edition Specifications

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Hydrocarbon Resistant Gaskets
 - a. Measurement
 - 1) Measurement for this Item shall be by lump sum.
 - b. Payment
 - 1) The work performed and the materials furnished in accordance with this Item shall be paid for at the lump sum price bid for all “Hydrocarbon Resistant Gaskets”.
 - 2. All Other Items
 - a. Measurement
 - 1) The Items in this Section are considered subsidiary to the Item being installed.
 - b. Payment
 - 1) The work performed and materials furnished in accordance with this Item are subsidiary to the unit price bid for the Item being installed and no other compensation will be allowed.

1.3 REFERENCES

- A. Reference Standards
 - 1. Reference standards cited in this specification refer to the current reference standard published at the time of the latest revision date logged at the end of this specification, unless a date is specifically cited.
 - 2. NCTCOG 5th Edition Specifications.
 - 3. American Iron and Steel Institute (AISI).

- 1 4. American Society of Mechanical Engineers (ASME):
- 2 a. PCC-1-2012 Guidelines for Pressure Boundary Bolted Flange Joint Assembly.
- 3 5. American Society of Testing and Materials (ASTM):
- 4 a. A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for
- 5 High Temperature or High Pressure Service and Other Special Purpose
- 6 Applications.
- 7 b. A194, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for
- 8 High Pressure or High Temperature Service, or Both.
- 9 c. A242, Standard Specification for High-Strength Low-Alloy Carbon Structural
- 10 Steel
- 11 d. B117, Salt Spray Testing
- 12 e. F436, Standard Specification for Hardened Steel Washers
- 13 6. American Water Works Association (AWWA):
- 14 a. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and
- 15 Fittings.
- 16 b. C207, Steel Pipe Flanges for Waterworks Service – Sizes 4 In. Through 144 In.
- 17 (100 mm Through 3,600 mm).
- 18 c. C600, Installation of Ductile-Iron Mains and Their Appurtenances.
- 19 d. M11, Steel Pipe.
- 20 e. M41, Ductile-Iron Pipe and Fittings.
- 21 7. Fastener Quality Act (FQA)
- 22 a. Public Law 106-34 (P.L. 106-34)
- 23 8. NSF International (NSF):
- 24 a. 61, Drinking Water System Components - Health Effects.
- 25 9. Society for Protective Coating (SSPC) Surface Preparation Standards (SP):
- 26 a. SP2, Hand Tool Cleaning
- 27 b. SP3, Power Tool Cleaning

28 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

29 **1.5 SUBMITTALS**

- 30 A. Submittals shall be in accordance with the General Conditions.
- 31 B. All submittals shall be approved by the City prior to delivery and/or fabrication for
- 32 specials.

33 **1.6 ACTION SUBMITTALS / INFORMATIONAL SUBMITTALS**

- 34 A. Product Data
- 35 1. Bolts and nuts for mechanical and or flange joints
- 36 2. Gaskets
- 37 B. Certificates
- 38 1. Furnish an affidavit certifying that all fasteners, excluding T-Bolts, shall conform to
- 39 the Fastener Quality Act (FQA) (P.L. 106-34).
- 40 2. Furnish an affidavit certifying that the Xylan Coating is manufactured by Whitford
- 41 Corporation, or a Whitford Corporation certified Applicator.

1 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

3 **1.9 QUALITY ASSURANCE**

4 A. Qualifications

5 1. Manufacturers

- 6 a. Fastener manufacturing operations (bolts, nuts, gaskets and coatings) shall be
7 performed under the control of the manufacturer.
8 b. All gaskets shall meet or exceed the latest revisions NSF 61 and shall meet or
9 exceed the requirements of this Specification.

10 B. Preconstruction Testing

- 11 1. The City may, at its own cost, subject random fittings for destructive testing by an
12 independent laboratory for compliance with this Specification.
13 a. The compliance test shall be performed in the United States.
14 b. Any visible defects or failure to meet the quality standards herein will be
15 grounds for rejecting the entire order.

16 **1.10 DELIVERY, STORAGE, AND HANDLING**

17 A. Storage and Handling Requirements

- 18 1. Secure and maintain a location to store the material in accordance with the General
19 Conditions.

20 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

21 **1.12 WARRANTY [NOT USED]**

22 **PART 2 - PRODUCTS**

23 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

24 **2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS**

25 A. Manufacturers

- 26 1. The manufacturer must comply with this Specification and related Sections.

27 B. Regulatory Requirements

- 28 1. All fasteners, excluding T-Bolts, shall conform to the Fastener Quality Act (FQA)
29 (P.L. 106-34). All fasteners shall meet the marking requirements set forth by this
30 Act.

31 C. T-Bolts and Nuts

- 32 1. Standard Xylan Coated T-bolt and Nut
33 a. High strength, corrosion-resistant, low-carbon weathering steel in accordance
34 with AWWA/ANSI C111/A21.11 and ASTM A242
35 b. Xylan Coating in accordance with this Section
36 2. Stainless Steel T-bolt with Xylan Coated Stainless Steel Nut
37 a. Stainless Steel T-bolt and Nut in accordance with AISI 304.
38 b. Coat nut with Xylan in accordance with this Section.

1 D. Flange Bolts and Nuts

2 1. Stainless Steel Bolt and Xylan Coated Nut

- 3 a. Meet requirements of AWWA C207
4 b. Bolts: ASTM A193, Grade B8, Class 1(AISI 304 Stainless Steel, carbide
5 solution treated)
6 c. Nuts and Washers: ASTM A194, Grade 8 Nuts with AISI 304 Stainless Steel
7 Washers
8 1) Coat nut with Xylan in accordance with this Section.

9 E. Threaded Rods

- 10 1. Meet requirements of AWWA C207
11 2. Rods: ASTM A193, Grade B8, Class 1(AISI 304 Stainless Steel, carbide solution
12 treated)
13 3. Nuts and Washers: ASTM A194, Grade 8 Nuts with AISI 304 Stainless Steel
14 Washers
15 a. Coat nut with Xylan in accordance with this Section.

16 F. Push-on Gaskets

- 17 1. Conforming to the physical and marking requirements specified in ANSI/AWWA
18 C111/A21.11.
19 2. All gaskets shall meet or exceed the latest revisions NSF 61.
20 3. Rubber gaskets shall be made of vulcanized styrene butadiene rubber SBR, unless
21 otherwise specified in Drawings.
22 4. Gaskets shall be free from porous areas, foreign material and other defects that
23 make them unfit for intended use.
24 5. Gaskets shall be the size and shape required to provide an adequate compressive
25 force against the plain end and socket after assembly to affect a positive seal under
26 all combinations of joint and gasket tolerances.

27 G. Mechanical Joint Gaskets

- 28 1. Conforming to the physical and marking requirements specified in ANSI/AWWA
29 C111/A21.11.
30 2. All gaskets shall meet or exceed the latest revisions NSF 61.
31 3. Rubber gaskets shall be made of vulcanized styrene butadiene rubber SBR, unless
32 otherwise specified in Drawings.
33 4. Gaskets shall be free from porous areas, foreign material and other defects that
34 make them unfit for intended use.

35 H. Flange Gaskets

- 36 1. Class E Flanges
37 a. Full face
38 b. Manufactured true to shape from minimum 80 durometer SBR rubber stock of a
39 thickness not less than 1/8 inch
40 c. Virgin stock
41 d. Conforming to the physical and test requirements specified in AWWA/ANSI
42 C111/A21.11
43 e. All gaskets shall meet or exceed the latest revisions NSF 61.
44 f. Finished gaskets shall have holes punched by the manufacturer and shall match
45 the flange pattern in every respect.

- 1 g. Frayed cut edges are not acceptable.
- 2 h. Field cut sheet gaskets are not acceptable.
- 3 I. Hydrocarbon Resistant Gaskets
- 4 1. Furnish Viton® (Fluorocarbon) Rubber, hydrocarbon resistant gaskets, when
- 5 required.
- 6 J. Flange Isolation Kits
- 7 1. Flanges which are required by the Drawings to be Isolation Flanges shall conform
- 8 to Section 33 04 10.
- 9 2. For bolts used with isolation sleeves per Section 33 04 10, threading must extend to
- 10 bolt head with no grip to ensure sleeves fit properly.
- 11 K. Petrolatum Tape System
- 12 1. Petrolatum Tape Primer: Denso Paste, or approved equal
- 13 2. Molding and Filler mastic: Densyl Mastic, or approved equal
- 14 3. All Purpose Petrolatum Tape: Densyl Tape, or approved equal
- 15 L. Xylan Coating
- 16 a. Coat nuts and bolts with a ceramic-filled, baked on fluorocarbon resin, when
- 17 required.
- 18 b. Coated nuts and bolts shall be prepared “near white” or “white” when coated to
- 19 the coating manufacturer’s recommended thickness by a certified applicator.
- 20 c. Coating shall be of Xylan as manufactured by Whitford Corporation and
- 21 applied by Whitford Corporation or Whitford Corporation Recommended
- 22 Coater.
- 23 d. Coating shall be free from holidays and defects.
- 24 e. Coating thickness shall between 0.0007-inches and 0.0012-inches and shall be
- 25 such that the nut turns freely on the bolt.
- 26 f. Coating shall conform to the performance requirements of ASTM B117, “Salt
- 27 Spray Test” and shall include, if required, a certificate of conformance.

28 **2.3 ACCESSORIES [NOT USED]**

29 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

30 **PART 3 - EXECUTION**

31 **3.1 INSTALLERS [NOT USED]**

32 **3.2 EXAMINATION [NOT USED]**

33 **3.3 PREPARATION [NOT USED]**

34 **3.4 INSTALLATION**

35 **A. Mechanical Joints**

- 36 1. Assemble mechanical joints in accordance with ANSI/AWWA C111/A21.11
- 37 Appendix A, AWWA C600 and AWWA Manual M41.
- 38 2. Use Standard Xylan Coated T-bolts and Nuts.
- 39 a. Stainless Steel T-bolts with Xylan Coated Stainless Steel Nuts shall only be
- 40 used when specifically required in the Drawings.

1 B. Flanged Joints

- 2 1. Install in accordance with ASME PCC-1-2012.
3 2. Use Stainless Steel Bolts and Xylan Coated Nuts.
4 3. Wrap all buried steel flanges for AWWA C200, C301 or C303 pipe with
5 Petrolatum Tape System.
6 a. If only 1 flange in a joint is steel (AWWA C200, C301, or C303), petrolatum
7 tape wrapping will be required.
8 b. If a joint is made between two ductile iron flanges, the joint should be
9 polyethylene encased in accordance with Section 33 11 10.
10 4. Flange bolts are normally spaced evenly around the flange.
11 5. During assembly, tighten nuts gradually and equally using a three-pass method in
12 accordance with ASME PCC-1-2012.
13 a. For the first pass, tighten the nuts to 50 percent at diametrically opposite sides
14 to prevent misalignment and to ensure that all bolts carry equal loads.
15 b. For the second pass, tighten the nuts to 100 percent again in a diametrically
16 opposite pattern.
17 c. Allow a minimum of 1 hour to pass to provide time for settlement between
18 bolts and nuts and gasket relaxation.
19 d. Complete the third pass by checking each bolt in a clockwise pattern. Each nut
20 should be tightened until it will no longer turn. This step compensates for
21 elastic interaction and brings all bolts into parity.
22 6. The threads of the bolts should protrude a minimum of 1/2-inch from the nuts.

23 C. Flanged Joints with Isolation Kit

- 24 1. Flange Isolation Kits shall be installed in accordance with NCTCOG 5th Edition
25 Specifications.

26 D. Threaded Rod

- 27 1. Install as part of joint harness assembly in accordance with AWWA Manual M11.
28 2. Space rods evenly around the pipe.
29 3. During assembly, tighten nuts gradually and equally using a three-pass method in
30 accordance with ASME PCC-1-2012.
31 a. For the first pass, tighten the nuts to 50 percent at diametrically opposite sides
32 to prevent misalignment and to ensure that all bolts carry equal loads.
33 b. For the second pass, tighten the nuts to 100 percent again in a diametrically
34 opposite pattern.
35 4. The threads of the bolts should protrude a minimum of 1/2-inch from the nuts.
36 5. Wrap joint harness assembly with Petrolatum Tape System.

37 E. Petrolatum Tape System

- 38 1. Surfaces should be free from dirt, loose rust, scale or flaking coatings.
39 a. Clean surfaces in accordance with SSPC SP2 or SSPC SP3.
40 1) High pressure wash of 3,000 to 7,000 psi is also suitable.
41 b. Surfaces may be damp but shall not have droplets or continuous film of water.
42 2. Apply a uniform, thin coat of Petrolatum Tape Primer to the entire surface by stiff
43 brush, gloved hand or rag at normal ambient temperatures.
44 3. By hand application, apply Molding and Filler Mastic to a rounded configuration to
45 fill irregular shapes and reduce sharp-edged surfaces.

- 1 4. Spirally wrap All Purpose Petrolatum Tape with a minimum overlap of 1 inch.
- 2 a. For severely corrosive environments, an overlap of 55 percent is recommended.
- 3 b. Press air pockets out and smooth all lap seams.
- 4 5. For additional mechanical protection, overwrap may be applied to increase impact
- 5 strength and electrical resistance.

6 **3.5 REPAIR / RESTORATION [NOT USED]**

7 **3.6 RE-INSTALLATION [NOT USED]**

8 **3.7 FIELD [or] SITE QUALITY CONTROL [NOT USED]**

9 **3.8 SYSTEM STARTUP [NOT USED]**

10 **3.9 ADJUSTING [NOT USED]**

11 **3.10 CLEANING [NOT USED]**

12 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

13 **3.12 PROTECTION [NOT USED]**

14 **3.13 MAINTENANCE [NOT USED]**

15 **3.14 ATTACHMENTS [NOT USED]**

16 **END OF SECTION**

17

1 SECTION 33 11 11
2 DUCTILE IRON FITTINGS

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

- 6 1. Ductile Iron Fittings 3-inch through 64-inch for potable water, wastewater, and
7 other liquids for use with Ductile Iron Pipe and Polyvinyl Chloride (PVC) Pipe
- 8 2. All mechanical joint fittings shall be mechanically restrained using restrained
9 wedge type retainer glands.

10 B. Related Specification Sections include, but are not necessarily limited to:

- 11 1. Section I – Bidding and Contractual Documents
- 12 2. NCTCOG 5th Edition Specifications
- 13 3. Section 33 04 40 – Cleaning and Acceptance Testing of Water Mains
- 14 4. Section 33 11 05 – Bolts, Nuts, and Gaskets

15 1.2 PRICE AND PAYMENT PROCEDURES

16 A. Measurement and Payment

17 1. Ductile Iron Water Fittings with Restraint

18 a. Measurement

- 19 1) Shall be per ton of fittings supplied
- 20 2) Fittings weights are the sum of the various types of fittings multiplied
21 by the weight per fitting as listed in AWWA/ANSI C153/A21.53.
- 22 3) The fitting weights listed in AWWA/ANSI C110/A21.10 are only allowed
23 for specials where an AWWA/ANSI C153/A21.53 is not available, or if
24 the Drawings specifically call for an AWWA/ANSI C110/A21.10 fittings.
- 25 4) If the Contractor chooses to supply AWWA/ANSI C110/A21.10 (full
26 body) Ductile Iron Fittings in lieu of AWWA/ANSI C153/A21.53
27 (compact) Ductile Iron Fittings at his convenience, then the weight
28 shall be measured in accordance with AWWA/ANSI C153/A21.53.

- 1 b. Payment
- 2 1) The work performed and materials furnished in accordance with this
- 3 Item and measured as provided under "Measurement" will be paid for
- 4 at the unit price bid per ton of "Ductile Iron Water Fittings with
- 5 Restraint".
- 6 c. The price bid shall include:
- 7 1) Furnishing and installing Ductile Iron Water Fittings as specified by the
- 8 Drawings
- 9 2) Polyethylene encasement
- 10 3) Lining
- 11 4) Pavement removal
- 12 5) Excavation
- 13 6) Hauling
- 14 7) Disposal of excess material
- 15 8) Furnishing and installing bolts, nuts, and restraints
- 16 9) Furnishing, placement and compaction of embedment
- 17 10) Furnishing, placement and compaction of backfill
- 18 11) Trench water stops
- 19 12) Clean-up
- 20 13) Cleaning
- 21 14) Disinfection
- 22 15) Testing
- 23 2. Ductile Iron Sewer Fittings
- 24 a. Measurement
- 25 1) Shall be per ton of fittings supplied
- 26 2) Fittings weights are the sum of the various types of fittings multiplied
- 27 by the weight per fitting as listed in AWWA/ANSI C153/A21.53.

- 1 3) The fitting weights listed in AWWA/ANSI C110/A21.10 are only allowed
- 2 for specials where an AWWA/ANSI C153/A21.53 is not available, or if
- 3 the Drawings specifically call for an AWWA/ANSI C110/A21.10 fittings.

- 4 4) If the Contractor chooses to supply AWWA/ANSI C110/A21.10 (full
- 5 body) Ductile Iron Fittings in lieu of AWWA/ANSI C153/A21.53
- 6 (compact) Ductile Iron Fittings at his convenience, then the weight
- 7 shall be measured in accordance with AWWA/ANSI C153/A21.53.

- 8 b. Payment

- 9 1) The work performed and materials furnished in accordance with this
- 10 Item and measured as provided under "Measurement" will be paid for
- 11 at the unit price bid per ton of "Ductile Iron Sewer Fittings".

- 12 c. The price bid shall include:

- 13 1) Furnishing and installing Ductile Iron Water Fittings as specified by the
- 14 Drawings

- 15 2) Epoxy Coating

- 16 3) Polyethylene encasement

- 17 4) Lining

- 18 5) Pavement removal

- 19 6) Excavation

- 20 7) Hauling

- 21 8) Disposal of excess material

- 22 9) Furnishing and installing bolts, nuts, and restraints

- 23 10) Furnishing, placement and compaction of embedment

- 24 11) Furnishing, placement and compaction of backfill

- 25 12) Clean-up

- 26 13) Cleaning

- 27 14) Disinfection

- 28 15) Testing

1 1.3 REFERENCES

2 A. Definitions

3 1. Gland or Follower Gland

4 a. Non-restrained, mechanical joint fitting

5 2. Retainer Gland

6 a. Mechanically restrained mechanical joint fitting, consisting of multiple
7 gripping wedges incorporated into a follower gland meeting the applicable
8 requirements of ANSI/AWWA C110/A21.10.

9 B. Reference Standards

10 1. Reference standards cited in this Specification refer to the current reference
11 standard published at the time of the latest revision date logged at the end of
12 this Specification, unless a date is specifically cited.

13 2. NCTCOG 5th Edition Specifications.

14 3. American Society of Mechanical Engineers (ASME):

15 a. B16.1, Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125 and
16 250).

17 4. ASTM International (ASTM):

18 a. A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for
19 High Temperature or High Pressure Service and Other Special Purpose
20 Applications

21 b. A194, Specification for Carbon and Alloy Steel Nuts for Bolts for High
22 Pressure or High Temperature Service, or Both

23 c. A242, Standard Specification for High-Strength Low-Alloy Structural Steel.

24 d. A674, Standard Practice for Polyethylene Encasement for Ductile Iron Pipe
25 for Water or Other Liquids.

26 e. B117, Standard Practice for Operating Salt Spray (Fog) Apparatus.

27 5. American Water Works Association (AWWA):

28 a. C203, Coal-Tar Protective Coatings and Linings for Steel Water Pipelines -
29 Enamel and Tape - Hot Applied.

- 1 b. C600, Installation of Ductile-Iron Water Mains and their Appurtenances.
- 2 c. M41, Ductile-Iron Pipe and Fittings.
- 3 6. American Water Works Association/American National Standards Institute
- 4 (AWWA/ANSI):
- 5 a. C104/A21.4, Cement–Mortar Lining for Ductile-Iron Pipe and Fittings.
- 6 b. C105/A21.5, Polyethylene Encasement for Ductile-Iron Pipe Systems.
- 7 c. C110/A21.10, Ductile-Iron and Gray-Iron Fittings.
- 8 d. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and
- 9 Fittings.
- 10 e. C115/A21.15, Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron
- 11 Threaded Flanges.
- 12 f. C151/A21.51, Ductile-Iron Pipe, Centrifugally Cast, for Water.
- 13 g. C153/A21.53, Ductile-Iron Compact Fittings for Water Service.
- 14 7. NSF International (NSF):
- 15 a. 61, Drinking Water System Components - Health Effects.
- 16 8. Society for Protective Coatings (SSPC):
- 17 a. PA 2, Measurement of Dry Coating Thickness with Magnetic Gages.
- 18 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]
- 19 1.5 SUBMITTALS
- 20 A. Submittals shall be in accordance with the General Conditions.
- 21 B. All submittals shall be approved by the City prior to delivery and/or fabrication for
- 22 specials.
- 23 1.6 ACTION SUBMITTALS / INFORMATIONAL SUBMITTALS
- 24 A. Product Data
- 25 1. Ductile Iron Fittings
- 26 a. Pressure class
- 27 b. Interior lining

- 1 c. Joint types
- 2 2. Polyethylene encasement and tape
- 3 a. Planned method of installation
- 4 b. Whether the film is linear low density or high density cross linked
- 5 polyethylene
- 6 c. The thickness of the film provided
- 7 3. The interior lining, if it is other than cement mortar lining in accordance with
- 8 AWWA/ANSI C104/A21.4
- 9 a. Material
- 10 b. Application recommendations
- 11 c. Field touch-up procedures
- 12 4. Thrust Restraint
- 13 a. Retainer glands
- 14 b. Thrust harnesses
- 15 c. Any other means
- 16 5. Gaskets
- 17 a. Provide Gaskets in accordance with Section 33 11 05.
- 18 6. Isolation Flanges
- 19 a. Flanges required by the drawings to be Isolation Flanges shall conform to
- 20 NCTCOG 5th Edition Specifications.
- 21 7. Bolts and Nuts
- 22 a. Mechanical Joints
- 23 1) Provide bolts and nuts in accordance with Section 33 11 05.
- 24 b. Flanged Ends
- 25 1) Meet requirements of AWWA C115.
- 26 a) Provide bolts and nuts in accordance with Section 33 11 05.
- 27 8. Flange Coatings

1 a. Connections to Steel Flanges

2 1) Buried connections with Steel Flanges shall be coated with a
3 Petrolatum Tape System in accordance with Section 33 11 05.

4 B. Certificates

5 1. The manufacturer shall furnish an affidavit certifying that all Ductile Iron
6 Fittings meet the provisions of this Section and meet the requirements of
7 AWWA/ANSI C110/A21.10 or AWWA/ANSI C153/A21.53.

8 2. Furnish a certificate stating that buried bolts and nuts conform to ASTM B117.

9 1.7 CLOSEOUT SUBMITTALS [NOT USED]

10 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

11 1.9 QUALITY ASSURANCE

12 A. Qualifications

13 1. Manufacturers

14 a. Fittings manufacturing operations (fittings, lining, and coatings) shall be
15 performed under the control of the manufacturer.

16 b. Ductile Iron Fittings shall be manufactured in accordance with
17 AWWA/ANSI C110/A21.10 or AWWA/ANSI C153/A21.53.

18 1) Perform quality control tests and maintain the results as outlined in
19 these standards to assure compliance.

20 B. Preconstruction Testing

21 1. The City may, at its own cost, subject random fittings for destructive testing by
22 an independent laboratory for compliance with this Specification.

23 a. The compliance test shall be performed in the United States.

24 b. Any visible defects or failure to meet the quality standards herein will be
25 grounds for rejecting the entire order.

26 1.10 DELIVERY, STORAGE, AND HANDLING

27 A. Storage and Handling Requirements

28 1. Store and handle in accordance with the guidelines as stated in AWWA M41.

1 2. Secure and maintain a location to store the material in accordance with the
2 General Conditions.

3 1.11 FIELD [SITE] CONDITIONS [NOT USED]

4 1.12 WARRANTY [NOT USED]

5 PART 2 - PRODUCTS

6 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

7 2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS

8 A. Manufacturers

9 1. The manufacturer must comply with this Specification and related Sections.

10 B. Ductile Iron Fittings

11 1. Ductile Iron Fittings shall be in accordance with AWWA/ANSI C110/A21.10,
12 AWWA/ANSI C153/A21.53.

13 2. All fittings for potable water service shall meet the requirements of NSF 61.

14 3. Ductile Iron Fittings, at a minimum, shall meet or exceed the pressures
15 classes of the pipe which the fitting is connected, unless specifically indicated
16 in the Drawings.

17 4. Fittings Markings

18 a. Meet the minimum requirements of AWWA/ANSI C151/A21.51.

19 b. Minimum markings shall include:

20 1) "DI" or "Ductile" cast or metal stamped on each fitting

21 2) Applicable AWWA/ANSI standard for that the fitting

22 3) Pressure rating

23 4) Number of degrees for all bends

24 5) Nominal diameter of the openings

25 6) Year and country fitting was cast

26 7) Manufacturer's mark

27 5. Joints

- 1 a. Mechanical Joints with mechanical restraint
- 2 1) Comply with AWWA/ANSI C111/A21.11 and applicable parts of
- 3 ANSI/AWWA C110/A21.10.
- 4 2) The retainer gland shall have the following working pressure ratings
- 5 based on size and type of pipe:
- 6 a) Ductile Iron Pipe
- 7 (1) 3-inch – 16-inch, 350 psi
- 8 (2) 18-inch – 48-inch, 250 psi
- 9 b) PVC C900 and C905
- 10 (1) 3-inch – 12-inch, 305psi
- 11 (2) 14-inch – 16-inch, 235psi
- 12 (3) 18-inch – 20-inch, 200psi
- 13 (4) 24-inch – 30 –inch 165psi
- 14 c) Ratings are for water pressure and must include a minimum safety
- 15 factor of 2 to 1 in all sizes
- 16 3) Retainer glands shall have specific designs for Ductile Iron and PVC
- 17 and it should be easy to differentiate between the 2.
- 18 4) Gland body, wedges and wedge actuating components shall be cast
- 19 from grade 65-45-12 ductile iron material in accordance with ASTM
- 20 A536.
- 21 5) Mechanical joint restraint shall require conventional tools and
- 22 installation procedures per AWWA C600, while retaining full
- 23 mechanical joint deflection during assembly as well as allowing joint
- 24 deflection after assembly.
- 25 6) Proper actuation of the gripping wedges shall be ensured with torque
- 26 limiting twist off nuts.
- 27 7) A minimum of 6 wedges shall be required for 8 inch diameter PVC pipe.
- 28 b. Push-On, Restrained Joints
- 29 1) Restraining Push-on joints by means of a special gasket

- 1 a) The working pressure rating of the restrained gasket must exceed
2 the test pressure of the pipe line to be installed.
- 3 b) Approved for use of restraining Ductile Iron Pipe in casing with a
4 carrier pipe of 4-inches to 12-inches
- 5 c) Otherwise only approved if specially listed on the drawings
- 6 2) Push-on Restrained Joint bell and spigot
- 7 a) Pressure rating shall exceed the working and test pressure of the
8 pipe line
- 9 c. Flanged Joints
- 10 1) AWWA/ANSI C115/A21.15, ASME B16.1, Class 125
- 11 2) Flange bolt circles and bolt holes shall match those of ASME B16.1,
12 Class 125.
- 13 3) Field fabricated flanges are prohibited.
- 14 6. Gaskets
- 15 a. Provide Gaskets in accordance with Section 33 11 05.
- 16 7. Isolation Flanges
- 17 a. Flanges required by the drawings to be Isolation Flanges shall conform to
18 NCTCOG 5th Edition Specifications.
- 19 8. Bolts and Nuts
- 20 a. Mechanical Joints
- 21 1) Provide bolts and nuts in accordance with Section 33 11 05.
- 22 b. Flanged Ends
- 23 1) Meet requirements of AWWA C115.
- 24 a) Provide bolts and nuts in accordance with Section 33 11 05.
- 25 9. Flange Coatings
- 26 a. Connections to Steel Flanges
- 27 1) Buried connections with Steel Flanges shall be coated with a
28 Petrolatum Tape System in accordance with Section 33 11 05.

1 10. Ductile Iron Fitting Exterior Coatings

2 a. All Ductile Iron Fittings shall have an asphaltic coating, minimum of 1 mil
 3 thick, on the exterior, unless otherwise specified in the Contract
 4 Documents.

5 11. Polyethylene Encasement

6 a. All buried Ductile Iron Fittings shall be polyethylene encased.

7 b. Use only virgin polyethylene material.

8 c. Encasement for buried fittings shall be 8 mil linear low density (LLD)
 9 polyethylene conforming to AWWA/ANSI C105/A21.5 or 4 mil high density
 10 cross-laminated (HDCL) polyethylene encasement conforming to
 11 conforming to AWWA/ANSI C105/A21.5 and ASTM A674.

12 d. Marking: At a minimum of every 2 feet along its length, the mark the
 13 polyethylene film with the following information:

- 14 1) Manufacturer’s name or trademark
- 15 2) Year of manufacturer
- 16 3) AWWA/ANSI C105/A21.5
- 17 4) Minimum film thickness and material type
- 18 5) Applicable range of nominal diameter sizes
- 19 6) Warning – Corrosion Protection – Repair Any Damage

20 e. Special Markings/Colors

- 21 1) Wastewater, perform one of the following:
 - 22 a) Label polyethylene encasement with “WASTEWATER”;
 - 23 b) Provide green polyethylene in accordance with the American Public
 24 Works Association Uniform Color Code; or
 - 25 c) Attach green sanitary sewer marker tape to the polyethylene wrap.

26 f. Minimum widths

27 Polyethylene Tube and Sheet Sizes for Push-On Joint Fittings

Nominal Fittings Diameter	Min. Width – Flat Tube (inches)	Min. Width – Sheet (inches)
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(inches)		
3	14	28
4	14	28
6	16	32
8	20	40
10	24	48
12	27	54
14	30	60
16	34	68
18	37	74
20	41	82
24	54	108
30	67	134
36	81	162
42	81	162
48	95	190
54	108	216
60	108	216
64	121	242

1 12. Ductile Iron Fittings Interior Lining

2 a. Cement Mortar Lining

3 1) Ductile Iron Fittings for potable water shall have a cement mortar lining
4 in accordance with AWWA/ANSI C104/A21.4 and be acceptable
5 according to NSF 61.

6 b. Ceramic Epoxy or Epoxy Linings

7 1) Ductile Iron Fittings for use in wastewater applications shall be lined
8 with a Ceramic Epoxy or Epoxy lining..

9 2) Apply lining at a minimum of 40 mils DFT

10 3) Due to the tolerances involved, the gasket area and spigot end up to 6
11 inches back from the end of the spigot end must be coated with 6 mils
12 nominal, 10 mils maximum using a Joint Compound as supplied by
13 the manufacturer.

- 1 a) Apply the joint compound by brush to ensure coverage.
- 2 b) Care should be taken that the joint compound is smooth without
- 3 excess buildup in the gasket seat or on the spigot ends.
- 4 c) Coat the gasket seat and spigot ends after the application of the
- 5 lining.
- 6 4) Surface preparation shall be in accordance with the manufacturer's
- 7 recommendations.
- 8 5) Check thickness using a magnetic film thickness gauge in accordance
- 9 with the method outlined in SSPC PA 2.
- 10 6) Test the interior lining of all fittings for pinholes with a non-destructive
- 11 2,500 volt test.
- 12 a) Repair any defects prior to shipment.
- 13 7) Mark each fitting with the date of application of the lining system along
- 14 with its numerical sequence of application on that date and records
- 15 maintained by the applicator of his work.
- 16 8) For all Ductile Iron Fittings in wastewater service where the fitting has
- 17 been cut, coat the exposed surface with the touch-up material as
- 18 recommended by the manufacturer.
- 19 a) The touch-up material and the lining shall be of the same
- 20 manufacturer.

21 2.3 ACCESSORIES [NOT USED]

22 2.4 SOURCE QUALITY CONTROL [NOT USED]

23 PART 3 - EXECUTION

24 3.1 INSTALLERS [NOT USED]

25 3.2 EXAMINATION [NOT USED]

26 3.3 PREPARATION [NOT USED]

27 3.4 INSTALLATION

28 A. General

- 1 1. Install fittings, specials and appurtenances as specified herein, as specified in
2 AWWA C600, AWWA M41, and in accordance with the fittings manufacturer's
3 recommendations.
- 4 2. Lay fittings to the lines and grades as indicated in the Drawings.
- 5 3. Excavate and backfill trenches in accordance with NCTCOG 5th Edition
6 Specifications and the Drawings.
- 7 4. Embed Ductile Iron Fittings in accordance with NCTCOG 5th Edition
8 Specifications and the Drawings.
- 9 B. Joint Making
- 10 1. Mechanical Joints with required mechanical restraint
- 11 a. All mechanical joints require mechanical restraint.
- 12 b. Bolt the retainer gland into compression against the gasket, with the bolts
13 tightened down evenly then cross torqued in accordance with AWWA
14 C600.
- 15 c. Overstressing of bolts to compensate for poor installation practice will not
16 be permitted.
- 17 2. Push-on Joints (restrained)
- 18 a. All push-on joints shall be restrained push-on type.
- 19 b. Install Push-on joints as defined in AWWA/ANSI C111/A21.11.
- 20 c. Wipe clean the gasket seat inside the bell of all extraneous matter.
- 21 d. Place the gasket in the bell in the position prescribed by the manufacturer.
- 22 e. Apply a thin film of non-toxic vegetable soap lubricant to the inside of the
23 gasket and the outside of the spigot prior to entering the spigot into the
24 bell.
- 25 f. When using a field cut plain end piece of pipe, refinished the field cut and
26 scarf to conform to AWWA M-41.
- 27 3. Flanged Joints
- 28 a. Use erection bolts and drift pins to make flanged connections.
- 29 1) Do not use undue force or restraint on the ends of the fittings.

- 1 2) Apply even and uniform pressure to the gasket.
- 2 b. The fitting must be free to move in any direction while bolting.
- 3 1) Install flange bolts with all bolt heads faced in 1 direction.
- 4 4. Joint Deflection
- 5 a. Deflect the pipe only when necessary to avoid obstructions or to meet the
- 6 lines and grades and shown in the Drawings.
- 7 b. The deflection of each joint must be in accordance with AWWA C600 Table
- 8 3.
- 9 c. The maximum deflection allowed is 50 percent of that indicated in AWWA
- 10 C600.
- 11 d. The manufacturer's recommendation may be used with the approval of
- 12 the Engineer.
- 13 C. Polyethylene Encasement Installation
- 14 1. Preparation
- 15 a. Remove all lumps of clay, mud, cinders, etc., on fittings surface prior to
- 16 installation of polyethylene encasement.
- 17 1) Prevent soil or embedment material from becoming trapped between
- 18 fittings and polyethylene.
- 19 b. Fit polyethylene film to contour of fittings to affect a snug, but not tight
- 20 encase with minimum space between polyethylene and fittings.
- 21 1) Provide sufficient slack in contouring to prevent stretching
- 22 polyethylene where it bridges irregular surfaces such as bell-spigot
- 23 interfaces, bolted joints or fittings, and to prevent damage to
- 24 polyethylene due to backfilling operations.
- 25 2) Secure overlaps and ends with adhesive tape and hold.
- 26 c. For installations below water table and/or in areas subject to tidal actions,
- 27 seal both ends of polyethylene tube with adhesive tape at joint overlap.
- 28 2. Tubular Type (Method A)
- 29 a. Cut polyethylene tube to length approximately 2 feet longer than fittings
- 30 section.

- 1 b. Slip tube around fittings, centering it to provide 1 foot overlap on each
- 2 adjacent pipe section and bunching it accordion-fashion lengthwise until
- 3 it clears fittings ends.
- 4 c. Lower fittings into trench with preceding section of pipe.
- 5 d. Make shallow bell hole at joints to facilitate installation of polyethylene
- 6 tube.
- 7 e. After assembling fittings make overlap of polyethylene tube, pull bunched
- 8 polyethylene from preceding length of pipe, slip it over end of the fitting
- 9 and wrap until it overlaps joint at end of preceding length of pipe.
- 10 f. Secure overlap in place.
- 11 g. Take up slack width at top of fitting to make a snug, but not tight, fit along
- 12 barrel of fitting, securing fold at quarter points.
- 13 h. Repair cuts, tears, punctures or other damage to polyethylene.
- 14 i. Proceed with installation of next fitting in same manner.
- 15 3. Tubular Type (Method B)
- 16 a. Cut polyethylene tube to length approximately 1 foot shorter than fitting
- 17 section.
- 18 b. Slip tube around fitting, centering it to provide 6 inches of bare fitting at
- 19 each end.
- 20 c. Take up slack width at top of fitting to make a snug, but not tight, fit along
- 21 barrel of fitting, securing fold at quarter points; secure ends.
- 22 d. Before making up joint, slip 3-foot length of polyethylene tube over end of
- 23 preceding pipe section, bunching it accordion-fashion lengthwise.
- 24 e. After completing joint, pull 3-foot length of polyethylene over joint,
- 25 overlapping polyethylene previously installed on each adjacent section of
- 26 pipe by at least 1 foot; make each end snug and secure.
- 27 4. Sheet Type
- 28 a. Cut polyethylene sheet to a length approximately 2 feet longer than piece
- 29 section.
- 30 b. Center length to provide 1-foot overlap on each fitting, bunching it until it
- 31 clears the fitting ends.

- 1 c. Wrap polyethylene around fitting so that it circumferentially overlaps top
- 2 quadrant of fitting.
- 3 d. Secure cut edge of polyethylene sheet at intervals of approximately 3 feet.
- 4 e. Lower wrapped fitting into trench with preceding section of pipe.
- 5 f. Make shallow bell hole at joints to facilitate installation of polyethylene.
- 6 g. After completing joint, make overlap and secure ends.
- 7 h. Repair cuts, tears, punctures or other damage to polyethylene.
- 8 i. Proceed with installation of fittings in same manner.
- 9 5. Pipe-Shaped Appurtenances
- 10 a. Cover bends, reducers, offsets, and other pipe-shaped appurtenances
- 11 with polyethylene in same manner as pipe and fittings.
- 12 6. Odd-Shaped Appurtenances
- 13 a. When it is not practical to wrap valves, tees, crosses and other odd-
- 14 shaped pieces in tube, wrap with flat sheet or split length polyethylene
- 15 tube by passing sheet under appurtenances and bringing it up around
- 16 body.
- 17 b. Make seams by bringing edges together, folding over twice and taping
- 18 down.
- 19 c. Tape polyethylene securely in place at the valve stem and at any other
- 20 penetrations.
- 21 7. Repairs
- 22 a. Repair any cuts, tears, punctures or damage to polyethylene with adhesive
- 23 tape or with short length of polyethylene sheet or cut open tube, wrapped
- 24 around fitting to cover damaged area, and secure in place.
- 25 8. Openings in Encasement
- 26 a. Provide openings for branches, service taps, blow-offs, air valves and
- 27 similar appurtenances by making an X-shaped cut in polyethylene and
- 28 temporarily folding back film.
- 29 b. After appurtenance is installed, tape slack securely to appurtenance and
- 30 repair cut, as well as other damaged area in polyethylene with tape.

- 1 c. Service taps may also be made directly through polyethylene, with any
2 resulting damaged areas being repaired as described above.
- 3 9. Junctions between Wrapped and Unwrapped Fittings
- 4 a. Where polyethylene-wrapped fitting joins an adjacent pipe that is not
5 wrapped, extend polyethylene wrap to cover adjacent pipe for distance of
6 at least 3 feet.
- 7 b. Secure end with circumferential turns of tape.
- 8 c. Wrap service lines of dissimilar metals with polyethylene or suitable
9 dielectric tape for minimum clear distance of 3 feet away from cast or
10 Ductile Iron Fittings.
- 11 D. Blocking
- 12 1. Install concrete blocking in accordance with Section 03 30 00 for all bends,
13 tees, crosses and plugs in the pipe lines as indicated in the Drawings.
- 14 2. Place the concrete blocking so as to rest against firm undisturbed trench
15 walls, normal to the thrust.
- 16 3. The supporting area for each block shall be at least as great as that indicated
17 on the Drawings and shall be sufficient to withstand the thrust, including water
18 hammer, which may develop.
- 19 4. Each block shall rest on a firm, undisturbed foundation or trench bottom.
- 20 5. If the Contractor encounters soil that appears to be different than that which
21 was used to calculate the blocking according to the Drawings, the Contractor
22 shall notify the Engineer prior to the installation of the blocking.
- 23 3.5 REPAIR/RESTORATION
- 24 A. Patching
- 25 1. Excessive field-patching is not permitted of lining or coating.
- 26 2. Patching of lining or coating will be allowed where area to be repaired does not
27 exceed 100 square inches and has no dimensions greater than 12 inches.
- 28 3. In general, there shall not be more than 1 patch on either the lining or the
29 coating of any fitting.
- 30 4. Wherever necessary to patch the fitting:

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SECTION 33 11 12
POLYVINYL CHLORIDE (PVC) PRESSURE PIPE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Polyvinyl Chloride (PVC) Pressure Pipe 4-inch through 24-inch for potable water, wastewater and reuse applications
- B. Related Specification Sections include but are not necessarily limited to
 - 1. Section I – Bidding and Contractual Documents
 - 2. NCTCOG 5th Edition Specifications
 - 3. 33 01 31 – Closed Circuit Television (CCTV) Inspection
 - 4. 33 04 40 – Cleaning and Acceptance Testing of Water Mains
 - 5. 33 11 11 – Ductile Iron Fittings

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Measurement
 - a. Measured horizontally along the surface from center line to center line of the fitting, manhole, or appurtenance
 - 2. Payment
 - a. The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid per linear foot of “PVC Water Pipe” installed for:
 - 1) Various sizes
 - 2) Various types of backfill
 - 3. The price bid shall include:
 - a. Furnishing and installing PVC Pressure Pipe with joints as specified by the Drawings
 - b. Mobilization
 - c. Pavement removal
 - d. Excavation
 - e. Hauling
 - f. Disposal of excess material
 - g. Furnishing, placement and compaction of embedment
 - h. Furnishing, placement and compaction of backfill
 - i. Trench water stops
 - j. Thrust restraint, if required by Contract Documents
 - k. Gaskets
 - l. Clean-up
 - m. Cleaning
 - n. Disinfection
 - o. Testing

1 **1.3 REFERENCES**

2 A. Reference Standards

- 3 1. Reference standards cited in this Specification refer to the current reference
4 standard published at the time of the latest revision date logged at the end of this
5 Specification, unless a date is specifically cited.
6 2. NCTCOG 5th Edition Specifications.
7 3. American Association of State Highway and Transportation Officials (AASHTO).
8 4. ASTM International (ASTM):
9 a. D1784, Standard Specification for Rigid Poly(Vinyl-Chloride) (PVC)
10 Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
11 b. D3139, Standard Specification for Joints for Plastic Pressure Pipes Using
12 Flexible Elastomeric Seals.
13 5. American Water Works Association (AWWA):
14 a. C600, Installation of Ductile-Iron Water Mains and their Appurtenances.
15 b. C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipes
16 and Fittings for Water.
17 c. C900, Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings, 4 IN
18 through 60 IN (100 mm thru 1,500 mm).
19 d. M23, PVC Pipe – Design and Installation.
20 e. M41, Ductile-Iron Pipe and Fittings.
21 6. NSF International (NSF):
22 a. 61, Drinking Water System Components – Health Effects.
23 b. 14, Plastics Piping System Components and Related Materials.
24 7. Underwriters Laboratories, Inc. (UL).
25 a. UL 1285, UL Standard for Safety Pipe and Couplings, Polyvinyl Chloride
26 (PVC), and Oriented Polyvinyl Chloride (PVCO) for Underground Fire
27 Service.

28 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

29 **1.5 SUBMITTALS**

- 30 A. Submittals shall be in accordance with the General Conditions.
31 B. All submittals shall be accepted by the City prior to delivery and/or fabrication for
32 specials.

33 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS**

34 A. Product Data

- 35 1. For PVC Pressure Pipe that is used for water distribution, wastewater force mains
36 or wastewater gravity mains, including:
37 a. PVC Pressure Pipe
38 b. Manufacturer
39 c. Dimension Ratio
40 d. Joint Types
41 2. Restraint, if required in Contract Documents
42 a. Retainer glands
43 b. Thrust harnesses
44 c. Any other means of restraint

- 1 3. Gaskets
- 2 B. Shop Drawings: When restrained joints are required, furnish for PVC Pressure Pipe
3 used in the water distribution system or for a wastewater force main for 24-inch and
4 greater diameters, including:
- 5 1. Wall thickness design calculations sealed by a Licensed Professional Engineer in
6 Texas including:
- 7 a. Working pressure
8 b. Surge pressure
9 c. Deflection
- 10 2. Provide thrust restraint calculations for all fittings and valves, sealed by a Licensed
11 Professional Engineer in Texas, to verify the restraint lengths shown on the
12 Drawings.
- 13 3. Lay schedule / drawing for 24-inch and greater diameters sealed by a Licensed
14 Professional Engineer in Texas including:
- 15 a. Pipe class
16 b. Joints type
17 c. Fittings
18 d. Stationing
19 e. Transitions
20 f. Joint deflection
- 21 C. Certificates
- 22 1. Furnish an affidavit certifying that all PVC Pressure Pipe meets the provisions of
23 this Section, each run of pipe furnished has met Specifications, all inspections have
24 been made and that all tests have been performed in accordance with AWWA C900
25 or AWWA C900.

26 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

27 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

28 **1.9 QUALITY ASSURANCE**

29 A. Qualifications

- 30 1. Manufacturers
- 31 a. Finished pipe shall be the product of 1 manufacturer for each size, unless
32 otherwise approved by the City.
- 33 1) Change orders, specials, and field changes may be provided by a different
34 manufacturer upon City approval.
- 35 b. Pipe manufacturing operations shall be performed under the control of the
36 manufacturer.
- 37 c. All pipe furnished shall be in conformance with AWWA C900.

38 **1.10 DELIVERY, STORAGE, AND HANDLING**

39 A. Storage and Handling Requirements

- 40 1. Store and handle in accordance with the guidelines as stated in AWWA M23.

1 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

2 **1.12 WARRANTY [NOT USED]**

3 **PART 2 - PRODUCTS**

4 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

5 **2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS**

6 A. Manufacturers

7 1. The manufacturer must comply with this Specification and related Sections.

8 B. Pipe

9 1. Pipe shall be in accordance with AWWA C900.

10 2. PVC Pressure Pipe for potable water shall meet the requirements of NSF 61.

11 3. Pressure Pipe shall be approved by the UL.

12 4. Pipe shall have a lay length of 20 feet except for special fittings or closure pieces
13 necessary to comply with the Drawings.

14 5. The pipe material shall be PVC, meeting the requirements of ASTM D1784, with a
15 cell classification of 12454. Outside diameters must be equal to those of cast iron
16 and ductile iron pipes.

17 6. As a minimum the following Dimension Ratio's apply:

18

Diameter (inch)	Min Pressure Class (psi)
4 through 12	DR 14
16 through 24	DR 18

19 7. Pipe Markings

20 a. Meet the minimum requirements of AWWA C900. Minimum pipe markings
21 shall be as follows:

22 1) Manufacturer's Name or Trademark and production record

23 2) Nominal pipe size

24 3) Dimension Ratio

25 4) AWWA C900

26 5) Seal of testing agency that verified the suitability of the pipe

27 C. Pressure and Deflection Design

28 1. Pipe design shall be based on trench conditions and design pressure class specified
29 in the Drawings. Pipe shall be designed according to the methods indicated in
30 AWWA M23 for trench construction, using the following parameters:

31 a. Unit Weight of Fill (w) = 130 pcf

32 b. Live Load = AASHTO HS 20

33 c. Trench Depth = 12 feet minimum, or as indicated in Drawings

34 d. Maximum E' = 1,000 max

35 e. Deflection Lag Factor = 1.0

36 f. Working Pressure (P_w) = 150 psi

37 g. Surge Allowance (P_s) = 100 psi minimum

38 h. Test Pressure =

- 1) No less than 1.25 times the stated working pressure (187 psi minimum) of the pipeline measured at the highest elevation along the test section.
- 2) No less than 1.5 times the stated working pressure (225 psi minimum) at the lowest elevation of the test section.
 - i. Maximum Calculated Deflection = 3 percent
 - j. Restrained Joint Safety Factor (SF) = 1.5
 - k. Maximum Joint Deflection = 50 percent of the manufacturer's recommendations.
2. Verify trench depths after existing utilities are located.
 - a. Accommodate vertical alignment changes required because of existing utility or other conflicts by an appropriate change in pipe design depth.
 - b. In no case shall pipe be installed deeper than its design allows.
3. Provisions for Thrust
 - a. Thrusts at bends, tees, plugs or other fittings shall be mechanically restrained, corrosion resistant joints.
 - b. In addition to the mechanical joint restraint required for all bends and fittings, horizontal and vertical bends shall be restrained by concrete thrust blocking and by mechanical joint restraint along the length of the pipe, as recommended by the pipe manufacturer, unless shown otherwise in the design drawings. Inclusion in the plans of dimensions for joint restraint lengths along the pipe, or dimensions for concrete thrust blocking, shall be interpreted to mean the exclusion of the other method of restraint, unless both methods are specifically required in the plans.
 - c. No thrust restraint contribution shall be allowed for the restrained length of pipe within the casing.
 - d. Restrained joints, where required, shall be used for a sufficient distance from each side of the bend, tee, plug, valve, or other fitting to resist thrust which will be developed at the design pressure of the pipe. For the purpose of thrust the following shall apply:
 - 1) Calculate valves as dead ends.
 - 2) Design pressure shall be greater than the pressure class of the pipe or the internal pressure (P_i), whichever is greater.
 - 3) Restrained joints shall consist of approved mechanical restrained or push-on restrained joints as listed in the City's Standard Products List as shown in Section 01 60 00.
 - 4) Restrained PVC pipe is not allowed for pipe greater than 12 inches.
 - e. The Pipe Manufacturer shall verify the length of pipe with restrained joints to resist thrust in accordance with the Drawings and the following:
 - 1) Calculate the weight of the earth (W_e) as the weight of the projected soil prism above the pipe, for unsaturated soil conditions.
 - 2) Soil density = 115 pcf (maximum value to be used), for unsaturated soil conditions
 - 3) In locations where ground water is encountered, reduce the soil density to its buoyant weight for the backfill below the water table.
 - a) Reduce the coefficient of friction to 0.25.
4. Joints
 - a. Joints shall be gasket, bell and spigot and push-on type conforming to ASTM D3139.
 - b. Since each pipe manufacturer has a different design for push-on joints, gaskets shall be part of a complete pipe section and purchased as such.

- 1 c. Lubricant must be non-toxic and NSF approved for potable water applications.
- 2 d. Push-On Restrained Joints shall only be as approved by the City.
- 3 5. Detectable Markers
- 4 a. Provide detectable markers in accordance with Section 33 05 26.

5 **2.3 ACCESSORIES [NOT USED]**

6 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

7 **PART 3 - EXECUTION [NOT USED]**

8 **3.1 INSTALLERS [NOT USED]**

9 **3.2 EXAMINATION [NOT USED]**

10 **3.3 PREPARATION [NOT USED]**

11 **3.4 INSTALLATION**

12 A. General

- 13 1. Install pipe, fittings, specials and appurtenances as specified herein, as specified in
- 14 AWWA C600, AWWA C605, AWWA M23 and in accordance with the pipe
- 15 manufacturer's recommendations.
- 16 2. Lay pipe to the lines and grades as indicated in the Drawings.
- 17 3. Excavate and backfill trenches in accordance with the Drawings and NCTCOG 5th
- 18 Edition Specifications.
- 19 4. Embed PVC Pressure Pipe in accordance with the Drawings and NCTCOG 5th
- 20 Edition Specifications.
- 21 5. For installation of carrier pipe within casing, see the Drawings.

22 B. Pipe Handling

- 23 1. Haul and distribute pipe and fittings at the project site.
- 24 a. Pipe shall be handled and stored in accordance with the manufacturer's
- 25 recommendations.
- 26 2. Handle piping with care to avoid damage.
- 27 a. Inspect each joint of pipe and reject or repair any damaged pipe prior to
- 28 lowering into the trench.
- 29 b. Conduit shall be homogeneous throughout and free from voids, cracks,
- 30 inclusions and other defects, and shall be uniform as commercially
- 31 practicable in color, density and other physical characteristics.
- 32 c. Use only nylon ropes, slings or other lifting devices that will not damage the
- 33 surface of the pipe for handling the pipe.
- 34 3. At the close of each operating day:
- 35 a. Keep the pipe clean and free of debris, dirt, animals and trash – during and after
- 36 the laying operation.
- 37 b. Effectively seal the open end of the pipe using a gasketed night cap.

38 C. Joint Making

- 39 1. Mechanical Joints
- 40 a. In accordance with Section 33 11 11.

- 1 2. Push-on Joints
2 a. Install Push-On joints as defined in AWWA C900.
3 b. Wipe clean the gasket seat inside the bell of all extraneous matter.
4 c. Place the gasket in the bell in the position prescribed by the manufacturer.
5 d. Apply a thin film of non-toxic vegetable soap lubricant to the inside of the
6 gasket and the outside of the spigot prior to entering the spigot into the bell.
7 e. When using a field cut plain end piece of pipe, refinish the field cut to conform
8 to AWWA C605.
- 9 3. Joint Deflection
10 a. Deflect the pipe only when necessary to avoid obstructions, or to meet the lines
11 and grades shown in the Drawings.
12 b. Joint deflection shall not exceed 50 percent of the manufacturer's
13 recommendation.

14 D. Detectable Metallic Tape Installation

- 15 1. See Section 33 05 26.

16 **3.5 REPAIR/RESTORATION [NOT USED]**

17 **3.6 RE-INSTALLATION [NOT USED]**

18 **3.7 FIELD [OR] SITE QUALITY CONTROL**

19 A. Potable Water Mains

- 20 1. Cleaning, disinfection, hydrostatic testing, and bacteriological testing of water
21 mains:
22 a. Clean, flush, pig, disinfect, hydrostatic test and bacteriological test the water
23 main as specified in Section 33 04 40.

24 B. Wastewater Lines

- 25 1. Closed Circuit Television (CCTV) Inspection
26 a. Provide a Post-CCTV Inspection in accordance with Section 33 01 31.

27 **3.8 SYSTEM STARTUP [NOT USED]**

28 **3.9 ADJUSTING [NOT USED]**

29 **3.10 CLEANING [NOT USED]**

30 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

31 **3.12 PROTECTION [NOT USED]**

32 **3.13 MAINTENANCE [NOT USED]**

33 **3.14 ATTACHMENTS [NOT USED]**

34 **END OF SECTION**

35

36

1 SECTION 33 12 20
2 RESILIENT SEATED (WEDGE) GATE VALVE

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

6 1. Resilient Seated (Wedge) Gate Valves 4-inch through 48-inch for use with
7 potable water mains

8 B. Related Specification Sections include, but are not necessarily limited to:

9 1. Section I – Bidding and Contractual Documents

10 2. NCTCOG 5th Edition Specifications

11 3. Section 33 11 05 – Bolts, Nuts, and Gaskets

12 4. Section 33 11 10 – Ductile Iron Pipe

13 1.2 PRICE AND PAYMENT PROCEDURES

14 A. Measurement and Payment

15 1. Gate Valve

16 a. Measurement

17 1) Measurement for this Item shall be per each.

18 b. Payment

19 1) The work performed and the materials furnished in accordance with
20 this Item shall be paid for at the unit price bid per each "Gate Valve"
21 installed for:

22 a) Various sizes

23 c. The price bid shall include:

24 1) Furnishing and installing Gate Valves with connections as specified in
25 the Drawings

26 2) Valve box

- 1 3) Extension
- 2 4) Extensions for valves in vaults
- 3 5) Petrolatum tape for connections to steel flanges
- 4 6) Isolation kits when installed with flanged connections
- 5 7) Polyethylene encasement
- 6 8) Pavement removal
- 7 9) Excavation
- 8 10) Hauling
- 9 11) Disposal of excess material
- 10 12) Furnishing, placement and compaction of embedment
- 11 13) Furnishing, placement and compaction of backfill
- 12 14) Clean-up
- 13 15) Cleaning
- 14 16) Disinfection
- 15 17) Testing
- 16 2. Cut-in Gate Valve
- 17 a. Measurement
- 18 1) Measurement for this Item shall be per each.
- 19 b. Payment
- 20 1) The work performed and the materials furnished in accordance with
- 21 this Item shall be paid for at the unit price bid per each "Cut-in Gate
- 22 Valve" installed for:
- 23 a) Various sizes
- 24 c. The price bid shall include:
- 25 1) Furnishing and installing Gate Valves with connections as specified in
- 26 the Drawings
- 27 2) System dewatering
- 28 3) Connections to existing pipe materials

- 1 4) Valve box
- 2 5) Extension
- 3 6) Extensions for valves in vaults
- 4 7) Petrolatum tape for connections to steel flanges
- 5 8) Isolation kits when installed with flanged connections
- 6 9) Polyethylene encasement
- 7 10) Pavement removal
- 8 11) Excavation
- 9 12) Hauling
- 10 13) Disposal of excess material
- 11 14) Furnishing, placement and compaction of embedment
- 12 15) Furnishing, placement and compaction of backfill
- 13 16) Clean-up
- 14 17) Cleaning
- 15 18) Disinfection
- 16 19) Testing

17 1.3 REFERENCES

18 A. Abbreviations and Acronyms

- 19 1. NRS – Non Rising Stem
- 20 2. OS&Y – Outside Screw and Yoke

21 B. Reference Standards

- 22 1. Reference standards cited in this Specification refer to the current reference
23 standard published at the time of the latest revision date logged at the end of
24 this Specification, unless a date is specifically cited.
- 25 2. NCTCOG 5th Edition Specifications.
- 26 3. American Association of State Highway and Transportation Officials (AASHTO).
- 27 4. American Society of Mechanical Engineers (ASME):

- 1 a. B16.1, Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125, and
2 250).
- 3 5. American Iron and Steel Institute (AISI).
- 4 6. ASTM International (ASTM):
 - 5 a. A48, Standard Specification for Gray Iron Castings.
 - 6 b. A242, Standard Specification for High-Strength Low-Alloy Structural Steel.
 - 7 c. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi
8 Tensile Strength.
 - 9 d. A536, Standard Specification for Ductile Iron Castings.
 - 10 e. B117, Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - 11 f. B633, Standard Specification for Electrodeposited Coatings of Zinc on Iron
12 and Steel.
- 13 7. American Water Works Association (AWWA):
 - 14 a. C509, Resilient-Seated Gate Valves for Water Supply Service.
 - 15 b. C515, Reduced-Wall, Resilient-Seated Gate Valves for Water Supply
16 Service.
 - 17 c. C550, Protective Interior Coatings for Valves and Hydrants.
 - 18 d. C900, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 IN
19 through 12 IN, for Water Transmission and Distribution.
- 20 8. American Water Works Association/American National Standards Institute
21 (AWWA/ANSI):
 - 22 a. C105/A21.5, Polyethylene Encasement for Ductile-Iron Pipe Systems.
 - 23 b. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and
24 Fittings.
 - 25 c. C115/A21.15, Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron
26 Threaded Flanges.
- 27 9. NSF International (NSF):
 - 28 a. 61, Drinking Water System Components - Health Effects.

1 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

2 1.5 SUBMITTALS

3 A. Submittals shall be in accordance with the General Conditions.

4 B. All submittals shall be approved by the City prior to delivery.

5 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

6 A. Product Data

7 1. Resilient Seated (Wedge) Gate Valve noting the pressure rating and coating
8 system supplied, including:

9 a. Dimensions, weights, material list, and detailed drawings

10 b. Joint type

11 c. Maximum torque recommended by the manufacturer for the valve size

12 2. Polyethylene encasement and tape

13 a. Whether the film is linear low density or high density cross linked
14 polyethylene

15 b. The thickness of the film provided

16 3. Thrust Restraint, if required by contract Documents

17 a. Retainer glands

18 b. Thrust harnesses

19 c. Any other means

20 4. Instructions for field repair of fusion bonded epoxy coating

21 5. Gaskets

22 B. Certificates

23 1. Furnish an affidavit certifying that all Resilient Seated (Wedge) Gate Valves
24 meet the provisions of this Section, each valve meets Specifications, all
25 inspections have been made and that all tests have been performed in
26 accordance with AWWA C509 or AWWA C515.

27 2. Furnish a certificate stating that buried bolts and nuts conform to ASTM B117.

- 1 3. Furnish affidavit that Resilient Seated (Wedge) Gate Valve manufacturer has
2 five years experience manufacturing Resilient Seated Gate Valves of similar
3 service and size with experience record.

- 4 4. Furnish affidavit that Resilient Seated (Wedge) Gate Valve manufacturer owns
5 or controls any foreign factory/foundry that supplies valve casings and can
6 certify that the Resilient Seated (Wedge) Gate Valve manufacturer is in control
7 of quality control at the foreign factory/foundry.

8 1.7 CLOSEOUT SUBMITTALS [NOT USED]

9 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

10 1.9 QUALITY ASSURANCE

11 A. Qualifications

12 1. Manufacturers

- 13 a. Valves shall meet or exceed AWWA C509 or AWWA C515.
- 14 b. For valves equipped with a bypass, the bypass valve must be of the same
15 manufacturer as the main valve.
- 16 c. Resilient Seated Gate Valves shall be new.
- 17 d. Resilient Seated Gate Valve Manufacturer shall not have less than 5 years
18 of successful experience manufacturing of Resilient Seated Gate Valves of
19 similar service and size, and indicated or demonstrate an experience
20 record that is satisfactory to the Engineer and City. This experience record
21 will be thoroughly investigated by the Engineer, and acceptance will be at
22 the sole discretion of the Engineer and City.
- 23 e. Casings for Resilient Seated Gate Valve, such as valve body, wedge, and
24 bypass; that are not manufactured within the United States of America,
25 shall be manufactured by factories/foundries that are owned or controlled
26 (partial ownership) such that the Resilient Seated Gate Valve Manufacturer
27 can control and guarantee quality at the foreign factory/foundry.

28 1.10 DELIVERY, STORAGE, AND HANDLING

29 A. Storage and Handling Requirements

- 30 1. Protect all parts so that no damage or deterioration will occur during a
31 prolonged delay from the time of shipment until installation is completed and
32 the units and equipment are ready for operation.

- 1 2. Protect all equipment and parts against any damage during a prolonged period
2 at the site.
- 3 3. Protect the finished surfaces of all exposed flanges by wooden blank flanges,
4 strongly built and securely bolted thereto.
- 5 4. Protect finished iron or steel surfaces not painted to prevent rust and
6 corrosion.
- 7 5. Prevent plastic and similar brittle items from being directly exposed to sunlight
8 or extremes in temperature.
- 9 6. Secure and maintain a location to store the material in accordance with the
10 General Conditions.

11 1.11 FIELD [SITE] CONDITIONS [NOT USED]

12 1.12 WARRANTY

13 A. Manufacturer Warranty

- 14 1. Manufacturer's Warranty shall be in accordance with the General Conditions.

15 PART 2 - PRODUCTS

16 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

17 2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS

18 A. Manufacturers

- 19 1. The manufacturer must comply with this Specification and related Sections.

20 B. Description

21 1. Regulatory Requirements

- 22 a. Valves shall be new and meet or exceed AWWA C509 or AWWA C515 and
23 shall meet or exceed the requirements of this Specification.
- 24 b. All valve components in contact with potable water shall conform to the
25 requirements of NSF 61.

26 C. Materials

27 1. Valve Body

- 1 a. Valve body: ductile iron per ASTM A536
- 2 b. Flanged ends: Furnish in accordance with AWWA/ANSI C115/A21.15.
- 3 c. Mechanical Joints: Furnish with outlets which conform to AWWA/ANSI
- 4 C111/A21.11.
- 5 d. Valve interior and exterior surfaces: fusion bonded epoxy coated,
- 6 minimum 5 mils, meeting AWWA C550 requirements
- 7 e. Buried valves: Provide with polyethylene encasement in accordance with
- 8 AWWA/ANSI C105/A21.5.
- 9 1) Polyethylene encasement: Furnish in accordance with Section 33 11
- 10 11.
- 11 2. Wedge (Gate)
- 12 a. Resilient wedge: rated at 250 psig cold water working pressure
- 13 b. The wedge (gate) for all valve sizes shall be 1 piece, fully encapsulated with
- 14 a permanently bonded EPDM rubber.
- 15 3. Bypass
- 16 a. For gate valves using a double roller, track and scrapper system, an
- 17 integrally cast bypass on the body of the valve is required.
- 18 1) Orient the bypass on the same side of the gate valve as the spur gear to
- 19 allow operation of both valves from the manhole opening.
- 20 2) The bypass shall be a minimum 4-inch in size.
- 21 4. Gate Valve Bolts and Nuts
- 22 a. Bonnet, Stuffing Box and Gear Box - Hex head bolt, and hex nut: Steel
- 23 ASTM A307 Gr. B, Zinc Plate per ASTM B633, SC3 for non-buried service (4-
- 24 inch through 12-inch valves) or as specified in 2.2.C.4.b.
- 25 b. Hex head bolt and hex nut: AISI 304 stainless steel for buried service (all
- 26 sizes) and for valves 16-inch through 36-inch (non-buried service)
- 27 5. Bolts and Nuts
- 28 a. Mechanical Joints
- 29 a) Provide bolts and nuts in accordance with Section 33 11 05.
- 30 b. Flanged Ends

- 1) Meet requirements of AWWA C115 or AWWA C207 depending on pipe material.
- 2) Provide bolts and nuts in accordance with Section 33 11 05.
- 3) Flanged isolation kits shall be provided when connecting to buried steel or concrete pressure pipe. Kits shall conform to NCTCOG 5th Edition Specifications.

6. Joints

- a. Valves: flanged, or mechanical-joint or any combination of these as specified on the Drawings or in the project Specifications
 - 1) Flanged-joints: AWWA/ANSI C115/A21.15, ASME B16.1, Class 125
 - a) Flange bolt circles and bolt holes shall match those of ASME B16.1, Class 125.
 - b) Field fabricated flanges are prohibited.
 - 2) Steel or concrete pressure pipe
 - a) Use flange-joints unless otherwise specified in the Contract Documents.
 - 3) Ductile Iron or PVC pressure pipe
 - a) Use mechanical joints with mechanically restrained retainer glands unless otherwise specified in the Contract Documents.

7. Operating Nuts

- a. Supply for buried service valves
- b. 1-15/16-inch square at the top, 2-inch at the base, and 1-3/4-inch high
- c. Cast an arrow showing the direction of opening with the word "OPEN" on the operating nut base.
- d. To open, the operating nut shall be turned to the LEFT (COUNTER-CLOCKWISE) direction. Nut shall be painted red per AWWA specifications
- e. Connect the operating nut to the shaft with a shear pin that prevents the nut from transferring torque to that shaft or the gear box that exceeds the manufacturer's recommended torque.
- f. Furnish handwheel operators for non-buried service, or when shown in the Drawings.

- 1 8. Gearing
- 2 a. Bevel gears for horizontally mounted valves are not allowed.
- 3 b. The spur gear shall be designed and supplied by the manufacturer of the
- 4 valve as an integral part of the gate valve.

- 5 9. Gaskets
- 6 a. Provide gaskets in accordance with Section 33 11 05.

7 2.3 ACCESSORIES

- 8 A. All gate valves shall have the following accessories provided as part of the gate
- 9 valve installation:
 - 10 1. A keyed solid extension stem of sufficient length to bring the operating nut up
 - 11 to within 1 foot of the surface of the ground, when the operating nut on the gate
 - 12 valve is 3 feet or more beneath the surface of the ground. Extension Stems
 - 13 are:
 - 14 a. Not required on City stock orders
 - 15 b. Not to be bolted or attached to the valve-operating nut
 - 16 c. To be of cold rolled steel with a cross-sectional area of 1 square inch,
 - 17 fitting loosely enough to allow deflection
 - 18 2. Furnish joint components such as gaskets, glands, lubricant, bolts, and nuts in
 - 19 sufficient quantity for assembly of each joint.
 - 20 3. Cast Iron Valve Boxes: provide for buried service gate valves, cast iron valve
 - 21 boxes and covers
 - 22 a. Each valve box for 4-inch through 12-inch valves shall be 2-piece, 5 ¼-inch
 - 23 shafts, screw type, consisting of a top section and a bottom section.
 - 24 b. Valve box covers shall be so designed that they can be easily removed to
 - 25 provide access to valve operating nut.
 - 26 c. Valve box covers must be designed to stay in position and resist damage
 - 27 under AASHTO HS 20 traffic loads.
 - 28 d. Each cover shall be casted with the word "WATER" or "RECLAIMED" in
 - 29 raised letters on the upper surface.
 - 30 e. Cast iron valve boxes and covers shall conform to ASTM A48, Class 35B.

1 1) Valve box covers shall be round for potable water applications and
2 square for reclaimed water applications.

3 f. Box extension material shall be AWWA C900 PVC or ductile iron.

4 2.4 SOURCE QUALITY CONTROL [NOT USED]

5 PART 3 - EXECUTION

6 3.1 INSTALLERS [NOT USED]

7 3.2 EXAMINATION [NOT USED]

8 3.3 PREPARATION [NOT USED]

9 3.4 INSTALLATION

10 A. General

11 1. All valves shall be installed in vertical position when utilized in normal pipeline
12 installation.

13 2. Valves shall be placed at line and grade as indicated on the Drawings.

14 3. Polyethylene encasement installation shall be in accordance with Section 33
15 11 11.

16 3.5 REPAIR/RESTORATION [NOT USED]

17 3.6 RE-INSTALLATION [NOT USED]

18 3.7 FIELD [OR] SITE QUALITY CONTROL

19 A. Field Inspections

20 1. Before acceptance of the installed valve, the City Field Operations Staff shall
21 have the opportunity to operate the valve.

22 2. The City shall be given the opportunity to inspect all buried flanges before they
23 are covered.

24 3. The Operator will be assessing the ease of access to the operating nut within
25 the valve box and ease of operating the valve from a fully closed to fully
26 opened position.

27 4. If access and operation of the valve meet the City's criteria, then the valve will
28 be accepted as installed.

1 B. Non-Conforming Work

2 1. If access and operation of the valve or its appurtenances does not meet the
3 City's criteria, the Contractor will remedy the situation until it meets the City's
4 criteria, at the Contractor's expense.

5 3.8 SYSTEM STARTUP [NOT USED]

6 3.9 ADJUSTING [NOT USED]

7 3.10 CLEANING [NOT USED]

8 3.11 CLOSEOUT ACTIVITIES [NOT USED]

9 3.12 PROTECTION [NOT USED]

10 3.13 MAINTENANCE [NOT USED]

11 3.14 ATTACHMENTS [NOT USED]

12

13

END OF SECTION

14

1 SECTION 33 12 25
2 CONNECTION TO EXISTING WATER MAINS

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

- 6 1. Connection to existing water mains to include, but not limited to:
- 7 a. Cutting in a tee for a branch connection
- 8 b. Extending from an existing water main
- 9 c. Installing a tapping sleeve and valve

10 B. Related Specification Sections include, but are not necessarily limited to:

- 11 1. Section I – Bidding and Contractual Documents
- 12 2. NCTCOG 5th Edition Specifications
- 13 3. Section 33 04 40 – Cleaning and Acceptance Testing of Water Mains
- 14 4. Section 33 05 30 – Location of Existing Utilities
- 15 5. Section 33 11 05 – Bolts, Nuts, and Gaskets

16 1.2 PRICE AND PAYMENT PROCEDURES

17 A. Measurement and Payment

- 18 1. Connection to an existing pressurized City of Keller Water Distribution System
19 Main that requires a shutdown of some part of the water system
- 20 a. Measurement
- 21 1) Measurement for this Item shall be per each connection completed.
- 22 b. Payment
- 23 1) The work performed and the materials furnished in accordance with
24 this Item shall be paid for at the unit price bid per each "Connection to
25 Existing Water Main" installed for:
- 26 a) Various sizes of existing water distribution main

- 1 c. The price bid shall include all aspects of making the connection including,
2 but not limited to:
 - 3 1) Preparing submittals
 - 4 2) Dewatering
 - 5 3) Exploratory excavation (as needed)
 - 6 4) Coordination and notification
 - 7 5) Remobilization
 - 8 6) Temporary lighting
 - 9 7) Polyethylene encasement
 - 10 8) Make-up pieces
 - 11 9) Linings
 - 12 10) Pavement removal
 - 13 11) Excavation
 - 14 12) Hauling
 - 15 13) Disposal of excess material
 - 16 14) Clean-up
 - 17 15) Cleaning
 - 18 16) Disinfection
 - 19 17) Testing

- 20 2. Connection to an existing pressurized City of Keller Water Distribution System
21 Main by Tapping Sleeve and Valve:
 - 22 a. Measurement
 - 23 1) Measurement for this Item shall be per each connection completed.
 - 24 b. Payment
 - 25 1) The work performed and the materials furnished in accordance with
26 this Item shall be paid for at the unit price bid per each "Tapping Sleeve
27 and Valve" installed for:
 - 28 a) Various sizes of connecting main
 - 29 b) Various sizes of existing water distribution main

- 1 c. The price bid shall include all aspects of making the connection including,
- 2 but not limited to:
- 3 1) Preparing submittals
- 4 2) Dewatering
- 5 3) Exploratory excavation (as needed)
- 6 4) Coordination and notification
- 7 5) Tapping Sleeve and Tapping Valve
- 8 6) Remobilization
- 9 7) Temporary lighting
- 10 8) Polyethylene encasement
- 11 9) Make-up pieces
- 12 10) Linings
- 13 11) Pavement removal
- 14 12) Excavation
- 15 13) Hauling
- 16 14) Disposal of excess material
- 17 15) Clean-up
- 18 16) Cleaning
- 19 17) Disinfection
- 20 18) Testing

21 1.3 REFERENCES

22 A. Reference Standards

- 23 1. Reference standards cited in this Specification refer to the current reference
- 24 standard published at the time of the latest revision date logged at the end of
- 25 this Specification, unless a date is specifically cited.
- 26 2. NCTCOG 5th Edition Specifications.
- 27 3. American Society of Mechanical Engineers (ASME):

- 1 a. B16.1, Gray Iron Pipe Flanges and Flanged Fittings Classes 25, 125 and
2 250)
- 3 4. ASTM International (ASTM):
- 4 a. A36, Standard Specification for Carbon Structural Steel.
- 5 b. A193, Standard Specification for Alloy-Steel and Stainless Steel Bolting for
6 High Temperature or High Pressure Service and Other Special Purpose
7 Applications
- 8 c. A194, Specification for Carbon and Alloy Steel Nuts for Bolts for High
9 Pressure or High Temperature Service, or Both
- 10 d. A242, Standard Specification for High-Strength Low-Alloy Structural Steel.
- 11 e. A283, Standard Specification for Low and Intermediate Tensile Strength
12 Carbon Steel Plates.
- 13 f. A285, Standard Specification for Pressure Vessel Plates, Carbon Steel,
14 Low- and Intermediate-Tensile Strength.
- 15 g. B117, Standard Practice for Operating Salt Spray (Fog) Apparatus.
- 16 h. D2000, Standard Classification System for Rubber Products in Automotive
17 Applications.
- 18 5. American Water Works Association (AWWA):
- 19 a. C200, Steel Water Pipe - 6 IN and Larger.
- 20 b. C207, Steel Pipe Flanges for Waterworks Service – Sizes 4 IN through 144
21 IN.
- 22 c. C213, Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel
23 Water Pipelines.
- 24 d. C223, Fabricated Steel and Stainless Steel Tapping Sleeves.
- 25 6. American Water Works Association/American National Standards Institute
26 (AWWA/ANSI):
- 27 a. C105/A21.5, Polyethylene Encasement for Ductile-Iron Pipe Systems.
- 28 b. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and
29 Fittings.
- 30 c. C115A21/15, Flanged Ductile-Iron Pipe with Ductile Iron or Gray-Iron
31 Threaded Flanges.

- 1 7. NSF International (NSF):
- 2 a. 61, Drinking Water System Components – Health Effects.
- 3 8. Manufacturers Standardization Society of the Valve and Fitting Industry Inc.
- 4 (MSS):
- 5 a. SP-60, Connecting flange Joint Between Tapping Sleeves and Tapping
- 6 Valves.

7 1.4 ADMINISTRATIVE REQUIREMENTS

8 A. Pre-installation Meetings

- 9 1. Required for any connections to an existing, pressurized 16-inch or larger City
- 10 water distribution system main that requires a shutdown of some part of the
- 11 water system
- 12 2. May also be required for connections that involve shutting water service off to
- 13 certain critical businesses
- 14 3. Schedule a pre-installation meeting a minimum of 3 weeks prior to proposed
- 15 time for the work to occur.
- 16 4. The meeting shall include the Contractor, City Inspector and City Valve Crew.
- 17 5. Review work procedures as submitted and any adjustments made for current
- 18 field conditions.
- 19 6. Verify that all valves and plugs to be used have adequate thrust restraint or
- 20 blocking.
- 21 7. Schedule a test shutdown with the City.
- 22 8. Schedule the date for the connection to the existing system.

23 B. Scheduling

- 24 1. Schedule work to make all connections to existing 16-inch and larger mains:
- 25 a. During the period from November through April, unless otherwise
- 26 approved by the City
- 27 b. During normal business hours from Monday through Friday, unless
- 28 otherwise approved by the City

- 1 2. Schedule City Valve Crew by 1:00 P.M. a minimum of 1 business day prior to
2 planned disruption to the existing water system.
- 3 a. In the event that other water system activities do not allow the existing
4 main to be dewatered at the requested time, schedule work to allow the
5 connection at an alternate time acceptable to the City.
- 6 1) If water main cannot be taken out of service at the originally requested
7 time, coordination will be required with the City to discuss
8 rescheduling and compensation for mobilization.
- 9 2) No additional payment will be provided if the schedule was altered at
10 the Contractor's request.

11 1.5 SUBMITTALS

- 12 A. Submittals shall be in accordance with the General Conditions.
- 13 B. All submittals shall be approved by the City prior to delivery and/or fabrication for
14 specials.

15 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

- 16 A. Product Data, if applicable
- 17 1. Tapping Sleeve noting the pressure rating and coating system supplied
18 including:
- 19 a. Dimensions, weights, material list, and detailed drawings
- 20 b. Maximum torque recommended by the manufacturer for the valve by size
- 21 B. Submittals
- 22 1. Provide a detailed sequence of work for 16-inch, or larger, connections if
23 required by City that includes:
- 24 a. Results of exploratory excavation
- 25 b. Dewatering
- 26 c. Procedure for connecting to the existing water main
- 27 d. Time period for completing work from when the water is shut down to
28 when the main is back in service
- 29 e. Testing and repressurization procedures

1 2. Welders that are assigned to work on connection to concrete cylinder or steel
2 pipe must be certified and provide Welding Certificates, upon request, in
3 accordance with AWWA C200.

4 1.7 CLOSEOUT SUBMITTALS [NOT USED]

5 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

6 1.9 QUALITY ASSURANCE [NOT USED]

7 1.10 DELIVERY, STORAGE, AND HANDLING

8 A. Storage and Handling Requirements

9 1. Protect parts so that no damage or deterioration occurs during a prolonged
10 delay from the time of shipment until installation is completed.

11 2. Protect all equipment and parts against any damage during a prolonged period
12 at the site.

13 3. Protect the finished surfaces of all exposed flanges using wooden flanges,
14 strongly built and securely bolted thereto.

15 4. Protect finished iron or steel surfaces not painted to prevent rust and
16 corrosion.

17 5. Prevent plastic and similar brittle items from being exposed to direct sunlight
18 and extremes in temperature.

19 6. Secure and maintain a location to store the material in accordance with the
20 General Conditions.

21 1.11 FIELD [SITE] CONDITIONS [NOT USED]

22 1.12 WARRANTY

23 A. Manufacturer Warranty

24 1. Manufacturer's warranty shall be in accordance with the General Conditions.

1 PART 2 - PRODUCTS

2 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

3 2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS

4 A. Manufacturers

5 1. The manufacturer must comply with this Specification and related Sections.

6 B. Description

7 1. Regulatory Requirements

8 a. Tapping Sleeves shall meet or exceed AWWA C223 and the requirements
9 of this Specification.

10 b. All valve components in contact with potable water shall conform to the
11 requirements of NSF 61.

12 C. Tapping Sleeve Materials

13 1. Body

14 a. Body: Carbon Steel per ASTM A283 Grade C, ASTM A285 Grade C, ASTM
15 A36 Steel or equal

16 b. Finish: fusion bonded epoxy coating to an average 12 mil thickness.
17 Fusion applied per AWWA C213.

18 c. All buried tapping sleeves shall be provided with polyethylene encasement
19 in accordance with AWWA/ANSI C105/A21.5.

20 1) Polyethylene encasement shall be in accordance with Section 33 11
21 11.

22 2. Flange

23 a. Carbon Steel per ASTM A36 in accordance with AWWA C207 and ASME
24 B16.1 Class 125.

25 b. Recessed for tapping valve per MSS SP-60

26 3. Bolts and Nuts

27 a. Flanged Ends

28 1) Meet requirements of AWWA C115 or AWWA C207 depending on pipe
29 material.

- 1 2) Provide bolts and nuts in accordance with Section 33 11 05.
- 2 4. Gaskets
- 3 a. Provide gaskets in accordance with Section 33 11 05.
- 4 5. Test Plug
- 5 a. ¾-inch NPT carbon steel with square head and fusion bonded epoxy
- 6 coating
- 7 2.3 ACCESSORIES [NOT USED]
- 8 2.4 SOURCE QUALITY CONTROL [NOT USED]
- 9 PART 3 - EXECUTION
- 10 3.1 INSTALLERS [NOT USED]
- 11 3.2 EXAMINATION
- 12 A. Verification of Conditions
- 13 1. Verify by exploratory excavation, if needed, that existing water main is as
- 14 depicted in the Drawings and that the location is suitable for a connection to
- 15 the existing water main.
- 16 a. Excavate and backfill trench for the exploratory excavation in accordance
- 17 with NCTCOG 5th Edition Specifications and the Drawings.
- 18 2. Verify that all equipment and materials are available on-site prior to the
- 19 shutdown of the existing main.
- 20 3. Pipe lines shall be completed, tested and authorized for connection to the
- 21 existing system in accordance with Section 33 04 40.
- 22 3.3 PREPARATION [NOT USED]
- 23 3.4 INSTALLATION
- 24 A. General
- 25 1. Upon disruption of the existing water main, continue work until the connection
- 26 is complete and the existing water main is back in service.
- 27 B. Procedure

- 1 1. Expose the proposed connection point in accordance with NCTCOG 5th Edition
2 Specifications.
- 3 2. Dewater the existing water line so the chlorinated water is not unlawfully
4 discharged.
- 5 3. Maintain the water that may bleed by existing valves or plugs during
6 installation within the work area to a reasonable level.
 - 7 a. Control the water in such a way that it does not interfere with the proper
8 installation of the connection or create a discharge of chlorinated water.
- 9 4. If any discharge of chlorinated water occurs, discharged water shall be de-
10 chlorinated in accordance with Section 33 04 40
- 11 5. Cut and remove existing water main in order to make the connection.
- 12 6. Verify that the existing pipe line is suitable for the proposed connection.
- 13 7. Place trench foundation and bedding in accordance with NCTCOG 5th Edition
14 Specifications and the Drawings.
- 15 8. In the event that a tapping sleeve and valve is used, the coupon from the
16 existing water main shall be submitted to the City.
- 17 9. Prevent embedment, backfill, soil, water or other debris from entering the
18 pipeline.
- 19 10. Establish thrust restraint as provided for in the Drawings.
- 20 11. Clean and disinfect the pipeline associated with the connection in accordance
21 with Section 33 04 40.
- 22 12. Place embedment to the top of the pipe zone.
- 23 13. Request that the City Valve Crew re-pressurize the pipeline.
- 24 14. Directionally flush the connection in accordance with Section 33 04 40.
- 25 15. Request that City Valve Crew open all remaining valves.
- 26 3.5 REPAIR/RESTORATION [NOT USED]
- 27 3.6 RE-INSTALLATION [NOT USED]
- 28 3.7 FIELD [OR] SITE QUALITY CONTROL [NOT USED]

- 1 3.8 SYSTEM STARTUP [NOT USED]
- 2 3.9 ADJUSTING [NOT USED]
- 3 3.10 CLEANING [NOT USED]
- 4 3.11 CLOSEOUT ACTIVITIES [NOT USED]
- 5 3.12 PROTECTION [NOT USED]
- 6 3.13 MAINTENANCE [NOT USED]
- 7 3.14 ATTACHMENTS [NOT USED]

8 END OF SECTION

- 9
- 10

1 **SECTION 33 12 40**
2 **FIRE HYDRANTS**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

5 A. Section Includes:

- 6 1. Dry-barrel fire hydrants with 5¹/₄-inch main valve for use with potable water mains

7 B. Related Specification Sections include, but are not necessarily limited to:

- 8 1. Section I – Bidding and Contractual Documents
9 2. NCTCOG 5th Edition Specifications
10 3. Section 33 04 40 – Cleaning and Acceptance Testing of Water Mains
11 4. Section 33 11 11 – Ductile Iron Fittings
12 5. Section 33 12 20 – Resilient Seated (Wedge) Gate Valve

13 **1.2 PRICE AND PAYMENT PROCEDURES**

14 A. Measurement and Payment

15 1. Measurement

16 a. Fire Hydrant and Extension

- 17 1) Measurement for this item shall be by the each hydrant, complete in place.

18 2. Payment

- 19 a. The work performed and materials furnished in accordance with this Item and
20 measured under “Measurement” will be paid for at the unit prices bid per each
21 “Fire Hydrant” installed.

22 3. The price bid shall include:

- 23 a. Furnishing and installing Fire Hydrants with appurtenances as specified in the
24 Drawings
25 b. Dry-Barrel Fire Hydrant assembly from base to operating nut
26 c. Extension barrel and stem
27 d. Adjusting hydrant to the appropriate height
28 e. Painting
29 f. Pavement Removal
30 g. Excavation
31 h. Freight, loading, unloading and handling
32 i. Disposal of excess material
33 j. Furnish, placement and compaction of embedment
34 k. Furnish, placement and compaction of backfill
35 l. Blocking, Braces and Rest
36 m. Clean up
37 n. Disinfection
38 o. Testing

39 **1.3 REFERENCES**

40 A. Definitions

- 41 1. Base: The lateral connection to the fire hydrant lead; also called a shoe

42 B. Reference Standards

1. Reference standards cited in this Specification refer to the current reference standard published at the time of the latest revision date logged at the end of this Specification, unless a date is specifically cited.
2. NCTCOG 5th Edition Specifications.
3. American Water Works Association (AWWA):
 - a. C502, Dry-Barrel Fire Hydrants
 - b. Manual of Water Supply Practices M17 (AWWA Manual M17) – Installation, Field Testing, and Maintenance of Fire Hydrants
4. NSF International
 - a. 61, Drinking Water System Components – Health Effects
5. National Fire Protection Association (NFPA)
 - a. 1963, Standard for Fire Hose Connections
6. Underwriters Laboratories, Inc. (UL)
 - a. 246, Hydrants for Fire-Protection Service
7. Factory Mutual (FM)
 - a. Class Number 1510, Approval Standard for Fire Hydrant (Dry Barrel Type) for Private Fire Service

1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

1.5 SUBMITTALS

- A. Submittals shall be in accordance with the General Conditions.
- B. All submittals shall be approved by the City prior to construction.

1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

A. Product Data

1. Dry-Barrel Fire Hydrant stating:
 - a. Main valve opening size
 - b. Nozzle arrangement and sizes
 - c. Operating nut size
 - d. Operating nut operating direction
 - e. Working pressure rating
 - f. Component assembly and materials
 - g. Coatings and Finishes

1.7 CLOSEOUT SUBMITTALS [NOT USED]

1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

1.9 QUALITY ASSURANCE

A. Qualifications

1. Manufacturers
 - a. Dry-Barrel Fire Hydrants shall be the product of 1 manufacturer.
 - 1) Change orders, specials and field changes may be provided by a different manufacturer upon City approval.
2. Dry-Barrel Fire Hydrants shall be in conformance with AWWA C502, UL 246 and FM 1510.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Storage and Handling Requirements

1. Store and handle in accordance with the guidelines as stated in AWWA C502 and AWWA Manual M17.
2. Protect all parts so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.
3. Protect all equipment and parts against any damage during a prolonged period at the site.
4. Protect the finished surfaces of all exposed flanges by wooden blank flanges, strongly built and securely bolted thereto.
5. Protect finished iron or steel surfaces not painted to prevent rust and corrosion.
6. Prevent plastic and similar brittle items from being directly exposed to sunlight or extremes in temperature.
7. Secure and maintain a location to store the material in accordance with Section 01 66 00.

1.11 FIELD CONDITIONS [NOT USED]

1.12 WARRANTY

A. Manufacturer Warranty

1. Manufacturer's Warranty shall be in accordance with the General Conditions.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]

2.2 EQUIPMENT, PRODUCT TYPES, AND MATERIALS

A. Manufacturers

1. The manufacturer must comply with this Specification and related Sections.
2. The Dry-Barrel Fire Hydrant shall be new and the product of a manufacturer regularly engaged in the manufacturing of Dry-Barrel Fire Hydrants having similar service and size.

B. Description

1. Regulatory Requirements
 - a. Dry-Barrel Fire Hydrant shall meet or exceed the latest revisions of AWWA C502 and shall meet or exceed the requirements of this Specification.
 - b. All Dry-Barrel Fire Hydrant components in contact with potable water shall conform to the requirements of NSF 61.

C. Performance / Design Criteria

1. Capacities
 - a. Rated working pressure of 250 psi or greater
2. Design Criteria
 - a. Operating nut
 - 1) Uniformly tapered square nut measuring:
 - a) 1 inch at the base
 - b) $\frac{7}{8}$ inch at the top
 - 2) Open by turning the operating nut to the left (counter-clockwise)

- 1 a) Provide operating direction clearly marked with an arrow and the word
- 2 "OPEN".
- 3 3) Provide weather shield with operating nut.
- 4 b. Main Valve
- 5 1) Minimum 5¹/₄-inch opening
- 6 2) Compression type
- 7 a) Opening against pressure
- 8 b) Closing with pressure
- 9 c. Nozzles
- 10 1) 'T' shape, 3 nozzle arrangement
- 11 2) Nozzle sizes, threads and configuration in accordance with NFPA 1963
- 12 a) Hose nozzles
- 13 (1) 2 x 2¹/₂-inch (nominal size of connection)
- 14 (a) 180 degrees apart
- 15 (b) Thread Designation 2.5-7.5 NH (NFPA 1963)
- 16 b) Pump nozzle
- 17 (1) 5-inch (nominal size of connection)
- 18 (a) Hydra-Storz Quick Connect or Approved Equal
- 19 d. Hydrant Barrel Configuration
- 20 1) Upper barrel
- 21 2) Breakable flange and stem
- 22 a) To be installed above ground at the connection to the upper barrel
- 23 3) Extension barrel (if needed) and lower barrel
- 24 a) Extension barrel and stem
- 25 (1) Lengthen in 6-inch increments
- 26 e. Drain Valve
- 27 1) Non-corrodible material
- 28 2) Spring operated drain valves are not allowed.
- 29 D. Function
- 30 1. Drain Valve
- 31 a. Drain fire hydrant barrels when main valve is closed.
- 32 E. Materials
- 33 1. Furnish materials in accordance with AWWA C502.
- 34 2. Dry-Barrel Fire Hydrant Assembly
- 35 a. Internal parts
- 36 1) Threads
- 37 a) Provide operating thread designed to avoid metal such as iron or steel
- 38 threads against iron or steel parts.
- 39 2) Stem
- 40 a) Stem Nuts
- 41 (1) Provide bronze stem nuts.
- 42 (a) Grades per AWWA C502
- 43 b) Where needed, stem shall be grooved and sealed with O-rings.
- 44 3. Provide crushed rock for placement around base conforming to NCTCOG 5th
- 45 Edition Specifications and the Drawings.
- 46 F. Finishes
- 47 1. Primer Materials
- 48 a. Furnish primer for Dry-Barrel Fire Hydrants in accordance with AWWA C502.

- 2. Finish Materials
 - a. Dry-Barrel Fire Hydrant
 - 1) Exterior
 - a) Above grade
 - (1) Furnish exterior coating for above grade Dry-Barrel Fire Hydrant assembly components in accordance with AWWA C502.
 - (2) Coating shall be Flynt Aluminum Paint in Silver.
 - b) Below grade
 - (1) Furnish exterior coating for below grade Dry-Barrel Fire Hydrant assembly components in accordance with AWWA C502.
 - 2) Interior
 - a) Interior coating for Dry-Barrel Fire Hydrants assemblies in accordance with AWWA C502

2.3 ACCESSORIES

A. Polyethylene Encasement

- 1. Provide polyethylene encasement in accordance with Section 33 11 11.

B. Embedment

- 1. Provide crushed rock and filter fabric in accordance with NCTCOG 5th Edition Specifications and the Drawings.

2.4 SOURCE QUALITY CONTROL

A. Tests and Inspections

- 1. Testing and inspection of Dry-Barrel Fire Hydrants in accordance with AWWA C502.

B. Markings

- 1. Provide each Dry-Barrel Fire Hydrant marked in accordance with AWWA C502.

PART 3 - EXECUTION [NOT USED]

3.1 INSTALLERS [NOT USED]

3.2 EXAMINATION [NOT USED]

3.3 PREPARATION [NOT USED]

3.4 INSTALLATION

A. General

- 1. Install in accordance with AWWA Manual of Water Supply Practice M17, manufacturer's recommendations and as shown on the Drawings.
- 2. Provide vertical installation with braces, rest and blocking in accordance with City Standard Details.
- 3. Excavate and backfill trenches in accordance with NCTCOG 5th Edition Specifications and the Drawings.
- 4. Embed Dry-Barrel Fire Hydrant assemblies in accordance with NCTCOG 5th Edition Specifications and the Drawings..
 - a. At the location of the weep holes, wrap barrel with polyethylene encasement and crushed rock with filter fabric to prevent dirt and debris from entering the fire hydrant.

- 1 5. Polyethylene encasement installation shall be in accordance with the applicable
2 portion of Section 33 11 11.
- 3 6. Install concrete blocking and rest in accordance with NCTCOG 5th Edition
4 Specifications as indicated in the Drawings.
- 5 7. A minimum 1/3 cubic yard of crushed rock shall be placed around the base, in
6 accordance with AWWA Manual of Water Supply Practice M17, to allow drain
7 outlets to operate.
 - 8 a. The crushed rock should extend 6 inches above the drain outlets and a
9 minimum of 1 foot on all sides of the fire hydrant base.
- 10 8. Fire hydrant lead line shall be installed with a maximum cover of 7 feet.
 - 11 a. Cover is measured from the invert at the fire hydrant base, vertical to ground
12 elevation.
 - 13 b. Fittings may be used along fire lead line to ensure minimum and maximum
14 cover requirements are met.

15 **3.5 REPAIR / RESTORATION [NOT USED]**

16 **3.6 RE-INSTALLATION [NOT USED]**

17 **3.7 FIELD CONTROL**

18 **A. Field Inspections**

- 19 1. The Dry-Barrel Fire Hydrant and assembly shall perform as intended with no
20 deformation, leaking or damage of any kind for the pressure ranges indicated.
- 21 2. City inspector will issue final inspection notice to City staff.
- 22 3. City Field Operations Staff and Fire Department Staff shall have the opportunity to
23 inspect and operate the hydrant, to ensure that the fire hydrant was installed in
24 accordance with AWWA Manual of Water Supply Practice M17. This includes but
25 is not limited to:
 - 26 a. Operation of Nozzles and operating nut are not obstructed.
 - 27 b. Drain valve is not obstructed or plugged
- 28 4. Keep fire hydrant wrapped or covered to identify that it is out of service until the
29 water line it's connected to is put in service.

30 **B. Non-Conforming Work**

- 31 1. If access and operation of the Dry-Barrel Fire Hydrant or its appurtenances do not
32 meet the criteria of the AWWA Manual of Water Supply Practice M17, the
33 Contractor will remedy the situation criteria, at the Contractor's expense.

34 **3.8 SYSTEM STARTUP [NOT USED]**

35 **3.9 ADJUSTING [NOT USED]**

36 **3.10 CLEANING [NOT USED]**

37 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

38 **3.12 PROTECTION [NOT USED]**

39 **3.13 MAINTENANCE**

40 **3.14 ATTACHMENTS**

41 **END OF SECTION**

1 **1.3 REFERENCES**

2 A. Reference Standards

- 3 1. Reference standards cited in this Specification refer to the current reference
4 standard published at the time of the latest revision date logged at the end of this
5 Specification, unless a date is specifically cited.
6 2. NCTCOG 5th Edition Specifications.
7 3. American Association of State Highway and Transportation (AASHTO).
8 4. ASTM International (ASTM):
9 a. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC)
10 Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
11 b. D2412, Standard Test Method for Determination of External Loading
12 Characteristics of Plastic Pipe by Parallel-Plate Loading.
13 c. D3034, Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC)
14 Sewer Pipe and Fittings.
15 d. D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes
16 Using Flexible Elastomeric Seals.
17 e. F679, Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter
18 Plastic Gravity Sewer Pipe and Fittings.
19 5. Texas Commission on Environmental Quality (TCEQ):
20 a. Title 30, Part I, Chapter 217, Subchapter C, Rule 217.53 – Pipe Design.
21 b. Title 30, Part I, Chapter 217, Subchapter C, Rule 217.54 – Criteria for Laying
22 Pipe.
23 c. Title 30, Part I, Chapter 217, Subchapter C, Rule 217.57 – Testing
24 Requirements for Installation of Gravity Collection System Pipes.
25 6. Underwriters Laboratories, Inc. (UL).

26 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

27 **1.5 SUBMITTALS**

- 28 A. Submittals shall be in accordance with the General Conditions.
29 B. All submittals shall be approved by the City prior to delivery.

30 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS**

31 A. Product Data

- 32 1. Product data sheet
33 2. Manufacturer
34 3. Nominal pipe diameter
35 4. Standard dimension ratio (SDR)
36 5. Cell classification
37 6. Laying lengths

38 B. Certificates

- 39 1. Furnish an affidavit certifying that all PVC Gravity Pipe meets the provisions of
40 this Section and has been air and deflection tested and meets the requirements of
41 ASTM D3034 and ASTM F679.

1 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

3 **1.9 QUALITY ASSURANCE**

4 A. Qualifications

5 1. Manufacturers

- 6 a. Finished pipe shall be the product of 1 manufacturer for each size per project,
7 unless otherwise approved by the City.
8 1) Change orders, specials and field changes may be provided by a different
9 manufacturer upon City approval.
10 b. Pipe manufacturing operations shall be performed under the control of the
11 manufacturer.
12 c. All pipe furnished shall be in conformance with ASTM D3034 (4-inch through
13 15-inch) and ASTM F679 (18-inch through 48-inch).

14 **1.10 DELIVERY, STORAGE, AND HANDLING**

15 A. Storage and Handling Requirements

- 16 1. Gravity pipe shall be stored and handled in accordance with the manufacturer's
17 guidelines.
18 2. Secure and maintain a location to store the material in accordance with the General
19 Conditions.

20 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

21 **1.12 WARRANTY [NOT USED]**

22 **PART 2 - PRODUCTS**

23 **2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]**

24 **2.2 EQUIPMENT, PRODUCT TYPES AND MATERIALS**

25 A. Manufacturers

- 26 1. The manufacturer must comply with this Specification and related Sections.

27 B. Performance / Design Criteria

28 1. Pipe

- 29 a. Meet all requirements of TCEQ.
30 b. Design in accordance with ASTM D3034 for 4-inch through 15-inch SDR 26
31 and ASTM F679 for 18-inch through 48-inch 115PS.
32 c. PVC Gravity Sanitary Sewer Pipe shall be verified by the UL.
33 d. Assume a standard lay length of 14 feet and 20 feet except for special fittings or
34 closure pieces necessary to comply with the Drawings.
35 e. Use green coloring for ground identification as sanitary sewer pipe.
36 f. PVC meeting the requirements of ASTM D1784, with a cell classification of
37 12454 or 12364
38 g. Deflection Design
39 1) Base pipe design on pipe stiffness, soil stiffness and load on the pipe.

- 2) Design pipe according to the Modified Iowa Formula as detailed by the Uni-Bell PVC Pipe Association in the Handbook of PVC Pipe, using the following parameters:
 - a) Unit Weight of Fill (w) = 130 pounds per cubic foot
 - b) Live Load = AASHTO HS 20
 - c) Trench Depth = 12 feet minimum, or as indicated in Drawings
 - d) Maximum (E') = 1,000 max
 - e) Deflection Lag Factor (DL) = 1.0
 - f) Bedding Factor constant (K) = 0.1
 - g) Mean radius of the pipe (r), inches, as indicated in Drawings
 - h) Marston's load per unit length (W), pounds per inch, calculate per Drawings
 - i) PVC modulus of elasticity (E) = 400,000 psi
 - j) Moment of inertia of pipe wall per unit length, (I) = t³/12, (in⁴/in), per pipe type and size
 - (1) Where (t) = pipe thickness, inches
 - k) Maximum Calculated Deflection = 5 percent
- h. Pipe Flotation: If the pipe is buried in common saturated soil (about 120 pounds per cubic foot) with at least 1½ pipe diameters of cover, pipe is generally not subject to flotation. If shallower, check groundwater flotation potential. Flotation will occur if:

$$F_b > W_p + W_f + W_d$$

Where:

- F_b = buoyant force, pound per foot
- W_p = empty pipe weight, pound per foot
- W_f = weight of flooded soil, pound per foot
- W_d = weight of dry soil, pound per foot

Values and formulas for the above variables can be obtained from the pipe manufacturer and site specific soil conditions.

- i. Verify trench depths after existing utilities are located.
 - j. Accommodate vertical alignment changes required because of existing utility or other conflicts by an appropriate change in pipe design depth.
 - k. In no case shall pipe be installed deeper than its design allows.
2. Minimum pipe stiffness of 46 psi at 5 percent deflection when test in accordance with ASTM D2412.
 3. Pipe markings
 - a. Meet the minimum requirements of ASTM D3034 and ASTM F679.
 - b. Minimum pipe markings shall be as follows:
 - 1) Manufacturer's Name or Trademark and production record
 - 2) Nominal pipe size
 - 3) PVC cell classification
 - 4) ASTM or Standard Dimension Ratio (SDR) designation
 - 5) Seal of testing agency that verified the suitability of the pipe
 4. Joints
 - a. Joints shall be gasket, bell and spigot, push-on type conforming to ASTM D3212.
 - b. Since each pipe manufacturer has a different design for push-on joints; gaskets shall be part of a complete pipe section and purchased as such.

- 1 5. Connections
- 2 a. Only use manufactured fittings.
- 3 b. See Section 33 31 50.
- 4 6. Detectable Metallic Tape
- 5 a. See Section 33 05 26.

6 **2.3 ACCESSORIES [NOT USED]**

7 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

8 **PART 3 - EXECUTION**

9 **3.1 INSTALLERS [NOT USED]**

10 **3.2 EXAMINATION [NOT USED]**

11 **3.3 PREPARATION [NOT USED]**

12 **3.4 INSTALLATION**

13 A. General

- 14 1. Install pipe, specials and appurtenances as specified herein, as specified in
- 15 NCTCOG 5th Edition Specifications and the Drawings, and in accordance with the
- 16 pipe manufacturer's recommendations.
- 17 2. Lay pipe to the lines and grades as indicated in the Drawings.
- 18 3. Excavate and backfill trenches in accordance with NCTCOG 5th Edition
- 19 Specifications and the Drawings.
- 20 4. Embed PVC pipe in accordance with NCTCOG 5th Edition Specifications and the
- 21 Drawings.

22 B. Pipe Handling

- 23 1. Haul and distribute pipe and fittings at the project site.
- 24 2. Handle piping with care to avoid damage.
- 25 a. Inspect each joint of pipe and reject or repair any damaged pipe prior to
- 26 lowering into the trench.
- 27 b. Use only nylon ropes, slings or other lifting devices that will not damage the
- 28 surface of the pipe for handling the pipe.
- 29 3. At the close of each operating day:
- 30 a. Keep the pipe clean and free of debris, dirt, animals and trash – during and after
- 31 the laying operation.
- 32 b. Effectively seal the open end of the pipe using a gasketed night cap.

33 C. Pipe Joint Installation

- 34 a. Clean dirt and foreign material from the gasketed socket and the spigot end.
- 35 b. Assemble pipe joint by sliding the lubricated spigot end into the gasketed bell
- 36 end to the reference mark.
- 37 c. Install such that identification marking on each joint are oriented upward toward
- 38 the trench opening.
- 39 d. When making connection to manhole, use an elastomeric seal or flexible boot to
- 40 facilitate a seal.

1 D. Connection Installation

2 1. See Section 33 31 50.

3 E. Detectable Metallic Tape Installation

4 1. See Section 33 05 26.

5 **3.5 REPAIR / RESTORATION [NOT USED]**

6 **3.6 RE-INSTALLATION [NOT USED]**

7 **3.7 FIELD [or] SITE QUALITY CONTROL**

8 A. Field Tests and Inspections

9 1. Video Inspection

10 a. Provide a Post-CCTV inspection in accordance with Section 33 01 31.

11 2. Air Test and Deflection (Mandrel) Test

12 a. Perform in accordance with Section 33 01 30.

13 **3.8 SYSTEM STARTUP [NOT USED]**

14 **3.9 ADJUSTING [NOT USED]**

15 **3.10 CLEANING [NOT USED]**

16 **3.11 CLOSEOUT ACTIVITIES [NOT USED]**

17 **3.12 PROTECTION [NOT USED]**

18 **3.13 MAINTENANCE [NOT USED]**

19 **3.14 ATTACHMENTS [NOT USED]**

20 **END OF SECTION**

1 SECTION 33 31 50
2 SANITARY SEWER SERVICE CONNECTIONS AND SERVICE LINE

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

- 6 1. Sanitary sewer service connection, service line and 2-way cleanout from the
7 main to the right-of-way, as shown on the Drawings, directed by the Engineer
8 and specified herein for:
- 9 a. New Service
 - 10 b. New Service (Bored)
 - 11 c. Private Service Relocation
 - 12 d. Service Reinstatement

13 B. Related Specification Sections include, but are not necessarily limited to:

- 14 1. Section I – Bidding and Contractual Documents
- 15 2. NCTCOG 5th Edition Specifications
- 16 3. Section 33 11 11 – Ductile Iron Fittings
- 17 4. Section 33 31 20 – Polyvinyl Chloride (PVC) Gravity Sanitary Sewer Pipe

18 1.2 PRICE AND PAYMENT PROCEDURES

19 A. Measurement and Payment

- 20 1. New Sewer Service
 - 21 a. Measurement
 - 22 1) Measurement for this Item shall be per each "Sewer Service" complete
23 in place.
 - 24 b. Payment

- 1 1) The work performed and materials furnished in accordance with this
2 Item will be paid for at the unit price bid per each "Sewer Service"
3 installed for:
- 4 a) Various sizes
- 5 c. The price bid shall include:
- 6 1) Furnishing and installing New Sanitary Sewer Service Line as specified
7 by the Drawings
- 8 2) Pavement removal
- 9 3) Excavation
- 10 4) Hauling
- 11 5) Disposal of excess material
- 12 6) Tee connection to main
- 13 7) Fittings
- 14 8) 2-way cleanout and cap with concrete pad
- 15 9) Surface restoration, excluding grass (seeding, sodding or hydro-mulch
16 paid separately)
- 17 10) Furnishing, placing and compaction of embedment
- 18 11) Furnishing, placing and compaction of backfill
- 19 12) Clean-up
- 20 13) Clean-up
- 21 2. Private Service Relocation
- 22 a. Measurement
- 23 1) Measured horizontally along the surface from center line to center line
24 of the fitting, manhole or appurtenance
- 25 b. Payment
- 26 1) The work performed and the materials furnished in accordance with
27 this Item and measured as provided under "Measurement" will be paid
28 for at the unit price bid per linear foot for "Private Sewer Service"
29 installed for:

- 1 a) Various sizes
- 2 b) Various materials
- 3 c. The price shall include:
 - 4 1) Obtaining appropriate Permit
 - 5 2) Obtaining Right of Entry
 - 6 3) Performing relocation as specified in the Drawings
 - 7 4) Excavation
 - 8 5) Hauling
 - 9 6) Disposal of excess material
 - 10 7) Service Line - private side by plumber
 - 11 8) Fittings
 - 12 9) Furnishing, placing and compaction of embedment
 - 13 10) Furnishing, placing and compaction of backfill
 - 14 11) Clean-up – surface restoration, excluding grass (seeding, sodding or
 - 15 hydro-mulch paid separately)
- 16 3. Sewer Service Reconnection
 - 17 a. Measurement
 - 18 1) Measurement for this Item shall be per each "Sewer Service
 - 19 Reconnection" complete in place from public service line connection
 - 20 to private service line connection.
 - 21 b. Payment
 - 22 1) The work performed in conjunction with the relocation of a sewer
 - 23 service, associated with private service line, fittings and cleanout 5
 - 24 feet or less in any direction from the centerline of the existing service
 - 25 line and the materials furnished in accordance with this Item will be
 - 26 paid for at the unit price per each "Sewer Service, Reconnection"
 - 27 performed for:
 - 28 a) Various service sizes
 - 29 c. The price bid shall include:

- 1) Private service line
 - 2) Fittings
 - 3) Private connection to sewer service
 - 4) Pavement removal
 - 5) Excavation
 - 6) Hauling
 - 7) Disposal of excess material
 - 8) Surface restoration, excluding grass (seeding, sodding or hydro-mulch paid separately)
 - 9)
 - 10)
 - 11) Clean-up
4. Service Reinstatement
- a. Measurement
 - 1) Measurement for this Item shall be per each Reinstatement of Service associated with the sewer main being rehabilitated by a trenchless method.
 - b. Payment
 - 1) The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid per each "Sewer Service, Reinstatement" for:
 - a) Various sizes
 - c. The price bid shall include:
 - 1) Tap to existing main (if required)
 - 2) Pavement removal
 - 3) Excavation
 - 4) Hauling
 - 5) Disposal of excess material

- 1 6) Tee connection to main
- 2 7) Service line (if required)
- 3 8) Fittings
- 4 9) Furnishing, placing and compaction of embedment and backfill
- 5 10) Clean-up – surface restoration, excluding grass (seeding, sodding or
- 6 hydro-mulch paid separately)references

7 B. Definitions

8 1. New Service

- 9 a. New service applies to the installation of a service with connection to a
- 10 new or existing sewer main.
- 11 b. The service materials would include service line, fittings and cleanout.

12 2. Bored Service

- 13 a. Bored service applies to the installation of a service with connection to a
- 14 new or existing sewer main including a bore under an existing road.
- 15 b. The service materials would include service line, fittings and cleanout.

16 3. Private Service Relocation

- 17 a. Private service relocation applies to the replacement of the existing sewer
- 18 service line on private property typically associated with the relocation of
- 19 the existing main.
- 20 b. Typical main relocation will be from a rear lot easement or alley to the
- 21 street.

22 4. Service Reinstatement

- 23 a. Service reinstatement applies to the reconnection of an existing service to
- 24 an existing main that has been rehabilitated by trenchless methods such
- 25 as pipe enlargement (pipe bursting), slip lining or CIPP.

26 C. Reference Standards

- 27 1. Reference standards cited in this Specification refer to the current reference
- 28 standard published at the time of the latest revision date logged at the end of
- 29 this Specification, unless a date is specifically cited.

- 1 2. NCTCOG 5th Edition Specifications
- 2 3. ASTM International (ASTM):
- 3 a. ASTM D3034 Standard Specification for Type PSM Poly (Vinyl Chloride)
- 4 (PVC) Sewer Pipe and Fittings
- 5 b. ASTM D1785 Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic
- 6 Pipe, Schedules 40, 80 and 120.
- 7 c. ASTM D2321 Standard Practice for Underground Installation of
- 8 Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
- 9 d. ASTM D2412 Standard Test Method for Determination of External Loading
- 10 Characteristics of Plastic Pipe by Parallel-Plate Loading
- 11 e. ASTM D3212 Standard Specification for Joints for Drain and Sewer Plastic
- 12 Pipes Using Flexible Elastomeric Seals
- 13 4. Texas Commission on Environmental Quality
- 14 a. Title 30, Part I, Chapter 217, Subchapter C, Rule 217.54 – Criteria for Laying
- 15 Pipe and Rule
- 16 b. Title 30, Part I, Chapter 217, Subchapter C, 217.55 – Manholes and Related
- 17 Structures

18 1.3 ADMINISTRATIVE REQUIREMENTS

19 A. Scheduling

- 20 1. Provide advance notice for service interruption to property owner and meet
- 21 requirements of the General Conditions.

22 1.4 SUBMITTALS

- 23 A. Submittals shall be in accordance with the General Conditions.
- 24 B. All submittals shall be approved by the City prior to delivery.

25 1.5 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

26 A. Product data shall include, if applicable:

- 27 1. Tee connection or saddle

1 2. Fittings (including type of cleanout)

2 3. Service line

3 B. Certificates

4 1. Furnish an affidavit certifying that service line and fittings meet the provisions
5 of this Section.

6 1.6 CLOSEOUT SUBMITTALS [NOT USED]

7 1.7 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]

8 1.8 QUALITY ASSURANCE [NOT USED]

9 1.9 DELIVERY, STORAGE, AND HANDLING

10 A. Storage and Handling Requirements

11 1. Gravity pipe shall be stored and handled in accordance with the
12 manufacturer's guidelines.

13 2. Protect all parts such that no damage or deterioration will occur during a
14 prolonged delay from the time of shipment until installation is completed and
15 the units and equipment are ready for operation.

16 3. Protect all equipment and parts against any damage during a prolonged period
17 at the site.

18 4. Prevent plastic and similar brittle items from being directly exposed to sunlight
19 or extremes in temperature.

20 5. Secure and maintain a location to store the material in accordance with the
21 General Conditions

1 1.10 FIELD [SITE] CONDITIONS [NOT USED]

2 1.11 WARRANTY [NOT USED]

3 PART 2 - PRODUCTS

4 2.1 OWNER-FURNISHED [NOT USED]

5 2.2 EQUIPMENT, PRODUCT TYPES, MATERIALS

6 A. Manufacturers

7 1. The manufacturer must comply with this Specification and related Sections.

8 2. The services and appurtenances shall be new and the product of a
9 manufacturer regularly engaged in the manufacturing of services and
10 appurtenances having similar service and size.

11 B. Materials/Design Criteria

12 1. Service Line and Fittings (including tee connections)

13 a. PVC pipe and fittings on public property shall be in accordance with
14 Section 33 31 20.

15 b. PVC pipe and fittings on private property shall be Schedule 40 in
16 accordance with ASTM D1785.

17 c. Ductile iron fittings shall be coated with ceramic epoxy in accordance with
18 Section 33 11 11.

19 2. Service saddle

20 a. Service saddles shall only be allowed when connecting a new service to an
21 existing sanitary sewer main and shall:

22 1) Be a 1-piece prefabricated saddle, either polyethylene or PVC, with
23 neoprene gasket for seal against main

24 2) Use saddle to fit outside diameter of main

25 3) Use saddle with grooves to retain band clamps

26 4) Use at least 2 stainless steel band clamps for securing saddles to the
27 main

28 b. Inserta tees service connections may not be used.

- 1 3. Cleanout
- 2 a. Cleanout stack material should be in accordance with City Standard
- 3 Details or as shown on Drawings.
- 4 b. For paved areas, provide a cast iron cleanout and cast iron lid.
- 5 c. For unpaved areas, provide PVC cleanout and polyethylene lid.
- 6 4. Coupling
- 7 a. For connections between new PVC pipe stub out and existing service line,
- 8 use rubber sleeve couplings with stainless steel double-band repair
- 9 sleeves to connect to the line.
- 10 2.3 ACCESSORIES [NOT USED]
- 11 2.4 SOURCE QUALITY CONTROL [NOT USED]
- 12 PART 3 - EXECUTION [NOT USED]
- 13 3.1 INSTALLERS
- 14 A. A licensed plumber is required for installations of the service line on private
- 15 property.
- 16 3.2 EXAMINATION [NOT USED]
- 17 3.3 PREPARATION [NOT USED]
- 18 3.4 INSTALLATION
- 19 A. General
- 20 1. Install service line, fittings and cleanout as specified herein, as specified in
- 21 NCTCOG 5th Edition Specifications and the Drawings and in accordance with
- 22 the pipe manufacturer's recommendations.
- 23 B. Handling
- 24 1. Haul and distribute service lines, fittings and cleanouts at the project site and
- 25 handle with care to avoid damage.
- 26 a. Inspect each segment of service line and reject or repair any damaged
- 27 pipe prior to lowering into the trench.

- 1 2. Do not handle the pipe in such a way that will damage the pipe.
- 2 C. Service Line
- 3 1. Lay service line at a minimum grade of 2 percent, as shown on City Standard
4 details, or at lines and grades as indicated in the Drawings.
- 5 2. If service line is installed by bore as an alternative to open cut, the cost
6 associated with open cut installation, such as pavement removal, trenching,
7 embedment and backfill and pavement patch will not be included as part of
8 the bore installation.
- 9 3. Excavate and backfill trenches in accordance with NCTCOG 5th Edition
10 Specifications and the Drawings.
- 11 4. Embed PVC Pipe in accordance with NCTCOG 5th Edition Specifications and
12 the Drawings.
- 13 D. Cleanout
- 14 1. Install out of traffic areas such as driveways, streets and sidewalks whenever
15 possible.
- 16 a. When not possible, install cast iron cleanout stack and cap.
- 17 2. Install 2-way cleanout in non-paved areas in accordance with City Standard
18 Details.
- 19 3. Install 2-way cleanout in paved areas in accordance with City Standard
20 Details.
- 21 E. Service line connection to main
- 22 1. New service on new or replacement main
- 23 a. Determine location of service connections before main installation so the
24 service fittings can be installed during main installation.
- 25 b. Connect service line to main with a molded or fabricated tee fitting.
- 26 2. Reconnection to main after pipe enlargement
- 27 a. Tapping the existing main and installing a strap on tee connection may be
28 used.

- 1 b. Allow the new main to recover from imposed stretch before tapping and
2 service installation.
- 3 1) Follow manufacturer's recommendation for the length of time needed.
- 4 c. Tap main at 45 degree angle to horizontal when possible.
- 5 1) Avoid tapping the top of main.
- 6 d. Extend service line from main to property line or easement line before
7 connecting to the existing service line.
- 8 3. New service on existing main
- 9 a. Connect service line to main with a molded or fabricated tee fitting if
10 possible.
- 11 b. Tapping the existing main and installing a strap on tee connection may be
12 used.

13 F. Private Service Relocation

- 14 1. Requirements for the relocation of service line on private property
- 15 a. A licensed plumber must be used to install service line on private property.
- 16 b. Obtain permit from the Development Department for work on private
17 property.
- 18 c. Pay for any inspection or permit fees associated with work on private
19 property.
- 20 d. Verify (by Exploratory Excavation of Existing Utilities) the elevations at the
21 building cleanout and compare to data on the Drawings before beginning
22 service installation.
- 23 e. Submit elevation information to the City inspector.
- 24 f. Verify that the 2 percent slope installation requirement can be met.
- 25 1) If the 2 percent slope cannot be met, verify with the Engineer that line
26 may be installed at the lesser slope.

27 3.5 REPAIR / RESTORATION [NOT USED]

28 3.6 RE-INSTALLATION

29 A. Service Relocation

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SECTION 33 39 10
CAST-IN-PLACE CONCRETE MANHOLE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sanitary Sewer Cast-in-Place Concrete Manholes
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Section I – Bidding and Contractual Documents
 - 2. NCTCOG 5th Edition Specifications
 - 3. Section 33 01 30 – Sewer and Manhole Testing
 - 4. Section 33 05 13 – Frame, Cover, and Grade Rings
 - 5. Section 33 39 60 – Epoxy Liners for Sanitary Sewer Structures

1.2 PRICE AND PAYMENT PROCEDURES

- A. Measurement and Payment
 - 1. Manhole
 - a. Measurement
 - 1) Measurement for this Item shall be per each.
 - b. Payment
 - 1) The work performed and the materials furnished in accordance with this Item shall be paid for at the unit price bid per each “Manhole” installed for:
 - a) Various sizes
 - b) Various types
 - c. The price bid will include:
 - 1) Manhole structure complete in place
 - 2) Excavation
 - 3) Forms
 - 4) Concrete
 - 5) Backfill
 - 6) Foundation
 - 7) Drop pipe
 - 8) Stubs
 - 9) Frame
 - 10) Cover
 - 11) Grade rings
 - 12) Pipe connections
 - 13) Pavement removal
 - 14) Hauling
 - 15) Disposal of excess material
 - 16) Placement and compaction of backfill
 - 17) Clean-up

1 **1.3 REFERENCES**

2 A. Definitions

- 3 1. Manhole Type
4 a. Standard Manhole (See City Standard Details)
5 b. Standard Drop Manhole (See City Standard Details)
6 1) Same as Standard Manhole with external drop connection (s)
7 2. Manhole Size
8 a. 4 foot diameter
9 1) Used up to 12-feet depth
10 b. 5 foot diameter
11 1) Used 12-feet and deeper

12 B. Reference Standards

- 13 1. Reference standards cited in this Specification refer to the current reference
14 standard published at the time of the latest revision date logged at the end of this
15 Specification, unless a date is specifically cited.
16 2. NCTCOG 5th Edition Specifications
17 3. ASTM International (ASTM):
18 a. D4258, Standard Practice for Surface Cleaning Concrete for Coating.
19 b. D4259, Standard Practice for Abrading Concrete.

20 **1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]**

21 **1.5 SUBMITTALS**

- 22 A. Submittals shall be in accordance with the General Conditions.
23 B. All submittals shall be approved by the City prior to delivery.

24 **1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS**

25 A. Product Data

- 26 1. Drop connection materials
27 2. Pipe connections at manhole walls
28 3. Stubs and stub plugs
29 4. Admixtures
30 5. Concrete Mix Design

1 **1.7 CLOSEOUT SUBMITTALS [NOT USED]**

2 **1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]**

3 **1.9 QUALITY ASSURANCE [NOT USED]**

4 **1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]**

5 **1.11 FIELD [SITE] CONDITIONS [NOT USED]**

6 **1.12 WARRANTY [NOT USED]**

7 **PART 2 - PRODUCTS**

8 **2.1 OWNER-FURNISHED [or] OWNER-SUPPLIED PRODUCTS [NOT USED]**

9 **2.2 EQUIPMENT, PRODUCT TYPES, MATERIALS**

10 A. Manufacturers

- 11 1. The manufacturer must comply with this Specification and related Sections.

12 B. Materials

- 13 1. Concrete – Conform to NCTCOG 5th Edition Specifications
14 2. Reinforcing Steel – Conform to NCTCOG 5th Edition Specifications
15 3. Frame and Cover – Conform to Section 33 05 13.
16 4. Grade Ring – Conform to Section 33 05 13.
17 5. Pipe Connections
18 a. Pipe connections can be premolded pipe adapter, flexible locked-in boot
19 adapter, or integrally cast gasket channel and gasket.
20 6. Interior Coating or Liner – Conform to Section 33 39 60, if required.
21 7. Exterior Coating
22 a. Use Coal Tar Bitumastic for below grade damp proofing.
23 b. Dry film thickness shall be no less than 12 mils and no greater than 30 mils.
24 c. Solids content is 68 percent by volume ± 2 percent.

25 **2.3 ACCESSORIES [NOT USED]**

26 **2.4 SOURCE QUALITY CONTROL [NOT USED]**

27 **PART 3 - EXECUTION**

28 **3.1 INSTALLERS [NOT USED]**

29 **3.2 EXAMINATION**

30 A. Evaluation and Assessment

- 31 1. Verify lines and grades are in accordance to the Drawings.

32 **3.3 PREPARATION**

33 A. Foundation Preparation

- 34 1. Excavate 8 inches below manhole foundation.

- 1 2. Replace excavated soil with course aggregate, creating a stable base for the
- 2 manhole construction.
- 3 a. If soil conditions or ground water prevent use of course aggregate base a 2-inch
- 4 mud slab may be substituted.

5 **3.4 INSTALLATION**

6 **A. Manhole**

- 7 1. Construct manhole to dimensions shown on Drawings.
- 8 2. Cast manhole foundation and wall monolithically.
- 9 a. A cold joint with water stop is allowed when the manhole depth exceeds 12
- 10 feet.
- 11 b. No other joints are allowed unless shown on Drawings.
- 12 3. Place, finish and cure concrete according to NCTCOG 5th Edition Specifications.
- 13 a. Manholes must cure 3 days before backfilling around structure.

14 **B. Pipe connection at Manhole**

- 15 1. Do not construct joints of sewer pipe within wall sections of manhole.

16 **C. Invert**

- 17 1. Construct invert channels to provide a smooth waterway with no disruption of flow
- 18 at pipe-manhole connections.
- 19 2. For direction changes of mains, construct channels tangent to mains with maximum
- 20 possible radius of curvature.
- 21 a. Provide curves for side inlets.
- 22 3. Sewer pipe may be laid through the manhole and the top ½ of the pipe removed to
- 23 facilitate manhole construction.
- 24 4. For all standard manholes provide full depth invert.
- 25 5. For example, if 8-inch pipe is connected to manhole, construct the invert to full 8
- 26 inches in depth.

27 **D. Drop Manhole Connection**

- 28 1. Install drop connection when sewer line enters manhole higher than 24 inches
- 29 above the invert.

30 **E. Final Rim Elevation**

- 31 1. Install concrete grade rings for height adjustment.
- 32 a. Construct grade ring on load bearing shoulder of manhole.
- 33 b. Use sealant between rings as shown on Drawings.
- 34 2. Set frame on top of manhole or grade rings using continuous water sealant.
- 35 3. Remove debris, stones and dirt to ensure a watertight seal.
- 36 4. Do not use steel shims, wood, stones or other unspecified material to obtain the
- 37 final surface elevation of the manhole frame.

38 **F. Internal coating**

- 39 1. Internal coating application will conform to Section 33 39 60, if required by
- 40 Drawings.

41 **G. External coating**

- 42 1. Remove dirt, dust, oil and other contaminants that could interfere with adhesion of
- 43 the coating.

1 SECTION 33 39 20
2 PRECAST CONCRETE MANHOLE

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

- 6 1. Sanitary Sewer, Water Appurtenance, or Reclaimed Water Appurtenance
7 Precast Concrete Manholes

8 B. Related Specification Sections include, but are not necessarily limited to:

- 9 1. Section I – Bidding and Contractual Documents
10 2. NCTCOG 5th Edition Specifications
11 3. Section 33 01 30 – Sewer and Manhole Testing
12 4. Section 33 05 13 – Frame, Cover, and Grade Rings
13 5. Section 33 39 60 – Epoxy Liners for Sanitary Sewer Structures

14 1.2 PRICE AND PAYMENT PROCEDURES

15 A. Measurement and Payment

16 1. Manhole

17 a. Measurement

- 18 1) Measurement for this Item shall be per each concrete manhole
19 installed.

20 b. Payment

- 21 1) The work performed and the materials furnished in accordance with
22 this Item shall be paid for at the unit price bid per each “Manhole”
23 installed for:

- 24 a) Various sizes
25 b) Various types

- 1 c. The price bid will include:
- 2 1) Manhole structure complete in place
- 3 2) Excavation
- 4 3) Forms
- 5 4) Reinforcing steel (if required)
- 6 5) Concrete
- 7 6) Backfill
- 8 7) Foundation
- 9 8) Drop pipe
- 10 9) Stubs
- 11 10) Frame
- 12 11) Cover
- 13 12) Grade rings
- 14 13) Pipe connections
- 15 14) Pavement removal
- 16 15) Hauling
- 17 16) Disposal of excess material
- 18 17) Placement and compaction of backfill
- 19 18) Clean-up

20 1.3 REFERENCES

21 A. Definitions

22 1. Manhole Type

23 a. Standard Manhole (See City Standard Details)

24 b. Standard Drop Manhole (See City Standard Details)

25 1) Same as Standard Manhole with external drop connection (s)

26 2. Manhole Size

- 1 a. 4 foot diameter
- 2 1) Used up to 12-feet depth
- 3 b. 5 foot diameter
- 4 1) Used 12-feet and deeper
- 5 B. Reference Standards
- 6 1. Reference standards cited in this Specification refer to the current reference
- 7 standard published at the time of the latest revision date logged at the end of
- 8 this Specification, unless a date is specifically cited.
- 9 2. NCTCOG 5th Edition Specifications
- 10 3. ASTM International (ASTM):
- 11 a. C443, Standard Specification for Joint for Concrete Pipe and Manholes,
- 12 Using Rubber Gaskets
- 13 b. C478, Standard Specification for Precast Reinforced Concrete Manhole
- 14 Sections.
- 15 c. C923, Standard Specification for Resilient Connectors Between
- 16 Reinforced Concrete Manholes Structures, Pipes, and Laterals.
- 17 d. D1187, Standard Specification for Asphalt-Base Emulsion for Use as
- 18 Protective Coatings for Metal
- 19 e. D1227, Standard Specification for Emulsified Asphalt Used as a Protective
- 20 Coating for Roofing

21 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

22 1.5 SUBMITTALS

- 23 A. Submittals shall be in accordance with the General Conditions.
- 24 B. All submittals shall be approved by the City prior to delivery.

25 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

26 A. Product Data

- 27 1. Precast Concrete Manhole

- 1 2. Drop connection materials
- 2 3. Pipe connections at manhole walls
- 3 4. Stubs and stub plugs
- 4 5. Admixtures
- 5 6. Concrete Mix Design

- 6 1.7 CLOSEOUT SUBMITTALS [NOT USED]
- 7 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]
- 8 1.9 QUALITY ASSURANCE [NOT USED]
- 9 1.10 DELIVERY, STORAGE, AND HANDLING [NOT USED]
- 10 1.11 FIELD [SITE] CONDITIONS [NOT USED]
- 11 1.12 WARRANTY
- 12 A. Manufacturer Warranty
- 13 1. Manufacturer's Warranty shall be in accordance with the General Conditions.

- 14 PART 2 - PRODUCTS

- 15 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]
- 16 2.2 EQUIPMENT, PRODUCT TYPES, AND MATERIALS
- 17 A. Manufacturers
- 18 1. The manufacturer must comply with this Specification and related Sections.

- 19 B. Materials
- 20 1. Precast Reinforced Concrete Sections – Conform to ASTM C478.
- 21 2. Precast Joints
- 22 a. Provide gasketed joints in accordance with ASTM C443.
- 23 b. Minimize number of segments.
- 24 c. Use long joints at the bottom and shorter joints toward the top.

- 1 d. Include manufacturer's stamp on each section.
- 2 3. Lifting Devices
- 3 a. Manhole sections and cones may be furnished with lift lugs or lift holes.
- 4 1) If lift lugs are provided, place 180 degrees apart.
- 5 2) If lift holes are provided, place 180 degrees apart and grout during
- 6 manhole installation.
- 7 4. Frame and Cover – Conform to Section 33 05 13.
- 8 5. Grade Ring – Conform to Section 33 05 13 and ASTM C478.
- 9 6. Pipe Connections
- 10 a. Utilize either an integrally cast embedded pipe connector or a boot-type
- 11 connector installed in a circular block out opening conforming to ASTM
- 12 C923.
- 13 7. Steps
- 14 a. No steps are allowed.
- 15 8. Interior Coating or Liner – Conform to Section 33 39 60.
- 16 9. Exterior Coating
- 17 a. Coat with non-fibered asphaltic emulsion in accordance with ASTM D1187
- 18 Type I and ASTM D1227 Type III Class I.
- 19 2.3 ACCESSORIES [NOT USED]
- 20 2.4 SOURCE QUALITY CONTROL [NOT USED]
- 21 PART 3 - EXECUTION
- 22 3.1 INSTALLERS [NOT USED]
- 23 3.2 EXAMINATION
- 24 A. Evaluation and Assessment
- 25 1. Verify lines and grades are in accordance to the Drawings.

1 3.3 PREPARATION

2 A. Foundation Preparation

- 3 1. Excavate 8 inches below manhole foundation.
- 4 2. Replace excavated soil with course aggregate; creating a stable base for
5 manhole construction.
- 6 a. If soil conditions or ground water prevent use of course aggregate base a 2-
7 inch mud slab may be substituted.

8 3.4 INSTALLATION

9 A. Manhole

- 10 1. Construct manhole to dimensions shown on Drawings.
- 11 2. Precast Sections
- 12 a. Provide bell-and-spigot design incorporating a premolded joint sealing
13 compound for wastewater use.
- 14 b. Clean bell spigot and gaskets, lubricate and join.
- 15 c. Minimize number of segments.
- 16 d. Use long joints used at the bottom and shorter joints toward the top.
- 17 B. Invert
- 18 1. Construct invert channels to provide a smooth waterway with no disruption of
19 flow at pipe-manhole connections.
- 20 2. For direction changes of mains, construct channels tangent to mains with
21 maximum possible radius of curvature.
- 22 a. Provide curves for side inlets.
- 23 3. For all standard manholes provide full depth invert.
- 24 4. For example, if 8-inch pipe in connected to manhole construct the invert to full
25 8 inches in depth.
- 26 C. Drop Manhole Connection

- 1 1. Install drop connection when sewer line enters manhole higher than 24 inches
- 2 above the invert.

- 3 D. Final Rim Elevation

- 4 1. Install concrete grade rings for height adjustment.
- 5 a. Construct grade ring on load bearing shoulder of manhole.
- 6 b. Use sealant between rings as shown on Drawings.

- 7 2. Set frame on top of manhole or grade rings using continuous water sealant.

- 8 3. Remove debris, stones and dirt to ensure a watertight seal.

- 9 4. Do not use steel shims, wood, stones or other unspecified material to obtain
- 10 the final surface elevation of the manhole frame.

- 11 E. Internal coating

- 12 1. Internal coating application will conform to Section 33 39 60, if required by
- 13 Drawings.

- 14 F. External coating

- 15 1. Remove dirt, dust, oil and other contaminants that could interfere with
- 16 adhesion of the coating.

- 17 2. Cure manhole for 3 days before backfilling around the structure.

- 18 3. Application will follow manufacturer's recommendation.

- 19 G. Modifications and Pipe Penetrations

- 20 1. Conform to NCTCOG 5th Editions Specifications.

- 21 3.5 REPAIR / RESTORATION [NOT USED]
- 22 3.6 RE-INSTALLATION [NOT USED]
- 23 3.7 FIELD QUALITY CONTROL

- 24 A. Field Tests and Inspections

- 25 1. Perform vacuum test in accordance with Section 33 01 30.

1 3.8 SYSTEM STARTUP [NOT USED]

2 3.9 ADJUSTING [NOT USED]

3 3.10 CLEANING [NOT USED]

4 3.11 CLOSEOUT ACTIVITIES [NOT USED]

5 3.12 PROTECTION [NOT USED]

6 3.13 MAINTENANCE [NOT USED]

7 3.14 ATTACHMENTS [NOT USED]

8 END OF SECTION

9

1 SECTION 33 39 60
2 LINERS FOR SANITARY SEWER STRUCTURES

3 PART 1 - GENERAL

4 1.1 SUMMARY

5 A. Section Includes:

- 6 1. Application of a high-build epoxy coating system (or modified polymer liner
7 system, i.e. SpectraShield) to concrete utility structures such as manholes, lift
8 station wet wells, junction boxes or other concrete facilities that may need
9 protection from corrosive materials. This covers rehabilitation of existing
10 sanitary sewer structures and newly installed sanitary sewer structures.
- 11 2. For sanitary sewer mains 8-inch diameter and larger, use of a structural liner
12 system, Warren Environmental System 301, ARC S1HB by A.W. Chesterton
13 Company, is acceptable.
- 14 3. For sanitary sewer mains 8-inch diameter and smaller, and less than 6-feet in
15 depth, use of a liner system, SpectraShield, is acceptable.

16 B. Related Specification Sections include but are not necessarily limited to:

- 17 1. Section I – Bidding and Contractual Documents
- 18 2. NCTCOG 5th Edition Specifications
- 19 3. Section 33 01 30 – Sewer and Manhole Testing

20 1.2 PRICE AND PAYMENT PROCEDURES

21 A. Measurement and Payment

22 1. Manholes

23 a. Measurement

- 24 1) Measurement for this Item shall be per vertical foot of coating as
25 measured from 2-inches below the bottom of the removable cover (not
26 frame) to the top of the bench. This includes lining of all exposed
27 concrete, the bench and invert, thru the use of flow control devices (i.e.
28 temporary plugs, sand bags), to temporarily block flow. However, as a

1 last resort and with prior written approval from the City, if the flow
2 cannot be blocked temporarily, then the lining would stop 3-inches
3 from the edge of the water in the pipe. This item covers the total
4 vertical footage for the specific bid items of various manhole sizes (i.e.
5 4 foot diameter, 5 foot diameter) and specific types (Standard
6 Manhole, Drop Manhole).

7 b. Payment

8 1) The work performed, and materials furnished in accordance with this
9 Item and measured as provided under "Measurement" will be paid for
10 at the unit price bid per vertical foot of "Manhole Liner" applied.

11 c. The price bid shall include:

- 12 1) Removal of roots
- 13 2) Removal of existing coatings
- 14 3) Eliminating any leaks
- 15 4) Removal of steps
- 16 5) Repair/seal connection of the existing frame to chimney
- 17 6) Repairs of any cracks in the existing structure chimney, corbel (cone),
18 wall, bench, including any replacement of damaged rebar, pipe
- 19 7) Surface cleaning
- 20 8) Furnishing and installing Liner as specified by the Drawings
- 21 9) Hauling
- 22 10) Disposal of excess material
- 23 11) Site Clean-up
- 24 12) Manhole and Invert Cleaning
- 25 13) Testing
- 26 14) Re-Testing

27 2. Non-Manhole Structures

28 a. Measurement

29 1) Measurement for this Item shall be per square foot of area where the
30 coating is applied.

- 1 b. Payment
- 2 1) The work performed, and materials furnished in accordance with this
- 3 Item and measured as provided under "Measurement" shall be paid for
- 4 at the unit price bid per square foot of "Structure Liner" applied.
- 5 c. The price bid shall include:
- 6 1) Removal of roots
- 7 2) Removal of existing coatings
- 8 3) Eliminating any leaks
- 9 4) Removal of steps
- 10 5) Repair/seal connection of the existing frame to chimney
- 11 6) Repairs of any cracks in the existing structure chimney, corbel (cone),
- 12 wall, bench, including any replacement of damaged rebar, pipe
- 13 7) Surface cleaning
- 14 8) Furnishing and installing Liner as specified by the Drawings
- 15 9) Hauling
- 16 10) Disposal of excess material
- 17 11) Site Clean-up
- 18 12) Manhole and Invert Cleaning
- 19 13) Testing
- 20 14) Re-Testing

21 1.3 REFERENCES

22 A. Reference Standards

- 23 1. Reference standards cited in this Specification refer to the current reference
- 24 standard published at the time of the latest revision date logged at the end of
- 25 this Specification, unless a date is specifically cited.
- 26 2. NCTCOG 5th Edition Specifications
- 27 3. ASTM International (ASTM):

- 1 a. D543, Standard Practices for Evaluating the Resistance of Plastics to
2 Chemical Reagents.
- 3 b. D638, Standard Test Method for Tensile Properties of Plastics.
- 4 c. D695, Standard Test Method for Compressive Properties of Rigid Plastics.
- 5 d. D790, Standard Test Methods for Flexural Properties of Unreinforced and
6 Reinforced Plastics and Electrical Insulating Materials.
- 7 e. D4060, Standard Test Method for Abrasion Resistance of Organic Coatings
8 by the Taber Abraser.
- 9 f. D4414, Standard Practice for Measurement of Wet Film Thickness by
10 Notch Gages.
- 11 g. D7234, Stand Test Method for Pull-Off Adhesion strength of Coatings on
12 Concrete Using Portable Pull-Off Adhesion Testers.
- 13 4. Environmental Protection Agency (EPA).
- 14 5. NACE International (NACE). Published standards from the National
15 Association of Corrosion Engineers
- 16 6. Occupational Safety and Health Administration (OSHA). Employ a trench
17 safety system in accordance with Section
- 18 7. Resource Conservation and Recovery Act, (RCRA).
- 19 8. The Society for Protective Coatings/NACE International (SSPC/NACE):
20 a. SP 13/NACE No. 6, Surface Preparation of Concrete. This includes
21 monitoring for hydrogen sulfide, methane, or low oxygen. Also includes
22 flow control equipment. Surface preparation equipment may include high
23 pressure water cleaning (3500 psi) and shall be suited to provide a surface
24 compatible for installation of the liner system. Surface preparation shall
25 produce a clean, abraded, and sound surface, with no evidence of loose
26 concrete, loose brick, loose mortar, oil, grease, rust, scale, other
27 contaminants or debris, and shall display a surface profile suitable for
28 application of the liner system.
- 29 b. SP0188, Discontinuity (Holiday) Testing of New Protective Coatings on
30 Conductive Substrates

1 1.4 ADMINISTRATIVE REQUIREMENTS [NOT USED]

2 1.5 SUBMITTALS

3 A. Submittals shall be in accordance with the General Conditions.

4 B. All submittals shall be approved by the City prior to delivery.

5 1.6 ACTION SUBMITTALS/INFORMATIONAL SUBMITTALS

6 A. Product Data

7 1. Technical data sheet on each product used

8 2. Material Safety Data Sheet (MSDS) for each product used

9 3. Copies of independent testing performed on the coating product indicating the
10 product meets the requirements as specified herein

11 4. Technical data sheet and project specific data for repair materials to be
12 topcoated with the coating product including application, cure time and
13 surface preparation procedures

14 5. Material and method for repair of leaks or cracks in the structure. This applies
15 to repair work on both existing structures, manholes and new installed
16 manholes (including Developer projects) that have been identified with cracks,
17 voids, signs of infiltration, other structural defects or other related
18 construction damage.

19 B. Contractor Data

20 1. Current documentation from coating product manufacturer certifying
21 Contractor's training (and/or licensed) as an approved installer and equipment
22 complies with the Quality Assurance requirements specified herein

23 2. 5 recent references of Contractor indicating successful application of coating
24 product(s) of the same material type as specified herein, applied by spray
25 application within the municipal wastewater environment. References shall
26 include at least the following: owner name, City inspector name and phone
27 number, project name/number, size and linear footage of sanitary sewer main,
28 manhole diameter, structure dimensions and number of each, square feet (or
29 vertical feet) of product installed, contract cost, and contract duration.
30 Contractor must demonstrate a successful history of installing the product in

1 structures of similar size and scope and update this each time the contractor
2 applies for and renews its Prequalification for the Water Department.

3 3. This Specification (along with the CCTV Specification) and the associated
4 submittals including the work plan, QA/QC, testing, closeout documents, etc.
5 shall be discussed as part of the Pre-Construction Agenda for each project
6 (Developer projects included).

7 4. For any project - If the Contractor proceeds with application of an unapproved
8 lining product and/or using an unqualified subcontractor for lining, the City
9 shall recommend either repair and/or removal of any defective lining material
10 and have the Contractor select an approved subcontractor that can apply the
11 approved lining materials. This work shall be at no additional cost to the City.

12 5. Schedule and Sequence of Construction – Considering this is a specialized
13 installation performed by only certified applicators, the schedule for this work
14 has a lead time that shall be included in the Contractor’s schedule. If the
15 Contractor does not provide written notification and/or fails to schedule the
16 subcontractor in advance, the City shall not be responsible for any additional
17 costs and/or delays caused by the Contractor. Contractor shall provide the
18 updated construction schedule and work plan (including manhole
19 preparation, repairs, lining, testing, etc.) in accordance with the General
20 Conditions at least 1 week prior to start of lining activities to the City Inspector
21 and City Project Manager. Equipment shall be on-site and in working order for
22 the testing. If the Contractor is unable to have equipment ready for testing, the
23 test date shall be rescheduled accordingly with the Inspector. The updated
24 construction schedule shall clearly indicate all related construction activities
25 at the manholes before and after lining. All paving activities, including any final
26 grade adjustments for manholes outside pavement, shall be completed before
27 Contractor begins lining work. After liner installation, Contractor shall wait a
28 minimum of 48 hours to allow the liner material to fully cure before returning
29 the system to normal service. CCTV per Section 33 01 31 shall be scheduled
30 after the lining has been completed to document and confirm the manholes
31 have been lined.

32 1.7 CLOSEOUT SUBMITTALS

33 A. Testing Documentation

34 1. Provide test results required in Section 2.4 and Section 3.7 to City.

35 a. Include the following manhole or structure location information:

- 1) Station number
 - 2) GIS ID number (if provided during construction).
 - b. Inspection report of each manhole/structure tested (See attached sample reports to be used for Wet Film Thickness, Manhole Holiday/Spark Detection, and Manhole Adhesion Test).
- 1.8 MAINTENANCE MATERIAL SUBMITTALS [NOT USED]
- 1.9 QUALITY ASSURANCE
- A. Qualifications
1. Contractor
 - a. Be trained by, or have training approved and certified by, the coating product manufacturer for the handling, mixing, application and inspection of the coating product(s) to be used as specified herein
 - b. Initiate and enforce quality control procedures consistent with the coating product(s) manufacturer recommendations and applicable NACE or SSPC standards as referenced herein
- 1.10 DELIVERY, STORAGE, AND HANDLING
- A. Keep materials dry, protected from weather and stored under cover.
 - B. Store coating materials between 50 degrees F and 90 degrees F.
 - C. Do not store near flame, heat or strong oxidants.
 - D. Handle coating materials according to their material safety data sheets.
- 1.11 FIELD [SITE] CONDITIONS
- A. Provide confined space entry, flow diversion and/or bypass plans as necessary to perform the specified work. Active flows shall be diverted with flow through plugs as required to ensure that flow is maintained off the surfaces to be lined.
- 1.12 WARRANTY
- A. Contractor Warranty
1. Contractor's Warranty shall be in accordance with the General Conditions.

1 PART 2 - PRODUCTS

2 2.1 OWNER-FURNISHED [OR] OWNER-SUPPLIED PRODUCTS [NOT USED]

3 2.2 EQUIPMENT, PRODUCT TYPES, MATERIALS

4 A. Repair and Resurfacing Products

- 5 1. Compatible with the specified coating product(s) in order to bond effectively,
6 thus forming a composite system
- 7 2. Used and applied in accordance with the manufacturer's recommendations
- 8 3. The repair and resurfacing products must meet the following:
- 9 a. 100 percent solids, solvent-free epoxy grout specifically formulated for
10 epoxy topcoating compatibility
- 11 b. Factory blended, rapid setting, high early strength, fiber reinforced, non-
12 shrink repair mortar that can be troweled or pneumatically spray applied
13 and specifically formulated to be suitable for topcoating with the specified
14 coating product used

15 B. Coating Product

- 16 1. Capable of being installed and curing properly within a manhole or concrete
17 utility environment
- 18 2. Resistant to all forms of chemical or bacteriological attack found in municipal
19 sanitary sewer systems; and, capable of adhering to typical manhole structure
20 substrates
- 21 3. The 100 percent solids, solvent-free ultra high-build epoxy system shall exhibit
22 the following characteristics:
- 23 a. Application Temperature – 50 degrees F, minimum
- 24 b. Thickness – 125 mils minimum for newly installed structures; 250 mils
25 minimum for rehabilitation of existing structures (Warren Environmental
26 System 301, ARC S1HB by A.W. Chesterton Company)
- 27 c. Color – White, Light Blue, or Beige
- 28 d. Compressive Strength (per ASTM D695) – 8,800 psi minimum
- 29 e. Tensile Strength (per ASTM D638) – 7,500 psi minimum

- 1 f. Hardness, Shore D (per ASTM D4541) – 70 minimum
- 2 g. Abrasion Resistance (per ASTM D4060 CS 17F Wheel) – 80 mg loss
- 3 maximum
- 4 h. Flexural Modulus (per ASTM D790) – 400,000 psi minimum
- 5 i. Flexural Strength (per ASTM D790) – 12,000 psi minimum
- 6 j. Adhesion to Concrete, mode of failure (ASTM D4541): Substrate (concrete)
- 7 failure
- 8 k. Chemical Resistance (per ASTM D543/G20) all types of service for:
- 9 1) Municipal sanitary sewer environment
- 10 2) Sulfuric acid, 70 percent
- 11 3) Sodium hydroxide, 20 percent
- 12 4. Or, the multi-layer modified polyurea and polyurethane shall exhibit the
- 13 following characteristics:
- 14 a. Application Temperature – 50 degrees F, minimum
- 15 b. Thickness – 500 mils minimum (SpectraShield)
- 16 c. Moisture Barrier and Final Corrosion Barrier
- 17 1) Color – Pink
- 18 2) Tensile Strength (per ASTM D412) – 2550 psi minimum
- 19 3) Hardness, Shore D (per ASTM D2240) – 56 minimum
- 20 4) Abrasion Resistance (per ASTM D4060) – 20 mg loss maximum
- 21 5) Percent Elongation (per ASTM D412) – 269
- 22 d. Surfacer
- 23 1) Compressive Strength (per ASTM D1621) – 100 psi minimum
- 24 2) Density (per ASTM D1622) – 5 lbs/cu ft minimum
- 25 3) Shear Strength (per ASTM C273) – 230 psi minimum
- 26 4) Closed Cell Content (per ASTM D1940) – >95%

27 C. Coating Application Equipment

- 1 1. Manufacturer approved heated plural component spray equipment
- 2 2. Hard to reach areas, primer application and touch-up may be performed using
- 3 hand tools.
- 4 3. Applicator shall use approved specialty equipment that is adequate in size,
- 5 capacity, and number sufficient to accomplish the work in a timely manner.

6 2.3 ACCESSORIES [NOT USED]

7 2.4 SOURCE QUALITY CONTROL

8 A. Coating Thickness Testing

- 9 1. Film Thickness Testing for epoxy systems
- 10 a. Take wet film thickness gauge measurements per ASTM D4414 – Standard
- 11 Practice for Measurement of Wet Film Thickness by Notch Gages at 3
- 12 locations within the manhole, 2 spaced equally apart along the wall and 1
- 13 on the bench.
- 14 1) Document and attest measurements and provide to the City using the
- 15 form at the end of this specification.
- 16 2. Thickness testing for modified polymer liner system
- 17 a. Upon installation of the Final Corrosion Barrier insert probe into substrate
- 18 for depth of system measurement at 3 locations within the manhole, 2
- 19 spaced equally apart along the wall and 1 on the bench.
- 20 3. Document all testing results and provide to the City using the form at the end
- 21 of this specification.

22 B. Non-Conforming Work

- 23 1. City reserves the right to require additional testing depending on the rate of
- 24 failure.
- 25 2. City will select testing locations.

26 C. Testing Frequency

- 27 1. Projects with 10 or less manholes and/or structures test all.

1 2. Projects with greater than 10 manholes and/or structures, test at least 10 and
2 test 25 percent of manholes and/or structures after the first 10.

3 3. City will select the manholes and/or structures to be tested.

4 PART 3- EXECUTION

5 3.1 INSTALLERS

6 A. All installers shall be certified applicators approved by the manufacturers.
7 Applicator shall use adequate number of skilled workmen that have been
8 trained and experienced for the approved product.

9

10 3.2 EXAMINATION [NOT USED]

11 3.3 PREPARATION

12 A. Manhole Preparation

- 13 1. Stop active flows via damming, plugging or diverting as required to ensure all
14 liquids are maintained below or away from the surfaces to be coated.
- 15 2. Maintain temperature of the surface to be coated between 40 and 120 degrees
16 F.
- 17 3. Shield specified surfaces to avoid exposure of direct sunlight or other intense
18 heat source.
- 19 a. Where varying surface temperatures do exist, coating installation should
20 be scheduled when the temperature is falling versus rising.

21 B. Surface Preparation

- 22 1. Remove oils, roots, grease, incompatible existing coatings, waxes, form
23 release, curing compounds, efflorescence, sealers, salts or other
24 contaminants which may affect the performance and adhesion of the coating
25 to the substrate. Remove any steps found in the structure.
- 26 2. Remove concrete and/or mortar damaged by corrosion, chemical attack or
27 other means of degradation so that only sound substrate remains.

- 1 3. Surface preparation method, or combination of methods, that may be used
2 include high pressure water cleaning, high pressure water jetting, abrasive
3 blasting, shotblasting, grinding, scarifying, detergent water cleaning, hot water
4 blasting and others as described in SSPC SP 13/NACE No. 6.
- 5 4. All methods used shall be performed in a manner that provides a uniform,
6 sound, clean, neutralized, surface suitable for the specified coating product.
- 7 5. After completion of surface preparation, inspect for leaks, cracks, holes,
8 exposed rebar, ring and cover condition, invert condition, and inlet/outlet pipe
9 condition.
- 10 6. After defects in the structure have been identified, seal cracks, repair exposed
11 rebar with new rebar to match existing, repair leaks and cracks with grout or
12 other methods approved by the Manufacturer and the City. All new rebar shall
13 be embedded in 1 ½ inch epoxy mastic. Replace/seal connection between
14 existing frame and chimney if it is found loose or not attached.
- 15 7. The repair materials shall be trowel or spray applied by the lining Contractor
16 utilizing proper equipment on to specified surfaces. The equipment shall be
17 specially designed to accurately ratio and apply the specified materials and
18 shall be regularly maintained and in proper working order. The repair mortar
19 and epoxy topcoat must share the same epoxy matrix to ensure a bonded
20 weld. No cementitious repair material, quick setting high strength concrete
21 with latex or curing agent additives, or quick set mortars will be allowed.
22 Proper surface preparation procedures must be followed to ensure adequate
23 bond strength to any surface to be coated. New cement cure time is at least
24 30 days prior to coating. The repair materials as specified in this Section shall
25 apply to both existing structures and new installed structures.

26 3.4 INSTALLATION

27 A. General

- 28 1. Perform coating after the sewer line replacement/repairs, grade adjustments
29 and grouting are complete.
- 30 2. Perform application procedures per recommendations of the coating product
31 manufacturer, including environmental controls, product handling, mixing and
32 application.

33 B. Temperature

- 1 1. Only perform application if surface temperature is between 40 and 120
- 2 degrees F.
- 3 2. Make no application if freezing is expected to occur inside the manhole within
- 4 24 hours after application.

5 C. Coating

- 6 1. Spray apply per manufacturer’s recommendation at a minimum film thickness
- 7 as noted in Section 2.2.B.
- 8 2. Apply coating from bottom of manhole frame to the bench/trough, including
- 9 the bench/trough.
- 10 3. After walls are coated, remove bench covers and spray bench/trough to at
- 11 least the same thickness as the walls.
- 12 4. Apply any topcoat or additional coats within the product’s recoat window.
- 13 a. Additional surface preparation is required if the recoat window is
- 14 exceeded.
- 15 5. Allow a minimum of 48 hours of cure time or be set hard to touch before
- 16 reactivating flow.

17 3.5 REPAIR / RESTORATION [NOT USED]

18 3.6 RE-INSTALLATION [NOT USED]

19 3.7 FIELD QUALITY CONTROL

20 A. Each structure will be visually inspected by the City the same day following the

21 application.

22 B. Groundwater infiltration of the system shall be zero.

23 C. All pipe connections shall be open and clear.

24 D. The inspector will check for deficiencies, pinholes, voids, cracks, uncured spots,

25 delamination, and thin spots. Any deficiencies in the liner shall be marked and

26 repaired according to the procedures outlined by the Manufacturer.

27 E. If leaks are detected they will be chipped back, plugged and coated immediately

28 with protective epoxy resin coating.

1 1. Make repair 24 hours after leak detection.

2 F. Post Installation Coating Tests

3 1. Wet Film Testing

4 2. Adhesion Testing

5 a. Adhesion test the liner at a minimum of three locations (cone area, mid-
6 section, and bottom of the structure). For structures exceeding 6-feet add
7 one additional test for every additional 6-feet. For example: 6-foot
8 manhole – 3 tests. 6-feet, 1-inch manhole thru 11-feet, 11-inch manhole –
9 4 tests, 12-foot manhole – 5 tests. Etc... Tests performed per ASTM D7234 –
10 Standard Test Method for Pull-Off Adhesion Strength of Coatings on
11 Concrete Using Portable Pull-Off Adhesion Testers.

12 1) Document and attest all test results repairs made and provide to the
13 City (see structure/manhole report form for adhesion testing at the end
14 of this specification).

15 2) The adhesive used to attach the dollies shall have a tensile strength
16 greater than the liner.

17 3) Failure of the dolly adhesive is deemed a non-test and requires
18 retesting.

19 4) All the pull tests shall exceed 300 psi or concrete failure with more
20 than 50% of the subsurface adhered to the coating. If over 1/3rd fail,
21 additional tests may be required by the City. If additional tests fail the
22 City may require removal and replacement of the liner at the
23 contractor's expense.

24 3. Holiday Detection Testing

25 a. Holiday Detection test the liner per NACE SP0188 – Discontinuity (Holiday)
26 Testing of New Protective Coatings on Conductive Substrates. Mark all
27 detected holidays. Repair all holidays in accordance to coating
28 manufacturer's recommendations.

29 1) Document and attest all test results repairs made and provide to the
30 City (see structure/manhole report for holiday detection testing at the
31 end of this specification).

32 2) For example, the typical testing requirements are 100 volts per mil to
33 12,500 volts to test 125 mils. Contractor shall mark any location that

1 shows a spark or potential for a pinhole and repair these locations per
2 manufacturer recommendations.

3 4. CCTV

4 a. Post Construction CCTV recordings shall be made after all other testing is
5 completed, including the repairs that are made to the lining following any
6 test failures.

7 b. After liner installation, conduct post-CCTV in accordance with Section 33 01
8 31. Video camera shall be lowered from the top of the manhole to the invert,
9 to video all lined surfaces, prior to beginning post-CCTV of the main.
10 Payment for this work is subsidiary to the cost for the post-CCTV of the
11 main.

12 c. A bonded third-party testing company shall perform the testing.

13 d. Or Contractor may perform tests if witnessed by representative of the
14 coating manufacturer. Coating manufacturer representative to provide
15 certification that Contractor performed tests in accordance with noted
16 standards.

17 G. Non-Conforming Work

18 1. City reserves the right to require additional testing depending on the rate of
19 failure.

20 2. City will select testing locations.

21 3. Repair all defects according to the manufacturer's recommendations.

22 H. Testing Frequency

23 1. Projects with 10 or less manholes and/or structures test all.

24 2. Projects with greater than 10 manholes and/or structures, test at least 10 and
25 test 25 percent of manholes and/or structures after the first 10.

26 3. City will select the manholes and/or structures to be tested.

27 I. Test manhole for final acceptance according to Section 33 01 30.

1 3.8 SYSTEM STARTUP [NOT USED]

2 3.9 ADJUSTING [NOT USED]

3 3.10 CLEANING [NOT USED]

4 3.11 CLOSEOUT ACTIVITIES

5 A. Provide all test results from testing per Section 2.4 and applicator certifications
6 per Section 3.1 and in accordance with Section 1.7. In addition, perform vacuum
7 test and provide results using the test form per Section 33 01 30, Sewer and
8 Manhole Testing.

9 B. Upon final completion of the work, the manufacturer and/or the testing firm will
10 provide a written certification of proper application to the City.

11 C. The certification will confirm that the deficient areas were repaired in accordance
12 with the procedure set forth in this Specification. The final report will detail the
13 location of the repairs in the structure and description of the repairs. See attached
14 testing forms.

15 3.12 PROTECTION [NOT USED]

16 3.13 MAINTENANCE [NOT USED]

17 3.14 ATTACHMENTS [NOT USED]

18 END OF SECTION

19

Special Specification 1004

Tree Protection



1. DESCRIPTION

Install tree protection as shown on the plans or as directed.

2. MATERIALS

Furnish materials in accordance with the plans.

3. CONSTRUCTION

Use construction methods in accordance with the plans.

4. MEASUREMENT

This Item will be measured by the acres of trees protected or by each tree protected.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Tree Protection." This price is full compensation for furnishing all materials, equipment, labor, and incidentals.

Special Specification 4171

Install Bridge Identification Numbers



1. DESCRIPTION

This item will govern for the installation of bridge identification numbers on bridge structures in accordance with this specification, project plans, or as directed.

2. MATERIALS

Furnish materials that conform to the pertinent requirement of the following items:

- stencil ink, black 11 oz., spray can (lead, CFC, and CFHC free). Black spray will be waterproof, weather resistance and dry instantly on all surfaces, without smearing, smudging or rippling and
 - brass stencil, 3 in., numbers and letters, adjustable interlocking stencil, set content 92 piece numbers and letters, legend height 3 in., symbol height 3 in. Stencils must be industrial grade and interlocking.
-

3. WORK METHODS

Install bridge identification numbers according to the requirements shown on the plans, and the following:

Clean the surface thoroughly before applying the painted structure number including removal of existing structure number by chemical cleaning, or by water blasting according to Item 427, if required.

4. MEASUREMENT

This Item will be measured by each bridge identification number installed.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Installing Bridge Identification Numbers." This price must be full compensation for removing existing bridge identification numbers, cleaning and preparing surfaces, and furnishing all materials, equipment, labor and incidentals necessary to complete the work.

Special Provision to Item 247

Flexible Base



Item 247, "Flexible Base," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 247.2.1., "Aggregate." This Section is voided and replaced by the following.

Furnish aggregate of the type and grade shown on the plans and meeting the requirements shown in Table 1. Each source must meet Table 1 requirements for liquid limit, plasticity index, and wet ball mill for the grade specified. Do not use additives, such as but not limited to cement, emulsion, foamed asphalt, or lime, to modify aggregates to meet the requirements of Table 1, unless otherwise shown on the plans.

Unless otherwise shown on the plans, the unconfined compressive strength is waived when the flexible base material meets the #200 sieve requirement.

Table 1
Material Requirements

Property	Test Method	Grade 1–2 ³	Grade 3	Grade 4	Grade 5 ³
Master gradation sieve size (cumulative % retained)		–	–		–
2-1/2"		0	0		0
1-3/4"		0–10	0–10		0–5
7/8"	Tex-110-E	10–35	–		10–35
3/8"		30–65	–		35–65
#4		45–75	45–75		45–75
#40		65–90	50–85		70–90
#200 ^{1, 2}		85–95	–		–
Liquid limit, % Max	Tex-104-E	40	40	As shown on the plans	35
Plasticity index, Max		10	12		10
Plasticity index, Min	Tex-106-E	As shown on the plans	As shown on the plans		As shown on the plans
Wet ball mill, % Max		40	–		40
Wet ball mill, % Max increase passing the #40 sieve	Tex-116-E	20	–		20
Min compressive strength ² , psi		–	–		–
lateral pressure 0 psi	Tex-117-E	35	–		–
lateral pressure 3 psi		–	–		90
lateral pressure 15 psi		175	–		175

1. The #200 sieve test is only required to meet the waiver of the unconfined compressive strength. The #200 sieve test requirement is only applicable to stockpile samples from Section 247.2.4.
2. Compressive strength and #200 sieve test requirements are waived when the flexible base is mixed with or without existing material and treated with cement, emulsion, foamed asphalt, or lime, unless otherwise shown on the plans.
3. Grade 3 may be substituted for Grade 1–2 or Grade 5 when the flexible base is mixed with or without existing material and treated with cement, emulsion, foamed asphalt, or lime, as approved. The Grade 3 flexible base must meet the wet ball mill requirements of Grade 1–2 or Grade 5.

Section 247.2.1.2.4., "Type D." The third sentence is voided and replaced by the following.

Crushed concrete must meet the requirements in Section 247.2.1.3., "Recycled Material," and be managed in a way to provide for uniform quality.

Section 247.2.1.3., "Recycled Material." This Section is voided and replaced by the following.

Reclaimed asphalt pavement (RAP) and other recycled materials may be used as shown on the plans. Request approval to blend two or more sources of recycled materials. When RAP is allowed, do not exceed 20% RAP by weight, unless otherwise shown on the plans. The percentage limitations for other recycled materials are as shown on the plans.

Provide recycled materials, other than RAP, that have a maximum sulfate content of 3,000 ppm when tested in accordance with [Tex-145-E](#). Certify accordance with [DMS-11000](#), "Evaluating and Using Nonhazardous Recyclable Materials Guidelines." In addition, recycled materials must be free of reinforcing steel and other objectionable material and have at most 1.5% deleterious material when tested in accordance with [Tex-413-A](#). The liquid limit, plasticity index, wet ball mill, and compressive strength for all recycled materials are waived. When using RAP, crush RAP so that 100% passes the 2-in. sieve and does not exceed a maximum percent loss from decantation of 5.0% when tested in accordance with [Tex-406-A](#). Test RAP without removing the asphalt. The final product must meet the requirements shown in Table 1 for the grade specified, except when the Department requires a specific amount of Department-furnished RAP be added to the blend, unless otherwise shown on the plans.

The Contractor is responsible for uniformly blending the recycled material with the flexible base material to build a stockpile to meet the percentages required. Any Contractor-furnished surplus of recycled materials must remain the property of the Contractor. Remove Contractor-owned recycled materials from the project, and dispose of them in conformance with federal, state, and local regulations before project acceptance.

Section 247.2.4., "Stockpile Approval." This Section is added.

Stockpile is approved when the Engineer's test results meet the material requirements shown in Table 1.

Section 247.2.4.1., "Sampling." This Section is added.

The Contractor and the Engineer will sample flexible base from completed stockpiles in accordance with [Tex-100-A](#). Personnel conducting sampling must be certified by the Department-approved soils and base certification program.

Sampling stockpiles may be located at the production site or at the project location. The Contractor must witness the Engineer's sampling and sample the stockpile for their own testing, and label as deemed necessary.

Sample the stockpile for the Engineer as shown on the plans. When the Contractor samples the stockpile for the Engineer, the Engineer will witness the sampling of material designated for the Engineer and the Materials and Tests Division (MTD). The Engineer will label their sampling containers as "Engineer" and "MTD," or as deemed necessary.

The Engineer will take immediate possession of the sample containers for the Engineer and MTD. The Engineer will maintain custody of the samples until all testing and reporting are completed.

Section 247.2.4.2., "Referee Testing." This Section is added.

Referee testing is applicable for stockpile testing only. MTD is the referee laboratory. MTD may designate a laboratory from the Department's MPL for *Commercial Laboratories Approved for Flexible Base Referee Requests* as the referee laboratory as deemed necessary. The designated laboratory must not perform any testing under this Item for the Engineer or Contractor.

The Contractor may request referee testing when the Engineer's test results fail to meet any of the material requirements shown in Table 1 and when the Contractor's sample from Section 247.2.4.1., "Sampling," for the same failing Department test passes. The tests must be performed by a laboratory on the Department's MPL for *Commercial Laboratories Approved for Flexible Base Referee Requests*. Submit the request by email within 5 working days after receiving failing test results from the Engineer. Include completed test reports passing the applicable requirements shown in Table 1 in the email.

Record and submit completed test reports electronically on Department-provided templates in their original format meeting the applicable material requirements shown in Table 1. Use Department-provided templates to record and calculate all test data. The Engineer and the Contractor will provide any available test results to the other party when requested.

Section 247.4.3., "Compaction." The first paragraph is voided and replaced by the following.

Compact using density control unless otherwise shown on the plans. Multiple lifts are permitted as shown on the plans or approved. Bring each layer to the moisture content directed. When necessary, sprinkle the material in accordance with Item 204, "Sprinkling." Maintain moisture during compaction within $\pm 2.0\%$ of the optimum moisture content as determined in accordance with [Tex-113-E](#).

Section 247.4.3.2., "Density Control." This Section is voided and replaced by the following.

Compact to at least 100% of the maximum dry density and within $\pm 2.0\%$ of the optimum moisture content as determined in accordance with [Tex-113-E](#), unless otherwise shown on the plans. Provide the Engineer with the beginning and ending station numbers of the area completed for testing. The Engineer will determine roadway density and moisture content of completed sections in accordance with [Tex-115-E](#), Part I. The Engineer will determine random locations for testing in accordance with [Tex-115-E](#), Part IV. Do not achieve density by drying the material after compaction.

When the density is less than 100% of the maximum dry density, the Engineer may perform additional testing to determine the extent of the area to correct. The Engineer may accept the section if no more than one of the five most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

Section 247.4.3.3., "Miscellaneous and Small Areas." This Section is added.

Miscellaneous areas are those that typically involve handwork or discontinuous paving operations, such as temporary detours, driveways, mailbox turnouts, crossovers, gores, spot level-up areas, and other similar areas. Miscellaneous and small areas are not subject to random sampling procedure but may be tested as directed.

Section 247.4.6., "Ride Quality." This Section is voided and replaced by the following.

Measurement of ride quality only applies to the final travel lanes that receive a one- or two-course surface treatment for the final riding surface, unless otherwise shown on the plans. Measure the ride quality of the base course either before or after the application of the prime coat, as directed, and before placement of the surface treatment. Use a certified profiler operator on the Department's MPL. When requested, furnish the Engineer with documentation for the person certified to operate the profiler.

Provide all profile data to the Engineer in electronic data files within 3 days of measuring the ride quality using the format specified in [Tex-1001-S](#). The Engineer will use Department software to evaluate longitudinal profiles to determine areas requiring corrective action. Correct 0.1-mi. sections with an average international roughness index (IRI) value greater than 100 in. per mile to an IRI value of 100 in. per mile or less, unless otherwise shown on the plans. Re-profile and correct sections that fail to maintain ride quality before the placement of the surface treatment, as directed. Unless ride deterioration is due to environmental impact, traffic, or other incidents outside the Contractor's control, perform this work at no additional expense to the Department, as approved.

Special Provision to Item 360 Concrete Pavement



Item 360, "Concrete Pavement" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 360.2.1., "Materials," the third paragraph is voided and replaced by the following:

For continuously reinforced concrete pavements, use a coarse aggregate with a rated coefficient of thermal expansion of not more than 5.5×10^{-6} in./in./°F as listed in the Department's *Concrete Rated Source Quality Catalog*.

Section 360.4.8.3., "Surface Texture," the second paragraph is voided and replaced by the following:

A metal-tine texture finish is required unless otherwise shown on the plans. Provide transverse or longitudinal tining unless otherwise shown on the plans. Immediately following the carpet drag, apply a single coat of evaporation retardant, if needed, at the rate recommended by the manufacturer. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tining. Operate the metal-tine device to obtain grooves approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods to achieve similar results on ramps, small or irregular areas, and narrow width sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid or that is scheduled for blanket diamond grinding or shot blasting.

Special Provision to Item 420

Concrete Substructure



Item 420, "Concrete Substructures" of the Standard Specifications is amended with respect to the clause cited below. No other clauses or requirements of this Item are waived or changed.

Article 420.6., "Payment." The first paragraph is replaced by the following:

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for the class of concrete and element identified and by the special designation when appropriate. This price is full compensation for furnishing, hauling, and mixing concrete materials; furnishing, bending, fabricating, splicing, welding and placing the required reinforcement; clips, blocks, metal spacers, ties, wire, or other materials used for fastening reinforcement in place; placing, finishing, and curing concrete; mass placement controls; applying ordinary surface finish; furnishing and placing drains, metal flashing strips, and expansion-joint material; excavation, subgrade preparation; and forms and falsework, equipment, labor, tools, and incidentals.

Special Provision to Item 425

Precast Prestressed Concrete Structural Members



Item 425, "Precast Prestressed Concrete Structural Members" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 2.3., "Prestressing Steel." The first bullet is voided and replaced with the following.

- Seven-wire steel strand meeting [DMS-4500](#), "Steel Strand, Uncoated Seven-Wire Low Relaxation for Prestressed Concrete."

Section 2.3., "Prestressing Steel." The second paragraph is voided and replaced with the following.

Use 7-wire steel strand produced by a prequalified manufacturer on the list in the Department MPL maintained by the Materials and Tests Division. The Department may take samples in accordance with [Tex-710-I](#) to verify compliance with specification requirements.

Special Provision to Item 442

Metal for Structures



Item 442, "Metal for Structures" of the Standard Specifications is amended with respect to the clause cited below. No other clauses or requirements of this Item are waived or changed.

Section 442.2.1.3.3., "Fasteners." The first sentence of the first paragraph is replaced by the following:

Fasteners. Provide high-strength bolts that meet ASTM F3125-Grade A325 unless otherwise shown on the plans.

Section 442.2.1.3.3., "Fasteners." The third paragraph is deleted and not replaced.

Special Provision to Item 450

Railing



Item 450, "Railing" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 450.3.1.2, "Fabrication," is supplemented with the following.

Fabrication plants that produce metal railing (steel and aluminum) must be approved in accordance with DMS-7395, "Metal Railing Fabrication Plant Qualification." This required approval does not include fabricators of chain link fence. The Materials and Tests Division maintains a MPL of approved fabrication plants of metal railing.

Permanently mark each metal railing post base plate, at a visible location when erected, with the fabrication plant's insignia or trademark. For fabricated rail panels, provide this permanent mark on one post base plate, per panel.

Special Provision to Item 464

Reinforced Concrete Pipe



Item 464, "Reinforced Concrete Pipe," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Section 2.1., "Fabrication." The section is voided and replaced with the following.

Fabrication plants must be approved by the Materials and Tests Division in accordance with DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures," before furnishing precast reinforced concrete pipe for Departmental projects. The Department's MPL has a list of approved reinforced concrete pipe plants.

Furnish material and fabricate reinforced concrete pipe in accordance with DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures."

Section 2.3., "Marking." The first paragraph is voided and replaced with the following.

Furnish each section of reinforced concrete pipe marked with the following information specified in DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures."

- Class or D-Load of pipe,
- ASTM designation,
- Date of manufacture,
- Pipe size,
- Name or trademark of fabricator and plant location,
- Designation "TX" for precast units fabricated per DMS-7305;
- Designated fabricator's approval stamp for each approved unit,
- Pipe to be used for jacking and boring (when applicable), and
- Designation "SR" for pipe meeting sulfate-resistant concrete plan requirements (when applicable).

Section 2.5., "Causes for Rejection." The section is voided and replaced with the following.

Individual sections of pipe may be rejected for any of the conditions stated in the Annex of DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures."

Section 2.6., "Repairs." The section is voided and replaced with the following:

Make repairs, if necessary, as stated in the Annex of DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures."

Special Provision to Item 465

Junction Boxes, Manholes, and Inlets



Item 465, "Junction Boxes, Manholes, and Inlets," of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Section 2.1., "Concrete," The section is voided and replaced with the following.

Furnish concrete per DMS-7305 for formed and machine-made precast junction boxes, manholes, and inlets. Furnish Class C concrete for cast-in-place junction boxes, manholes, and inlets unless otherwise shown on the plans.

Section 3.1., "Precast Junction Boxes, Manholes, and Inlets," The section is voided and replaced with the following.

Construct formed and machine-made precast junction boxes, manholes, and inlets in accordance with DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures" and the Contract Plans, except as otherwise noted in this Item.

Multi-project fabrication plants as defined in Item 424 "Precast Concrete Structural Members (Fabrication)," that produce junction boxes, manholes, and inlets will be approved by the Materials and Tests Division in accordance with DMS-7305, "Fabrication and Qualification Procedure for Multi-Project Fabrication Plants of Precast Concrete Drainage Structures." The Department's MPL has a list of approved multi-project fabrication plants.

Section 3.1.1., "Lifting Holes," The section is voided and not replaced.

Section 3.1.2., "Marking," The section is voided and replaced with the following.

Marking. Clearly mark each precast junction box, manhole, and inlet unit with the following information:

- name or trademark of fabricator and plant location;
- product designation;
- ASTM designation (if applicable);
- date of manufacture;
- designation "TX" for precast units fabricated per DMS-7305;
- designated fabricator's approval stamp for each approved unit; and
- designation "SR" for product meeting sulfate-resistant concrete plan requirements (when applicable).

Special Provision to Item 502

Barricades, Signs and Traffic Handling



Item 502, "Barricades, Signs and Traffic Handling" of the Standard Specifications, is hereby amended with respect to the clauses cited below, and no other clauses or requirements of this Item are waived or changed hereby.

Article 502.1., "Description," is supplemented by the following:

Temporary work-zone (TWZ) traffic control devices manufactured after December 31, 2019, must have been successfully tested to the crashworthiness requirements of the 2016 edition of the Manual for Assessing Safety Hardware (MASH). Such devices manufactured on or before this date and successfully tested to NCHRP Report 350 or the 2009 edition of MASH may continue to be used throughout their normal service lives. An exception to the manufacture date applies when, based on the project's date of letting, a category of MASH-2016 compliant TWZ traffic control devices are not approved, or are not self-certified after the December 31, 2019, date. In such case, devices that meet NCHRP-350 or MASH-2009 may be used regardless of the manufacture date.

Such TWZ traffic control devices include: portable sign supports, barricades, portable traffic barriers designated exclusively for use in temporary work zones, crash cushions designated exclusively for use in temporary work zones, longitudinal channelizers, truck and trailer mounted attenuators. Category I Devices (i.e., lightweight devices) such as cones, tubular markers and drums without lights or signs attached however, may be self-certified by the vendor or provider, with documentation provided to Department or as are shown on Department's Compliant Work Zone Traffic Control Device List.

Article 502.4., "Payment," is supplemented by the following:

Truck mounted attenuators and trailer attenuators will be paid for under Special Specification, "Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)." Portable Changeable Message Signs will be paid for under Special Specification, "Portable Changeable Message Sign." Portable Traffic Signals will be paid for under Special Specification, "Portable Traffic Signals."

Special Provision to Item 506

Temporary Erosion, Sedimentation, and Environmental Controls



Item 506, "Temporary Erosion, Sedimentation, and Environmental Controls," of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Article 506.1., "Description." The second paragraph is voided and replaced by the following.

Contractor is considered primary operator to have day-to-day operational control as defined in TPDES GP TXR150000.

- 1.1. For projects with soil disturbance of less than 1 acre, no submittal to TCEQ will be required but Contractor will follow SWP3. For projects with soil disturbance of 1 acre to less than 5 acres a small site notice will be posted at the site. For projects with soil disturbance of 5 acres or more a Notice of Intent (NOI) is required and a large site notice posted at site. Postings will be in accordance with TPDES GP TXR150000. Postings not associated with project specific locations will be in same location as Department's postings.
- 1.2. **Notice of Intent (NOI).** Submit a NOI, if applicable, with the TCEQ under the TPDES GP TXR150000 at least 7 days prior to commencement of construction activities at the project site. Provide a signed copy to the Engineer and any other MS4 operators at the time of submittal. The Department will submit their NOI prior to contractor submission and will provide a copy for Contractor's use in completing the Contractor's NOI form.
- 1.3. **Notice of Change (NOC).** Upon concurrence of the Engineer, submit a NOC, if applicable, to the TCEQ within 14 days of discovery of a change or revision to the NOI as required by the TPDES GP TXR150000. Provide a signed copy of the NOC to the Engineer and any other MS4 operators at the time of submittal.
- 1.4. **Notice of Termination (NOT).** Upon concurrence of the Engineer, submit a NOT, if applicable, to the TCEQ within 30 days of the Engineer's approval that 70% native background vegetative cover is met or equivalent permanent stabilization have been employed in accordance with the TPDES GP TXR 150000. Provide a signed copy of the NOT to the Engineer and any other MS4 operators at the time of submittal.

Section 506.3.1, "Contractor Responsible Person Environmental (CRPE) Qualifications and Responsibilities," is supplemented by the following:

- 3.1. **Contractor Responsible Person Environmental (CRPE) Qualifications and Responsibilities.** Provide and designate in writing at the preconstruction conference a CRPE and alternate CRPE who have overall responsibility for the storm water management program. The CRPE will implement stormwater and erosion control practices; will oversee and observe stormwater control measure monitoring and management; will monitor the project site daily and produce daily monitoring reports as long as there are BMPs in place or soil disturbing activities are evident to ensure compliance with the SWP3 and TPDES General Permit TXR150000. Daily monitor reports shall be maintained and made available upon request. During time suspensions when work is not occurring or on contract non-work days, daily inspections are not required unless a rain event has occurred. The CRPE will provide recommendations on how to improve the effectiveness of control measures. Attend the Department's preconstruction conference for the project. Ensure training is completed as identified in Section 506.3.3., "Training," by all applicable personnel before employees work on the project. Document and maintain and make available upon request, a list, signed by the CRPE, of all applicable Contractor and subcontractor employees who have completed the training. Include the employee's name, the training course name, and date the employee completed the training.

Section 506.3.3., "Training," is supplemented by the following:

Training is provided by the Department at no cost to the Contractor and is valid for 3 yr. from the date of completion. The Engineer may require the following training at a frequency less than 3 yr. based on environmental needs:

- “Environmental Management System: Awareness Training for the Contractor” (English and Spanish) (Approximate running time 20 min.), and
- “Storm Water: Environmental Requirements During Construction” (English and Spanish) (Approximate running time 20 min.).

The Contractor responsible person environmental (CRPE), alternate CRPE designated for emergencies, Contractor's superintendent, Contractor, and subcontractor lead personnel involved in soil disturbing or SWP3 activities must enroll in and complete the training listed below and maintain and make available upon request the certificate of completion. Training is provided by a third party and is valid for 3 yr. from the date shown on the Certificate of Completion. Coordinate enrollment as prescribed by the Department and pay associated fees for the following training:

- “Revegetation During Construction,”
- “Construction General Permit Compliance,” and
- “Construction Stage Gate Checklist (CSGC).”

Training and associated fee will not be measured or paid for directly but are subsidiary to this Item.