



**SAN JACINTO RIVER AUTHORITY
PURCHASING DEPARTMENT**

1577 Dam Site Road
Conroe, TX 77304
Attn: Grady B. Garrow, CPPB
(936) 588-7178
ggarrow@sjra.net

**HIGHLANDS DIVISION
LAKE HOUSTON PUMP STATION
DISCHARGE PIPING REHABILITATION**

Date Issued: OCTOBER 5, 2018

Due Date & Time: NOVEMBER 8, 2018 at 11:00 AM CST

**SJRA PROJECT NO. HDPR0026.1007.2C001
COMPETITIVE SEALED PROPOSAL NO. 18-0112
CONTRACT NO. 18-0112**

**TEXAS WATER ENGINEERING, PLLC
19901 SOUTHWEST FREEWAY
SUGAR LAND, TEXAS 77479
TBPE FIRM No. F-8482**



Disclosure Requirements

Chapter 176 of the Texas Local Government Code mandates the public disclosure of certain information concerning persons doing business or seeking to do business with the San Jacinto River Authority, including affiliations and business and financial relationships such persons may have with San Jacinto River Authority officers. An explanation of the requirements of Chapter 176, applicable forms and a complete text of the new law are available at: <http://www.sjra.net>. If you are unable to obtain such information online, please contact the San Jacinto River Authority Purchasing Department, 1577 Dam Site Road, Conroe, Texas 77304 or call (936) 588-3111.

BY DOING BUSINESS OR SEEKING TO DO BUSINESS WITH THE SAN JACINTO RIVER AUTHORITY, YOU ACKNOWLEDGE THAT YOU HAVE BEEN NOTIFIED OF THE REQUIREMENTS OF CHAPTER 176 OF THE TEXAS LOCAL GOVERNMENT CODE AND THAT YOU ARE SOLELY RESPONSIBLE FOR COMPLYING WITH THEM.

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DESIGNATED SUBCONTRACTORS AND SUPPLIERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Designated Subcontractors and Suppliers

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 DESIGNATED SUBCONTRACTORS AND SUPPLIERS

A. Subcontract work for the following Sections to firm(s) listed and for reason(s) stated below:

Weisinger Incorporated shall perform disassembly and reassembly of pump components, dresser coupling, and discharge piping spool piece for Pumps No. 2 and 3 and shift pumps to provide working access to repair areas. Work shall be performed at specified contract price shown in Specification Section 00 41 00.02 – Proposal Form. Weisinger Incorporated recently completed rehabilitation work for Pump Nos. 2 and 3 and has more than 40 years of experience with the Lake Houston Pump Station, which makes them uniquely qualified to perform the piping dresser coupling removal, pump removal, and reassembly work required as part of this contract.

B. No Contractor shall be required to employ any Subcontractor, Supplier or, other person or organization against whom Contractor has reasonable objection.

PART 2 - PRODUCTS (NOT USED)

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END OF SECTION

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

**DESIGNATED
SUBCONTRACTORS AND SUPPLIERS**

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SECTION 00 11 13

INVITATION TO SUBMIT PROPOSALS

GENERAL NOTICE

The San Jacinto River Authority is requesting Competitive Sealed Proposals for the Construction of the following project in Harris County, Texas:

CSP No. 18-0112– Lake Houston Pump Station Discharge Piping Rehabilitation

PROJECT DESCRIPTION

The Lake Houston Pump Station (LHPS) has three pump discharge pipes that have shown signs of wear and degradation. The construction activities associated with the repair of the damaged pipes generally consist of the following:

1. Install, maintain, and operate (if necessary) a temporary diversion pumping system with at least 2 pumps to deliver up to 30 MGD capacity from Lake Houston to the SJRA Main Canal. Pumping system shall remain on standby and be ready for operation at all items in the event SJRA requests to engage the system. Contractor must be able to provide operator for system within 4 hours of request for operation by SJRA. The diversion pumping discharge shall be located downstream of the outlet structure. The discharge piping shall be constructed to cross beneath the access road to Lake Houston Dam as shown in the Drawings.
2. Construct small cofferdam downstream of outlet structure in SJRA Main Canal to prevent backflows during 3-day (maximum) shut down of canal system (to be coordinated with SJRA). Perform regrading of canal downstream of outlet structure and removal of portions of existing riprap. Install new 18-inch thick broken concrete riprap layer and grout in place.
3. Install owner-furnished stainless steel slide gate on the vertical face of the existing headwall at the outlet structure. Perform headwall repairs to the structure as necessary to install the slide gate. The newly installed slide gate will provide the ability to dewater the junction box while keeping Pump no. 4 in operation during the project.
4. Perform disassembly of pump components, dresser coupling, and discharge piping spool piece for Pumps No. 2 and 3 and shift pumps to provide working access to repair areas (to be performed by Weisinger Incorporated).
5. Dewater the junction box and provide access through the existing flap gates for access to the piping repair areas. Maintain dry conditions in work area and junction box throughout duration of repair work.
6. Prepare the inside of three existing pump discharge pipes and install a Carbon Fiber Reinforced Polymer (CFRP) liner from the upstream end of the pipes in the

LAKE HOUSTON PUMP STATION DISCHARGE
PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

INVITATION TO SUBMIT PROPOSALS

- pump station to the downstream end of the reducer for Pipe No. 3 and to the downstream end of the bend for Pipe Nos. 1 and 2 as shown on the drawings.
7. Prepare the inside of the existing pump discharge pipes as necessary to install mortar patching for holes and spalling inside pipes as shown on the drawings.
 8. Provide video inspection for completed pipe repairs to be reviewed by Owner and Owner's Representative prior to acceptance.
 9. Perform reassembly of pump components, dresser coupling, and discharge piping spool piece for Pumps No. 2 and 3 once pipe repair has been inspected and approved by Owner and Owner's Representative (to be performed by Weisinger Incorporated).
 10. Demobilize diversion pumping system after Pumps No. 2 and 3 have been operational for at least 48 hours.
 11. Perform restoration of site (including removal of diversion pumping discharge pipe crossing and road replacement) and hydromulching/sodding for disturbed areas.
 12. Provide traffic control and flagman during discharge canal work, mobilization of diversion pumping system and material deliveries.

Sealed Proposals must be delivered to the San Jacinto River Authority, G&A Building, 3rd Floor Receptionist, 1577 Dam Site Road, Conroe, TX 77304 no later than 11:00 AM (CST) on November 8, 2018. Proposals will be publically opened and read aloud at this time. Address proposals to:

Grady Garrow, CPPB, Buyer
San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, TX 77304

A mandatory Pre-Submittal Conference will be held at the SJRA Highlands Division, 1108 E. Canal, Highlands, TX 77562, at 1:00 PM CST on October 18, 2018. A mandatory Site Visit at the Lake Houston Pump Station will occur immediately following the Pre-Submittal Conference; attendees will be required to wear closed-toe shoes. Proposals will not be accepted from Offering Firms which fail to attend the Pre-Submittal Conference and Site Visit.

A complete set of Competitive Sealed Proposal (CSP) Documents may be accessed via the Brazos Valley Online Bidding System (<http://brazosbid.cstx.gov>) or via a link from the SJRA Website, Purchasing Tab, Bid Opportunities. A one-time registration is required in order to view or download CSP Documents and receive automatic notification of Addenda.

Attendance at the Pre-Submittal conference and Site Visit may be the only opportunity for Offerors to see the existing conditions of the site prior to Proposal due date.

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INVITATION TO SUBMIT PROPOSALS

The SJRA reserves the right to reject any or all Proposals and to waive informalities and irregularities.

END OF SECTION

LAKE HOUSTON PUMP STATION DISCHARGE

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INVITATION TO SUBMIT PROPOSALS

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DIVISION 00

REQUIREMENTS FOR OFFERORS

CONTRACT FORMS & CONDITIONS OF THE CONTRACT

SECTION 00 21 13.02
INSTRUCTIONS TO OFFERORS
(COMPETITIVE SEALED PROPOSALS)

1. Overview of Competitive Sealed Proposal Process.

The objective of the Competitive Sealed Proposal (CSP) process is to competitively procure goods and services with the firm whose Proposal provides the best value for the Owner (SJRA). Proposals will be received, publically opened, and the names and monetary Proposals of Offerors read aloud. Subsequently, the Proposals will be ranked according to the criteria described in this CSP Document. Both cost and non-cost factors will be evaluated and scored. One or more Offerors may be invited back for discussions or to present their Proposal to the SJRA before the final rankings are made.

The SJRA may enter into contract negotiations with the highest ranked firm for the completion of the Work. If the negotiations with the highest ranked firm are unsuccessful, the SJRA will formally close negotiations with this firm and initiate contract negotiations with the next highest ranked firm. Upon Standard Form of Agreement between both parties, a Contractor-executed Contract may be recommended for approval by the SJRA Board of Directors or the SJRA General Manager, as applicable. Upon approval, the Contract will be executed by the General Manager of the SJRA.

2. Defined Terms.

2.1. Definitions for the following terms used in these Instructions do not replace definitions for similar terms that may be contained within other sections of the Contract Documents.

2.2. Certain additional terms used in these Instructions to Offerors have the meanings indicated below and are applicable to both the singular and plural thereof.

2.2.1. Addendum or Addenda- Additions, deletions, and/or changes to any part of the CSP issued in writing by the Owner prior to Proposal due date and time.

2.2.2. Apparent Best Value Offeror- the Offering Firm whose Proposal for completion of the Work provides the best value for the Owner as defined by the ranking detailed in Article 11 of Instructions to Offerors.

2.2.3. Board of Directors – The governing body of the SJRA comprised of seven (7) directors appointed to six (6) year terms by the Governor of the state of Texas.

2.2.4. Contract Negotiations- Discussions which take place between the Owner and the Apparent Best Value Offeror in an effort to reach Standard Form of Agreement on contract scope of work, price, time and other contractual requirements.

- 2.2.5. Contractor – The successful Offeror to this CSP who enters into a contractual relationship with the Owner for completion of the Work, following any contract approval by the SJRA Board of Directors or the SJRA General Manager, as applicable.
- 2.2.6. CFRP Installer – The organization that will be responsible for providing the materials, equipment, and labor required to perform the discharge piping rehabilitation portion of the project.
- 2.2.7. CSP Document- Abbreviation of the Competitive Sealed Proposals Document, the document used to request Competitive Sealed Proposals for the procurement of goods and services as authorized under Government Code Chapter 2269, Subchapter D.
- 2.2.8. Engineer’s Opinion of Probable Construction Cost – Engineer’s opinion of project construction cost to owner developed by the Principal Architect/Engineer. Actual contract amount may vary significantly.
- 2.2.9. Issuing Office - The location from which the CSP Documents are issued. For this project the issuing office is San Jacinto River Authority, 1577 Dam Site Road Conroe, Texas 77304.
- 2.2.10. Offeror, Offering Firm- Firm which responds to a CSP by submitting a Proposal directly to Owner. Offeror and Offering Firm shall have the same meaning in the Instructions to Offerors.
- 2.2.11. Owner - The San Jacinto River Authority (SJRA).
- 2.2.12. Proposal- Offeror’s submittal which conforms to the requirements set forth in this CSP.
- 2.2.13. Proposal Form- As detailed in the requirements of this CSP, contains unit pricing for all parts of the Work and their aggregate as detailed and affirmed on the Proposal Form and may include additional forms supplied by Offeror and/or the Owner that relate to the Offeror’s proposed cost for completing the Work.
- 2.2.14. SJRA- San Jacinto River Authority, a government agency whose mission is to develop, conserve, and protect the water resources of the San Jacinto River basin.
- 2.2.15. Statement of Qualifications, (SOQ) - Offeror submitted documents which describe the Offering Firm’s qualifications for performing the Work and contain no pricing or cost data. Requirements for the Statement of Qualifications (SOQ) are set forth in Article 8 and Article 10 of the Instructions to Offerors (this CSP).
- 2.2.16. Subcontractor - Any contractor hired by the Contractor to furnish services, or goods and services, specified in this CSP.
- 2.2.17. Successful Offeror - The Firm who has completed negotiations with the Owner and, following any approval by the SJRA Board of Directors or the SJRA General Manager, as applicable, is selected to enter into a Contract with the Owner to complete the Work.
- 2.2.18. Supplier- Any supplier of materials and/or equipment to Contractor for the Project.

3. Schedule.

CSP Documents Posted on Website:	October, 5, 2018
Legal Advertisements:	October, 5, 2018 October, 12, 2018
Pre-Proposal Conference (Mandatory):	October, 18, 2018, 1:00 pm (CST)
Deadline for Questions and Inquiries:	October, 25, 2018, 10:00 am (CST)
Proposal Submission Deadline:	November, 8, 2018, 11:00 am (CST)
Anticipated Construction Start:	January, 2019

4. Competitive Sealed Proposal Documents/Copies.

4.1. This Request for Competitive Sealed Proposals (CSP) consists of the following documents:

- 4.1.1. Invitation to Submit Proposals (00 11 13);
- 4.1.2. Instructions to Offerors (00 21 13.02);
- 4.1.3. Proposal Form (00 41 00.02), Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form;
- 4.1.4. Statement of Qualifications (00 21 13.03);
- 4.1.5. All Contract Documents referenced in this CSP;
- 4.1.6. Addenda to this CSP issued by the SJRA Purchasing Department;
- 4.1.7. Any attached forms; and
- 4.1.8. Proposal Security (Offeror's Bond)

4.2. A complete set of CSP Documents may be accessed at the Brazos Valley Online Bidding System (<http://brazosbid.cstx.gov>) or via a link from the SJRA Website (www.SJRA.net) Purchasing Tab (Bid opportunities). Interested parties that are not already registered on the Brazos Valley Online Bidding System website site must register as a "New Vendor" in order to download the CSP Document(s) and receive automatic notification of Addenda.

4.3. Complete sets of CSP Documents must be used in preparing Proposals; neither Owner nor Principal Architect/Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of CSP Documents.

4.4. Owner and Principal Architect/Engineer, in making copies of CSP Documents available on the above terms, do so only for the purpose of obtaining Proposals for the Work and do not confer a license or grant for any other use.

5. Competitive Sealed Proposal Process\Contract Documents.

- 5.1. All questions about the Competitive Sealed Proposal Process or the meaning or intent of the Contract Documents are to be directed to the SJRA Purchasing Department.

Contact: Grady B. Garrow, CPPB
Buyer, San Jacinto River Authority
ggarrow@sjra.net
(936)-588-7178

- 5.2. Any questions submitted via the Brazos Valley Online Bidding System website on the appropriate webpage for submitting questions shall be the equivalent of contacting the SJRA Purchasing Department directly (via phone or email).
- 5.3. Interpretations or clarifications considered necessary by Owner in response to such questions will be issued by Addenda and posted on the Brazos Valley Online Bidding website, www.brazosbid.cstx.gov and via link a link from the SJRA Website (www.SJRA.net) Purchasing Tab (Bid opportunities).

6. Pre-Submittal Conference.

- 6.1. A mandatory Pre-Submittal Conference will be held at the SJRA Highlands Division, 1108 E. Canal, Highlands, TX 77562, at 1:00 PM CST on October 18, 2018. A mandatory Site Visit at the Lake Houston Pump Station will occur immediately following the Pre-Submittal Conference; attendees will be required to wear closed-toe shoes. Representatives of Owner and Principal Architect/Engineer will be present to discuss the project. Proposals will not be accepted from Offering Firms which fail to attend the Pre-Submittal Conference and Site Visit.
- 6.2. All questions about the meaning or intent of the Competitive Sealed Proposal and Contract Documents are to be directed to the SJRA Purchasing Department. The SJRA Purchasing Department will address all questions as Owner considers necessary in response to inquiries arising at the conference through written Addenda and posted on the Brazos Valley Online Bidding System website: <http://brazosbid.cstx.gov> and via link a link from the SJRA Website (www.SJRA.net) Purchasing Tab (Bid opportunities). Oral statements may not be relied upon and will not be binding or legally effective.

7. Estimated Budget.

- 7.1. An Engineer's Opinion of Probable Construction Cost (project cost estimate) has been generated by the Principal Architect/Engineer. If an award is made, the actual contract amount may vary.

- 7.2. The Engineer's Opinion of Probable Construction Cost for this project is \$893,067. This estimate does not include extra unit price proposal items (as shown in Table B in Section 5 of Specification Section 00 41 00.02 - Proposal Form).

8. Basis for Ranking of Proposals.

- 8.1 The Owner will consider the qualifications (Statement of Qualifications) of the Offerors and their respective proposed Contract Price (Proposal Form) when evaluating Proposals to determine which Offeror, in the sole opinion of the Owner, will provide the best value to the Owner. All procurements shall conform to Chapter 2269 of the State of Texas Government Code. The Proposals will be evaluated using the following criteria and weighting:

- 8.1.1. Proposed Project Cost: The Offeror's Proposed Cost of Performing the Work shall be indicated as the "Total Proposal Price" (indicated as "E" on in the Proposal Form (Specification Section 00 41 00.02). The Owner has established an internal budget for this Project. The total Proposal Price is defined per the Proposal Form to include the cost(s) of the proposed Total Base Items ("A"). The Total Proposal Price may and at the Owner's sole discretion, be inclusive of the individual or collective costs associated with the Offeror's Total Extra unit Price Items ("B"), Total Cash Allowances ("C") and Total Alternate Items ("D") costs. For example: Total Proposal Price ("E") = A + B + C + D.

The Owner will evaluate the Total Proposal Price (including any requested costs for Extra Unit Price Items, Cash Allowances and Alternate Items, as identified) that the Owner can award with its available budget at the time Contract is negotiated. Attach the Proposal Form and all information/documents required to be submitted with the Proposal. Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form.

- 8.1.2. Experience/Past Performance of Offeror and Key Personnel:

8.1.2.1. Organization Information. Provide general information about the Organization as required in Table 1 and Table 2 of Specification Section 00 21 13.03 Statement of Qualifications (SOQ). Provide any additional information as required by the Construction Experience section of Table 2. Describe the Organizational structure and the qualifications of the management team as it relates to this Project in Table 3. Provide a narrative format as described in Table 4, describing Offeror's experience as a general contractor and the Organization's operating philosophy and approach to constructing, completing, and commissioning projects. As requested in Table 4, describe the Organization's approach to managing Subcontractors and Suppliers (listed in Table 11), quality management and construction

contract administration. Limit the narrative portion responding to this criterion to no more than 10 pages in length. Provide a list of projects completed by the Organization in the last five (5) years using copies of Table 5.

Offeror must demonstrate experience in the construction of projects of similar construction cost and/or techniques and describe how they intend to provide the needed experience and expertise. Submit descriptions of projects on which proposed key personnel have experience by submitting completed copies of the attached Table 12, with at least one project for each of the key individuals. If Offeror does not have specific experience with projects of this type and magnitude, the Offeror may describe its proposed approach and how its experience with other projects enhances its capability to successfully complete this Project. Offeror may submit photographs, project descriptive narratives, letters of recommendation, project awards, and references to demonstrate experience in constructing a project which meets the Owner's expectations for a quality Project constructed on time and within budget (Tables 13 and 14). This narrative is not to exceed one (1) page in length.

Provide information to demonstrate the ability of the Organization to complete projects within budget and on time. Offerors are to provide a tabulation of all projects completed by the Organization within the last five (5) years on Tables 13 and 14 to demonstrate performance in these areas. Comments may be added to the tabulations to indicate any reasons for amending the contract amounts or completion dates. Provide narrative information to indicate the number of projects and dollar volume currently under contract by the Organization and the projected completion date of each active project. Describe how the resources dedicated to these assignments will impact Offeror's ability to effectively execute the construction of this Project. Provide an estimate of the amount of the Project that will be done using in-house resources and the amount to be performed by Subcontractors and Suppliers (listed in Table 11). This narrative is not to exceed five (5) pages in length.

8.1.2.2 Key Personnel Information. Provide information on the managerial structure and the key personnel that will be actively working on this Project in Tables 6a, 7a, 8a, 9a, 10a and their project experience in Table 12. Key personnel include the Project Manager, Project Superintendent, Safety Manager, and Quality Control Manager. If more than one of these key roles are to be filled by one individual, provide this with the list of proposed individuals. The Offeror is to provide a list of individuals from which the individual for any given position may be selected if the Offeror is not able to commit to one individual for the Project at the time the Proposal is submitted. Qualifications of these individuals will be

considered in evaluating the qualifications of the Offeror. The Proposal must offer to commit the services of the proposed key personnel for the life of the Project as a condition of qualification. Failure to offer to commit the proposed key Personnel may result in the disqualification of the Offeror and may void the award of the Contract.

Provide the resumes (not to exceed one page for each) of proposed key personnel, including Project Manager, Superintendent, Safety Manager, and Quality Control Manager with the SOQ describing their education and experience (Table 6a, 7a, 8a, 9a, 10a). Include more detailed information on projects on which they have had significant involvement in the last five (5) years, or that demonstrate their experience with similar projects (Table 12). This list is to include the name and a current telephone number of references for each of these project assignments. Offerors are to include a list of the current project assignments for each of the individuals proposed, the anticipated completion date for this assignment and the percentage of the time they will have available to devote to this Project. The Project Superintendent must be dedicated to this Project full time for the duration of the Project.

8.1.2.3 Safety. Demonstrated success in the implementation of a project site safety program. This may be demonstrated by documentation of the Offeror's safety program, and statement regarding their commitment to safety. Indicators such as the EMR (Experience Modification Ratio) may be used to demonstrate the effectiveness of the safety program.

8.1.2.4 Claims Experience and Litigation History: List all claims or litigation involving construction project owners that have been filed within the last five (5) years, whether or not still outstanding. Provide a brief description of the nature of each suit and, if not already resolved, when it is anticipated that the suit will be resolved.

8.1.3. Experience/Past Performance of CFRP Installer and Key Personnel:

8.1.3.1 Organization Information. Provide general information about the Organization as required in Table 1 and Table 2 of Specification Section 00 21 13.03 Statement of Qualifications (SOQ). Provide any additional information as required by the Construction Experience section of Table 2. Describe the Organizational structure and the qualifications of the management team as it relates to this Project in Table 3. Provide a narrative format as described in Table 4, describe CFRP Installer's experience and describe the Organization's operating philosophy and approach to constructing, completing, and commissioning projects.

CFRP Installer should have a minimum of 10 years' experience installing CFRP systems in pipelines. CFRP Installer must demonstrate experience in the construction of projects of similar construction cost and/or techniques and describe how they intend to provide the needed experience and expertise. Provide a list of projects completed by the Organization in the last five (5) years using copies of Table 5. For a project to be considered similar, it must involve the following: internal application of CFRP on pipelines greater than 36-inch diameter, where the same CFRP system proposed for use on this project has been used as a stand-alone upgrade of the pipeline without reliance on the host pipe for structural integrity. The minimum project length shall be 20 linear feet of repair.

Submit descriptions of projects on which proposed key personnel have experience by submitting completed copies of the attached Table 12, with at least one project for each of the key individuals. Offeror may submit photographs, project descriptive narratives, letters of recommendation, project awards, and references to demonstrate experience in constructing a project which meets the Owner's expectations for a quality Project constructed on time and within budget (Tables 13 and 14). This narrative is not to exceed one (1) page in length.

Provide information to demonstrate the ability of the Organization to complete projects within budget and on time. CFRP Installer shall provide a tabulation of all projects completed by the Organization within the last five (5) years on Tables 13 and 14 to demonstrate performance in these areas. Comments may be added to the tabulations to indicate any reasons for amending the contract amounts or completion dates.

Provide narrative information to indicate the number of projects and dollar volume currently under contract by the Organization and the projected completion date of each active project. Describe how the resources dedicated to these assignments will impact CFRP Installer's ability to effectively execute the discharge piping rehabilitation portion of this Project. Provide an estimate of the amount of the Project that will be done using in-house resources and the amount to be performed by Subcontractors and Suppliers. This narrative is not to exceed five (5) pages in length.

8.1.3.2 Key Personnel Information: Experience should include, as a minimum, the satisfactory completion of at least five (5) installations of CFRP involving internal pipe rehabilitation projects for proposed key personnel. Similar projects shall be defined as internal application of CFRP on pipelines greater than 36-inch diameter, where the same CFRP system proposed for use on this project has been used as a stand-alone upgrade of the pipeline without reliance on the host pipe for structural integrity. The minimum project length shall be 20 linear feet of repair. A higher point score for this criterion will be given to Offerors whose proposed CFRP Installer's key personnel have obtained the given minimum experience

within the last five (5) years.

Provide information on the managerial structure and the key personnel that will be actively working on this Project in Tables 6b, 7b, 8b, 9b, 10b and Table 12. Key personnel include the Design Engineer, Project Superintendent, Safety Manager, and Installation Technician. If more than one of these key roles are to be filled by one individual, provide this with the list of proposed individuals. The CFRP Installer is to provide a list of individuals from which the individual for any given position may be selected if the CFRP Installer is not able to commit to one individual for the Project at the time the Proposal is submitted. Qualifications of these individuals will be considered in evaluating the qualifications of the CFRP Installer. The Proposal must offer to commit the services of the proposed key personnel for the life of the Project as a condition of qualification. Failure to offer to commit the proposed key Personnel may result in the disqualification of the Offeror and may void the award of the Contract.

Provide the resumes (not to exceed one page for each) of proposed key personnel, including Design Engineer, Project Superintendent, Safety Manager, and Installation Technician, with the SOQ describing their education and experience (Table 6b, 7b, 8b, 9b, 10b). Provide letter from CFRP manufacturer indicating that Installation Technician is certified and approved to install CFRP liner system. Design Engineer must be a professional engineer registered in the state of Texas. Include more detailed information on projects on which key personnel have had significant involvement in the last five (5) years, or that demonstrate their experience with similar projects (Table 12). This list is to include the name and a current telephone number of references for each of these project assignments. CFRP Installer shall include a list of the current project assignments for each of the individuals proposed, the anticipated completion date for this assignment and the percentage of the time they will have available to devote to this Project. The Project Superintendent must be dedicated to this Project full time for the duration of the Project.

8.1.3.3 CFRP Product Data. Provide product data sheets indicating physical, mechanical, and chemical characteristics of all materials used in the CFRP system, as specified in Specification Section 09 80 11 – CFRP Composite System. As a minimum, provide the mechanical properties of the CFRP laminate, durability of the CFRP laminate based on the environmental conditions, and the physical properties of the resin.

Provide testing report demonstrating water tightness of the proposed CFRP system a minimum of twice the maximum design pressure of the pipeline. The testing report shall demonstrate that the proposed layup for the CFRP

system does not leak when subject to twice the maximum design pressure of the pipeline.

8.1.3.4 Safety. Demonstrated success in the implementation of a project site safety program. This may be demonstrated by documentation of the CFRP Installer's safety program, and statement regarding their commitment to safety. Indicators such as the EMR (Experience Modification Ratio) may be used to demonstrate the effectiveness of the safety program. Provide documents indicating that all materials meet OSHA, EPA, and local ordinances for health and safety including VOC compliance.

8.1.3.5 Claims Experience and Litigation History. List all claims or litigation involving construction project owners that have been filed within the last five (5) years, whether or not still outstanding. Provide a brief description of the nature of each suit and, if not already resolved, when it is anticipated that the suit will be resolved. List all projects where the installed CFRP system failed, did not perform as intended (leak, rupture, CFRP disbanded/had to be removed during or after installation, etc), or where work was halted or abandoned prior to completion of the originally contracted scope of work. Provide owner contact information for any of the above referenced projects. If no projects occurred which meet these criteria, a letter stating such shall be provided. Failure to disclose or misrepresentation of this information shall be grounds for disqualification.

8.1.4 Experience/Past Performance of Diversion Pumping Subcontractor and Key Personnel:

8.1.4.1 Organization Information. Provide general information about the Organization as required in Table 1 and Table 2 of Specification Section 00 21 13.03 Statement of Qualifications (SOQ). Provide any additional information as required by the Construction Experience section of Table 2. Describe the Organizational structure and the qualifications of the management team as it relates to this Project in Table 3. Provide a narrative format as described in Table 4, describe Diversion Pumping Subcontractor's experience and describe the Organization's operating philosophy and approach to constructing, completing, and commissioning projects.

Diversion Pumping Subcontractor must demonstrate experience in delivering a diversion pumping system of similar size and/or techniques and describe how they intend to provide the needed experience and expertise. Provide a list of projects completed by the Organization in the last five (5) years using copies of Table 5.

8.1.4.2 Diversion Pumping Plan: The Offeror shall provide a standby diversion pumping plan with attached narrative and/or examples of how the

standby diversion pumping system will utilize at least 2 pumps to deliver up to 30 MGD of raw water from Lake Houston to the SJRA Main Canal throughout the Project (if needed). This pumping plan shall include a layout plan, road crossing details, description of the proposed diversion pumping system, how the system will be installed/removed, a maintenance plan for the system, and a proposed mitigation plan should the system malfunction or otherwise be insufficient to deliver the required capacity. Additionally, the plan of the proposed system should include a narrative of the proposed contractor's means and method of providing an operator within 4 hours in the event the Owner requests that the system be operated. Contractor may reference Specification Section 33 32 00.01 - Diversion Pumping for additional information. Failure to provide the proposed Diversion Pumping Plan shall result in the disqualification of the Offeror and may void the award of the Contract.

- 8.1.5 Project Approach: The Offeror shall include a brief write-up, not to exceed three (3) pages, that summarizes the Offeror's approach to overall project sequence and schedule of construction for entire project limits and corresponding time lines, proposed construction methods, and site restoration. Approach summary should include all work contained within contract documents (bypass pumping, slide gate installation, earthwork, riprap installation, diversion pumping, CFRP liner installation, pump disassembly/reassembly, etc.). Offeror shall provide an overall construction schedule showing the scheduling and duration of keys tasks. Identify critical path items and plan for risk mitigation.
- 8.1.6 Financial Management (Stability): Provide the past two (2) years of available financial statements, preferably audited, with this Proposal. Provide financial statements showing the name and address of the firm preparing the financial statements and the date of preparation. Offerors may choose to report on the financial stability of their Organization to demonstrate that they have the ability to complete the Project in a manner that will not impose undue efforts on the part of the Owner to invoke rights under bonds to complete the Project or for Offeror to meet financial obligations. Describe the Offeror's systems and philosophy for financial management of the Project. Describe Offeror's systems and philosophy for contracting with Subcontractors and Suppliers and managing payments and retainage. Provide other information if desired to demonstrate solid financial management practices that will enhance completion of the Project. This narrative is not to exceed two (2) pages in length.

This is a Pass or Fail. Any Offeror receiving a score of "Fail", will be automatically disqualified.

8.2 Table of criteria and weighting for the ranking of Offeror’s Proposals.

Rating Category	Description	Weighting Points
8.1.1	Proposed Project Cost (E= A+B+C)	50
8.1.2	Experience/Past Performance of Offeror and Key Personnel	15
8.1.3	Experience/Past Performance of CFRP Installer and Key Personnel, including Product Data	15
8.1.4	Experience/Past Performance of Diversion Pumping Subcontractor, Diversion Pumping Plan	10
8.1.5	Project Approach	10
8.1.6	Financial Management (Stability)	Pass/Fail
Total		100

9 Proposal Form.

- 9.1 A Proposal Form (00 41 00.02) is included with the CSP Documents; additional copies may be obtained at <http://www.sjra.net> (Purchasing Tab) or directly at <http://brazosbid.cstx.gov>. Interested parties that are not already registered on the Brazos Valley Online Bidding System website must register as a “New Vendor” to download the CSP Document(s) and receive automatic notification of Addenda.
- 9.2 All blanks on the Proposal Form must be completed in ink, by hand, or electronically printed.
- 9.3 Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form. Template may be obtained at <http://www.sjra.net> (Purchasing Tab) or directly at <http://brazosbid.cstx.gov>.
- 9.4 The Proposal price shall include such amount as the Offeror deems proper for overhead and profit.

10 Offering Firm’s Statement of Qualifications (SOQ).

- 10.1 SOQs shall not exceed twenty (20) pages, including transmittal letters and narratives, and excluding completed SOQ tables and attachments, covers and plain section dividers. SOQs shall be printed on single side 8 ½” by 11” pages with not less than 1 inch margins, not less than 1.25 line spacing and not less than 11 point font.

- 10.2 The SOQ must be submitted with the Proposal and include, as a minimum, the information as described in Article 8, Basis for Ranking of Proposals. Failure to submit the required information in the SOQ may result in the Owner considering the Proposal non-responsive and result in rejection of the Proposal by Owner. Offerors may be required to provide supplemental information if requested by the Owner to clarify, enhance or supplement the information provided in the SOQ.
- 10.3 Offerors must provide requested SOQ information using the tables provided in specification section 00 21 13.03 - Statement of Qualifications. A copy of these tables will be made available in Microsoft Word to assist with the preparation of the SOQ. Information in these tables must be provided completely and in detail. The information in these tables 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 table may be included in an appendix to the table. Appendices must be clearly referenced by appendix number in the table, and the appended material must include the appendix number on every sheet of the appendix. Each appendix must include only the information that responds to the question or item number to which the appended information applies. The required tables are listed below:

Table 1	General Information (to be completed for Offeror, CFRP installer, and Diversion Pumping Subcontractor)
Table 2	Organizational Experience (to be completed for Offeror, CFRP installer, and Diversion Pumping Subcontractor)
Table 3	Organizational Structure (to be completed for Offeror, CFRP installer, and Diversion Pumping Subcontractor)
Table 4	Project Experience and Resources (to be completed for Offeror, CFRP installer, and Diversion Pumping Subcontractor)
Table 5	Current Projects and Projects Completed within the last 5 Years (to be completed for Offeror, CFRP installer, and Diversion Pumping Subcontractor)
Table 6a	Proposed Key Personnel of Offeror
Table 6b	Proposed Key Personnel of CFRP Installer
Table 7a	Proposed Project Manager of Offeror
Table 7b	Proposed CFRP System Design Engineer
Table 8a	Proposed Project Superintendent of Offeror
Table 8b	Proposed Project Superintendent of CFRP Installer
Table 9a	Proposed Project Safety Manager of Offeror

Table 9b	Proposed Project Safety Manager of CFRP Installer
Table 10a	Proposed Quality Control Manager of Offeror
Table 10b	Proposed Installation Technician of CFRP Installer
Table 11	Subcontractors and Suppliers (to be completed for Offeror only)
Table 12	Project information for Key Personnel (to be completed for Offeror and CFRP installer)
Table 13	Demonstration of Budget Performance (to be completed for Offeror and CFRP installer)
Table 14	Demonstration of On-time Performance (to be completed for Offeror and CFRP installer)

- 10.4 Offerors may provide supplemental information to the SOQs using AIA, AGC or other industry standard SOQ tables and / or Offerors may submit additional information such as organizational brochures or other marketing information to help demonstrate their ability to provide best value to the Owner. This information may not be submitted as a substitute to the information specifically requested in this Section, or in the SOQ tables. If this information is to be included as an appendix to the information requested in Article 10.3. (above), the appendix must specify the paragraph or section to which the appendix applies and the paragraph or section must accurately reference the appendix.

11 Ranking of Offeror's Proposals.

- 11.1 The Owner will consider the qualifications (Statement of Qualifications) of the Offerors and Offeror's proposed Subcontractors, Suppliers and consultants, in addition to the proposed cost(s) (Proposal Form) when evaluating Proposals to determine which Proposal offers the best value to the Owner. Owner will rank each of the Offeror's Proposals based on the criteria and criteria weighting described in Article 8, Basis for Ranking of Proposals.
- 11.2 Evaluation and ranking of the Proposals will be completed no later than the 45th Calendar day after the date of Proposal opening. Offerors are requested not to withdraw their Proposals within ninety (90) Calendar days from the date on which Proposals are opened. Proposal Security of the highest ranking firms will be held by the Owner until contract negotiations are finalized.
- 11.3 In evaluating Proposals, Owner will consider the selection criteria set forth in Article 8 of these Instructions to Offerors and whether or not the Proposals comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested by Owner.

- 11.4 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the General Conditions. Owner may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to recommendation of award to Owner's Board of Directors or its General Manager, as applicable.
- 11.5 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Proposal and to establish the responsibility, qualifications and financial ability of Offerors, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- 11.6 The Owner, at its discretion, may also choose to conduct interviews with the top ranking Offerors to provide Offerors a better opportunity to demonstrate they can provide the best value to the Owner for this Project. Should the Owner choose to conduct interviews with the top ranking Offerors, they will be notified of:
- 11.6.3 The time and place for the interview.
 - 11.6.4 Interview format and agenda.
 - 11.6.5 Questions to prepare for the interview.
 - 11.6.6 Individuals that are expected to participate in the interview.

Failure to participate in the interview may result in disqualification from consideration for the Project.

12 Award of Contract.

- 12.1 It is the intent of the San Jacinto River Authority to award this contract to the Offering Firm whose Proposal for completion of the Work provides the best value for the Owner after consideration of the relative importance of costs and other evaluation factors described in the Basis for Ranking Proposals set forth in Article 8 of these Instructions to Offerors.
- 12.2 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 to waive informalities.

- 12.3 Owner reserves the right to reject any or all Proposals, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced, or conditional Proposals and to reject the Proposal of any Offeror if Owner determines that an award to that Offeror would not provide the best value for the Owner, whether because the Proposal is not responsive or the Offeror is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner.
- 12.4 Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Apparent Best Value Offeror. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 12.5 The qualifications of a firm shall not deprive the Owner of the right to accept a Proposal, which in its judgment offers the best value to the Owner. 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 firm.
- 12.6 Material misstatements in the information submitted for evaluation may be ground for rejection of Offeror's Proposal. 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 costs or damages to the Owner resulting from such misstatements, including costs and attorneys' fees for collecting such costs and damages.
- 12.7 If the Contract is to be awarded, it will be awarded to the Apparent Best Value Offeror following successful Contract Negotiations and following any required approval by the SJRA Board of Directors or the SJRA General Manager, as applicable.
- 12.8 If Contract Negotiations with the Apparent Best Value Offeror are unsuccessful, The Owner will formally close Contract Negotiations with this Firm and attempt to open Contract Negotiations with the next highest-ranked firm according to the selection criteria set forth in Article 8 of these Instructions to Offerors.
- 12.9 If the Contract is to be awarded, Owner will notify Successful Offeror of intent to submit contract for approval by SJRA's Board of Directors within ninety (90) Calendar days after the day of the Proposal opening. Following approval by the SJRA Board of Directors or the SJRA General Manager, as applicable, the General Manager of the SJRA may execute the contract.

- 12.10 The Offeror may submit exceptions or alternatives not in accordance with the terms and conditions of the Contract Documents, or for Work that is not in strict compliance with the Contract Documents. In such event, Offeror must describe the intent and substance of the changes in the Proposal in adequate detail so they are clearly identifiable and understandable. 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, the Owner and Principal Architect/Engineer may consider proposed alternates in negotiating a final Contract scope, time/schedule and price.
- 12.11 Addenda may be issued to clarify, correct, or change the Contract Documents, prior Addenda or the related supplemental data as deemed advisable by Owner or Principal Architect/Engineer.

13 Interpretation and Addenda.

- 13.1 All questions about the meaning or intent of the Competitive Sealed Proposal and Contract Documents are to be directed to the SJRA Purchasing Department in writing. Interpretations or clarifications considered necessary by Owner's Representative in response to such questions will be issued by written Addenda and posted on the Brazos Valley Online Bidding System website, <http://brazosbid.cstx.gov> and via a link from the SJRA website www.SJRA.net Purchasing Tab (Bid opportunities).

Contact: Grady B. Garrow, CPPB
Buyer, San Jacinto River Authority
ggarrow@sjra.net
(936)-588-7178

Any questions submitted via the Brazos Valley Online Bidding System website on the appropriate webpage for submitting questions shall be the equivalent of contacting the SJRA Purchasing Department directly (via phone or email).

- 13.2 To properly qualify their Proposal, each Offeror shall, prior to submitting their Proposal, check the receipt of all Addenda and acknowledge such receipt on the Proposal Form and on the acknowledgement line of the Addendum Cover page. Proposals submitted without such acknowledgment of all issued Addenda and letters of clarification may cause Proposal to be considered non-responsive. Such Addenda and letters of clarification shall become a part of the executed contract and modify the contract documents accordingly.
- 13.3 Questions received after the deadline for Questions and Inquiries may not be answered.

- 13.4 Only questions answered by formal written Addenda issued by Owner will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 13.5 Addenda may be issued to clarify, correct, or change the Contract Documents, Addenda or the related supplemental data as deemed advisable by Owner or Principal Architect/Engineer. Addenda may also be issued to modify the CSP Documents as deemed advisable by Owner or Principal Architect/Engineer.
- 13.6 Notification of addenda will be by default via the Brazos Valley Online Bidding System (<http://brazosbid.cstx.gov>), provided that the Offeror has registered on the Brazos Valley Website and downloaded from the site the CSP Documents.
- 13.7 The Owner will not be responsible or liable for any failure of the Brazos Valley Online Bidding System notification to reach Offeror. Offerors are encouraged to visit the webpage where the CSP Documents are issued until the legal limit for filing addenda (48 hours prior to Proposal due date and time) has passed to ensure receipt of all addenda.

14 Confidentiality of Proposal Information.

All materials submitted to the SJRA and upon receipt by the SJRA become public property and are subject to the Texas Public Information Act, Government Code Chapter 552. If an Offeror does not desire proprietary Information in the SOQ to be disclosed, each page must be identified and marked proprietary at the time of submittal. The SJRA will, to the extent provided by law, endeavor to protect such information from disclosure. The final decision as to what information must be disclosed, however, lies with the Texas Attorney General. Failure to identify proprietary information will result in all unmarked sections being deemed non-proprietary and available to the public upon request. Proposers shall not be permitted to mark entire Proposal as proprietary.

15 Examination of Contract Documents and Site.

- 15.1 It is the responsibility of each Offeror before submitting a Proposal:
 - 15.1.3 To examine thoroughly the Contract Documents and other related data identified in the CSP Documents (including "technical data" referred to below);
 - 15.1.4 To visit the site to become familiar with and satisfy Offeror as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work;
 - 15.1.5 To consider federal, state and local Laws and Regulations that may

- affect cost, progress, performance or furnishing of the Work;
- 15.1.6 To study and carefully correlate Offeror's knowledge and observations with the Contract Documents and such other related data; and
- 15.1.7 To promptly notify The SJRA Purchasing Department of all conflicts, errors, ambiguities or discrepancies which Offeror has discovered in or between the Contract Documents and such other related documents.
- 15.2 Reference is made to the General Conditions Article 4 and Contract Specification Section 00 31 19 – Existing Condition Information for identification of:
- 15.2.3 Reports of explorations and tests of subsurface conditions at or contiguous to the site which have been utilized by Principal Architect/Engineer in preparation of the Contract Documents. While such reports are intended to be an accurate record of the conditions at the specific boring locations on the date taken, it is not a guarantee of specific Site conditions which may vary between boring locations and over time, and Offerors may not rely upon the general accuracy of the "technical data" contained in such reports and upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of preparing a Proposal for construction.
- 15.2.4 Copies of such reports will be made available by Owner to any Offeror on request. Such reports are not part of the Contract Documents. Offeror is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information. Offeror acknowledges that Owner and Principal Architect/Engineer disclaim any responsibility for the accuracy, correctness, completeness, suitability, and sufficiency of such reports and for Offeror's interpretation of such reports.
- 15.3 Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site are based upon information and data furnished to Owner and Principal Architect/Engineer by owners of such Underground Facilities or others, and Owner and Principal Architect/Engineer do not assume and expressly disclaim responsibility for the accuracy or completeness thereof or for Offeror's interpretation of such information and data. The Contractor is advised to coordinate closely with Owner, Principal Architect/Engineer and Utility Operator(s) prior to the commencement of any underground construction activities.
- 15.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Offerors with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract

Documents due to differing or unanticipated conditions appear in Article 6 of the Standard Form of Agreement and Article 4.2 of the General Conditions.

- 15.5 Before submitting a Proposal, each Offeror will be responsible for obtaining such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work, or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Offeror and safety precautions and programs incident thereto or which Offeror deems necessary to determine its Proposal for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 15.6 On request, the SJRA Purchasing Department may provide each Offeror access to the site to conduct such examinations, investigations, explorations, tests and studies, as each Offeror deems necessary for submission of a Proposal. Offeror must fill any resultant holes and clean up and restore the site to its former condition upon completion of such explorations, investigations, tests and studies.
- 15.7 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor. Easements for permanent structures of permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.
- 15.8 Reference is made to Specification Section 01 11 13 - Work Covered By Contract Documents for the identification of the general nature of Work that is to be performed at the site by the Owner or others (such as utilities and other prime Contractors) that relates to the Work for which a Proposal is to be submitted. On request, Owner may provide to each Offeror for examination access to or copies of Contract Documents (other than portions thereof related to price) for such Work.
- 15.9 The submission of a Proposal will constitute an incontrovertible representation by Offeror that Offeror has complied with every requirement of this Article 15, that without exception the Proposal is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that

Offeror has given Owner or Principal Architect/Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Offeror has discovered in the Contract Documents and the written resolutions thereof by Principal Architect/Engineer are acceptable to Offeror, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

- 15.10 The provisions of 15.1 through 15.9, inclusive, do not apply to Asbestos, Polychlorinated biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Article 4.4 Hazardous Conditions of the General Conditions.

16 Proposal Security.

- 16.1 Each Proposal must be accompanied by Proposal Security made payable to the Owner in the amount not less than five percent (5%) of the total Proposal Amount, including any Cash Allowances and Alternates, and shall be in the form of a cashier's check or Offeror's Bond.
- 16.2 Offeror's Bond must be on the form provided within the Contract Documents (CSP) and must bear the impressed seal of the Surety, and be signed by the Offeror and an authorized individual of the Surety. Bonds will only be accepted from Sureties authorized to issue bonds in accordance with state law.
- 16.3 The Proposal Security of Successful Offeror will be retained until such Offeror has executed the Standard Form of Agreement, furnished the required contract securities and met the other conditions contained in Specification Section 00 41 00.02 – Proposal Form, whereupon the Proposal Security will be returned. If the Offeror fails to execute and deliver the Standard Form of Agreement and furnish the required contract security within ten (10) Calendar days after the SJRA Board of Directors has approved a contract award, Owner may annul its award and the Proposal Security of that Offeror will be forfeited. The Proposal Security of other Offerors whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Standard Form of Agreement or the ninety-first day after the Proposal opening, whereupon Proposal Security furnished by such Offerors will be returned. Proposal Security, if submitted in the form of cashier's check, submitted with Proposals which are not competitive will be returned within ten (10) Calendar days after the Proposal opening.

17 Contract Times.

The number of Calendar days within which, or the dates by which, the Work is to reach Substantial and Final Completion are set forth in Specification Section 00 52 00 – Standard Form of Standard Form of Agreement between Owner and Contractor.

18 Substitutes and "Or-Equal" Items.

The Contract, if awarded, will be on the basis of goods and services described in the Drawings or specified in the Specifications with consideration for possible substitute or "or equivalent" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal"/"or equivalent" item of material or equipment may be furnished or used by Contractor if acceptable to Principal Architect/Engineer and Owner, application for such acceptance may be made prior to Contract award in accordance with Texas Government Code 2269.155. See section 6.02.5 in the General Conditions of the Contract for more information.

19 Subcontractors, Suppliers and Others.

19.1 If the Owner requests the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner, Apparent Best Value Offeror, and any other Offerors so requested, shall within five (5) Calendar days from request submit to Owner a list of all such Subcontractors, Suppliers or other persons or organizations proposed for those portions of the Work for which such identification is requested. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by Owner. If the Owner or Principal Architect/Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, Owner may, before giving notice of its intent to recommend award to Owner's Board of Directors, request that Apparent Best Value Offeror submit an acceptable substitute without an increase in price.

If Apparent Best Value Offeror declines to make any such substitution, Owner may formally close contract negotiations with Offeror and enter into contract negotiations with the next most highly-ranked Offeror that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Proposal Security of any Offeror. Any Subcontractor, Supplier, other person or organization listed and to whom Owner or Principal Architect/Engineer does not make written objection prior to giving notice of its intent to recommend Award to Owner's Board of Directors will be deemed acceptable to Owner and Principal Architect/Engineer, subject to revocation of such acceptance after the Effective Date of the Standard Form of Agreement as provided in Article 6.04 of the General Conditions.

19.2 No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

20 Preparation of Proposals.

- 20.1 Prepare one (1) unbound original of the complete Proposal Package, including the completed Proposal Form 00 41 00.02. Clearly mark this package with the word "Original". Prepare one (1) bound copy with original signatures, and one (1) electronic copy on Compact Disc or flash drive (in .pdf format) with a completed Proposal with original signatures, Statement of Qualifications 00 21 13.03, and a full set of Financials.
- 20.2 An Original Proposal is the Proposal containing the Original Signature of a person authorized to sign on behalf of the Offering Firm.
- 20.3 Proposals shall be enclosed in an opaque sealed Envelope (or Package), marked with CSP No. 18-0112 – Lake Houston Pump Station Discharge Piping Rehabilitation and name and address of Offering Firm.
- 20.4 Each Original Proposal submitted by an Offeror shall contain the following:
 - 20.4.3 Offerors Statement of Qualifications (SOQ; 00 21 13.03);
 - 20.4.4 Completed Proposal Form (00 41 00.02);
 - 20.4.5 Completed Certification of Proposal (00 41 00.02), Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the Proposal Form;
 - 20.4.6 Completed Felony Conviction Notice Form (00 41 00.02)
 - 20.4.7 Form of Business (00 45 20);
 - 20.4.8 Proposal Security (Offeror's Bond 00 43 13);
 - 20.4.9 Resolution of Contractor (00 45 43);
 - 20.4.10 Conflict of interest Forms (Form CIQ; 00 45 10) shall be submitted under a separate cover and not included in the sealed Proposal;
 - 20.4.11 One (1) flash drive with a Completed Proposal with Original signatures, Statement of Qualifications (SOQ) and a full set of Financials; and
 - 20.4.12 Any other Documentation required by the terms of this Competitive Sealed Proposal.
- 20.5 Conflict of Interest Questionnaire, Specification Section 00 45 10 of Contract shall be submitted under separate cover. If Offering Firm affirms that there are no Conflicts of Interest, Offeror shall indicate so by writing name of firm and "No Conflicts" on CIQ form and signing form.
- 20.6 Proposals submitted by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

- 20.7 Submitted Proposals by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 20.8 All names must be typed or printed in ink below the signature.
- 20.9 The Proposal shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Proposal Form).
- 20.10 The address and telephone number for communications regarding the Proposal must be shown.
- 20.11 Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Specification Section 00 41 00.02 – Proposal Form. State Contractor license number, if any, must also be shown.

21 Submission of Proposals.

- 21.1 Proposals shall be submitted at the time and place indicated in the Invitation to Submit Proposals (00 11 13) and accompanied by the Proposal Security and other required documents.
- 21.2 If the Proposal is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "SEALED PROPOSAL ENCLOSED" on the face of it. Proposals not received by the time or at the location specified will be returned unopened to the Offeror.
- 21.3 The clock used by the Owner at the place used for receiving Proposals shall conclusively determine the time that Proposals are received.
- 21.4 Proposals sent by facsimile or electronic mail or delivered to any other location other than the address provided in the Invitation to Offerors will NOT be accepted.

22 Modification and Withdrawal of Proposals.

- 22.1 Proposals may be modified or withdrawn by a document duly executed (in the same manner that a Proposal must be executed) and delivered to the place where Proposals are to be submitted prior to the date and time for the opening of Proposals.
- 22.2 If, within twenty-four (24) hours after Proposals are opened, any Offeror files a duly signed written notice with Owner and promptly thereafter demonstrates to

the reasonable satisfaction of Owner that there was a material or substantial mistake in the preparation of its Proposal, that Offeror may withdraw its Proposal. The Proposal Security may be retained by the Owner if Offeror cannot clearly demonstrate to the Owner evidence of a material or substantial mistake in its Proposal. Thereafter, that Offeror may be disqualified from responding to a reissued CSP for the Work to be furnished under these Contract Documents.

23 Opening of Proposals.

Proposals will be opened and (unless obviously non-responsive) the names and Monetary Proposals of Offering Firms read aloud at a public opening. An abstract of the Proposals will be made available no later than the seventh day after the Contract is awarded.

24 Proposals to Remain Subject to Acceptance.

All Proposals will remain subject to acceptance for ninety (90) Calendar days after the date of the opening, but Owner may, in its sole discretion, release any Proposal and return the Proposal Security prior to that date.

25 Prevailing Wage Rates.

Contractors for this Project must pay no less than the prevailing wage rates for the area established by the San Jacinto River Authority and included in Specification Section – 00 73 43 – Wage Scale for Construction.

26 Liquidated Damages or Economic Disincentives.

Provisions for liquidated damages or economic disincentives are set forth in Specification Section 00 52 00 -Standard Form of Standard Form of Agreement between Owner and Contractor and Specification Section 00 72 00 – General Conditions of the Contract.

27 Contract Security and Insurance.

Article 5 of the General Conditions sets forth Owner's requirements as to insurance and Performance and Payment Bonds. When the Successful Offeror delivers the original, hard copy executed Standard Form of Agreement to Owner, it must be accompanied by evidence of insurance and unsigned Performance and Payment Bonds as required by Article 5 of the General Conditions, unless prior written approval of Contractor's evidence of insurance and unsigned performance and payment Bond forms has been received from the SJRA Purchasing Department. Such evidence of insurance shall include, without limitation, all required certificates and endorsements, evidencing all required coverages, limits of liability, additional insured status, waivers

of subrogation and other insurance requirements.

28 Conflict of Interest and Disclosure of Interested Parties.

28.1 Chapter 176 of the Texas Local Government Code mandates the public disclosure of certain information concerning persons doing business or seeking to do business with the San Jacinto River Authority, including affiliations and business and financial relationships such persons may have with San Jacinto River Authority officers. An explanation of the requirements of Chapter 176, applicable forms and a complete text of the law are available at: <http://www.ethics.state.tx.us/forms/CIQ.pdf>.

BY DOING BUSINESS OR SEEKING TO DO BUSINESS WITH THE SAN JACINTO RIVER AUTHORITY, YOU ACKNOWLEDGE THAT YOU HAVE BEEN NOTIFIED OF THE REQUIREMENTS OF CHAPTER 176 OF THE TEXAS LOCAL GOVERNMENT CODE AND THAT YOU ARE RESPONSIBLE FOR COMPLYING WITH THEM.

28.2 Texas Government Code Section 2252.908 requires persons who enter into a contract with a government entity to submit a disclosure of interested parties (Form 1295) to the government entity or state agency at the time business entity submits the signed contract to the government entity or state agency. Use the following link to access filing instructions: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

29 Taxes.

Owner is exempt from payment of sales and use taxes of the State of Texas and of cities and counties thereof, on all goods and services to be incorporated into the Work. Said taxes shall not be included in the Proposal.

29.1 Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of goods to be incorporated into the Work.

29.2 Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to goods not incorporated into the Work, except to the extent the exemption referred to in paragraph 18.4 applies to the Project to exempt taxes on any such items.

29.3 If the Project is construction of a water or wastewater system certified by the Texas Commission on Environmental Quality as a regional system, equipment, services and supplies used solely to construct the Project are exempted from taxes imposed by Chapter 151, Limited Sales, Excise and Use Tax, Texas Tax

Code. Said taxes shall not be included in the Proposal. Owner will furnish any required certificates of tax exemption to Contractor.

30 Verification Company Does Not Boycott Israel

Pursuant to Section 2270.002 of the Texas Government Code, the Contractor shall be required to execute contemporaneous with its execution of the Standard Form of Agreement a verification that Contractor does not Boycott Israel and Contractor will not Boycott Israel during the term of this Standard Form of Agreement. "Boycott Israel" as used herein 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.

31 Signing of Standard Form of Agreement.

SJRA's Purchasing Department will transmit to the Successful Offeror the required number of unsigned counterparts of the Standard Form of Agreement with all other written Contract Documents attached. Contractor shall deliver original, hard copies of the required number of counterparts of the Standard Form of Agreement and written Contract Documents signed by Contractor, unsigned Bond forms, evidence of insurance as set out in Section 27 above, signed disclosure of interested parties (Form 1295), signed Conflict of interest Questionnaire, and signed and notarized Verification Company Does Not Boycott Israel, to SJRA Purchasing Department ten (10) Calendar days prior to the SJRA Board of Directors Meeting for which a contract award is anticipated. Notwithstanding the foregoing, the Standard Form of Agreement may be executed using electronic signatures at the option and in the discretion of Owner, and, in such event, the provisions of the Uniform Electronic Transaction Act, Chapter 332, Texas Business and Commerce Code, as amended, and any applicable policies and procedures of Owner regarding electronic signatures shall apply. However, the requirements of this Section 31 apply regardless of whether or not the Standard Form of Agreement is also executed using electronic signatures or transmitted electronically. Following and subject to award, the Owner shall deliver one (1) fully signed counterpart of the Standard Form of Agreement to Contractor. Within three (3) Calendar days of Contractor's receipt of the fully executed Standard Form of Agreement, the Contractor shall deliver the original, hard copy fully executed Bonds to SJRA Purchasing Department.

END OF SECTION

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LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 STATEMENT OF QUALIFICATIONS

TABLE 1 – GENERAL INFORMATION				
Organization Doing Business As:				
Business Address of Principle Office:				
Main Telephone Number:				
Fax Number:				
Web Site Address:				
Form of Business (check one):	<input type="checkbox"/> Corporation	<input type="checkbox"/> Partnership	<input type="checkbox"/> Individual	<input type="checkbox"/> Joint Venture
IF A CORPORATION				
Date of Incorporation:				
State of Incorporation:				
Chief Executive Manager's Name:				
President's Name:				
Vice President's Name(s):				
Secretary's Name:				
Treasurer's Name:				
IF A PARTNERSHIP				
Date of Organization:				
General or Limited Partnership?:				
IF AN INDIVIDUAL				
Name:				
Business Address:				
IF A JOINT VENTURE				
Name of Lead Joint Venture Manager:				
Name of Firm:				
Joint Venture Partner Manager(s):				
Name of Firm(s):				
Individuals Not Listed Above Having Significant Business Control:				
Indicators of Organization Size:				
Current Number Full Time Employees:		Estimate of Current Year's Revenue:		
Average Number of Projects per Year:		Average Project Construction Cost:		

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 STATEMENT OF QUALIFICATIONS

TABLE 2 – ORGANIZATIONAL EXPERIENCE			
Organization Doing Business As:			
Business Address of Principle Office:			
Main Telephone Number:			
Fax Number:			
Web Site Address:			
Organization Doing Business As:			
ORGANIZATIONAL HISTORY			
List of names that this organization has operated under over the history of the organization, including the names of related companies presently doing business:			
Names of Organization:		From Date	To Date
List of companies, firms or organizations that own any part of the organization.			
Name of Companies, Firms or Organization:			Percent Ownership
CONSTRUCTION EXPERIENCE			
1.	Years experience in projects similar to the proposed project:		
	As a General Contractor:		As a Joint Venture Partner:
2.	Has this or a predecessor organization ever defaulted on a project or failed to complete any work awarded to it? If yes provide full details in a separate attachment. (Attachment # _____)		
3.	Has this or a predecessor organization been released from a bid or proposal in the past ten years? If yes provide full details in a separate attachment. (Attachment # _____)		
4.	Has this or a predecessor organization ever been disqualification as a bidder or Offeror by any local, state, or federal agency within the last five (5) years? If yes provide full details in a separate attachment. (Attachment # _____)		
5.	Is this organization or your proposed surety currently in any litigation or contemplating litigation? If yes provide full details in a separate attachment. (Attachment # _____)		
6.	Has this or a predecessor organization ever refused to construct or refused to provide materials defined in the contract documents? If yes provide full details in a separate attachment. (Attachment # _____)		

TABLE 3 – ORGANIZATIONAL STRUCTURE	
Organization Doing Business As:	
PROPOSED PROJECT ORGANIZATION	
1. Provide a brief description of the managerial structure of the organization and illustrate with an organizational chart. Include the title and names of key personnel. Include this chart as an attachment to this description. (Attachment No. _____)	
2. Provide a brief description of the experience and qualifications of the organization's management team, including officers that will be directly involved in the project. Describe the individuals that are authorized to execute Contract Documents, Change Orders or receive payment for the organization. Include a copy of a board resolution or other documentation as appropriate for the structure of the company authorizing these individuals to conduct business on behalf of the organization. (Attachment No. _____)	
SURETY REFERENCES	

TABLE 5 – CURRENT PROJECTS AND PROJECTS COMPLETED WITHIN THE LAST 5 YEARS									
1	Project	Project Name:							
General Description of Project:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Project Cost:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Key Project Personnel:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Name:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Owner:		Name		Title/Position		Organization		Telephone E-mail	
Designer:		Name		Title/Position		Organization		Telephone E-mail	
Construction Manager:		Name		Title/Position		Organization		Telephone E-mail	
2	Project	Project Name:							
General Description of Project:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Project Cost:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Key Project Personnel:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Name:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Owner:		Name		Title/Position		Organization		Telephone E-mail	
Designer:		Name		Title/Position		Organization		Telephone E-mail	
Construction Manager:		Name		Title/Position		Organization		Telephone E-mail	
3	Project	Project Name:							
General Description of Project:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Project Cost:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Key Project Personnel:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Name:		Project Manager		Project Superintendent		Date Project Completed:		Quality Control Manager	
Reference contact information (listing names indicates approval to contacting the names individuals as a reference)									
Owner:		Name		Title/Position		Organization		Telephone E-mail	
Designer:		Name		Title/Position		Organization		Telephone E-mail	
Construction Manager:		Name		Title/Position		Organization		Telephone E-mail	

TABLE 6a – PROPOSED KEY PERSONNEL OF OFFEROR

Organization Doing Business As: _____

PROPOSED PROJECT ORGANIZATION

1. Provide a brief description of the managerial structure of the organization and illustrate with an organizational chart. Include the title and names of key personnel. Include this chart as an attachment to this description. See attachment No.

2. Provide a brief description of the managerial structure proposed for this project and illustrate with an organizational chart. Include the title and names of proposed key personnel and alternates. Include this chart as an attachment to this description. See attachment No.

EXPERIENCE OF KEY PERSONNEL

3. Provide information on the key personnel proposed for this project that will provide the following key functions. Provide information for candidates for each of these positions on the pages for each of these key personnel. Also provide biographical information for each primary and alternate candidate as an attachment. The biographical information must include the following as a minimum: technical experience, managerial experience, education and formal training, work history which describes project experience, including the roles and responsibilities for each assignment, and primary language. Additional information highlighting experience which makes them the best candidate for the assignment should also be included.

Role	Primary candidate	Alternate candidate
Project Manager		
Project Superintendent		
Project Safety Manager		
Quality Control Manager		

4. If key personnel are to fulfill more than one of the roles listed above, provide a written narrative describing how much time will be devoted to each function, their qualifications to fulfill each role and the percentage of their time that will be devoted to each role. If the individual is not to be devoted solely to this project, indicate how time it to be divided between this project and their other assignments.

TABLE 6b – PROPOSED KEY PERSONNEL OF CFRP INSTALLER

Organization Doing Business As: _____

PROPOSED PROJECT ORGANIZATION

5. Provide a brief description of the managerial structure of the organization and illustrate with an organizational chart. Include the title and names of key personnel. Include this chart as an attachment to this description. See attachment No.

6. Provide a brief description of the managerial structure proposed for this project and illustrate with an organizational chart. Include the title and names of proposed key personnel and alternates. Include this chart as an attachment to this description. See attachment No.

EXPERIENCE OF KEY PERSONNEL

7. Provide information on the key personnel proposed for this project that will provide the following key functions. Provide information for candidates for each of these positions on the pages for each of these key personnel. Also provide biographical information for each primary and alternate candidate as an attachment. The biographical information must include the following as a minimum: technical experience, managerial experience, education and formal training, work history which describes project experience, including the roles and responsibilities for each assignment, and primary language. Additional information highlighting experience which makes them the best candidate for the assignment should also be included.

Role	Primary candidate	Alternate candidate
CFRP System Design Engineer		
CFRP System Project Superintendent		
CFRP System Safety Manager		
CFRP System Installation Technician		

8. If key personnel are to fulfill more than one of the roles listed above, provide a written narrative describing how much time will be devoted to each function, their qualifications to fulfill each role and the percentage of their time that will be devoted to each role. If the individual is not to be devoted solely to this project, indicate how time it to be divided between this project and their other assignments.

TABLE 7a – PROPOSED PROJECT MANAGER OF OFFEROR

Organization Doing Business As: _____

PRIMARY CANDIDATE

1.	Name of Individual:		
	Years of Experience as Project Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

ALTERNATE CANDIDATE

3.	Name of Individual:		
	Years of Experience as Project Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 7b – PROPOSED CFRP SYSTEM DESIGN ENGINEER

Organization Doing Business As: _____

PRIMARY CANDIDATE

1.	Name of Individual:		
	Years of Experience as Design Engineer:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Design Engineer:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

ALTERNATE CANDIDATE

3.	Name of Individual:		
	Years of Experience as Design Engineer:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Design Engineer:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 8a – PROPOSED PROJECT SUPERINTENDENT OF OFFEROR			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate Role on Project:	

TABLE 8b – PROPOSED PROJECT SUPERINTENDENT OF CFRP INSTALLER

Organization Doing Business As: _____

PRIMARY CANDIDATE

1.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:		Percent of Time Used for This Project:

2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

ALTERNATE CANDIDATE

3.	Name of Individual:		
	Years of Experience as Project Superintendent:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Superintendent:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:		Percent of Time Used for This Project:

4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate Role on Project:	

TABLE 9a – PROPOSED PROJECT SAFETY MANAGER OF OFFEROR			
Organization Doing Business As:			
PRIMARY CANDIDATE			
1.	Name of Individual:		
	Years of Experience as Project Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	
ALTERNATE CANDIDATE			
3.	Name of Individual:		
	Years of Experience as Project Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Project Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)			
Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 9b – PROPOSED SYSTEM SAFETY MANAGER OF CFRP INSTALLER

Organization Doing Business As: _____

PRIMARY CANDIDATE

1.	Name of Individual:		
	Years of Experience as System Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as System Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

ALTERNATE CANDIDATE

3.	Name of Individual:		
	Years of Experience as System Safety Manager:		
	Years of Experience With This Organization:		
	Number of Similar Projects as System Safety Manager:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 10a – PROPOSED QUALITY CONTROL MANAGER OF OFFEROR				
Organization Doing Business As:				
PRIMARY CANDIDATE				
1.	Name of Individual:			
	Years of Experience as Quality Control Manager:			
	Years of Experience With This Organization:			
	Number of Similar Projects as Quality Control Manager:			
	Number of Similar Projects in Other Positions:			
	Current Project Assignments:			
	Name of Assignment:		Percent of Time Used for This Project:	Estimated Project Completion Date:
2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)				
Name:		Name:		
Title/ Position:		Title/ Position:		
Organization:		Organization:		
Telephone:		Telephone:		
E-mail:		E-mail:		
Project:		Project:		
Candidate's Role on Project:		Candidate's Role on Project:		
ALTERNATE CANDIDATE				
3.	Name of Individual:			
	Years of Experience as Quality Control Manager:			
	Years of Experience With This Organization:			
	Number of Similar Projects as Quality Control Manager:			
	Number of Similar Projects in Other Positions:			
	Current Project Assignments:			
	Name of Assignment:		Percent of Time Used for This Project:	Estimated Project Completion Date:
4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)				
Name:		Name:		
Title/ Position:		Title/ Position:		
Organization:		Organization:		
Telephone:		Telephone:		
E-mail:		E-mail:		
Project:		Project:		
Candidate's Role on Project:		Candidate's Role on Project:		

TABLE 10b – PROPOSED INSTALLATION TECHNICIAN OF CFRP INSTALLER

Organization Doing Business As: _____

PRIMARY CANDIDATE

1.	Name of Individual:		
	Years of Experience as Installation Technician:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Installation Technician:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

2. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

ALTERNATE CANDIDATE

3.	Name of Individual:		
	Years of Experience as Installation Technician:		
	Years of Experience With This Organization:		
	Number of Similar Projects as Installation Technician:		
	Number of Similar Projects in Other Positions:		
	Current Project Assignments:		
	Name of Assignment:	Percent of Time Used for This Project:	Estimated Project Completion Date:

4. Reference contact information (listing names indicates approval to contacting the names individuals as a reference)

Name:		Name:	
Title/ Position:		Title/ Position:	
Organization:		Organization:	
Telephone:		Telephone:	
E-mail:		E-mail:	
Project:		Project:	
Candidate's Role on Project:		Candidate's Role on Project:	

TABLE 12 – PROJECT INFORMATION FOR KEY PERSONNEL			
Project Owner:		Project Name:	
General Description of Project:			
PROJECT BUDGET AND SCHEDULE PERFORMANCE			
Budget history		Schedule performance	
Amount	% of Bid Amount	Date	Days
Bid:		Notice to Proceed:	
Change Orders:		Contract Substantial Completion Date at Notice to Proceed:	
Owner Enhancements:		Contract Final Completion Date at Notice to Proceed:	
Unforeseen Conditions:		Change Order Authorized Substantial Completion Date:	
Design Issues:		Change Order authorized Final Completion Date:	
Total:		Actual / Estimated Substantial Completion Date:	
Final Cost:		Actual / Estimated Final completion Date:	
KEY PROJECT PERSONNEL			
Project Manager		Quality Control Manager	
Name:		Safety Manager	
Percentage of Time Devoted to The project:		Project Superintendent	
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 Contract information (Listing names indicates approval to contact the named individuals as a reference)			
Name	Title/ Position	Organization	E-mail
Owner:			
Designer:			
Construction Manager:			
Surety:			
ISSUES / DISPUTES RESOLVED OR PENDING RESOLUTION BY ARBITRATION, LITIGATION OR DISPUTE REVIEW BOARDS:			
Number of Issues Resolved:	Total Amount Involved in Resolved Issues:	Number of Issues Pending:	Total Amount Involved in Resolved Issues:

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.

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AFFIDAVIT FOR CORPORATION

State _____ §

County of _____ §

_____, being duly sworn deposes and says
(Name)

That he is _____ of the Corporation submitting the
(Title)

foregoing qualification form and related information; that he has read such documents; and that such documents are true and correct and contain no material misrepresentations; and that he is 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: _____

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **STATEMENT OF QUALIFICATIONS**

AFFIDAVIT FOR PARTNERSHIP

State _____ §

County of _____ §

_____, being duly sworn deposes and says
(Name)

That he is _____ of the Company submitting the
(Title)

foregoing qualification form and related information; that he has read such documents; and that such documents are true and correct and contain no material misrepresentations; and that he is 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: _____

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **STATEMENT OF QUALIFICATIONS**

AFFIDAVIT FOR INDIVIDUAL

State _____ §

County of _____ §

(Name) _____, being duly sworn deposes and says

That he is _____ of the company submitting the
(Title)

foregoing qualification form and related information; that he has 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: _____

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **STATEMENT OF QUALIFICATIONS**

AFFIDAVIT FOR 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

SECTION 00 31 19

EXISTING CONDITION INFORMATION

1.1 SUMMARY

A. Section Includes:

1. Subsurface Investigation Report
2. Underground Facilities Reports
3. Existing Structures
4. Offeror Responsibilities

B. Related Specification Sections include but are not necessarily limited to:

1. Document 00 31 32 – Geotechnical Information
2. Document 00 31 32.10 – Trench Safety Geotechnical Information

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 EXISTING CONDITION INFORMATION

A. In the design and preparation of Contract Documents for this Project, the Owner and Principal Architect/Engineer have used information with respect to Underground Facilities and existing structures at or contiguous to the site, based on data furnished to the Owner or Principal Architect/Engineer by owners of the Underground Facilities, as noted in reports listed below.

B. A hard copy of each report will be made available as information only to Offerors at:

San Jacinto River Authority
Purchasing Department
1577 Dam Site Road
Conroe, TX 77304

C. Neither the Owner nor Principal Architect/Engineer is responsible for the accuracy or completeness of any such information or data.

1.5 SUBSURFACE INVESTIGATION REPORT

A. Report No. G136-15, prepared by Aviles Engineering Corp., entitled SJRA Lake Houston Pump Station Replacement of Pump No. 4 Meter Building, dated June 2015.

1.6 EXISTING FACILITIES REPORTS

A. Lake Houston Pump Station Effluent Lines Condition Assessment, prepared by V&A Consulting Engineers, dated June 2017.

- B. Report prepared by Orion Diving and Salvage, entitled Inspection Report, dated March 2014.
- C. Construction drawings for Lake Houston Pump Station prepared by Freese and Nichols, Inc. dated 1953.

1.7 EXISTING STRUCTURES

- A. Contract Documents indicate physical conditions in or relating to existing surface and subsurface structures which are at or contiguous to the site that were known to, and have been used by, the Owner and Principal Architect/Engineer in preparation of Contract documents.

1.8 OFFEROR RESPONSIBILITIES

- A. Offeror shall have full responsibility for reviewing and verifying information and data, for locating underground facilities and existing structures shown or indicated in the Contract Documents, and for coordination of the Work with the owners of such underground facilities and existing structures during construction.

END OF SECTION

SECTION 00 41 00.02

PROPOSAL FORM

To: The San Jacinto River Authority
1577 Dam Site Road
G & A Building, 3rd Floor Receptionist
Conroe, Texas 77304

Project: Lake Houston Pump Station Discharge Piping Rehabilitation
CSP No.: 18-0112
Project No.: SJRA Project No. HDPR0026.1007.2C001
Offeror: _____
(Print or type full name of proprietorship, partnership, corporation, or joint venture)

1.0 OFFER

- A. Total Proposal Price:** 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 Amount indicated in this Proposal or as modified by a Change Order or Change Directive.
- B. Proposal Security:** Included with the Proposal is a Proposal Security in the amount of 5 percent of the Total Proposal Price subject to terms described in Specification Section 00 21 13.02 – Instructions to Offerors.
- C. Period for Proposal Acceptance:** 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. This offer shall remain open to acceptance and is irrevocable for 90 days after Proposal Date (opening). That period may be extended by mutual written agreement of the SJRA and Offeror.
- D. Liquidated Damages:** 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.
- E. Addenda:** Offeror hereby acknowledges it has received, examined and carefully studied all Addenda and all Addenda have been considered and all related costs are included in the Total Proposal Price. Offeror hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum Date	Signature Acknowledging Receipt

F. Proposal Supplements: The following documents shall be provided with the proposal:

- Offeror’s Statement of Qualifications (SOQ – 00 21 13.03).
- Completed Certification of Proposal
- Completed Felony Conviction Notice Form
- Form of Business 00 45 20
- Proposal Security (Offeror’s Bond 00 43 13)
- Resolution of Contractor 00 45 43
- Contractor shall also complete and submit the provided Microsoft Excel spreadsheet of the proposal form
- One (1) flash drive with a Completed Proposal with Original signatures, Statement of Qualifications (SOQ) and a full set of Financials

G. Conflict of Interest Forms:

Conflict of Interest Forms (Form CIQ) shall be submitted under separate cover and not be included in the sealed proposal.

2.0 CONTRACT TIME

A. If Proposal is accepted, Contractor shall achieve Substantial Completion of the Work within 60 calendar days after the date when the Contract Time Requirements commence to run as provided in Article 2.3 of the General Conditions, and Contractor shall achieve Final Completion within 30 calendar days after the date required for Substantial Completion of the Work, subject to adjustments of Contract Time Requirements as provided in the Contract.

3.0 OFFEROR REPRESENTATIONS

- A. Offeror is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress, performance and furnishing of the Work.
- B. 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, performance and furnishing of the Work.
- C. 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 and (2) Hazardous Conditions identified in reports and

drawings provided to Offeror or available for Offeror review. Offeror understands that neither Owner nor Principal Architect/Engineer is responsible for the accuracy of these documents and they are not part of the Contract Documents.

- D. Offeror has obtained and carefully studied all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions including surface, subsurface and Underground Improvements at or contiguous to the Site which may affect cost, progress, performance or furnishing 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 Offeror, and safety precautions and programs incident thereto.
- E. 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 Amount proposed, within the Contract Time Requirements proposed and in accordance with the terms and conditions of the Contract Documents. Offeror shall make no claims against the Owner and shall bear all risk of losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the Work must be done vary or differ from conditions or information contained in the Contract Documents, or are different from what were estimated or anticipated by it.
- F. Offeror is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- G. Offeror has correlated the information known to 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.
- H. Offeror has given Owner or Principal Architect/Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Offeror has discovered in the Contract Documents, and the written resolution thereof by Principal Architect/Engineer are acceptable to Offeror.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Proposal is submitted.

- J. Laws to be Observed: In the performance of the Contract, the Contractor must comply with all applicable federal, state, and local laws, ordinances and regulations, including but not limited to laws concerned with labor, safety, minimum wages, and the environment. The Contractor will make himself familiar with and shall at all times observe and comply with all federal, state, and local laws, ordinances and regulations which in any manner affect the conduct of the work, and shall Indemnify and save harmless the Owner, and its representatives against any claim arising from violation of any such law, ordinance or regulation by himself or by his subcontractor or by his employees.
- K. Review by Owner:
- (a) The Owner and authorized representatives, agents and employees of the Owner shall at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, books and accounting records, subcontracts, purchase orders, and all other relevant data, documents and records pertaining to this Contract.
- L. Offeror will submit written evidence of its authority to do business in the state where the Project is located with its Proposal, form 00 45 20 – Form of Business.
- M. 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 submitting a Proposal; and Offeror has not sought by collusion to obtain for itself any advantage over any other Offeror or over Owner.

4.0 DEFINED TERMS:

- A. Terms defined in this Proposal, if any, shall be for the purposes of this Proposal. Terms with initial capital letters not defined herein shall have the meaning assigned to them in the other Bid Documents or Contract Documents.

5.0 TOTAL PROPOSAL PRICE HAS BEEN CALCULATED BY OFFEROR, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

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SAN JACINTO RIVER AUTHORITY
Lake Houston Pump Station Discharge Piping Rehabilitation
PROPOSAL FORM

A. BASE ITEMS

Item No.	Spec. Reference	Description	Qty.	Unit	Unit Price (this column controls)	Proposal Price
1	01 71 13	Mobilization: 5% (Maximum) of total proposal price. See Specification Section 01 71 13 – Mobilization for measurement and payment. For _____ dollars and _____ cents per LUMP SUM.	1	LS	\$ _____	\$ _____
2	33 32 00.01	Installation of Diversion Pumping system as described in the Drawings and Specifications, complete in place (intake, pumps, discharge pipes, appurtenances, crossing beneath road) and maintained during entire project. For: _____ dollars and _____ cents per LUMP SUM.	1	LS	\$ _____	\$ _____
3	31 23 00 31 23 16.19 31 24 00 31 37 01	Removal of existing riprap, regrading of canal, and installation of grouted riprap at diversion pumping discharge. For: _____ dollars and _____ cents per LUMP SUM	1	LS	\$ _____	\$ _____
4	33 32 00.01	Diversion pumping system on site in standby mode for the entire project duration. For: _____ dollars and _____ cents per LUMP SUM	1	LS	\$ _____	\$ _____
5	33 32 00.01	Diversion pumping system demobilization. For : _____ dollars and _____ cents per LUMP SUM.	1	LS	\$ _____	\$ _____

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **PROPOSAL FORM**

6	09 80 11	Pipe surface preparation and Installation of CFRP Composite System as described in the Specifications, complete in place. For: _____dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
7	09 80 11 03 31 32	Provide video inspection of Discharge Piping Repairs. For: _____dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
8	03 31 32 40 60 05	Repair of outlet structure headwall (as needed) and installation of Owner supplied slide gate as shown on the Drawings, tested, complete in place. For: _____-dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
9	00 01 42	To be performed by Weisinger Incorporated: Disassembly and reassembly of pumps No. 2 & 3 coupling and spool piece and temporary shift and re-setting of pumps 2 & 3. For: _____dollars and _____cents per LUMP SUM.	1	LS	\$46,280.00	\$46,280.00
10	03 31 32	Repair of pipe defects as shown on the Drawings using Portland cement mortar, complete in place. For: _____dollars and _____cents per LUMP SUM	1	LS	\$ _____	\$ _____
11	01 74 23 32 90 00 32 92 13	Sodding, hydro-mulching and restoration of all disturbed areas. For: _____dollars and _____cents per LUMP SUM	1	LS	\$ _____	\$ _____

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
 SJRA Project No. HDPR0026.1007.2C001 **PROPOSAL FORM**

12	01 57 23.02	Care of Water to include installation of cofferdam downstream of canal outlet structure and dewatering of junction box as shown in Drawings. For: _____dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
13	01 55 26	Traffic control to include flagman as needed as shown in Drawings. For: _____dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
14	00 61 13.13 00 61 13.16 00 61 19 00 61 20	Contractor Bonding Costs (Performance Bond, Statutory Payment Bond, One-Year Surface Correction Bond, One-Year Maintenance Bond) For: _____dollars and _____cents per LUMP SUM.	1	LS	\$ _____	\$ _____
<u>A. Total Base Items:</u>					\$ _____	

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B. EXTRA UNIT PRICE ITEMS						
Item No.	Spec. Reference	Description	Qty.	Unit	Unit Price (this column controls)	Proposal Price
1	33 32 00.01	Operation of diversion pumping on site in for flows of 0-15 MGD. For: _____dollars and _____cents	720	hours	\$ _____	\$ _____
2	33 32 00.01	Operation of diversion pumping on site in for flows of 15-30 MGD. For: _____dollars and _____cents	720	hours	\$ _____	\$ _____
3	09 80 11	Steel pipe repairs as needed for surface preparation prior to installation of CFRP Liner For: _____dollars and _____cents	300	SF	\$ _____	\$ _____
4	09 80 11	CFRP liner installation equipment on standby during steel pipe repairs as needed for surface preparation prior to installation of CFRP Liner For: _____dollars and _____cents	48	hours	\$ _____	\$ _____
<u>B. Total Extra Unit Price Items:</u>					\$ _____	

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C. CASH ALLOWANCES

1	N/A	Allowance as needed for Pumps No. 2 and 3 Disassembly/Reassembly For: Ten thousand dollars and zero cents	1	LS	\$ <u>10,000</u>	\$ <u>10,000</u>
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D. ALTERNATE ITEMS (NOT USED)

E. TOTAL PROPOSAL PRICE:
 (Add Totals for Items A, B and C) \$ _____

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6.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Bid Documents, Contract Documents and Addenda and considered all costs associated with the Bid Documents, Contract Documents and Addenda in calculating the Total Proposal Price.

Offeror: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

** By: _____
Signature Date

Name: _____
(Print or type name) Title

Doing Business as: _____

Business Address: _____
(Mailing)

(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Proposal is a joint venture, add additional Proposal Form signature sheets for each member of the joint venture.

** Offeror certifies that the only person or parties interested in this offer as principals are those named above. Offeror has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive Proposing.

Note: This document constitutes a Governmental record, as defined by § 37.01 of the Texas Penal Code. Submission of a false Governmental record is a criminal offense as provided in § 37.10 of the Texas Penal Code.

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7.0 CERTIFICATION OF PROPOSAL

The undersigned affirms that they are duly authorized to execute this Proposal, that this Proposal has not been prepared in collusion with any other Offeror, and that the contents of this Proposal have not been communicated to any other Offeror prior to the official opening of this Proposal. Additionally, the undersigned affirms that the Offeror is willing to sign the attached SJRA Agreement (if applicable).

Signed By: _____ Title: _____

Typed Name: _____ Company Name: _____

Phone No.: _____ Fax No.: _____

Email: _____

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

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

Remit to Address: _____
P.O. Box or Street City State Zip

Federal Tax ID No.: _____

Date: _____

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FELONY CONVICTION NOTIFICATION

Any person and/or business entity that enters into a contract with the San Jacinto River Authority must give advance notice to the SJRA if any employee or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony. The notice must also describe the role that the employee, owner, or operator will perform in executing the contract. The SJRA may require substitution of employees in the performance of the contract.

The SJRA may terminate a contract with a person or business entity if the SJRA determines that the person or business entity failed to give notice as required by this clause, misrepresented the conduct resulting in the conviction, or failed to substitute personnel at SJRA's request.

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony convictions has been reviewed by me and the following information furnished is true to the best of my knowledge.

Signature of Authorized Company Official _____ Date

Authorized Company Official's Name and Title (Printed)

Firm Name

A. My firm is not owned or operated by anyone who has been convicted of a felony nor does it have any employees who have been convicted of a felony:

Signature of Authorized Company Official _____ Date

B. My firm has employee(s) or is owned or operated by the following individual(s) who has/have been convicted of a felony:

Signature of Authorized Company Official _____ Date

C. Provide a general description of the conduct resulting in the conviction of a felony.

Signature of Authorized Company Official _____ Date

D. Describe the role that the person(s) convicted of a felony will play in the performance of the contract.

Signature of Authorized Company Official _____ Date

END OF SECTION

SECTION 00 43 13

OFFEROR'S BOND

THAT WE, _____, as Principal,
(Offeror)
("Offeror"), and the other subscriber hereto, _____, as Surety, do hereby
acknowledge ourselves to be held and firmly bound to the San Jacinto River Authority, a political sub-division of the
State of Texas, in the sum of _____ Dollars
(\$ _____) (an amount equal to five (5) percent of the Total Bid Price, including Cash Allowances and
Alternates, if any, for the payment of which sum, well and truly to be made to the San Jacinto River Authority and its
successors, the Offeror and Surety do bind themselves, their heirs, executors, administrators, successors, and
assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Offeror has submitted on or about this day a proposal offering to perform the following:

(Project Name, Location and Number)
in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is
hereby made.

NOW, THEREFORE, if the Offeror's offer as stated in the Section 00 41 00.02 - Proposal Form is accepted
by the San Jacinto River Authority, and the Offeror executes and returns to the San Jacinto River Authority Section
00 52 00 - Tandard Form of Agreement between Owner and Contractor, required by the San Jacinto River Authority,
on the forms prepared by the San Jacinto River Authority, for the Work and also executes and returns the same
number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety
authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an
underwriting limitation in at least the amount of the bond) and other submittals as required, in connection with the
Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force
and effect.

If Offeror is unable to or fails to perform the obligations undertaken herein, the undersigned Offeror and
Surety shall be liable to the San Jacinto River Authority for the full amount of this obligation which is hereby
acknowledged as the amount of damages which will be suffered by the San Jacinto River Authority on account of the
failure of such Offeror to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually
received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle,
with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the
address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter
prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Offeror and Surety have signed and sealed this instrument on the respective
dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

(Name of Offeror)

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS: (SEAL)

(Full Name of Surety)

(Address of Surety for Notice)

(Telephone Number of Surety)

By: _____
Name:
Title:
Date:

By: _____
Name:
Title:
Date:

END OF SECTION

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SECTION 00 45 10

CONFLICT OF INTEREST QUESTIONNAIRE

Local Government Code Chapter 176 requires Offerors with the San Jacinto River Authority ("SJRA") to file a Conflict of Interest Questionnaire with the SJRA.

The Conflict of Interest Questionnaire is available for downloading on the Texas Ethics Commission's website at: <http://www.ethics.state.tx.us/forms/CIQ.pdf>. The completed Conflict of Interest Questionnaire will be posted on the SJRA website. Also you will find a list of the SJRA Local Government Officers on the SJRA website.

For your convenience the CIQ form is attached as part of this document. Although the SJRA has provided this document for the Offeror's convenience, it is the Offeror's responsibility to submit the latest version of the CIQ form as promulgated by the Texas Ethics Commission.

The Failure of any Offeror to comply with this law is a Class C misdemeanor.

END OF SECTION

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SECTION 00 45 20
FORM OF BUSINESS

Please mark the box describing your firm's form of business, fill in the requested information, and include the relevant attachments.

Corporation

Corporate Name: _____
State of Incorporation: _____
Mailing Address: _____
Type of Corporation: _____

Certificate of Assumed Name, if operating under a name different than that on the corporate charter (the Certificate must have been issued within the past 10 years to be valid)

*Certificate of Good Standing

*Certificate of Existence (if non-Texas corporation, Certificate of Authority)

Partnership/Joint Venture

Partnership/Joint Venture Name: _____
Mailing Address: _____
Type of Partnership/Joint Venture: _____

Copy of the Partnership or Joint Venture Agreement, **or**
Affidavit with the name of the partnership or joint venture, the names of the individual partners or participants in the joint venture, and a statement that the partnership or joint venture is in existence

Certificate of Assumed Name, (the Certificate must have been issued within the past 10 years to be valid)

If firm is a limited partnership, the Certificate of Limited Partnership

If any partner or joint venturer is a corporation, the above information relating to corporation must be included as to each sum partner or joint venturer.

Sole Proprietorship

Name: _____
Mailing Address: _____

Certificate of Assumed Name, if operating under a name different than that of the sole proprietor (the Certificate must have been issued within the past 10 years to be valid)

** Must be furnished upon request of the SJRA and must be less than 90 days old.*

END OF SECTION

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SECTION 00 45 43
RESOLUTION OF CONTRACTOR

_____ (“Contractor”),
(Name of Contractor, e.g., “Biz. Inc.”, “Biz LLP”)

is a _____,
(Type of Organization, e.g.: Corporation, Limited Partnership, Limited Liability Partnership, Limited Liability Company, etc.)

which is bound by acts of _____,
(Name and Form of Governing Entity, e.g., “Biz Inc. Board of Directors”, “Bill Smith, GP”, etc.)

(“Governing Entity”).

On the . day of _____, 20____, the Governing Entity resolved, in accordance with all documents, rules, and laws applicable to the Contractor, that

_____, is authorized to act as the
(Contractor’s Representative)

Contractor’s Representative in all business transactions (initial one) ____ conducted in the State of Texas OR ____ related to this Contract; and

The Governing Entity warrants that the above resolution (a) was entered into without dissent or reservation by the Governing Entity, (b) has not been rescinded or amended, and (c) is now in full force and effect; and

**PART 1 - IN AUTHENTICATION OF THE ADOPTION OF THIS RESOLUTION, I
SUBSCRIBE MY NAME ON THIS ____ DAY OF _____, 20 ____.**

(Authorized Signature for Governing Entity)

(Print or Type Name and Title of Authorized Signatory)

SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of Texas

My Commission Expires: _____
Expiration Date

Print or Type Name of Notary Public

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LAKE HOUSTON PUMP STATION DISCHARGE
PIPING REHABILITATION **STANDARD FORM OF AGREEMENT**
SJRA Project No. HDPR0026.1007.2C001 **BETWEEN OWNER AND CONTRACTOR**
SECTION 00 52 00

STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of _____ by and between the **San Jacinto River Authority** (hereinafter called "**OWNER**") and _____ (hereinafter called "**CONTRACTOR**").

OWNER and CONTRACTOR, in consideration of the 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:

Construction of **Lake Houston Pump Station Discharge Piping Rehabilitation**

Article 2. PRINCIPAL ARCHITECT/ENGINEER AND OWNER'S REPRESENTATIVE.

The project has been designed by Victoria Foss, P.E., 19901 Southwest Freeway, Sugar Land, TX. 77479, who is hereinafter called "PRINCIPAL ARCHITECT/ENGINEER" and who assumes all duties and responsibilities and has the rights and authority assigned to PRINCIPAL ARCHITECT/ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents. OWNER'S Representative shall be Texas Water Engineering, PLLC.

Article 3. CONTRACT TIMES.

The Work will be Substantially Completed within 60 **calendar days** after the date when the Contract Time Requirements commence to run as provided in Article 2.3 of the General Conditions, and CONTRACTOR shall achieve Final Completion within 30 **calendar days** of the date required for Substantial Completion. The project will be considered Substantially Complete when the work covered by the contract documents has been completed with the exception of site restoration. Diversion pumping system shall not be demobilized until Pumps No. 2 and 3 have been reassembled and operating for a minimum of 48 hours.

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 the above paragraph, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving 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) and, as a reasonable estimate of such damages, CONTRACTOR shall pay OWNER one thousand Dollars (\$1,000.00) for each and every day of delay in CONTRACTOR achieving Substantial Completion of the Work and readiness for final payment beyond

the times specified in the above paragraph. OWNER shall have the option of deducting the amount of any liquidated damages from any monies that may be owed to CONTRACTOR or to recover such amount from the CONTRACTOR or its sureties, at CONTRACTOR'S expense.

Article 4. CONTRACT AMOUNT.

OWNER shall pay CONTRACTOR for completion of the Work, in accordance with the Contract Documents, an amount in current funds equal to the sum of the amounts determined to be due and owing pursuant to the Proposal and any subsequent Change Orders and Change Directives thereto.

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 OWNER'S Representative or PRINCIPAL ARCHITECT/ENGINEER as determined by the OWNER and as provided in the General Conditions and Supplemental Conditions, if any.

OWNER shall make progress payments on account of the Contract Amount on the basis of CONTRACTOR'S Applications for Payment as recommended by OWNER'S Representative or PRINCIPAL ARCHITECT/ENGINEER and in conformance with the procedures described in the General Conditions. All such payments will be measured by the schedule of values established in Article 2.4.2.07 of the General Conditions (and on the number of units of each Unit Price item completed, if unit price contract). Upon final completion and acceptance of the Work in accordance with Article 14.11 of the General Conditions, OWNER shall pay the remainder of the Contract Amount as recommended by OWNER'S Representative as provided in said Article 14.11.

The 10 percent retainage withheld pursuant to Article 14.01.5 of the General Conditions shall be deposited in an interest-bearing account, and the interest earned on such retainage shall be paid to CONTRACTOR on completion of the contract. **Article 6.**

CONTRACTOR'S REPRESENTATIONS.

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

CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in Article 7) and the other related data identified in the Proposal Documents.

CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, or furnishing of the Work.

CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Legal Requirements that may affect cost, progress, performance, and furnishing of the Work.

CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site. CONTRACTOR

acknowledges that such reports and drawings are not Contract Documents, are not warranted or represented in any manner by Owner to accurately show the conditions at the Site, and may not be complete for CONTRACTOR'S purposes. CONTRACTOR acknowledges that OWNER and PRINCIPAL ARCHITECT/ENGINEER do not assume and expressly disclaim any responsibility for the accuracy or completeness of the information and data shown or indicated in the Contract Documents with respect to subsurface conditions or Underground Facilities at or contiguous to the Site or CONTRACTOR'S interpretation of such information and data. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary research, examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site or otherwise which may affect cost, progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the performance and furnishing of the Work at the Contract Amount, within the Contract Time Requirements and in accordance with the other terms and conditions of the Contract Documents.

CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

CONTRACTOR has correlated the information known to CONTRACTOR, 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.

CONTRACTOR has given PRINCIPAL ARCHITECT/ENGINEER through the OWNER or OWNER'S Representative written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by PRINCIPAL ARCHITECT/ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Pursuant to Section 2270.002 of the Texas Government Code, contemporaneous with CONTRACTOR's execution of this Agreement, CONTRACTOR shall execute the Verification Company Does Not Boycott Israel, attached hereto and incorporated herein.

Article 7. CONTRACT DOCUMENTS.

The Contract Documents are comprised of the following:

1. This Agreement.
2. Exhibits to this Agreement: Verification Company Does Not Boycott Israel

Document	Title	Date	Page(s)
N/A			
N/A			
N/A			

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

STANDARD FORM OF AGREEMENT

SJRA Project No. HDPR0026.1007.2C001 BETWEEN OWNER AND CONTRACTOR

- 3. Performance, Payment, Maintenance, and Surface Correction Bonds.
- 4. General Conditions of the Contract.
- 5. Supplemental Conditions, if any.
- 6. Specifications 01 11 13 through 40 60 05, prepared by Victoria Foss, P.E. and sealed on September 28, 2018.
- 7. Drawings.
- 8. Addenda:

Addendum No.	Addendum Date	Signature Acknowledging Receipt

- 9. CONTRACTOR'S Proposal Form pursuant to Competitive Sealed Proposal No. 18-0112 .
- 10. Prevailing Wage Rates.
- 11. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached thereto: All written Change Orders or Change Directives pursuant to Article 3.3 of the General Conditions.

There are no Contract Documents other than those listed in this Article. The Contract Documents may only be amended, modified, or supplemented as provided in Article 3.3 of the General Conditions.

Article 8. INDEMNITY PROVISIONS.

THE GENERAL, SPECIAL, AND SUPPLEMENTAL CONDITIONS, IF ANY, INCORPORATED INTO THIS AGREEMENT CONTAIN PROVISIONS THAT MAY RELIEVE ONE PARTY FOR RESPONSIBILITY IT WOULD OTHERWISE HAVE UNDER THE LAW FOR DAMAGES OR OTHER LIABILITY ARISING OUT OF THE WORK.

EACH OF THE PARTIES HERETO SPECIFICALLY AGREES THAT IT HAS A DUTY TO READ THIS AGREEMENT, THE GENERAL, SPECIAL, AND SUPPLEMENTAL CONDITIONS, IF ANY, AND ALL OTHER CONTRACT DOCUMENTS AND AGREES THAT IT IS CHARGED WITH NOTICE AND KNOWLEDGE OF THE TERMS OF THIS AGREEMENT AND ALL CONTRACT DOCUMENTS; THAT IT HAS IN FACT READ THIS AGREEMENT AND ALL CONTRACT DOCUMENTS AND IS FULLY INFORMED AND HAS FULL NOTICE AND KNOWLEDGE OF THE TERMS, CONDITIONS AND EFFECTS OF THIS AGREEMENT; THAT IT HAS HAD THE OPPORTUNITY TO BE REPRESENTED BY INDEPENDENT LEGAL COUNSEL OF ITS CHOICE PRECEDING ITS EXECUTION OF THIS AGREEMENT AND HAS RECEIVED OR VOLUNTARILY CHOSEN NOT TO RECEIVE THE ADVICE OF ITS ATTORNEY IN ENTERING INTO THIS AGREEMENT; AND THAT IT RECOGNIZES THAT CERTAIN TERMS OF THIS AGREEMENT AND THE CONTRACT DOCUMENTS RESULT IN ONE PARTY ASSUMING THE LIABILITY INHERENT IN SOME ASPECTS OF THE TRANSACTION AND RELIEVING THE OTHER PARTY OF ITS RESPONSIBILITY FOR SUCH

**BETWEEN OWNER AND CONTRACTOR
LIABILITY. EACH PARTY HERETO AGREES AND COVENANTS THAT IT WILL NOT
CONTEST THE VALIDITY OR ENFORCEMENT OF ANY EXCULPATORY PROVISION
OF THIS AGREEMENT ON THE BASIS THAT THE PARTY HAD NO NOTICE OR
KNOWLEDGE OF SUCH PROVISION OR THAT THE PROVISION IS NOT
"CONSPICUOUS".**

Article 9. MISCELLANEOUS.

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

CONTRACTOR certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Article 9:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the proposal process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the proposal process or the execution of the Contract to the detriment of OWNER, (b) to establish Proposal or Contract prices at artificial noncompetitive levels, or (c) to deprive OWNER of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Proposers, with or without the knowledge of OWNER, a purpose of which is to establish Proposal prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the proposal process or affect the execution of the Contract.

No assignment by a party hereto of any rights or interests in the Contract 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.

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

Any provision or part thereof of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions or parts thereof shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

STANDARD FORM OF AGREEMENT

SJRA Project No. HDPR0026.1007.2C001 BETWEEN OWNER AND CONTRACTOR

provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision or part thereof.

This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement. A signed copy of this Agreement delivered by facsimile, email, or other means of electronic transmission shall be deemed to have the same legal effect as delivery of an original signed copy of this Agreement. Duplicate copies of duly executed and delivered counterparts of this Agreement shall be deemed to have the same full force and effect as originals and may be relied upon as such. Notwithstanding the foregoing, OWNER and CONTRACTOR agree that this Agreement may be executed using electronic signatures at the option and in the discretion of OWNER, and, in such event, the provisions of the Uniform Electronic Transaction Act, Chapter 332, Texas Business and Commerce Code, as amended, and any applicable policies and procedures of OWNER regarding electronic signatures shall apply.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement.

This Agreement will be effective on _____, (which is the effective date of the Agreement).

OWNER: San Jacinto River Authority

By: _____

Attest: _____

Address for giving notices:

CONTRACTOR:

By: _____

(CORPORATE SEAL)

Attest: _____

Address for giving notices:

License No. _____

Agent for service of process: _____

END OF SECTION

VERIFICATION COMPANY DOES NOT BOYCOTT ISRAEL

BEFORE ME, the undersigned authority, on this day personally appeared _____ [name], _____ [title] of _____ [Contractor], and, upon oath, after first being duly sworn, deposed and stated:

“My name is _____ and I am the _____ [title] of _____ [Contractor], hereinafter referred to in this verification as ‘Contractor’. The facts set forth herein are within my personal knowledge and are true and correct, and I am competent and authorized to make this verification on behalf of Contractor.

Contractor does not Boycott Israel; and

Contractor will not Boycott Israel during the term of this Agreement; and

‘Boycott Israel’ as used herein 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.”

Contractor: _____

By: _____
[Signature of Affiant]

Printed Name: _____

Title: _____

SUBSCRIBED AND SWORN TO before me on this ____ day of _____, 201__, by _____ [title] of _____ [Contractor], known to me or proved through photo identification.

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

**Senate Bill 252 -Government Code 2252
CERTIFICATION**

I, _____, the undersigned representative of _____ (Company or business name) being an adult over the age of eighteen (18) years of age, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that the company named above is not listed on the website of the Comptroller of the State of Texas concerning the listing of companies that are identified under Section 806.051, Section 807.051 or Section 2253.153. I further certify that should the above-named company enter into a contract that is on said listing of companies on the website of the Comptroller of the State of Texas which do business with Iran, Sudan or any Foreign Terrorist Organization, I will immediately notify the San Jacinto River Authority's Purchasing Division.

Name of Company Representative (Print)

Signature of Company Representative

Date

SECTION 00 60 20

MONTHLY SUBCONTRACTOR PAYMENT REPORTING FORM

Legal Project Name: _____

SJRA Project No.: _____

Contractor's Company Name: _____

Address: _____

CERTIFICATION

BEFORE ME, the undersigned authority, on this day personally appeared _____,
_____ [title] of _____ [Contractor], and, upon oath, after first being duly
sworn, deposed and stated:

"My name is _____ and I am the _____ [title] of
_____ [Contractor], hereinafter referred to in this affidavit as "Contractor". The facts set
forth herein are within my personal knowledge and are true and correct, and I am competent and authorized to
make this affidavit on behalf of Contractor.

Contractor has paid each and all of its Subcontractors, laborers, suppliers, vendors and
materialmen, if any, in full, for all work, labor, materials, equipment and/or services provided to Contractor
for incorporation in or use or work on the Project, through the period ending _____ [end date
of last paid pay period] (the "Pay Period"), except to the extent of any contractual retainage withheld by
Contractor, or other amounts withheld by Contractor for defective work or otherwise in accordance with its
contract with any Subcontractor, laborer, supplier, vendor or materialman and identified in the Payment
Notifications described below.

Contractor acknowledges that SJRA is relying on Contractor's statements and representations
herein in making payment for Work performed on the Project. Contractor agrees to indemnify SJRA from
any and all loss, cost or expense, including but not limited to attorneys' fees incurred, resulting from any
false or incorrect information contained in this affidavit."

EXCEPTION: Contractor sent Payment Notifications to the following Subcontractors, laborers, suppliers,
vendors or materialmen explaining why Contractor withheld payment, copies of which are attached:

Name: _____ Name: _____

Street Address: _____ Street Address: _____

City, State, and Zip Code: _____ City, State, and Zip Code: _____

LAKE HOUSTON PUMP STATION DISCHARGE
PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001

**MONTHLY SUBCONTRACTOR
PAYMENT REPORTING FORM**

Amount of Payment Withheld:

Amount of Payment Withheld:

Date Payment First Withheld:

Date Payment First Withheld:

Description of Good Faith Reason:

Description of Good Faith Reason:

(Signature of Contractor's Representative)

(Print or Type Name of Contractor's Representative)

SWORN TO AND SUBSCRIBED before me on:

Date

Notary Public in and for the State of Texas

My Commission Expires: _____
Expiration Date

Print or Type name of Notary Public

SECTION 00 61 13.13
PERFORMANCE BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____ (Contractor) of the City of _____, County of _____, and State of Texas, as Principal, and _____ authorized under the Laws of the State of Texas to act as surety on bonds for principals, as Surety, are held and firmly bound unto San Jacinto River Authority (Owner), in the 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____, for construction of: _____ (the "Contract"), which Contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall 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, within the time provided therein and any extensions thereof that may be granted by the Owner, and during the life of any guarantees or warranties contained in or required under said Contract, and shall also well and truly perform all the undertakings, covenants, terms, conditions and agreements of any and all modifications of said Contract that may hereafter be made, 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 Chapter 2253 of the Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with the provisions of said statute 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 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 the work to be performed thereunder.

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

Principal

Surety

BY:_____

BY:_____

TITLE:_____

TITLE:_____

ADDRESS:

PHYSICAL ADDRESS:

MAILING ADDRESS FOR NOTICE OF CLAIMS:

TELEPHONE:_____

LOCAL RECORDING AGENT
PERSONAL IDENTIFICATION
NUMBER:

The name and address of the Resident Agent of Surety is:

END OF SECTION

SECTION 00 61 13.16
STATUTORY PAYMENT BOND

STATE OF TEXAS

COUNTY OF _____

KNOW ALL MEN BY THESE PRESENTS: That _____ (Contractor) of the City of _____, County of _____, and State of Texas, as Principal, and _____ authorized under the Laws of the State of Texas to act as surety on bonds for principals, as Surety, are held and firmly bound unto San Jacinto River Authority (Owner), in the 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__, for construction of: _____ (the "Contract").

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

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION IS SUCH, that if the said Principal shall pay all claimants supplying labor and material to him or a Sub-Contractor in the prosecution of the work provided for in said Contract, 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 Chapter 2253 of the Texas Government Code as amended and all liabilities on this bond shall be determined in accordance with the provisions of said statute 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 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 the work to be performed thereunder.

SECTION 00 61 19
ONE-YEAR MAINTENANCE BOND

THAT WE, _____,
_____, as Principal, hereinafter called Contractor, and the other
subscriber hereto, _____,
as Surety, do hereby acknowledge ourselves to be held and firmly bound to the San
Jacinto River Authority ("SJRA") in the sum of \$ _____,
_____ , for the payment of which sum to be made to the SJRA
and its successors, Contractor and Surety do bind themselves, their successors, jointly
and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing
with the SJRA for _____,
all of such work to be done as set out in full in said Contract Documents therein referred
to and adopted by the SJRA, all of which are made a part of this instrument as fully and
completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of
Paragraph 13.7.1 of the General Conditions, and correct work not in accordance with the
Contract documents discovered within the established one-year period, then this
obligation shall become null and void, and shall be of no further force and effect;
otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed
delivered when given in accordance with the definition of Written Notice in the General
Conditions of the Contract.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed
this instrument on the respective dates written below their signatures and Surety has
attached its current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

Full Name of Surety

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **ONE YEAR MAINTENANCE BOND**

(SEAL)

Address of Surety for Notice

Telephone Number of Surety

By: _____

Name:

Title:

Date:

By: _____

Name:

Title: Attorney-in-Fact

Date:

END OF SECTION

4843-6617-2242, V. 1

SECTION 00 61 20

ONE-YEAR SURFACE CORRECTION BOND

THAT WE, _____,
_____, as Principal, hereinafter called Contractor, and the other
subscriber hereto, _____,
as Surety, do hereby acknowledge ourselves to be held and firmly bound to the San
Jacinto River Authority ("SJRA") in the sum of \$_____ such sum being equal to four
percent of the Original Contract Price, for the payment of which sum to be made to the
SJRA and its successors, Contractor and Surety do bind themselves, their successors,
jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has entered into a Contract in writing with the SJRA
dated of even date herewith, for _____,
all of such work to be done in accordance with the Contract documents therein referred
to, and adopted by the SJRA.

NOW THEREFORE, if the Contractor shall comply with the provisions of
Paragraph 13.7.1 of the General Conditions, and repair, replace, restore, and correct
surface work associated with backfill operations of subsurface work not in accordance
with the Contract documents discovered within one year from the date that the One-
year Maintenance Bond has expired, then this obligation shall become null and void,
and shall be of no further force and effect; otherwise, the same is to remain in full force
and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed
delivered when actually received or, if earlier, on the third day following deposit in a
United States Postal Service post office or receptacle, with proper postage affixed
(certified mail, return receipt requested), addressed to the respective other party at the
address prescribed in the Contract documents, or at such other address as the
receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Principal and Surety have signed and sealed this instrument on the respective dates written below their signatures.

ATTEST, SEAL: (if a corporation)

WITNESS: (if not a corporation)

By: _____

Name:

Title:

Name of Contractor

By: _____

Name:

Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____

Name:

Title:

Date:

By: _____

Name:

Title: Attorney-in-Fact

Date:

END OF SECTION

SECTION 00 62 04

HISTORY OF OSHA ACTIONS AND LIST OF ON-THE-JOB INJURIES

Prior to award of the Contract, Successful Offeror will be required to file the following with the San Jacinto River Authority:

1. A history of all OSHA actions, advisories, etc., Contractor has received on all jobs worked in any capacity, prime or subcontractor. The history shall be for the two-year period preceding the Bid Date of the Project.
2. A list of all on-the-job injuries, accidents, and fatalities suffered by any present or former employees of Contractor during the same two-year period.
3. If less than the two-year period, give the date Contractor started doing business.
4. Provide the company Experience Modification Rate (EMR) for the three-year period preceding the Proposal Submission Date of the Project.

An officer of the company must certify in a notarized statement that the information submitted is true and correct.

END OF SECTION

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SECTION 00 62 07

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**

Contractor 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 covered transactions by any Federal, State, or local department or agency;
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;
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; 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.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award.

Company:

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

I am unable to certify the above statements. My explanation is attached.

END OF SECTION

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LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

NAME AND QUALIFICATIONS OF

PROPOSED SUPERINTENDENT

SECTION 00 62 10

NAME AND QUALIFICATIONS OF PROPOSED SUPERINTENDENT (FOR FILING)

Prior to award of the Contract, Offeror selected will be required to file the following with the San Jacinto River Authority:

1. The name and qualifications of the Superintendent being proposed to supervise the Project.

This information must be submitted to the SJRA within 10 days of written notification of contract award. An officer of the company must certify in a statement that the information submitted is true and correct.

END OF SECTION

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

**NAME AND QUALIFICATIONS OF
PROPOSED SUPERINTENDENT**

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SECTION 00 62 16
AFFIDAVIT OF INSURANCE

BEFORE ME, the undersigned authority, on this day personally appeared

Affiant

who being by me duly sworn on his oath stated that he/she is _____
Title

of _____
Contractor's Company Name

the Contractor named and referred to within the Contract Documents; that he/she is fully competent and authorized to give this affidavit on behalf of Contractor, and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now in effect and will be in effect during the periods required by the Contract.

Affiant's Signature

SWORN AND SUBSCRIBED before me on _____
Date

Notary Public in and for the State of TEXAS

Print or type Notary Public name

My Commission Expires: _____
Expiration Date

END OF SECTION

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4827-0155-8354, V. 1



San Jacinto River Authority

Certificate of Substantial Completion

ADMINISTRATIVE OFFICE
 P.O. Box 329 · Conroe, Texas 77305
 (T) 936.588.3111 · (F) 936.588.3043

SECTION 00 65 16 CERTIFICATE OF SUBSTANTIAL COMPLETION

		Date of Substantial Completion:	
Project Name:		Project Number:	
Project Location:		Contract Number:	
Contractor:		Notice To Proceed Date:	
Principal Architect/Eng.:		Contracted Amount:	
Construction Manager:		Amount at Completion:	
Inspector:		Time to Complete:	Days
Punch List Correction Period:	Days	Date of Inspection:	

Description of Substantially Complete Work:

Issuance and execution of this Certificate of Substantial Completion by the San Jacinto River Authority (SJRA), shall denote that the described Work for the referenced Project has been inspected for compliance to the Project's Contract Documents and the described Work was found to be Substantially Complete. Therefore, the Date of Substantial Completion is established as indicated above.

Items having no impact on the intended and proper implementation, operation, or utilization of the described Work which have been determined as requiring correction or incomplete, are documented on the attached Substantial Completion Punch List. All such items shall be completed within the above stated Punch List Correction Period.

Punch List omissions of Contract Work does not relieve the Contractor of its responsibility to complete the Project Work in accordance with the Contract Documents.

Contract required warranties and guarantee periods shall commence on the Date of Substantial Completion.

Final insurance(s) shall remain in effect until the Project's Date of Final Completion of the Work is established.

Construction Manager:	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
Principal Architect/Eng.	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
Contractor:	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
SJRA Representative:	_____	_____	Date: _____
	Print	Signature	
SJRA General Manager:	_____	_____	Date: _____
	Print	Signature	



San Jacinto River Authority

Certificate of Substantial Completion

ADMINISTRATIVE OFFICE
 P.O. Box 329 · Conroe, Texas 77305
 (T) 936.588.3111 · (F) 936.588.3043

SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST

		PREPARATION DATE:		
PROJECT NAME:		PROJECT NUMBER:		
PROJECT LOCATION:		PREPARED BY:		
CONTRACTOR:		INSPECTION DATE:		
WORK PORTION:				

INSPECTION ATTENDEES:

NAME	COMPANY	E-MAIL	TELEPHONE

SJRA FIELD REPRESENTATIVE:			DATE:	
----------------------------	--	--	-------	--

CONTRACTOR (<i>ACKNOWLEDGE RECEIPT</i>):	PRINTED	SIGNATURE	DATE:	
--	---------	-----------	-------	--

SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST

DESCRIPTION:	DATE COMPLETE:	SIGNED BY:



San Jacinto River Authority

ADMINISTRATIVE OFFICE
 P.O. Box 329 · Conroe, Texas 77305
 (T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF PARTIAL SUBSTANTIAL COMPLETION

SECTION 00 65 16.23 CERTIFICATE OF PARTIAL SUBSTANTIAL COMPLETION

		Date of Partial Substantial	
Project Name:		Project Number:	
Project Location:		Contract Number:	
Contractor:		Notice To Proceed Date:	
Principal Architect/Eng.:		Contracted Amount:	
Construction Manager:		Amount at Completion:	
Inspector:		Time to Complete:	Days
Punch List Correction Period:	Days	Date of Inspection:	

Description of Substantially Complete Work:

Issuance and execution of this Certificate of Partial Substantial Completion by the San Jacinto River Authority (SJRA), shall denote that the described Work for the referenced Project has been inspected for compliance to the Project's Contract Documents and the described Work was found to be Substantially Complete. Therefore, the Date of Partial Substantial Completion is established as indicated above.

Items having no impact on the intended and proper implementation, operation, or utilization of the described Work which have been determined as requiring correction or incomplete, are documented on the attached Partial Substantial Completion Punch List. All such items shall be completed within the above stated Punch List Correction Period.

Punch List omissions of Contract Work does not relieve the Contractor of its responsibility to complete the Project Work in accordance with the Contract Documents.

Contract required warranties and guarantee periods shall commence on the Date of Partial Substantial Completion.

Final insurance(s) shall remain in effect until the Project's Date of Final Completion of the Work is established.

Construction Manager:	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
Principal Architect/Eng.:	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
Contractor:	_____	_____	Date: _____
	Print	Signature	
Company:	_____		
SJRA Representative:	_____	_____	Date: _____
	Print	Signature	
SJRA General Manager:	_____	_____	Date: _____
	Print	Signature	



San Jacinto River Authority

ADMINISTRATIVE OFFICE
 P.O. Box 329 · Conroe, Texas 77305
 (T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF PARTIAL SUBSTANTIAL COMPLETION

PARTIAL SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST

PREPARATION DATE: _____

PROJECT NAME:		PROJECT NUMBER:	
PROJECT LOCATION:		PREPARED BY:	
CONTRACTOR:		INSPECTION DATE:	
WORK PORTION:			

INSPECTION ATTENDEES:

NAME	COMPANY	E-MAIL	TELEPHONE

SJRA FIELD REPRESENTATIVE:			DATE:	
----------------------------	--	--	-------	--

PRINTED

SIGNATURE

CONTRACTOR (ACKNOWLEDGE RECEIPT):			DATE:	
-----------------------------------	--	--	-------	--

PRINTED

SIGNATURE

PARTIAL SUBSTANTIAL COMPLETION INSPECTION PUNCH LIST

DESCRIPTION:	DATE COMPLETE:	SIGNED BY:



San Jacinto River Authority

ADMINISTRATIVE OFFICE
P.O. Box 329 · Conroe, Texas 77305
(T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF PARTIAL SUBSTANTIAL COMPLETION

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SECTION 00 65 19

CONTRACTOR'S CERTIFICATION OF FINAL COMPLETION

CERTIFICATE OF FINAL COMPLETION OF: Lake Houston Pump Station Discharge Piping Rehabilitation

Project No.: HDPR0026.1007.2C001

Contract Dated: _____

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared _____ who, being by me duly sworn, on his oath says that he or she represents _____, the Contractor who has performed a contract with the San Jacinto River Authority ("SJRA") for the construction of the Work described above, and is duly authorized to make this affidavit; that he or she has personally examined the Work described above as required by the Contract documents; that said Work and all items thereof have been completed and all known defects made good; that all surplus material, refuse, dirt and rubbish have been cleaned up and removed or disposed of as directed by the SJRA; that all parts of Work are in a neat, tidy, finished condition and ready in all respects for acceptance by the SJRA; that all gravel or shell roadway surfaces removed during the course of the Work have been replaced in accordance with the Specifications, that rates of pay for all labor employed on said Work have not been below the minimum set out in "Labor Classification and Minimum Wage Scale" in the Contract documents and that within the knowledge of affiant all just bills for labor and material and for the rental or use of any equipment or apparatus, used in, on, or in connection with the Work have been paid in full by the Contractor.

Affiant's Signature

SWORN AND SUBSCRIBED before me on
PART 1 -

DATE

Notary Public in and for the State of TEXAS

Print or type name

My Commission Expires: _____
Expiration Date

THIS IS TO CERTIFY that I have thoroughly inspected the Work performed by the above named Contractor on the above described Contract and find all things in accordance with the Contract documents governing this Work.

Inspector

[Project Manager or Construction Manager]

Approved:

[Title of Approval Authority], [Contracting Department]

END OF SECTION

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SECTION 00 65 19.13

AFFIDAVIT OF BILLS PAID

STATE OF TEXAS

COUNTY OF _____

BEFORE ME, the undersigned authority, on this day personally appeared _____, party to that certain Contract entered into on the ___ day of _____, 20___, between **San Jacinto River Authority** (Owner) and _____ for the erection, construction, and completion of certain improvements and/or additions upon the following described premises, to wit:

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION

Said party being by me duly sworn states upon oath that the said improvements have been erected and completed in full compliance with the above referred to Contract and the agreed plans and specifications therefore.

Deponent further states that he has paid all bills and claims for materials furnished and labor performed on said Contract and that there are no outstanding unpaid bills or legal claims for labor performed or materials furnished upon said job.

This affidavit is being made by the undersigned realizing that it is in reliance upon the truthfulness of the statements contained therein that final and full settlement of the balance due on said Contract is being made, and in consideration of the disbursement of funds San Jacinto River Authority, deponent expressly waives and releases all liens, claims and rights to assert a lien on said premises and agrees to indemnify and hold Owner safe and harmless from and against all losses, damages, costs and expenses of any character whatsoever specifically including court costs, bonding fees and attorney fees, arising out of or in any way relating to claims for unpaid labor or material used or associated with construction of improvements on the above-described premises.

By: _____

Subscribed and sworn to before me, the undersigned authority, on this the _____ day of _____, 20__.

Notary Public in and for _____ County, Texas.

END OF SECTION

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San Jacinto River Authority

ADMINISTRATIVE OFFICE
 P.O. Box 329 · Conroe, Texas 77305
 (T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF FINAL COMPLETION

SECTION 00 65 19.23 CERTIFICATE OF FINAL COMPLETION

CERTIFICATE OF FINAL COMPLETION

	Date of Final Completion:	
Project Name:	Project Number:	
Project Location:	Contract Number:	
Contractor:	Notice To Proceed Date:	
Principal:	Contracted Amount:	
Construction Manager:	Amount at Completion:	
Inspector:	Time to Complete:	Days
Punch List Correction Period:	Date of Inspection:	

Description of Finally Complete Work:

DATE OF FINAL COMPLETION - The Work performed under the Contract was inspected on above indicated Date of Final Completion and found to be complete. The date of final completion of the Work is hereby established as indicated above.

PUNCH LIST - Contractor certified in Document 00 65 19 – Contractor's Certification of Final Completion that all Punch List items were completed or corrected. Failure to identify incomplete work items or requirements of the Contract prior to issuance of this Certificate does not alter the responsibility of Contractor to comply with all provisions of the Contract.

ACCEPTANCE OF THE WORK - Based on inspection and to the best of our knowledge, information and belief, the Work has been completed in accordance with the terms and conditions of the Contract and we recommend acceptance of the Work by the San Jacinto River Authority or their delegated authority.

Construction Manager:	_____	Date: _____
	Print	Signature
Company:		
Principal Architect/Eng.:	_____	Date: _____
	Print	Signature
Company:		
Contractor:	_____	Date: _____
	Print	Signature
Company:		
SJRA Project Manager:	_____	Date: _____
	Print	Signature
SJRA General Manager:	_____	Date: _____
	Print	Signature



San Jacinto River Authority

ADMINISTRATIVE OFFICE
P.O. Box 329 · Conroe, Texas 77305
(T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF FINAL COMPLETION

FINAL COMPLETION INSPECTION PUNCH LIST

PREPARATION DATE:				
PROJECT NAME:		PROJECT NUMBER:		
PROJECT LOCATION:		PREPARED BY:		
CONTRACTOR:		INSPECTION DATE:		
WORK PORTION:				
INSPECTION ATTENDEES:				
NAME	COMPANY	E-MAIL	TELEPHONE	
SJRA FIELD REPRESENTATIVE:			DATE	
			:	
	<small>PRINTED</small>			<small>SIGNATURE</small>
CONTRACTOR (<i>ACKNOWLEDGE RECEIPT</i>):			DATE:	
	<small>PRINTED</small>			<small>SIGNATURE</small>

FINAL COMPLETION INSPECTION PUNCH LIST		
DESCRIPTION:	DATE COMPLETE:	SIGNED BY:



San Jacinto River Authority

ADMINISTRATIVE OFFICE
P.O. Box 329 · Conroe, Texas 77305
(T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF FINAL COMPLETION

		PREPARATION DATE:	
PROJECT NAME:		PROJECT NUMBER:	
PROJECT LOCATION:		PREPARED BY:	
CONTRACTOR:		INSPECTION DATE:	
WORK PORTION:			

FINAL COMPLETION INSPECTION PUNCH LIST (CONTINUED)

DESCRIPTION:	DATE COMPLETE:	SIGNED BY:

- End of Punch List -

END OF SECTION



San Jacinto River Authority

ADMINISTRATIVE OFFICE
P.O. Box 329 · Conroe, Texas 77305
(T) 936.588.3111 · (F) 936.588.3043

CERTIFICATE OF FINAL COMPLETION

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SECTION 00 65 21

CONDITIONAL WAIVER AND RELEASE UPON PROGRESS PAYMENT

Legal Project Name: _____

SJRA Project No.: _____

Contractor's Company Name ("Contractor"): _____

Address: _____

On receipt by Contractor of a check from the San Jacinto River Authority ("SJRA") in the sum of \$_____ payable to Contractor, and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to waive and release any and all rights, claims and causes of action which Contractor may have against SJRA, including but not limited to any and all claims for costs, expenses and damages incurred by Contractor, arising out of or related to all labor, materials, equipment and/or services furnished for incorporation in or use or work on the Project, through the period ending _____ [end date of current pay period] (the "Pay Period"), except to the extent of any contractual retainage withheld from Contractor, and except for the following pending claims, if any:

<u>Description of Claim</u>	<u>Amount (\$)</u>
-----------------------------	--------------------

Contractor warrants that Contractor has already paid or will use the funds received from this progress payment to promptly pay in full all amounts due the Contractor's laborers, Subcontractors, materialmen, vendors and suppliers for all work, materials, equipment, and/or services provided for or to the above referenced Project through the Pay Period.

Date _____

_____ (Contractor name)

By: _____ (Signature)

_____ (Title)

This instrument was executed and acknowledged before me on this ___ day of _____, 20__, by _____, known to me as the person whose name is subscribed above, as _____ [title] of _____ [company], on behalf of and as the authorized act of said entity.

Notary Public in and for the State of Texas

My Commission Expires: _____

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

CONDITIONAL WAIVER AND RELEASE

UPON PROGRESS PAYMENT

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SECTION 00 65 27

CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT

Legal Project Name: _____

SJRA Project No.: _____

Contractor's Company Name ("Contractor"): _____

Address: _____

On receipt by Contractor of a check from the San Jacinto River Authority ("SJRA") in the sum of \$_____ payable to Contractor, and when the check has been properly endorsed and has been paid by the bank on which it is drawn, this document becomes effective to waive and release any and all rights, claims and causes of action which Contractor may have against SJRA, including but not limited to any and all claims for costs, expenses and damages incurred by Contractor, arising out of or related to all labor, materials, equipment and/or services furnished for incorporation in or use or work on the Project, except for the following pending claims, if any:

<u>Description of Claim</u>	<u>Amount (\$)</u>
-----------------------------	--------------------

Contractor warrants that Contractor has already paid or will use the funds received from this payment to promptly pay in full all amounts due the Contractor's laborers, Subcontractors, materialmen, vendors and suppliers for all work, materials, equipment, and/or services provided for or to the above referenced Project.

Date _____

_____ (Contractor name)

By: _____ (Signature)

_____ (Title)

This instrument was executed and acknowledged before me on this ___ day of _____, 20__, by _____, known to me as the person whose name is subscribed above, as _____ [title] of _____ [company], on behalf of and as the authorized act of said entity.

Notary Public in and for the State of Texas

My Commission Expires: _____

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

CONDITIONAL WAIVER AND RELEASE

UPON FINAL PAYMENT

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**Section 00 72 00
GENERAL CONDITIONS OF THE CONTRACT**

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ARTICLE 1 – DEFINITIONS

UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS, WORDS WHICH HAVE WELL-KNOWN TECHNICAL OR CONSTRUCTION INDUSTRY MEANINGS ARE USED IN THE CONTRACT DOCUMENTS IN ACCORDANCE WITH SUCH RECOGNIZED MEANINGS.

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

- 1.001 Addendum:** Written instruments issued by the Contract Awarding Authority which clarify, correct or change the bidding requirements or the Contract Documents prior to the Due Date. "Addenda" is the plural form of Addendum.
- 1.002 Agreement:** Document signed by the Parties and binding the Parties, containing the name of Contractor, title and location of the Project, original Contract Time Requirements, Original Contract Amount, enumeration of documents included in the Contract and other provisions.
- 1.003 Allowance:** A not-to-exceed amount which is established between the Owner and the Contractor as part of the Contractor's Bid/Proposal when the precise scope of a particular line item has not been defined to a level which is adequate for the Contractor to provide definitive line item pricing for that particular scope of Work. The use of any Allowances by the Contractor in any Bid/Proposal will be subject to the Owner's sole approval. Additional Allowances or adjustments can be added to any Bid/Proposal upon the agreement of the Owner and Contractor.
- 1.004 Alternative Dispute Resolution:** The process by which a disputed Claim may be settled if the Owner and the Contractor cannot reach an agreement between themselves, as an alternative to litigation.
- 1.005 Application for Payment:** Is the Contractor's monthly pay application, the form of which must be acceptable to the Owner.
- 1.006 Bid/Proposal:** A complete, properly signed response to an Invitation for Bid/Proposal that, if accepted, would bind the Bidder/Offeror to perform the resultant Contract.
- 1.007 Bidder/Offeror:** A person, firm, or entity that submits a Bid/Proposal in response to an Invitation for Bids/Proposals. Any Bidder/Offeror may be represented by an agent after submitting evidence reasonably satisfactory to Owner demonstrating the agent's authority to bind the Bidder/Offeror. The agent cannot certify as to his own agency status.
- 1.008 Bid/Proposal Documents:** The Advertisement or Invitation for Bids/Proposals, Instructions to Bidders/Offerors, the Bid/Proposal Form, the Contract Documents and Addenda.
- 1.009 Bonds:** Performance Bond, Payment Bond, Maintenance Bond, and other Surety instruments executed by Surety. When in singular form the term refers to an individual instrument.
- 1.010 Calendar Day:** Any day of the week; no days being excepted. Work on Saturdays, Sundays, and/or Legal Holidays shall be as approved by and coordinated with Owner.
- 1.011 Change Directive:** A written directive to Contractor, signed by Owner, ordering a change in the Work that is within the general scope of the Contract and consisting of additions, deletions, or other revisions and stating a proposed basis for adjustment, if any, in the Contract Amount or Contract Time Requirements, or both. A Change Directive may be used in the absence of total agreement on the terms of a Change Order. A Change Directive can change the Contract Amount or Contract Time Requirements, and the parties may reasonably expect that the

- change directed or documented by a Change Directive will be incorporated in a subsequently issued Change Order.
- 1.012 Change Orders:** Written agreements entered into between Contractor and Owner authorizing an addition, deletion, or revision to the Contract, issued on or after the Execution Date of the Contract.
- 1.013 CMT Consultant:** Owner's consultant responsible for the testing of construction materials engineering, and the verification testing services necessary for acceptance of the Work by the Owner as required by Section 2267.058(a) of the Texas Government Code.
- 1.014 Claim:** A written demand or written assertion by the Owner or the Contractor seeking, as a matter of right, an adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The Party making the Claim has the responsibility to substantiate the Claim.
- 1.015 Commissioning:** This is the process of verification, preliminary testing, starting up and functional operations testing of all equipment and systems which are part of the Project. The term "commissioning" shall specifically include the drafting, review and verification of all test plans and test reports for all equipment and systems which are part of the Project.
- 1.016 Construction Documents:** Means the Plans or Drawings and the Specifications and such other documents incorporated into the Contract Documents that set out the Contractor's scope of work to be performed under the Contract and/or the technical requirements for the design and construction of the Work.
- 1.017 Contractor:** Means the individual, firm, corporation, or other business entity identified as such in the Agreement, including its successors and its authorized representatives, with whom Owner has entered into the Contract for performance of the Work. The Contractor may also be referred to as the "Bidder" or "Offeror" in the Contract Documents, both of which will be understood to mean the "Contractor" as identified in the Agreement.
- 1.018 Construction Phase:** Means the implementation and execution of the Work required by the Contract Documents, commencing with the Notice to Proceed for the Work.
- 1.019 Contract:** The binding legal agreement between the Owner and the Contractor including all documents that have been incorporated into the agreement between Owner and Contractor for performance of the Work, as evidenced by the Contract Documents, and into which these General Conditions of the Contract (General Conditions) have been incorporated.
- 1.020 Contract Amount:** The monetary amount stated in the Agreement as it may be adjusted by Change Order or Change Directive, payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents.
- 1.021 Contract Awarding Authority:** The SJRA Board of Directors. When authorized by the SJRA Board of Directors, the SJRA General Manager may enter into Contracts on behalf of the SJRA.
- 1.022 Contract Documents:** Those items so designated in the Agreement. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of physical subsurface, geotechnical or environmental conditions are not Contract Documents.
- 1.023 Contract Time Requirements:** Means those requirements for the timely performance of the Work as set forth in the Agreement, including Milestones and the required dates for Mechanical Completion, Substantial Completion and Final Completion.
- 1.024 Cost of the Work:** Has the meaning set forth in Article 11.5.

- 1.025 Critical Path:** The longest series of tasks that runs consecutively from the beginning to the end of the Work, as determined by duration and workflow sequence. This longest path determines how quickly the Work can be completed, given appropriate resources.
- 1.026 Day:** Means that twenty-four hour period measured from midnight to the next midnight. When any period is referred to in days, it will be computed to exclude the first and include the last day of such period.
- 1.027 Defective:** Means with respect to any Work, failing to conform in any respect to any one or more requirements of the Contract Documents.
- 1.028 Delay:** Means a delay, disruption, hindrance, interference, acceleration, recovery effort, or loss of productivity or efficiency, or any other impact whatsoever with respect to the Critical Path of the Work.
- 1.029 Discrepancies:** Means any error, omission, conflict, inconsistency, discrepancy, or lack of clarity in the Contract Documents discovered by the Contractor or that should reasonably have been discovered by the Contractor in fulfilling its obligations arising from the Contract and based upon its applicable standard of care as a Contractor and not as a design professional. The Discrepancy must be determinable by the Contractor through an evaluation of one or more drawings or specifications which are part of the Construction Documents, the above-grade Site conditions, geotechnical reports, surveys or other information provided to Contractor by Owner or any combination thereof.
- 1.030 Division 01:** Means the General Requirements (Division One) of the Specifications made a part of the Construction Documents, whether such Specifications are set out in a separate document or are part of the Project Manual.
- 1.031 Document Control:** This is the process of generating, transmitting, receiving, recording, filing and distributing documents and records generated by the Project Team Members and others during the execution of the Project. The process may utilize an electronic or paper format, or both.
- 1.032 Drawings:** Those portions of the Contract Documents which are graphic and pictorial representations of the scope, extent and character of the Work to be furnished and performed by Contractor and which have been approved by Owner. Drawings may include plans, elevations, sections, details, schedules and diagrams. Shop Drawings are not Drawings.
- 1.033 Due Date:** The date and time specified for receipt of Bids/Proposals or any other required submittal from the Contractor.
- 1.034 Equal:** The terms "equal" or "approved equal" shall have the same meaning.
- 1.035 Execution Date:** Date of last signature of the parties to the Agreement.
- 1.036 Field Order:** A written authorization by the Owner for a minor variation in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Amount or Contract Time Requirements and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 1.037 Final Completion:** The point in time when Owner determines that all Work has been completed and the Contract fully performed except for those obligations that survive final payment.
- 1.038 Force Account:** A basis of payment for the direct performance of Work with payment based on the Cost of the Work and consideration for overhead and profit, as set forth in Section 11.5.
- 1.039 Force Majeure:** For purposes of this Contract, events of "force majeure" shall consist of the following, to the extent that they are beyond the reasonable control of Contractor and also cause Delay to the Critical Path of the Project: acts of

God, acts of war, terrorist acts, civil unrest, riots, labor disputes (excluding disputes with laborers on the Project), unavoidable material shortages, fire or other casualty loss (not attributable to the acts or omissions of Contractor or any Subcontractor of any tier), newly announced or enacted governmental restrictions, or acts or inactions of governmental agencies other than the Owner and outside of the Owner's responsibility and control.

1.040 Hazardous Conditions: Are any materials, wastes, substances, and chemicals deemed to be hazardous under applicable Legal Requirements or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.041 Not used.

1.042 Legal Requirements: Are all applicable federal, state, and local laws, codes, ordinances, rules, regulations, orders, and decrees of any governmental or quasi-governmental entity having jurisdiction over the Project or Site, the practices involved in the Project or Site or any Work.

1.043 Legal Holidays:

.1 The following are recognized by the Owner:

<u>Holiday Observed</u>	<u>Date</u>
New Year's Day	January 1
Martin Luther King Day	Third Monday in January
Presidents' Day	Third Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Veterans Day	November 11
Thanksgiving Day	Fourth Thursday in November
Friday after Thanksgiving	Friday after Thanksgiving
Christmas Eve	December 24
Christmas Day	December 25

.2 If a Legal Holiday falls on Saturday, it will be observed on the preceding Friday. If a Legal Holiday falls on Sunday, it will be observed on the following Monday.

1.044 Major Subcontractor: Means a Subcontractor of the Contractor whose Subcontract amount with the Contractor exceeds or is reasonably expected to exceed the sum of \$50,000.00.

1.045 Manufacturer: An individual or entity who produces goods, materials, or equipment for use or sale and has a direct contract with Contractor or Supplier or any Subcontractor or Sub-Subcontractor to furnish materials or equipment to be incorporated in the Work.

1.046 Master Project Schedule: Is the most recent version of the Contractor's Project Schedule which has been formally accepted by the Owner.

1.047 Mechanical Completion: Means when the specified Work has been delivered, constructed, installed, and Contractor has successfully completed all required local functional testing, obtained Manufacturers' certificates of proper installation, and completed operations readiness testing such that all improvements and equipment are ready for performance testing.

1.048 Milestones: Means a significant event specified in the Owner's Project Schedule or the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

- 1.049 Modification:** Means a written amendment to the Contract, including but not limited to (1) a Change Order, or (2) a Change Directive.
- 1.050 Notice to Proceed:** A Written Notice given by Owner to Contractor fixing the date on which the Contract Time Requirements will commence to run by establishing Date of Commencement of the Work covered by the Written Notice and on which Contractor shall start to perform Contractor's obligations under the Contract Documents for such Work.
- 1.051 Owner:** The San Jacinto River Authority (the "SJRA" or the "Owner"), a public entity, organized and existing under the laws of the State of Texas, acting through the SJRA Board of Directors, the SJRA General Manager or his/her designee, officers, agents or employees to administer design and construction of the Project.
- 1.052 Owner's Independent Contractor:** A contractor who has been employed separately by the Owner and is not a Subcontractor of the Contractor.
- 1.053 Owner's Project Schedule:** Means the dates indicated in the Instructions to Bidders/Offerors and all Contract Time Requirements.
- 1.054 Owner's Representative:** The designated representative or representatives of the Owner. Owner's Representative may be designated from the Owner's staff, the Principal Architect/Engineer, an Owner's Independent Contractor(s), or an Owner's consultant(s) employed for the purpose of representing the Owner on a given Project or Projects.
- 1.055 Partial Occupancy or Use:** 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, provided Owner and Contractor have, with respect to such part of the Work, accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, utilities, corrective work, insurance and warranties.
- 1.056 Pre-construction Conference:** Is the required meeting between the Owner and the Contractor before Work can be initiated in the field. Contractor will have made all of the required submittals prior to the date of the Pre-construction Conference in accordance with Section 2.4.2.
- 1.057 Preliminary Project Schedule:** Is the initial Contractor's Schedule for the Work required under Section 2.4.2 and must conform to and be integrated with the Milestones contained in the Owner's Project Schedule for the Work and is subject to Owner's approval.
- 1.058 Principal Architect/Engineer (Engineer):** The Owner's design professional identified as such in the Contract. The terms "Principal Architect/Engineer" and "Engineer", as indicated with initial capital letters, mean the same entity, as defined in the Agreement. References to Principal Architect/Engineer in these General Conditions shall refer to the Owner's Principal Architect/Engineer (Engineer), except as otherwise expressly provided herein. Nothing contained in the Contract Documents shall create any contractual or agency relationship between the respective Principal Architect/Engineer and Contractor. References can be singular or plural and will apply to all of the Principal Architects or Engineers as may be applicable.
- 1.059 Project:** Total construction, of which the Work performed under Contract may be the whole or part, and which may include construction by the Owner or by Owner's Independent Contractors.
- 1.060 Project Manual:** That portion of the Contract Documents which may include the following: introductory information; bidding requirements, Contract forms, Agreement, General Conditions, Supplemental General Conditions; General Requirements; Specifications; Drawings; Project Safety Manual; and Addenda.

- 1.061 Project Schedule:** Is the Contractor's most recent schedule submitted to the Owner.
- 1.062 Project Team:** Means the Owner, the Owner's Representative, the Contractor, the Principal Architect/Engineer, any consultants of the Principal Architect/Engineer designated by the Owner, any Owner's Independent Contractors, and any Owner's consultants employed for the purpose of programming, design, and construction of the Project. The constitution of the Project Team may vary at different stages of the Work. The Project Team will be designated by Owner and may be modified from time to time by Owner.
- 1.063 Not used.**
- 1.064 Recovery Schedule:** Means a short duration schedule implemented to bring the Work back on schedule to achieve the Contract Time Requirements for the Project.
- 1.065 Rental Rate Blue Book:** Is the document published by EquipmentWatch which identifies the rental rates for equipment in the construction industry.
- 1.066 Resident Project Representative:** The authorized representative of the Owner's staff, the Principal Architect/Engineer, or an Owner's consultant who may be assigned to the Site or any part thereof. Not all Projects will utilize a Resident Project Representative.
- 1.067 Schedule of Values:** Is a schedule, prepared and maintained by the Contractor, allocating portions of the Contract Amount to various portions of the Work, including a tabulation of all of the costs of the various Subcontracts and materials which in the aggregate make up the Contract Amount. The Schedule of Values shall be subject to Owner's approval and, after such approval, be used as the basis for reviewing the Contractor's Applications For Payment.
- 1.068 Scope of Work:** Is the entire Work which is included within the Contract for this Project. This term can also be used to describe the subset of Work which is included within a particular Trade Subcontract.
- 1.069 Shop Drawings:** All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled for the Work by or for Contractor, subcontractor or supplier and submitted by Contractor as required by the Contract Documents.
- 1.070 Site:** Is the land or premises on which the Project is located.
- 1.071 Specifications:** Those portions of the Contract Documents furnished by Owner through its respective Principal Architects/Engineers consisting of written technical descriptions as applied to the Work, which set forth to Contractor, in detail, the requirements which must be met by all materials, equipment, construction, systems, standards, workmanship, and services as applied to the Work and certain administrative requirements and procedural matters.
- 1.072 Start-Up:** This is the subset of Commissioning at which time the Project equipment and / or systems are placed in full operation in preparation for the operational testing phase of the Project.
- 1.073 Stipulated Sum:** Single lump sum amount stated for the completion of the Work or a portion thereof required by this Contract.
- 1.074 Substantial Completion:** The stage in the progress of the Work when the Work, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so Owner can occupy or utilize the Work for its intended use, as evidenced by a Certificate of Substantial Completion approved by Owner, as further defined in Article 14.07.
- 1.075 Subcontractor (or Trade Subcontractor):** An individual, firm, corporation, or other business entity having a direct contract with the Contractor for the performance of a portion of the Work under the Contract. A Subcontractor

- includes a supplier of tools, equipment or materials as well as an individual or entity renting tools or equipment to the Contractor. For purposes of this Contract, unless designated otherwise, the term "Subcontractor" shall include all Sub-Subcontractors and Suppliers in contractual privity to the Subcontractor.
- 1.076 Sub-Subcontractor:** An individual, firm, corporation, or other business entity who has a direct or indirect contract with a Subcontractor of any tier to perform a portion of the Work, to furnish tools, equipment or materials, or to rent tools or equipment. For purposes of this Contract, unless designated otherwise, the term "Sub-Subcontractor" shall include all lower tier subcontractors and Suppliers in contractual privity to the Sub-Subcontractor.
- 1.077 Superintendent:** The representative of Contractor authorized in writing to receive and fulfill instructions from the Owner's Representative, and who shall supervise and direct construction of the Work.
- 1.078 Supplemental General Conditions:** The part of the Contract Documents which amends or supplements the General Conditions, but only to the extent provided therein. Not all Projects will utilize Supplemental General Conditions. All General Conditions which are not so amended or supplemented remain in full force and effect.
- 1.079 Supplier:** An individual or entity having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment or products, or services to be incorporated in the Work by Contractor or any Subcontractor.
- 1.080 Surety:** Corporate entity that is bound by one or more Bonds, and is responsible for the completion of the Work, including during the correction period, and for payment of debts incurred by Contractor or Subcontractors for work, services, labor, materials or equipment provided in connection with the Work. Surety shall include any co-surety or reinsurer, as applicable.
- 1.081 Underground Improvements:** Is defined in Section 4.2.3 of these General Conditions.
- 1.082 Unit Price:** An amount stated in the Contract for an individual, measurable item of work, which, when multiplied by actual quantity incorporated into the Work, amounts to full compensation for completion of the item, including work incidental to it.
- 1.083 Unit Price Quantities:** Quantities indicated in the Contract that are approximations made by the Owner for contracting purposes.
- 1.084 Unit Price Work:** Is any Work which is to be executed based upon a Unit Price for that Work which has been agreed upon in advance between the Parties in accordance with Section 11.6 of these General Conditions.
- 1.085 Unusual Inclement Weather:** Is defined in Section 12.2 of these General Conditions.
- 1.086 Value Analysis:** Means the systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the Project, reliably, without sacrificing safety, necessary quality, or environmental attributes of the Project.
- 1.087 Work:** The entire completed construction, or the various separately identifiable parts thereof, required to be furnished under the Contract Documents, including all labor, products, equipment, material, supervision, insurance, temporary facilities and services provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a portion of the Project.
- 1.088 Working Day:** Any day of the week, not including Saturdays, Sundays, or Legal Holidays in which conditions under the Contractor's control will permit work for a

- continuous period of not less than seven (7) hours during Working Hours. Upon agreement with Owner, work on Saturdays, Sundays and/or Legal Holidays may be allowed and will be considered a Working Day.
- 1.089 Working Hours:** Those hours in which the Work shall be performed. Except as otherwise authorized in writing by Owner's, all Work shall be done between 7:00 a.m. and 6:00 p.m. However, emergency work may be done without prior permission as indicated in Section 6.11.07. Night Work may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for the prosecution and control of the night Work.
- 1.090 Written Notice:** Written communication between Owner and Contractor. Written Notice shall be deemed to have been duly served if delivered in person to Owner's Representative or Contractor's duly authorized representative, or if delivered at or sent by registered or certified mail with proper postage affixed to the attention of Owner's Representative or Contractor's duly authorized representative at the last business address known to the party giving notice, or by facsimile to the facsimile number known to the party giving notice, provided any notice delivered by facsimile after 5:00PM shall be deemed delivered on the next business day.

ARTICLE 2 - PRELIMINARY MATTERS

- 2.1 Delivery of Contract, Bonds, Insurance, etc.:** After written notification to Contractor of anticipated award of Contract, and at least ten (10) days prior to the SJRA Board of Directors Meeting at which a contract award is anticipated, Contractor shall deliver to Owner original, hard copies of the signed Agreement, unsigned Bond forms, required evidence of insurance, including without limitation, all certificates of insurance and endorsements, signed disclosure of interested parties (Form 1295), signed Conflict of interest Questionnaire, and signed and notarized Verification Company Does Not Boycott Israel, as identified in the Bid/Proposal Documents. Within three (3) days of Contractor's receipt of the fully executed Agreement, the Contractor shall deliver the original, hard copy fully executed Bonds to Owner. The requirements of this Section 2.1 apply regardless of whether or not the Agreement is also executed using electronic signatures or transmitted electronically. Any violation of this Section 2.1 by Contractor shall render the Contract voidable by Owner.
- 2.2 Copies of Documents:** Owner shall furnish to Contractor up to ten (10) copies of the Contract Documents unless otherwise specified. Additional copies will be furnished, upon request, at a cost to be specified by the Owner.
- 2.3 Commencement of Contract Time Requirements; Notice to Proceed:** The applicable Contract Time Requirements will begin to run on the day indicated in the Notice to Proceed for the Work covered in such Notice.
- 2.4 Before Starting Construction:**
- 2.4.1** No Work shall be done at the Project Site prior to the Pre-construction Conference without Owner's written approval. Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents to check and verify pertinent figures shown thereon and compare them accurately to all applicable field measurements and conditions and other information known to Contractor and other information made available to Contractor by Owner. Contractor shall promptly report in writing to Owner's Representative any

conflict, error, ambiguity or Discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Owner's Representative before proceeding with any Work affected thereby. Contractor shall be liable to Owner for failure to report any conflict, error, ambiguity or Discrepancy in the Contract Documents about which Contractor knew or reasonably should have known.

2.4.2 Successful completion of the Work within the applicable Contract Time Requirements is of primary importance. **Time is of the essence to this Contract.** Therefore, the Contractor hereby agrees to submit to the Owner's Representative for review and approval, or acceptance, as appropriate, all information required by this section, including a Preliminary Project Schedule for the Work within thirty (30) days from date of the Owner's issuance of the Notice To Proceed with the Work or at the scheduled Pre-construction Conference, whichever is later. The Owner's Representative will schedule the Pre-construction Conference upon the timely submittal of the required documents, unless the allowable time for providing the required submittals is extended by written mutual agreement. Prior to the date scheduled for the Pre-construction Conference, the Contractor will submit the following to the Owner:

- .01** A proposed Preliminary Project Schedule (the "Preliminary Project Schedule") for the Work developed using the scheduling software authorized in Section 6.03 of the General Conditions, unless otherwise approved by Owner, to confirm that all Work will be completed within the respective Contract Time Requirements. The Preliminary Project Schedule must satisfy the requirements of Section 6.03 of these General Conditions and must be prepared in accordance with Division 01 - Section 01 32 16, Construction Progress Schedules. Such Preliminary Project Schedule shall also conform to the Owner's Project Schedule. This Preliminary Project Schedule must contain sufficient detail to indicate that the Contractor has properly identified required Work elements and tasks, has provided for a sufficient and proper workforce and integration of Subcontractors and Suppliers, has provided sufficient resources and has considered the proper sequencing of the Work required to result in a successful Project that can be completed within the Contract Time Requirements. The Project Schedule and Schedule of Values shall be developed together to permit the Work progress to be accurately reflected in the Contractor's Applications for Payment.
- .02** An organizational chart showing the principals and management personnel who will be involved with the Work, including each one's responsibilities for the Work;
- .03** A complete listing of the Contractor's key employees proposed for the Work. List each one by name and job title, and show length of employment with Contractor.
- .04** Emergency contact telephone numbers for the Project Manager and the project Superintendent.
- .05** A discussion and confirmation of the Contractor's commitment to health, safety and environment by providing a copy of its Health, Safety and Environmental Policies, employee's safety handbook and the safety records for the past three years of Contractor's proposed project manager and Superintendent;

- .06 A preliminary schedule of Shop Drawings and sample submittals;
- .07 A preliminary Schedule of Values for all of the Work, subdivided into component parts in sufficient detail to serve as the basis for progress payments during construction. At a minimum, the schedule of values shall be broken out by trade and split between materials and labor as commented on and accepted by Owner. Such prices will include overhead and profit applicable to each item of Work;
- .08 A letter designating Contractor's Superintendent and project manager, and a confirmation of past project experience for the Contractor's Superintendent and project manager specifically applicable to the Work;
- .09 A letter designating the "Competent Person(s)" on general safety and excavation safety measures along with certifications or other documentation of the safety representative's qualifications;
- .10 If applicable, an excavation safety system plan;
- .11 If applicable, a plan illustrating proposed locations of temporary facilities;
- .12 A letter designating the Texas Registered Professional Land Surveyor for layout of the Work, if the Work requires the services of a licensed surveyor.

2.4.3 Neither the rejection, acceptance, comment on nor the approval of any of the submittals required in Section 2.4.2, above, will constitute either the adoption, affirmation, or direction of the Contractor's means and methods of the performance of the Work which remain the sole responsibility of the Contractor. Owner shall not be responsible for, and will not have control or charge of, construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. Owner shall not be responsible for or have control or charge over the acts or omissions of Contractor, Subcontractors or any of their agents or employees or any other persons performing any of the Work.

2.5 Pre-construction Conference: Prior to commencement of Work at the Site, Contractor must attend a Pre-construction Conference with Owner's Representative and others required by Owner, and participate in an inspection of the Project Site if required by Owner.

2.6 Initially Acceptable Schedules: Unless otherwise provided in the Contract Documents, Contractor shall obtain approval of Owner of the Preliminary Project Schedule submitted in accordance with Section 2.4.2.01 before the first progress payment will be made to Contractor. The Preliminary Project Schedule must provide for an orderly progression of the designated portion of the Work to completion within the Contract Time Requirements, including any specified Milestones, and shall permit the Work progress to be accurately reflected in the Contractor's Applications for Payment. Approval of the Preliminary Project Schedule by Owner will not impose on Owner responsibility or liability for the sequencing, scheduling or progress of the Work, nor shall it constitute interference with, nor shall it relieve Contractor from Contractor's full responsibility for the Work. Contractor's schedule of Shop Drawings and sample submissions shall provide adequate time, in Owner's opinion, for properly reviewing and processing the required submittals. Contractor's Schedule of

Values must conform to the requirements set forth in the Contract. The process of approving Preliminary Project Schedule and updates to the Master Project Schedule shall not constitute a warranty by the Owner that any non-Contractor milestones or activities will occur as set out on the Preliminary Project Schedule or the Master Project Schedule, or approval of the logic set out in the Preliminary Project Schedule or Master Project Schedule. Approval of the Preliminary Project Schedule, the Master Project Schedule or any updates thereto does not constitute a warranty by the Owner to furnish any Owner-furnished information or services any earlier than Owner would otherwise be obligated to furnish that information or services under the Contract Documents. Failure of the Work to proceed in the sequence scheduled by Contractor shall not serve as any basis for a Claim for additional compensation or adjustment of the Contract Time Requirements.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.1 Intent: The intent of the Contract Documents is to include all information necessary for the proper execution and timely completion of the Work by Contractor. The Contractor will execute the Work described in and reasonably inferable from the Contract Documents as necessary to produce the results intended by the Contract Documents.

3.1.1 The Contract Documents are complementary in nature, and what is shown in one location on the Drawings or Specifications shall be construed to apply to all other similar locations of the Drawings and Specifications. In the event of any internal inconsistency in either the Drawings or Specifications, or with each other, the Owner shall resolve such inconsistency and Contractor shall perform in accordance with the Owner's determination. In the determination of the Contract Amount, the Contractor has provided for such further development consistent with the Contract Documents and reasonably inferable therefrom. It is the intent and understanding of Contractor that the Contract Amount includes the construction of completed and tested Work by the Contractor, including all devices, fasteners, materials or other work not shown in the Drawings and Specifications but which are reasonably inferable therefrom and any and all incidental accessories necessary to make the Work complete and operable in all respects (even if not specified in the description of the Work, but necessary for proper installation and operation of the Work under the Drawings and Specifications), all of which shall be included in the Contract Amount.

3.1.2 The expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill and diligence of the Contractor required by the Contract Documents. Such further development does not include such things as changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order or Change Directive. The Contract Documents shall be interpreted with the understanding that a common sense approach will be utilized as necessary so that the Contract Documents produce the intended results for the benefit of the Owner as follows:

.1 The Contract Documents are intended to be complimentary and interpreted in harmony so as to avoid conflict. Words and phrases will be

interpreted in a manner consistent with construction and design industry standards. What is required by any Contract Document shall be required by all of them;

- .2 In the event of any inconsistency, conflict or ambiguity between or among the Contract Documents that cannot be harmonized so as to avoid conflict, the Contract Documents shall take precedence in the following order: Modifications, documents amending, modifying or supplementing the Contract Documents pursuant to Article 3.3 of the General Conditions, the Agreement, Exhibits to the Agreement, the Supplemental Conditions (if any), the General Conditions, Instructions to Bidders/Offerors, Notice to Proceed, Addenda, Specifications, Drawings, Contractor's Bid/Proposal, Documentation submitted by Contractor prior to Notice of Award and attached to the Agreement, Performance, Payment and Maintenance Bonds; and
- .3 The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include", "includes" and "including" shall be deemed to be followed by the phrase "without limitation". Unless the context requires otherwise (a) any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein), (b) any reference herein to any Party shall be construed to include such Party's successors and assigns (subject to the restrictions contained herein), and (c) the words "herein", "hereof" and "hereunder", and words of similar import, shall be construed to refer to the entirety of the Contract Documents and not to any particular provision, unless the context clearly dictates otherwise. No provision of this Agreement shall be interpreted or construed against any Party because such Party or its legal representative drafted such provision.

3.1.3 Standards, Specifications, Codes, Laws, and Regulations

- .1 Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Legal Requirements, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Legal Requirements in effect at the time of opening of Bids/Proposals (or on the Effective Date of the Agreement if there were no Bids/Proposals) and as amended, modified, codified or reenacted, in whole or in part, and in effect from time to time, 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. No such provision or instruction shall be effective to assign to Owner, or the Principal Architect/Engineer, or

any of their related entities 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.

3.2 Reporting and Resolving Discrepancies: If, during the performance of the Work, Contractor discovers any Discrepancy within the Contract Documents or between the Contract Documents and any provisions of any Legal Requirements or of any such standard, specification, manual or code or instructions of any Supplier, Contractor shall report it to Owner's Representative in writing at once, and Contractor shall not proceed with the Work affected thereby until a clarification, an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Section 3.3.1 or Section 3.3.2 below. Contractor shall be liable to Owner for failure to report any such Discrepancy that Contractor knew about or should reasonably have discovered in fulfilling its obligations arising from the Contract.

3.3 Clarifying, Amending and Supplementing Contract Documents:

3.3.1 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:

- .1 Change Order.
- .2 Change Directive.

3.3.2 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work that do not affect the Contract Amount or Contract Time Requirements may be authorized, in one or more of the following ways:

- .1 Field Order.
- .2 Shop Drawing or sample approved in accordance with the Contract Documents.
- .3 Written interpretation or clarification issued in accordance with the Contract Documents.

3.4 Reuse of Documents Prohibited: Contractor and any Subcontractor or Supplier or other person or organization 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 Principal Architect/Engineer or Principal Architect/Engineer's consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies on extensions of the Project or any other project without written consent of Owner and Principal Architect/Engineer. Contractor may retain one (1) set of such documents for its records.

3.5 Not Used.

3.6 Electronic Data: Owner utilizes Microsoft SharePoint or similar document management software (the "Program") for its projects. Contractor will be provided access to the Program solely for purposes of Contractor's performance of its obligations under the Contract, at no cost to Contractor. The Program may be used

to handle management, distribution and submission of all Project documents (including without limitation drawings, specifications, submittals, RFIs, schedules, etc.). Contractor must access the Program for all such Project documents, unless otherwise directed in writing by Owner. Contractor is responsible for all of the content contained in the Program related to the Project, including but not limited to all periodic updates, revisions and additions to the Project documents contained therein. All Project documents contained in the Program shall be deemed delivered to Contractor. Contractor is responsible for ensuring and maintaining compatibility of Contractor's computer systems with the Program. Contractor shall take all necessary precautions to prevent any unauthorized access to the Program and the Project documents contained therein, and to prevent any virus or malware infiltration of the Program. **CONTRACTOR SHALL COMPLY WITH ALL MICROSOFT OR OTHER SIMILAR DOCUMENT MANAGEMENT SOFTWARE VENDOR TERMS AND CONDITIONS APPLICABLE TO CONTRACTOR'S USE OF THE PROGRAM, AND SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS OWNER FROM AND AGAINST ANY AND ALL CLAIMS, DAMAGES, LIABILITY, LOSS, COST AND EXPENSE, INCLUDING BUT NOT LIMITED TO ATTORNEYS' FEES, INCURRED AS A RESULT OF ANY CONTRACTOR BREACH OF SUCH TERMS AND CONDITIONS (COLLECTIVELY "CLAIMS" AS USED IN THIS SECTION 3.6), EVEN IF SUCH CLAIMS ARE CAUSED IN PART BY, BUT NOT TO THE EXTENT CAUSED BY, THE NEGLIGENCE OR FAULT, THE BREACH OR VIOLATION OF A STATUTE, ORDINANCE, GOVERNMENTAL REGULATION, STANDARD, OR RULE, OR THE BREACH OF CONTRACT OF OWNER, ITS AGENT OR EMPLOYEE, OR ANY THIRD PARTY UNDER THE CONTROL OR SUPERVISION OF OWNER, OTHER THAN CONTRACTOR OR ITS AGENT, EMPLOYEE OR SUBCONTRACTOR OF ANY TIER.** Any use, interpretation, conclusion or information obtained or derived from such Program information and documents will be at the user's sole risk. If there is a conflict or inconsistency between the Program information or documents and any hard copies furnished to Contractor, Contractor shall promptly notify Owner and Principal Architect/Engineer in writing, and shall not rely upon such Program information or documents or the hard copies furnished to Contractor until such conflict or inconsistency is resolved in writing by Owner or Principal Architect/Engineer. When distributing documents in electronic media format, Owner makes no representations as to compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those which are used by Owner or the data's creator.

**ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
REFERENCE POINTS**

4.1 Availability of Lands: The Owner will provide access to all land and interests in land required for the Work and will notify Contractor of any known restrictions in such access. Contractor may make a Claim if, after having received seventy-two hours' prior written notice, the Owner fails to provide timely access to the Work. Contractor is solely responsible for and must obtain any additional temporary construction facilities, stockpiling or storage sites not otherwise provided by the Owner.

4.1.1 In the event that Owner has agreed to provide any special licenses or easement(s) relating to the Work and in the event that Delays in the Work that are the responsibility of the Contractor cause the Work to be Delayed to

the point that the ending date of such a license or easement has been exceeded, the Contractor shall reimburse the Owner for any additional costs and/or expenses incurred by Owner (including but not limited to reasonable attorneys' fees) in endeavoring to extend or renew the duration of any such license or easement in order to facilitate the completion of the Work.

4.2 Subsurface and Physical Conditions:

- 4.2.1** Contractor specifically represents that it has carefully examined the plans, the geotechnical report, if any, and the Site of the proposed Work and is thoroughly familiar with all of the conditions surrounding construction of the Project, having had the opportunity to conduct any and all additional inquiry, tests and investigation that he/she deems necessary and proper, to satisfy itself as to conditions, including but not limited to subsurface conditions, at the Site of the Work, and to inform itself by its independent research, tests and investigations of the difficulties to be encountered and to judge for itself the accessibility of the Work and all attending circumstances affecting the cost of doing the Work or time required for its completion. Contractor acknowledges the receipt of the geotechnical report, if any, and agrees that the report is not a guarantee of specific Site conditions which may vary between boring locations and over time, and is not a Contract Document. Contractor may not rely upon or make any Claim against Owner with respect to any Contractor interpretation of or conclusion drawn from any data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings. Contractor shall make no claims against the Owner and shall bear all risk of losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the Work must be done vary or differ from conditions or information contained in the Contract Documents, or are different from what were estimated or anticipated by it.
- 4.2.2** Except as provided in Section 4.2.5 below, Contractor must notify Owner in writing as soon as reasonably possible, but no later than three (3) calendar days, if unforeseen conditions are encountered at the Site which are (i) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or other information provided by Owner to Contractor or (ii) unknown physical conditions of an unusual nature, that differ materially from those normally encountered in the type of Work being performed under this Contract. Contractor may not disturb the conditions until Owner conducts an investigation of such conditions. Upon receipt of notice from the Contractor, the Owner's Representative will promptly investigate such conditions with the Principal Architect/Engineer.
- 4.2.3** Notwithstanding any other provision of this Contract, Contractor is solely responsible for the location and protection of any and all underground utilities, pipelines, facilities and improvements, whether public or private, and whether utility_distribution, supply or collection systems, or lines connecting customers to utility distribution, supply or collection systems, and including but not limited to all electric, telecommunication, gas, water, storm sewer and sanitary sewer lines, and all pipes, conduits, cables, wires, manholes, vaults, tanks, and tunnels (collectively "Underground Improvements"). Contractor shall notify "One Call" and shall retain a private underground locator service,

and shall exercise due care to locate, mark, uncover and otherwise protect all Underground Improvements in the construction zone and any of Contractor's Work or storage areas. Contractor's responsibility for the location and protection of Underground Improvements is primary and non-delegable. **Contractor shall defend and indemnify Owner from and against any losses, Claims, expenses, costs or penalties (including fines that may be levied against Owner) that may result from damage to any Underground Improvements in the Work area.** Owner reserves the right to repair any damage Contractor causes to such Underground Improvements at Contractor's expense or to offset the cost of such repairs against funds then or thereafter due Contractor pursuant to the Contract. If any Underground Improvements are damaged by Contractor, Contractor shall give verbal notice to the Owner's Representative within one (1) hour and written notice within twenty-four (24) hours after such damage occurs.

4.2.4 Contractor shall take reasonable precaution to avoid disturbing primitive records and antiquities of archaeological, paleontological or historical significance. No objects of this nature shall be disturbed without written permission of Owner and Archeology Division, Texas Historical Commission. When such objects are uncovered unexpectedly, Contractor shall stop all Work in close proximity and immediately notify the Owner's Representative and Archeology Division, Texas Historical Commission of their presence. Contractor shall reference Texas Water Development Board Emergency Conditions for cultural resources in the event of accidental discoveries. Contractor shall not disturb them until written permission and permit to do so is granted by the governing authorities and Owner. All primitive rights to antiquities uncovered on Owner's property shall remain property of State of Texas, Archeology Division, Texas Historical Commission in accordance with the Texas Natural Resources Code. If it is determined by Owner, in consultation with Archeology Division, Texas Historical Commission, that exploration or excavation of primitive records or antiquities on Project Site is necessary to avoid loss, Contractor shall cooperate in salvage work attendant to preservation. If the Work stoppage or salvage work causes an increase in Contractor's cost of, or time required for, performance of the Work, the Contract Amount and/or Contract Time Requirements will be equitably adjusted.

4.2.5 Environmental Conditions: Contractor shall immediately stop all Work and must notify Owner in writing as soon as reasonably possible, but no later than one (1) calendar day after any significant environmental conditions are encountered at the Site which are or may be subject to any Legal Requirements. Contractor shall reference Texas Water Development Board Emergency Conditions for threatened and endangered species in the event of accidental discoveries. Contractor shall not disturb the conditions until Owner conducts an investigation. Owner's Representative and Principal Architect/Engineer will promptly investigate such conditions. If it is determined that such conditions are subject to Legal Requirements, did not result from any Hazardous Conditions brought to the Site by Contractor or any Subcontractor, and cause an increase or decrease in the Contractor's cost of or time required for performance of any part of the Work, Owner's Representative will recommend an equitable adjustment in the Contract Amount or Contract Time Requirements, or both. If it is determined that such

conditions are not subject to Legal Requirements or resulted from any Hazardous Conditions brought to the Site by Contractor or any Subcontractor, Owner's Representative will notify Contractor in writing of such findings and the Contract Amount and Contract Time Requirements will not be adjusted. Contractor may dispute such a determination in accordance with Article 16.

4.3 Reference Points: Unless otherwise specified, primary control lines and bench marks suitable for use in layout will be furnished by Owner. Lay out of the Work shall be performed in accordance with the requirements of Division 01. Controls, bench marks and property boundary markers shall be carefully preserved by Contractor by use of flags, staffs or other visible devices and in case of destruction or removal by Contractor, any Subcontractor or their employees, such controls and bench marks shall be replaced by a Texas Registered Professional Land Surveyor at Contractor's expense. Any SJRA survey monuments damaged by Contractor will be reestablished by Owner at Contractor's expense.

4.4 Hazardous Conditions:

4.4.1 Contractor shall not be responsible for any Hazardous Conditions uncovered or revealed at the Site which were not shown, indicated or identified in the Contract Documents to be within the scope of the Work, and which were not brought onto the Site by the Contractor or the Subcontractors. Contractor shall immediately notify Owner's Representative of any such suspected Hazardous Conditions encountered at the Site before or during performance of the Work, and shall stop Work immediately in the affected area, and take all necessary precautions to avoid disturbance of the Hazardous Conditions.

4.4.2 Contractor shall be responsible for any Hazardous Conditions brought to the Site by Contractor, Subcontractor, Suppliers or anyone else for whom Contractor is responsible.

4.4.3 No asbestos-containing materials or lead-based paint shall be incorporated into the Work or brought on the Project Site without prior written approval of Owner. The Contractor shall not knowingly use, specify, request or approve for use any asbestos containing materials or lead-based paint without the Owner's written approval. When a specific product is specified, the Contractor shall endeavor to verify that the product does not include asbestos containing material or lead-based paint.

4.4.4 Refer to Section 1.040 Hazardous Conditions definitions and to Division 01 for procedures related thereto.

.1 Not used.

.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent consultants to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

- .3 Contractor shall be obligated to resume Work at the affected area of the Project only after Owner or its qualified independent consultant provides written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. The Contractor shall be responsible for continuing the Work in the unaffected portion of the Project and Site.
- .4 Contractor will be entitled, in accordance with these General Conditions, to an adjustment in its Contract Amount and/or Contract Time Requirements to the extent Contractor's cost of performance is actually increased and/or the Critical Path of the Work has been delayed by the presence of Hazardous Conditions discovered at the Site.
- .5 Notwithstanding anything in the Contract Documents to the contrary, Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents are not responsible for Hazardous Conditions introduced to the Site by Contractor, Subcontractors or anyone for whose acts they may be liable. Contractor shall be responsible for use, storage and remediation of any Hazardous Conditions brought to the Site by Contractor, Subcontractors, Suppliers or anyone else for whom Contractor is responsible. **Contractor shall defend, indemnify and hold harmless Owner and Owner's officers, directors, employees and agents and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents from and against any and all claims, losses, damages, liabilities and expenses, including attorneys' fees and court costs, arising out of or resulting from Hazardous Conditions introduced to the Site by Contractor, Subcontractors or anyone for whose acts they may be liable. Notwithstanding the foregoing, if Subchapter C of Chapter 151 of the Texas Insurance Code applies to the Contract, the obligation to defend, indemnify and hold harmless set forth in this Section 4.4.4.5 shall not apply to the extent prohibited by Subchapter C of Chapter 151 of the Texas Insurance Code.**

ARTICLE 5 - BONDS AND INSURANCE

- 5.1 Surety and Insurance Companies:** All Bonds and insurance required by the Contract Documents shall be obtained from solvent surety or insurance companies that are duly admitted and licensed by the State of Texas and authorized to issue bonds or insurance policies for the limits and coverages required by the Contract Documents. Bonds shall be in a form acceptable to Owner and shall be issued by a surety which complies with the requirements of Chapter 3503 of the Texas Insurance Code. The Surety must obtain reinsurance for any portion of the risk that exceeds

10% of the Surety's capital and surplus. For bonds exceeding \$100,000, the Surety must also hold a certificate of authority from the U.S. Secretary of the Treasury or have obtained reinsurance from a reinsurer that is authorized as a reinsurer in Texas and holds a certificate of authority from the U.S. Secretary of the Treasury and has an A.M. Best rating of A-, X or better.

5.2 Workers' Compensation Insurance Coverage:

5.2.1 Definitions:

- .1 Certificate of coverage ("certificate") - A copy of a certificate of insurance, a certificate of authority to self-insure issued by the division, or a coverage agreement (DWC Form-81, DWC Form-82, DWC Form-83, or DWC Form-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on the Project, for the duration of the Project.
- .2 Duration of the Project - includes the time from the beginning of the Work on the Project until the Contractor's/person's Work on the Project has been completed and accepted by Owner.
- .3 Persons providing services on the Project 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.
- .4 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.

5.2.2 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.

5.2.3 Contractor must provide a certificate of coverage to Owner prior to being awarded the Contract.

5.2.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the Duration of the Project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with Owner showing that coverage has been extended.

5.2.5 Contractor shall obtain from each person providing services on the Project, and provide to Owner:

- .1 A certificate of coverage, prior to that person beginning Work on the Project, so Owner will have on file certificates of coverage showing coverage for all persons providing services on the Project; and
 - .2 No later than seven (7) days after receipt by 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.
- 5.2.6** Contractor shall retain all required certificates of coverage for the Duration of the Project and for one (1) year thereafter.
- 5.2.7** Contractor shall notify Owner in writing by certified mail or personal delivery, within ten (10) days after Contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project.
- 5.2.8** Contractor shall post on each Project Site a notice, in the text, form and manner prescribed by the Texas Department of Insurance, Division of Workers' Compensation, 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.
- 5.2.9** Contractor shall contractually require each person with whom it contracts to provide services on the 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 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 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 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 (1) year thereafter;
 - .6 Notify Owner in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the Project; and
 - .7 Contractually require each person with whom it contracts, to perform as required by these Section 5.2.9.1 through Section 5.2.9.7, with the

certificates of coverage to be provided to the person for whom they are providing services.

- 5.2.10** By signing this Contract or providing or causing to be provided a certificate of coverage, Contractor is representing to 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 division. Providing false or misleading information may subject Contractor to administrative penalties, criminal penalties, civil penalties or other civil actions.
- 5.2.11** Contractor's failure to comply with any of these provisions is a breach of the Contract by Contractor which entitles Owner to declare the Contract void if Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from Owner.

5.3 Additional Insurance Requirements:

5.3.1 Contractor And Subcontractor Provided Insurance: Contractor and Subcontractors shall obtain and maintain insurance coverages described in Sections 5.3.1.01 through 5.3.1.08 and, to the extent applicable, Sections 5.3.1.09 through 5.3.1.11 through the end of the warranty period (with the exception of Builders' Risk, which is required to remain in effect at least until final payment) or such longer periods of time as may be set forth herein; except that Subcontractors' limits of coverage for Commercial General Liability shall be no less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate, Subcontractors shall not be required to maintain separate Builder's Risk Insurance, Subcontractors shall not be required to maintain Environmental Impairment Liability or Pollution Liability Insurance unless their Scope of Work involves Hazardous Conditions in which event such Subcontractors shall maintain such insurance with limits of coverage not less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate, Subcontractors shall not be required to maintain Professional Liability coverage unless their Scope of Work includes professional services in which event such Subcontractors shall maintain such insurance with limits of coverage not less than \$1,000,000 per occurrence and in the aggregate, and Subcontractors' limits of coverage for Umbrella Liability shall be no less than \$3,000,000. All insurance secured by Contractor, Subcontractors and Sub-Subcontractors pursuant to Owner's requirements under this provision shall be in accordance with Article 5 of the General Conditions and Section 5.3.1.01 as follows.

5.3.1.01 General Requirements.

.01 Contractor shall carry insurance in the types and amounts indicated below for the Duration of the Project or such longer periods of time set forth below, and shall include coverage for items owned by Owner in the care, custody and control of Contractor prior to and during construction and the warranty period.

- .02 Contractor shall forward Certificates of Insurance evidencing the coverage and limits of insurance required herein to Owner with copies to each additional insured and loss payee listed in the Supplemental Conditions (if any), before the Contract is executed. Contractor shall also provide copies of policy endorsements and excerpts from policies to evidence the required coverages. Contractor shall not commence Work until the required insurance is obtained and until such insurance has been reviewed and approved by Owner. Approval of insurance by Owner shall not relieve or decrease the liability of Contractor hereunder and shall not be construed to be a limitation of liability on the part of Contractor. Contractor must also forward new Certificates of Insurance to Owner whenever a previously identified policy period has expired as verification of continuing coverage.
- .03 Contractor's insurance coverage is to be written by companies licensed to do business in the State of Texas at the time the policies are issued and shall be written by companies with A.M. Best ratings of A-, X or better, except for pollution liability or environmental impairment liability insurance which shall be written by companies with A.M. Best ratings of A- or better.
- .04 All endorsements naming the Owner as an additional insured, waivers of subrogation in favor of Owner, and notices of cancellation endorsements as well as the Certificates of Insurance shall specify Owner's name and address as: the San Jacinto River Authority, 1577 Dam Site Road, Conroe, Texas 77304.
- .05 The "other" insurance clause shall not apply to the Owner where the Owner is an additional insured shown on any policy. Insurance policies required by the Contract shall be primary and non-contributing with respect to any other insurance coverage maintained by or available to the Owner and/or other additional insureds. The policies shall be endorsed to provide severability of interests.
- .06 If underlying insurance policies are not written with coverage limits for at least the amounts specified below, Contractor shall carry Umbrella or Excess Liability Insurance for any differences in amounts specified. If Excess Liability Insurance is provided, it shall follow the form of the primary coverage and have the same inception and termination dates as the primary coverage.
- .07 Owner shall be entitled, upon request and without expense, to receive certified copies of policies and endorsements thereto and may make any reasonable requests for deletion or revision or modification of particular policy terms, conditions, limitations, or exclusions except where policy provisions are established by law or regulations binding upon either of the parties hereto or the underwriter on any such policies. Failure of Contractor to provide certified copies, as requested, is a material breach of the Contract.
- .08 Owner reserves the right to review the insurance requirements set forth during the effective period of this Contract and to make reasonable adjustments to insurance coverage, limits, and exclusions when deemed necessary and prudent by Owner based upon changes in statutory law, court decisions, the claims history of the industry or financial condition of the insurance company as well as Contractor.
- .09 All insurance policies required to be maintained will contain a provision or endorsement stating that the coverage afforded will not be

cancelled until at least 30 days' prior written notice has been provided to the Contractor and to the Owner. Contractor shall not cause any insurance to be canceled nor permit any insurance to lapse during the term of the Contract or as required in the Contract.

- .10 Contractor shall be responsible for premiums, deductibles and self-insured retentions, if any, stated in policies. The amounts of all deductibles or self-insured retentions shall be disclosed on the Certificates of Insurance. Any deductible or self-insured retention in excess of \$25,000 is subject to the written approval of Owner.
- .11 Contractor shall provide Owner thirty (30) days written notice of erosion of the aggregate limits below occurrence limits for all applicable coverages required by the Contract.
- .12 If Owner-owned property is being transported or stored off-site by Contractor, then the appropriate property policy will be endorsed for transit and storage in an amount sufficient to protect Owner's property.
- .13 The insurance coverages required under this contract are required minimums and are not intended to limit the responsibility or liability of Contractor. The inclusion of required minimum insurance limits in this Contract shall not be construed as limiting the Owner's or other additional insured's rights under any policy with higher limits. The minimum insurance limits set forth in this Contract shall be deemed to be amended to any higher limits actually contained in Contractor's insurance policies.
- .14 The Contractor hereby waives its rights of recovery from the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents with regard to all causes of property and/or liability loss covered by insurance required by this Contract, and shall cause a waiver of subrogation endorsement to be provided in favor of the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents on all insurance coverage carried by the Contractor, whether required herein or not.
- .15 Failure to obtain and maintain the required insurance shall constitute a material breach of, and default under, this Contract. If Contractor shall fail to remedy such breach, Contractor will be liable for any and all costs, liabilities, damages and penalties resulting to Owner from such breach, unless a written waiver of the specific insurance requirement(s) is provided to Contractor by Owner. In the event of any failure by Contractor to comply with the provisions of this Contract, Owner may, without in any way compromising or waiving any right or remedy at law or in equity, on notice to Contractor, purchase such insurance, at Contractor's expense, provided that Owner shall have no obligation to do so and if Owner shall do so, Contractor shall not be relieved of or excused from the obligation to obtain and maintain such insurance amounts and coverages.

- .16 Additional insured status shall be provided in favor of the Owner, its officers, directors, agents and employees, and the Owner's Representative, the Principal Architect/Engineer, the Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees and agents on all insurance policies other than Workers' Compensation, Professional Liability and Builder's Risk, on ISO forms CG 20 10 10 01 and CG 20 37 10 01 or their combined equivalent. It is the intent of the parties to this Contract that this Additional Insured status shall include coverage for completed operations and for the additional insureds' concurrent and sole negligence. Notwithstanding the foregoing, if Subchapter C of Chapter 151 of the Texas Insurance Code applies to the Contract, this additional insured obligation shall not require or provide coverage the scope of which is prohibited under Subchapter C of Chapter 151 of the Texas Insurance Code.
- .17 Contractor's obligations under this Contract to defend, indemnify and/or hold harmless Owner or other parties shall not be limited in any way by any insurance required of Contractor by this Contract or otherwise provided or maintained by Contractor. Any insurance obligations of Contractor under this Contract are independent from Contractor's obligations under this Contract to defend, indemnify and/or hold harmless Owner or other parties.

5.3.1.02 Business Automobile Liability Insurance: Provide coverage for all owned, non-owned and hired vehicles. The policy shall provide coverage in the following types and amounts:

- .1 A minimum combined single limit of \$1,000,000 per occurrence for bodily injury and property damage.
- .2 A minimum combined single limit of \$1,000,000 minimum per occurrence for bodily injury and property damage.
- .3 The policy shall contain the following endorsements in favor of Owner:
- .a Waiver of Subrogation endorsement; and
 - .b 30 day Notice of Cancellation endorsement; and
 - .c Additional Insured endorsement.

5.3.1.03 Workers' Compensation And Employers' Liability Insurance: Coverage shall meet or exceed statutory limits and all other benefits outlined in the Texas Workers' Compensation Act (Section 401). The minimum policy limits for Employers' Liability Insurance coverage shall be \$500,000 bodily injury per accident, \$500,000 bodily injury by disease policy limit and \$500,000 bodily injury by disease each employee.

- .1 Contractor's policy shall cover all States in which Work is performed and apply to the State of Texas and shall include these endorsements in favor of Owner:
- .a Waiver of Subrogation; and
 - .b 30 day Notice of Cancellation.

5.3.1.04 Commercial General Liability Insurance: Provide coverages with minimum limits as follows: combined bodily injury and property damage limit of \$2,000,000 minimum per occurrence and \$5,000,000 aggregate. The Contractor's policy shall include coverage for:

- .1 Blanket contractual liability coverage for liability assumed under the Contract and all contracts relative to this Project; and
- .2 Completed Operations/Products Liability for at least three years after Substantial Completion; and
- .3 Explosion, Collapse and Underground (X, C & U) coverage; and
- .4 Independent Contractors coverage; and
- .5 Aggregate limits of insurance per project; and
- .6 Additional insureds as required in 5.3.1.01.16; and
- .7 30 day notice of cancellation in favor of Owner; and
- .8 Waiver of Transfer of Recovery Against Others in favor of all required additional insureds; and
- .9 Primary and non-contributing endorsement.

5.3.1.05 Builder's Risk Insurance: Contractor shall maintain Builder's Risk Insurance or Installation Insurance on an all-risk physical loss form in the Contract Amount plus the value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Work at the site on a replacement cost basis without optional deductibles. Coverage shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, explosion, tornado, malicious mischief, collapse, earthquake, flood, surface water, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements and shall cover reasonable compensation for Principal Architect/Engineer's and Contractor's services and expenses required as a result of any insured loss. Coverage shall continue until final payment for the Work is made by the Owner. Coverage shall allow for partial occupancy/use by the Owner. Owner shall be an additional named insured on the policy. Policy must include expenses incurred in the repair or replacement of any insured property, including but not limited to fees and charges of the Principal Architect/Engineer and any other engineers and architects and their respective subconsultants. If off-site storage is permitted by the Owner, coverage shall include materials in transit and storage in an amount sufficient to protect property being transported or stored. Any losses covered by the Builder's Risk or Installation Insurance shall be adjusted by the Owner.

5.3.1.06 Environmental Impairment Liability or Pollution Liability Insurance:

Contractor shall comply with the following insurance requirements in addition to those specified above:

- .1 Provide an Environmental Impairment Liability policy with minimum limits of \$2,000,000 each occurrence and \$5,000,000 aggregate. Coverage shall contain a "per project" aggregate, 30 day notice of cancellation to Owner and waiver of subrogation in favor of Owner. Coverage to include non-owned disposal sites. Coverage shall include clean-up costs, bodily injury, property damage and defense costs.
- .2 Policy shall contain proper endorsement wording to comply with Federal or TCEQ requirements. Policy will also cover vessels and marine operations. Contractor shall submit complete copies of the policy providing pollution liability coverage to Owner.

5.3.1.07 Professional Liability Insurance: For Work which requires professional engineering or architectural or professional survey services to meet the requirements of the Contract, including but not limited to excavation safety systems, traffic control plans, and construction surveying, the Contractor or Subcontractors, responsible for performing the professional services shall provide Professional Liability Insurance with a minimum limit of \$1,000,000 each occurrence and \$3,000,000 aggregate to pay on behalf of the assured all sums which the assured shall become legally obligated to pay as damages by reason of any negligent act, error, or omission committed in connection with professional services provided for or in connection with the Work of this Contract.

5.3.1.08 Umbrella Liability: Umbrella Liability with a limit of \$5,000,000, with the Owner as an additional insured and with waiver of subrogation and 30 day notice of cancellation. The Umbrella Liability policy shall follow form, be excess over and be no less broad than all coverages described above (with the exception of Workers' Compensation, Professional Liability and Pollution Liability), shall include a drop-down provision and contain a per job aggregate. This policy shall have the same inception and expiration dates as the Commercial General Liability insurance required above. Contractor shall maintain such insurance in identical coverage, form and amount, including required endorsements, for at least three (3) years following Date of Substantial Completion of the Work to be performed under the Contract.

5.3.1.09 Protection and Indemnity: Protection and Indemnity coverage for any over water operations, vessels, barges, divers. This policy shall have limits of \$1,000,000 each occurrence, \$2,000,000 aggregate and policy endorsed to provide

5.3.1.10 Excess P&I: Excess P&I in the amount of \$20,000,000 each occurrence with additional insured, waiver of subrogation and 30 day notice of cancellation to the Owner.

5.3.1.11 Marine: Contractor and/or any Subcontractors shall have appropriate workers compensation insurance to provide coverage for USL&H and Jones Act exposures.

5.3.2 Waiver of Rights

5.3.2.1 All policies purchased in accordance with Section 5.3.1.05 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 named insureds thereunder. Owner and Contractor waive all rights of recovery for damages against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, the Principal Architect/Engineer, the Principal Architect/Engineers Consultants and Subconsultants and Owner's Representative and any named insured or additional named insured or loss payee to the extent (a) of 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 (b) that such losses and damages are actually paid by such policies or other property insurance applicable to the Work. 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 adjuster or recipient thereof or otherwise payable under any such policy.

5.3.3 Receipt and Application of Insurance Proceeds

5.3.3.1 Any insured loss under the policies of insurance required by Section 5.3.1.05 will be adjusted with Owner and made payable to Owner for the named insureds, additional named insureds, and loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Section 5.3.3.2. Owner shall deposit 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, to the extent of loss payments received, covered by an appropriate Change Order.

5.3.3.2 Owner shall have power to adjust and settle any loss with the builder's risk or other property insurers.

5.3.4 Partial Utilization, Acknowledgment of Property Insurer:

5.3.4.1 If Owner desires to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Section 14.08, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Section 5.3.1.05 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, and the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

5.4 Bonds:

5.4.1 General:

- .1** Contractor shall furnish performance, payment, and one-year maintenance Bonds, each in an amount at least equal to the Contract Amount as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents, as well as a second year maintenance Bond, in an amount equal to ten percent (10%) of the Contract Amount. The one-year maintenance Bond shall remain in effect until completion of the correction period specified in Section 13.7.1. The second year maintenance Bond shall remain in effect until 2-years from the date of Substantial Completion. Contractor shall also furnish such other Bonds as are required by the Contract Documents.
- .2** Bonds shall be executed on forms furnished by Owner, as included in the Specifications. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act. The evidence of

- authority shall show that it is effective on the date the agent or attorney-in-fact signed each Bond.
- .3 If the Surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Texas or it is placed into receivership, Contractor shall within ten (10) days thereafter substitute other Bonds and Surety, each of which must be acceptable to Owner.
 - .4 The Performance Bond and Payment Bond shall be issued in an amount of one hundred percent (100%) of the Contract Amount as security for the faithful performance and/or payment of all Contractor's obligations under the Contract Documents. All Bonds, including but not limited to the Performance Bond and Payment Bond shall be issued by a solvent corporate surety company authorized to do business in the State of Texas, and shall meet any other requirements established by law or by Owner pursuant to applicable law. Any surety duly authorized to do business in Texas may write Performance and Payment Bonds on a project without reinsurance to the limit of ten percent (10%) of its capital and surplus. Such a surety must reinsure any obligations over the ten percent (10%) limit.

5.4.2 Performance Bond:

- .1 Contractor shall furnish Owner with a Performance Bond in the form set out in the Contract Documents.
- .2 The Performance Bond shall include the one (1) year warranty correction period obligation from the date of Substantial Completion of the Work.

5.4.3 Payment Bond:

- .1 Contractor shall furnish Owner with a Payment Bond in the form set out in the Contract Documents.

5.4.4 One-Year Maintenance Bond:

- .1 Contractor shall furnish Owner with a One-Year Maintenance Bond in the form set out in the Contract Documents.

5.4.5 Second-Year Maintenance Bond:

- .1 Contractor shall furnish Owner with a Second-Year Maintenance Bond in the form set out in the Contract Documents.
- .2 The Second-Year Maintenance Bond shall be in an amount equal to ten percent (10%) of the Contract Amount, and shall remain in effect until 2-years from the date of Substantial Completion.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence:

- 6.01.1** 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. Contractor shall be responsible to see that the completed Work strictly complies with the Contract Documents.

6.01.2 Contractor shall have an English-speaking, competent Superintendent on the Work at all times that Work is in progress. The Superintendent will be Contractor's representative on the Site and shall have the authority to act on the behalf of Contractor. All communications given to the Superintendent shall be as binding as if given to Contractor. Contractor's Superintendent and Project Manager shall provide cellular telephone numbers and emergency and home telephone number(s) at which one or the other may be reached if necessary when Work is not in progress. Telephone or cellular phone number(s) shall be to a live person having responsible authority for the Work and not an answering machine or answering service. The Superintendent must be an employee of the Contractor, unless such requirement is waived in advance in writing by the Owner. If the Contractor proposes a management structure with a Project Manager supervising, directing, and managing construction of the Work in addition to or in substitution of a Superintendent, the requirements of these Construction Documents with respect to the Superintendent shall likewise apply to any such Project Manager:

- .1 Contractor shall present the resume of the proposed Superintendent to the Owner's Representative showing evidence of experience and successful superintendence and direction of Work of a similar scale and complexity. If, in the opinion of the Owner, the proposed Superintendent does not have sufficient experience in line with the Work, he/she will not be allowed to be the designated Superintendent for the Work.
- .2 The Superintendent shall not be replaced without prior Written Notice to Owner's Representative. If Contractor deems it necessary to replace the Superintendent, Contractor shall provide the necessary information for approval, as stated above, on the proposed new Superintendent.
- .3 A qualified substitute Superintendent may be designated in the event that the designated Superintendent is temporarily away from the Work, but not to exceed a time limit acceptable to the Owner's Representative.
- .4 Contractor shall replace the Superintendent upon Owner's request in the event the Superintendent is unable to perform to Owner's satisfaction.

6.02 Labor, Materials and Equipment:

6.02.1 Contractor shall maintain a work force adequate to accomplish the Work within the Contract Time Requirements. Contractor agrees to employ only orderly and competent workers, skillful in performance of the type of Work required under this Contract. Contractor, Subcontractors, Sub-Subcontractors, and their employees may not use or possess any alcoholic or other intoxicating beverages, illegal drugs or controlled substances while on the job or on Owner's property, nor may such workers be intoxicated, or under the influence of alcohol or drugs, on the job. Subject to the

applicable provisions of Texas law, Contractor, Subcontractors, Sub-Subcontractors, and their employees may not use or possess any firearms or other weapons while on the job or on Owner's property. If Owner or Owner's Representative notifies Contractor that any worker or representative of Contractor is incompetent, disorderly, abusive, or disobedient, has knowingly or repeatedly violated safety regulations, has possessed any firearms in contravention of the applicable provisions of Texas law or this Contract, or has possessed or was under the influence of alcohol or drugs on the job, Contractor shall immediately remove such worker or representative, including any officer or owner of Contractor, from performing Contract Work, and may not employ such worker or representative again on Contract Work without Owner's prior written consent. Contractor shall at all times maintain good discipline and order on or off the Site in all matters pertaining to the Project. Contractor shall pay workers no less than the applicable wage rates established for the Contract, and maintain weekly payroll reports as evidence thereof, in accordance with the requirements of Chapter 2258 of the Texas Government Code.

- 6.02.2** Except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular Working Days and regular Working Hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without the Owner's prior written consent given after the Contractor has provided 48-hour advanced written notice to the Owner's Representative.
- 6.02.3** Unless otherwise specified in Division 01, Contractor shall provide and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work, provided the Owner's CMT Consultant shall provide certain inspection services, the Owner shall provide testing of construction materials engineering and the verification testing services necessary for acceptance of the Work by Owner, as required by Section 2267.058(a) of the Texas Government Code.
- 6.02.4** All materials and equipment shall be of good quality and new (including new products made of recycled materials, pursuant to Section 361.426 of the Texas Health & Safety Code), except as otherwise provided in the Contract Documents. If required by Owner's Representative, Contractor shall furnish satisfactory evidence (reports of required tests, Manufacturer's certificates of compliance with material requirements, mill reports, etc.) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Manufacturer or Supplier, except as otherwise provided in the Contract Documents.
- 6.02.5 Substitutes and "Approved Equal" Items:**
- .1 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 Manufacturer or Supplier, the specification or description is intended to establish the type, function and quality

required. Unless the specification or description contains words reading that no like, equivalent or "approved equal" item or no substitution is permitted, other items of material or equipment of other Manufacturers or Suppliers may be submitted by Contractor, at Contractor's sole risk, including potential impacts and disruptions to the Critical Path of the Project Schedule, to Principal Architect/Engineer for their review and approval through Owner's Representative under the following circumstances:

- (a) "Approved Equal": If in Principal Architect/Engineer's and Owner's sole discretion an item of material or equipment proposed by Contractor is functionally equal and of equivalent type and quality to that named, and sufficiently similar so that no change in related Work, time of performance or Contract Amount will be required, it may be approved by Principal Architect/Engineer and Owner through the submittal process as an "approved equal" item. Contractor shall provide Principal Architect/Engineer and Owner with all necessary documentation required for Principal Architect/Engineer and Owner to make their evaluation, and shall identify the item of material or equipment proposed by Contractor as a variation in accordance with Section 6.20.5.
 - (b) Substitute Items: Contractor may submit an item of material or equipment which does not qualify as an "approved equal" item under Subsection 6.02.5.1(a), or may resubmit an item of material or equipment proposed by Contractor and rejected by Principal Architect/Engineer or Owner as an "approved equal" item under Subsection 6.02.5.1(a), as a proposed substitute item. All of Contractor's requests for substitutions must be clearly identified as a "**Request For Substitution**" on the face of the document. Contractor shall submit sufficient information as provided in Division 01 to allow Principal Architect/Engineer and Owner to evaluate the item of material or equipment proposed as a substitute for the item named.
- .2 Substitute Construction Methods and 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, at Contractor's sole risk, including potential impacts and disruptions to the Critical Path of the Project Schedule, with prior approval of Principal Architect/Engineer, furnish or utilize a substitute means, method, technique, sequence, or procedure of construction. All such proposed substitutions must be clearly identified as being a "**Substitution**" in all of the Contractor's submittals. Contractor shall submit sufficient information to Owner's Representative to allow Principal Architect/Engineer's, in Principal Architect/Engineer's sole discretion, evaluation of the proposed substitute as an equivalent to that method or procedure expressly called for by the Contract Documents. The procedure for review by Principal Architect/Engineer will be same as that provided for substitute items in Division 01.
- .3 Principal Architect/Engineer's Evaluation: Principal Architect/Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Subsections 6.02.5.1(a),

6.02.5.1(b), and 6.02.5.2. Principal Architect/Engineer and Owner will be the judge of acceptability. No "approved equal" or substitute shall be ordered, installed, or utilized until Principal Architect/Engineer's and Owner's review is complete, and any "approved equal" is approved through the submittal process, or any approved substitute is evidenced by either a Change Order, or a Change Directive. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety Bond with respect to any approved substitute. Owner shall not be responsible for any Delay due to review time for any "approved equal" or substitute.

- .4 Contractor's Expense: All data and documentation to be provided by Contractor in support of any proposed "approved equal" or substitute item will be at Contractor's expense.
- .5 The approval of the Principal Architect/Engineer and/or Owner will not relieve the Contractor from primary responsibility and liability for the suitability and performance of any proposed substitute item, method or procedure and will not relieve Contractor from its primary responsibility and liability for curing Defective Work and performing warranty work, which the Contractor shall cure and perform, regardless of any claim the Contractor may choose to advance against the Owner, the Principal Architect/Engineer or Manufacturer.
- .6 Notwithstanding the foregoing, it is agreed and understood that the Contract Amount shall not be adjusted as a result of the Contractor's use of the cost of any possible substitute or "approved equal" items in calculating its Bid/Proposal price.

6.02.6 Contractor agrees to assign and hereby assigns to Owner any rights it may have to bring antitrust suits against its Manufacturers or Suppliers for overcharges on materials incorporated in the Project growing out of illegal price fixing agreements. Contractor further agrees to cooperate with Owner should Owner wish to prosecute suits against Manufacturers or Suppliers for illegal price fixing.

6.03 Project Schedule Requirements: Unless otherwise provided in Division 01, Contractor shall adhere to the Owner's Project Schedule as provided by the Owner, which shall be further developed by the Contractor to become first the Contractor's Preliminary Project Schedule and then, upon acceptance by the Owner, become the Master Project Schedule, as it may be adjusted from time to time as provided below:

6.03.1 Preliminary Project Schedule: Within thirty (30) days from the issuance of a Notice To Proceed by the Owner, the Contractor shall submit to the Owner's Representative a Preliminary Project Schedule to be used as the Contractor's baseline schedule for the Project. This Preliminary Project Schedule shall be initially based on and shall include and be consistent with all of the Milestones contained in Division 01, Work Covered By Contract Documents Specification, and shall be presented in a form reasonably acceptable to the Owner. The Preliminary Project Schedule shall be a Critical Path Method (CPM) schedule depicting all significant activities which will occur on the Project; the durations for all major items of Work to be performed; the start and finish dates of such activities; the Contract Time Requirements as set out in the Contract Documents; and the precedence logic of such activities. The Contractor's Preliminary Project Schedule shall include, at a minimum:

- .1 Duration and milestone dates for all equipment, materials delivery, and operations efforts that may affect the timely completion of the Project.
 - .2 Duration and milestone dates for each anticipated construction activity.
 - .3 Pre-purchase of materials and equipment with a "long lead" time.
 - .4 Permitting and regulatory milestones.
 - .5 Dates associated with the activities leading to delivery milestones from others including for offsite roadways and utilities.
- 6.03.2** The Contractor shall coordinate the Preliminary Project Schedule with the Contractor's Submittal Schedules for Shop Drawings and Samples as required by Division 01 of the Project Manual. The Contractor's Submittal Schedule must provide an adequate duration for reviewing and processing the required Submittals acceptable to Owner and the Principal Architect/Engineer.
- 6.03.3** The Contractor shall provide Owner with an electronic version (by disk or CD) of the Preliminary Project Schedule and of each subsequent Master Project Schedule, including all subsequent electronic schedule revisions and updates, created without password protection, in latest version of Microsoft Project (.MPT, .MPX or .MPD suffix) or a format approved by Owner. Failure to furnish Owner, Owner's Representative, and Principal Architect/Engineer with a revised Project Schedule in one of the above formats within ten (10) days of receipt of a written request shall constitute a breach of the Contract by Contractor, and shall be considered to be adequate cause for termination of the Contractor by Owner.
- 6.03.4 Master Project Schedule:** Once the Contractor's Preliminary Project Schedule has been accepted by Owner, it shall become the Master Project Schedule (Baseline Schedule) for the Project. The Contractor shall update the Master Project Schedule monthly or more often by the submission of a revised Master Project Schedule or when circumstances develop which make it beneficial to the Project, or as may be required by Owner. Once the most recently revised Master Project Schedule has been accepted by Owner, the Master Project Schedule shall be considered to have been updated. The updated Master Project Schedule shall then be distributed by the Contractor to Owner's staff, the Principal Architect/Engineer, each consultant, and other appropriate parties. The Master Project Schedule shall be reviewed at the monthly team meeting at a summary level, including for a three month look-ahead and anticipated Project completion.
- 6.03.5 Changes to the Master Project Schedule:** A copy of the accepted Master Schedule shall be maintained unaltered. The Contractor shall thereafter submit to Owner's Representative an updated Project Schedule each month with its Application for Payment, to reflect actual progress that has been made and to forecast future progress of the Work. The monthly Project Schedule update shall be based upon the accepted Master Project Schedule. Contractor shall submit to Owner's Representative for review and acceptance by Owner any proposed changes or adjustments in its monthly Project Schedule that modify either the Master Project Schedule or the previous month's approved Project Schedule. Any such proposed

adjustments must be substantiated with a written narrative containing an explanation of any changes to the underlying logic of the subject schedule. Contractor's proposed changes to the schedule must show how the Contractor will consistently advance the progress of the Work in accordance with the Critical Path of the Work and the Contract Time Requirements, including all required contractual Milestones. Such adjustments will conform generally to the Master or monthly Project Schedule then in effect and additionally will comply with any provisions of Division 01 applicable thereto.

6.03.6 Proposed adjustments indicated by the Project Schedule that will change the Contract Time Requirements, including Milestones, shall be submitted in accordance with the requirements of Article 12. Any such proposed adjustments must be substantiated with documentation of any changes to the underlying logic of the Master Project Schedule. Such adjustments may only be made by a Change Order or Change Directive in accordance with Article 12.

6.03.7 Contractor shall keep a current schedule of submittals that coordinates with the Master Project Schedule, and shall submit the initial schedule of submittals to Owner's Representative for acceptance along with the Preliminary Project Schedule.

6.04 Concerning Subcontractors, Suppliers and Others:

6.04.1 Assignment: Contractor shall retain direct control of and give direct attention to the fulfillment of this Contract. Contractor shall not assign, transfer, or convey this Contract or any portion thereof, or any right, title or interest in, to or under same, or any causes of action or claims for damages arising under this Contract or any breach thereof, without the prior written consent of Owner. In addition, without Owner's written consent, the Contractor will not subcontract the performance of the entire Work or the supervision and direction of the Work.

6.04.2 Award of Subcontracts for Portions of the Work: Contractor shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom Owner may have reasonable objection. Owner will communicate such objections by Written Notice. If Owner requires a change without good cause of any Subcontractor, person or organization previously accepted by Owner, the Contract Amount shall be increased or decreased by the difference in the cost caused by any such change, and an appropriate Change Order shall be issued. Contractor shall not substitute any Subcontractor, person or organization that has been accepted by Owner, unless the substitute has been accepted in writing by Owner. No acceptance by Owner of any Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of Owner to reject Defective Work. Contractor shall comply with the applicable requirements set forth in the Bid/Proposal Documents and Contract Documents with respect to Subcontractors and the subcontracting process.

- 6.04.3** Contractor shall enter into written agreements with all Subcontractors and Suppliers which specifically bind the Subcontractors, Manufacturers and Suppliers to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Principal Architect/Engineer. The Owner reserves the right to specify that certain requirements shall be adhered to by all Subcontractors, Manufacturers and Suppliers as indicated in other portions of the Contract Documents and these requirements shall be made a part of the agreements between Contractor and Subcontractors, Manufacturers and Suppliers.
- 6.04.4** Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Manufacturers, or Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor 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, Manufacturer, or Supplier or other person or organization any contractual relationship between Owner and any such Subcontractor, Supplier, Manufacturer or other person or organization, nor shall it create any obligation on the part of Owner or Principal Architect/Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Manufacturer, or Supplier or other person or organization except as may otherwise be required by laws and regulations.
- 6.04.5** Contractor shall be solely responsible for efficiently scheduling and coordinating the Work of Subcontractors, Manufacturers, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor in order to avoid any Delays or inefficiencies in the prosecution of the Work. Contractor shall require all Subcontractors, Manufacturers, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner's Representative through Contractor.
- 6.04.6** The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing or delineating the Work to be performed by any specific trade.
- 6.04.7** Contractor shall pay each Subcontractor, Manufacturer and Supplier their appropriate share of payments made to Contractor not later than ten (10) Calendar Days from Contractor's receipt of payment from Owner.
- 6.04.8** To the extent allowed by Texas law, the Owner shall be deemed to be a third party beneficiary to each subcontract and may, if Owner elects, following a termination of the Contractor, require that the Subcontractor(s) perform all or a portion of unperformed duties and obligations under its subcontract(s) for the benefit of the Owner, rather than the Contractor; however, if the Owner requires any such performance by a Subcontractor for the Owner's direct benefit, then the Owner shall be bound and obligated to pay such Subcontractor the reasonable value for all Work performed by such Subcontractor to the date of the termination of the Contractor, less previous payments to Contractor for such Subcontractor's work, and for all Work performed by Subcontractor thereafter. In the event that the Owner

elects to invoke its right under this section, Owner will provide written notice of such election to the terminated Contractor and the affected Subcontractor(s).

6.05 Patent Fees and Royalties:

6.05.1 Contractor shall be responsible at all times for compliance with applicable patents or copyrights encompassing, in whole or in part, any design, device, material, or process utilized, directly or indirectly, in the performance of the Work or the formulation or presentation of its Bid/Proposal.

6.05.2 Contractor shall pay all royalties and license fees and shall provide, prior to commencement of Work hereunder and at all times during the performance of same, for lawful use of any design, device, material or process covered by letters patent or copyright, suitable legal agreement with the patentee, copyright holder, or their duly authorized representative, whether or not a particular design, device, material, or process is specified by Owner.

6.05.3 Contractor shall defend Owner in all suits or claims for infringement of any patent or copyright and shall indemnify and save Owner harmless from any loss or liability, direct or indirect, arising with respect to Contractor's process in the formulation of its Bid/Proposal or the performance of the Work or otherwise arising in connection therewith, with the exception that the Contractor will not be responsible to defend or indemnify the Owner for such loss or liability when a particular design, process or product of a particular Manufacturer or Manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Principal Architect/Engineer, unless Contractor knew or reasonably should have known of the patent or copyright violation and failed to notify Owner of same. Owner reserves the right to provide its own defense to any suit or claim of infringement of any patent or copyright in which event Contractor shall, to the extent provided in this Subsection, indemnify and save harmless Owner from all costs and expenses of such defense as well as satisfaction of all judgments entered against Owner.

6.05.4 Owner shall have the right to stop the Work and/or terminate this Contract at any time in the event Owner discovers that Contractor's work methodology includes the use of any infringing design, device, material or process.

6.06 Permits, Fees: Contractor shall obtain and pay for all construction permits, licenses and fees required for prosecution of the Work. However, Owner or Owner's Representative will obtain and pay for the following permits, licenses and/or fees:

- .1 Site Development Permit; and
- .2 Initial Corp of Engineer Permits (404, Letter of Permission only, if applicable).

6.07 Laws and Regulations:

6.07.1 Contractor shall give all notices and comply with all Legal Requirements applicable to furnishing and performing the Work, including arranging for

and obtaining any required inspections, tests, approvals or certifications from any governmental entity or public body having jurisdiction over the Work or any part thereof. Except where otherwise expressly required by applicable laws and regulations, neither Owner, Owner's Representative, nor Principal Architect/Engineer shall be responsible for monitoring Contractor's compliance with any Legal Requirements.

- 6.07.2** Maintaining clean water, air and earth or improving thereon shall be regarded as of prime importance. Contractor shall plan and execute its operations in compliance with all applicable Legal Requirements concerning control and abatement of water pollution and prevention and control of air pollution.
- 6.07.3** If Contractor performs any Work knowing or having reason to know that it is contrary to applicable Legal Requirements, Contractor shall bear all claims, costs, losses and damages arising therefrom; however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with all Legal Requirements, but this does not relieve Contractor of the Contractor's obligations under the terms of the Contract.
- 6.07.4** This Work is subject to the Texas Pollution Discharge Elimination System (TPDES) permitting requirements for the installation and maintenance of temporary and permanent erosion and sediment controls and storm water pollution prevention measures throughout the construction period.

Contractor's responsibilities are as follows.

- .01** Contractor must prepare a Storm Water Pollution Prevention Plan (SWPPP), or make modifications if SWPPP is already completed and as required, prior to filing the NOI form.
- .02** Contractor must file a Notice of Intent (NOI) form with the TCEQ at least two (2) days prior to start of construction activity and pay for the permit. The required NOI form is available from the Internet at <https://www.tceq.texas.gov/assets/public/permitting/waterquality/forms/20022.pdf>.
The form shall be mailed or submitted online to the TCEQ. If submitting online, the web address is <https://www3.tceq.texas.gov/steers/>. If Contractor has not already registered to use the TCEQ online application submittal service, it will take up to ten (10) working days to receive a user name and password. Contractor shall take this timeframe into consideration if applying online. A Time Extension shall not be granted for this timeframe. The mailing address is:

Texas Commission on Environmental Quality
Stormwater Processing Center (MC-228)
P.O. Box 13087
Austin, TX 78711-3087

For overnight mail: Stormwater Processing Center (MC-228)
12100 Park 35 Circle
Austin, TX 78753

- .03 Contractor must mail a copy of the completed Notice of Intent (NOI) form to the local Municipal Separate Storm Sewer Systems (MS4) representative.
- .04 Contractor must obtain a signed certification statement from all Subcontractors responsible for implementing the erosion and sediment control measures. This statement shall indicate that the Subcontractor understands the permit requirements. The certified statement forms shall be attached to and become part of the SWPPP.
- .05 Contractor must post a notice near the main entrance of the Work with the following information.
 - .1 The TPDES permit number for the Work or a copy of the NOI if a permit number has not yet been assigned,
 - .2 The name and telephone number of a local contact person,
 - .3 A brief description of the Work, and
 - .4 The location of the SWPPP if the Site is inactive or does not have an on-site location to store the plan.
 - .5 If posting this information near a main entrance is infeasible due to safety concerns, the notice must be posted in a local public building. If the Work is linear (pipeline, highway, etc.), the notice must be placed in a publicly accessible location near where construction is actively underway and moved as necessary. For linear Work, multiple postings of the information may be required by Owner (e.g. postings at both ends of the Work).
- .06 Contractor must maintain all erosion and sediment control measures and other protective measures identified in the SWPPP in effective operating condition.
- .07 Contractor must retain weekly inspection reports and be available for audit by the Owner, the TCEQ or the EPA.
- .08 Contractor must perform inspections every seven (7) calendar days and after every ½ inch rainfall event, noting the following observations on an inspection form provided by Owner:
 - .1 Locations of discharges of sediment or other pollutants from the Site.
 - .2 Locations of storm water / erosion / sedimentation controls that are in need of maintenance.
 - .3 Locations of storm water / erosion / sedimentation controls that are not performing, failing to operate, or are inadequate.
 - .4 Locations where additional storm water / erosion / sedimentation controls are needed.
- .09 Contractor must maintain at Work Site at all times a copy of the SWPPP (with all updates, as described below) and inspection reports.
- .10 Contractor must update the SWPPP as necessary to comply with TPDES permitting requirements, which includes noting changes in erosion / sedimentation controls and other best management practices that are part of the SWPPP and which may be necessary due to the results of inspection reports.
- .11 Contractor must file a Notice of Termination with the TCEQ within thirty (30) days of final stabilization on all portions of the Work Site. Form is available from Owner or on the Internet at:

<https://www.tceq.texas.gov/assets/public/permitting/waterquality/forms/10443.docx>.

The notice shall be mailed to:

Texas Commission on Environmental Quality
Storm Water & General Permits Team;

- .12 Upon completion of the Work, the Contractor must provide copies of all TPDES records to Owner.

6.07.6 Contractor shall abide by all Legal Requirements including, but not limited to, the Endangered Species Act.

6.07.7 Contractor warrants and represents that: (i) Contractor does not have any contracts with and does not provide supplies or services to any organization designated as a foreign terrorist organization by the United States secretary of state as authorized by 8 U.S.C. Section 1189 (a "Foreign Terrorist Organization"); or (ii) the United States government has affirmatively declared Contractor to be excluded from its federal sanctions regime relating to Sudan, its federal sanctions regime relating to Iran, or any federal sanctions regime relating to a Foreign Terrorist Organization.

6.08 Taxes:

6.08.1 Contractor shall pay only those sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the laws and regulations of the State of Texas in the performance of this public works contract.

6.08.2 Owner is an exempt organization as defined by Chapter 11 of the Property Tax Code of Texas and is thereby exempt from payment of Sales Tax under Chapter 151, Limited Use Sales, Excise and Use Tax, Texas Tax Code, and Article 1066 (C), Local Sales and Use Tax Act, Revised Civil Statutes of Texas.

6.08.3 In addition, if the Project is construction of a water or wastewater system certified by the Texas Commission on Environmental Quality as a regional system, equipment, services and supplies used solely to construct the Project are exempted from taxes imposed by Chapter 151, Limited Sales, Excise and Use Tax, Texas Tax Code.

6.09 Use of Premises:

6.09.1 Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by laws and regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor assumes 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. Should any claim be made by any such owner or occupant because of or in connection with 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. Any such settlement shall not include any admission of liability on the part of Owner and shall be subject to Owner's approval, which approval shall not be unreasonably withheld.

- 6.09.2** Contractor shall defend, indemnify and hold harmless the Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants and anyone directly or indirectly employed by any of them from and against all claims, costs, losses and damages (including court costs and reasonable attorneys' fees) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Owner's Representative, Principal Architect/Engineer or any other party indemnified hereunder arising out of the Work except to the extent such claims, costs, losses or damages are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of the Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants or any third party under the control or supervision of them other than Contractor or its agent or employee or Subcontractors of any tier.
- 6.09.3** During the progress of the Work and on a daily basis, Contractor shall keep the premises free from any accumulations of waste materials, rubbish and other debris resulting from the Work. Contractor shall provide such personnel, waste containers and or equipment necessary to maintain an orderly, clean and safe work site. Contractor shall keep all streets, access streets, driveways, and areas of public access, walkways, and other designated areas clean and open at all times. At the completion of the Work, Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. Contractor shall have the Site clean and ready for occupancy by Owner at Substantial Completion of the Work. Contractor shall, at a minimum, restore to original condition all property not designated for alteration by the Contract Documents. If the Contractor fails to clean up or restore at the completion of the Work, Owner may do so and the cost thereof will be charged against the Contractor.
- 6.09.4** Contractor shall not load or 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.
- 6.10 Record Documents:** Contractor shall maintain in a safe place at the Site, or other location acceptable to Owner, one (1) record copy of all red line Record Drawings, Specifications, Addenda, Change Orders, Change Directives, Field Orders and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents together with all final samples and all final Shop Drawings and submittals will be available to Owner, Owner Representative, and Principal Architect/Engineer for reference during performance of the Work. Upon Substantial Completion of the Work, these record documents, samples, Shop Drawings and submittals shall become the property of the Owner and shall be neatly labeled and organized per the Owner's direction and

promptly delivered in containers acceptable to the Owner, to Owner's Representative. Record drawings must also include an electronic format that is either ".dwg" or ".dxf".

6.11 Safety and Protection:

6.11.01 Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Prior to commencement of the Work, Contractor shall submit a site security plan for approval by Owner. By reviewing the plan or making recommendations or comments, Owner will not assume liability nor will Contractor be relieved of liability for damage, injury or loss. 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 Work 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, but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Improvements not designated for removal, relocation or replacement in the course of construction.

6.11.02 The Contractor will provide a Safety Manager for this Project. The Safety Manager will be responsible for the safety of the entire Work and the prevention of accidents in connection with the Work. The Safety Manager shall be competent and qualified to perform his/her duties, including but not limited to having received all appropriate Occupational Safety and Health Act of 1970, as amended ("OSHA") and other safety training, and experienced in managing safety programs on construction projects comparable in scope and complexity.

6.11.03 Specific Duties of the Contractor's Safety Manager: This person will ensure compliance with all provisions of the Contract Documents, OSHA, other governmental agencies, industry safety requirements and standards. The Contractor Safety Manager will prepare and enforce a site-specific safety plan for the Work.

- .1 Additional duties of the Contractor's Safety Manager shall include the following:
 - (a) Be responsible for safety over-sight of the entire Work.
 - (b) Review and direct immediate action to correct all substandard safety conditions.
 - (c) Be responsible for providing any necessary additional safety personnel with support in carrying out the duties and responsibilities of that position.

- (d) Conduct regular supervisory safety meetings, including the discussion of observed unsafe work practices or conditions, a review of accidents experienced and corrective actions, and encouragement of safety suggestions from employees.
 - (e) Investigate all accidents and implement immediate corrective action.
 - (f) Cooperate with the insurance carrier(s) and Owner's safety personnel.
 - (g) Provide timely reports in writing of any observed unsafe conditions or practices, or violations of job security regarding safety issues and take corrective actions.
 - (h) Report all injuries and accidents in a timely manner to the Contractor and safety personnel in accordance with Contract Documents, federal, state and local laws and regulations.
 - (j) Ensure that the necessary competent safety persons are on Site as required in the Contract.
 - (k) Comply with insurance carriers requirements in all accident investigation and reporting procedures.
 - (m) Coordinate safety activities with insurance carriers, and take necessary steps to promptly implement safety recommendations or directives issued thereby.
 - (n) Be responsible for the availability and proper use of all necessary safety equipment including personal protective equipment and apparel for the employees.
 - (p) Ensure that adequate first-aid supplies are available at the Work Site and that personnel are qualified and identified to administer first-aid as required.
 - (r) Be on the Site at all times while Work is in progress. If the Safety Manager has to leave the Site, the Contractor is required to provide an alternate competent and qualified Safety Manager.
- .2 The Contractor Safety Manager shall stop Work as necessary in the event of imminent danger or in situations where they deem necessary to protect a person from injury or prevent property damage.

6.11.04 Contractor shall comply with all applicable Legal Requirements, including but not limited to all laws and regulations of any governmental entity or public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Improvements, and 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 caused, directly or indirectly, in whole or in part, by Contractor or any Subcontractor, Supplier or any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except to the extent of damage or loss attributable to errors or omissions

in the Drawings or Specifications, or to the acts or omissions of Owner, the Owner's Representative, or the Principal Architect/Engineer, or Principal Architect/Engineer's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable other than Contractor or its agent, or employee, or Subcontractors of any tier). Contractor's duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and Owner's Representative has issued a notice to Owner and Contractor in accordance with Article 14 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion). Without limitation, Contractor shall comply with the following specific provisions:

- .1 It shall be the duty and responsibility of Contractor and all of its Subcontractors to be familiar with and comply with 29 USC Section 651, et seq., the Occupational Safety and Health Act of 1970, as amended ("OSHA") and to enforce and comply with all provisions of this Act.
- .2 The Contractor and all of its Subcontractors shall comply with all applicable requirements of Subpart P of Part 1926 of 29 C.F.R, OSHA Safety and Health Standards, Texas Health and Safety Code Section 756.023, as amended, and shall submit a unit price for the particular excavation safety systems to be utilized by the Contractor for all excavations which exceed a depth of five feet (5').

6.11.05 Before commencing any excavation which will exceed a depth of five feet (5'), the Contractor shall prepare and employ detailed drawings and specifications regarding the safety systems to be utilized. Said plans and specifications shall include a certification from a registered Texas professional engineer indicating full compliance with the OSHA provisions cited above.

6.11.06 Hazard Communication Programs: 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 applicable laws and regulations.

6.11.07 Emergencies:

- .1 In emergencies affecting the safety or protection of persons or the Work at the Site or adjacent thereto, Contractor, without special instruction or authorization from Owner, Owner Representative, or Principal Architect/Engineer, is obligated to act reasonably to prevent threatened damage, injury or loss and to mitigate damage or loss to the Work. Contractor shall give Owner's Representative telephone notification as soon as reasonably practical and a prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Owner determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Directive or Change Order will be issued to document the consequences of such action.

- .2 Authorized agents of Contractor shall respond immediately to call-out at any time of any day or night when circumstances warrant the presence on Project Site of Contractor or his agent to protect the Work or adjacent property from damage, injury or loss, or to take such action or measures pertaining to the Work as may be necessary to provide for the safety of the public. Should Contractor and/or its agent fail to respond and take action to alleviate such an emergency situation, Owner may direct other forces to take action as necessary to remedy the emergency condition, and Owner will deduct any cost of such remedial action from the funds due Contractor under this Contract, or Contractor shall reimburse Owner for same on demand.
- .3 In the event there is an accident involving injury to any individual or damage to any property on or near the Work, Contractor shall provide to Owner's Representative verbal notification within one (1) hour and written notification within twenty-four (24) hours of the event and shall be responsible for recording the location of the event and the circumstances surrounding the event through photographs, interviewing witnesses, obtaining medical reports, police accident reports and other documentation that describes the event. Copies of such documentation shall be provided to Owner's Representative, for Owner's and Principal Architect/Engineer's records, within forty-eight (48) hours of the event. Contractor shall cooperate with Owner on any Owner investigation of any such incident.

6.12 Continuing the Work: Contractor shall carry on the Work and adhere to the Project Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Owner and Contractor may otherwise agree in writing.

6.13 Contractor's General Warranty and Guarantee:

6.13.1 Contractor warrants and guarantees to Owner that all Work will conform to the drawings and specifications, be performed in a good and workmanlike manner in accordance with the Contract Documents and will not be Defective and that the whole and entire Work will function and operate as expressed or required by the Contract Documents. This warranty will survive the termination or expiration of the Contract. 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 or Suppliers; or
- .2 normal wear and tear under normal usage.

6.13.2 Nothing in this warranty is intended to limit any Manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section or the Contract Documents. Further, nothing in this warranty shall be limited by the Contractor's obligation to cure defects within any specific corrective or warranty period as required in the Contract Documents, including Section 13.7 below.

6.13.3 Contractor's obligation to perform and complete the Work in a good and workmanlike manner 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 Owner's Representative, Owner's CMT Consultant, and/or Principal Architect/Engineer;
- .2 recommendation of any progress or final payment by Owner's Representative;
- .3 the issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;
- .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 of a Shop Drawing or sample submittal;
- .7 any inspection, test or approval by others;
- .8 any correction of Defective Work by Owner; or
- .9 progress payments or final payment by Owner.

6.13.4 Except as otherwise agreed in writing by the Parties, partial occupancy or use of some or all of the Work or any part thereof shall not commence the corrective period under Section 13.7 below.

6.13.5 Independent from Contractor's warranty and corrective work obligations, Contractor shall be responsible for maintenance of the Work prior to Owner's occupancy or use of same, such that the Work shall be capable of being started-up and operated as designed without any additional maintenance, or any repair or replacement of, or additional work or services on, the equipment, materials or systems.

6.13.6 Not used.

6.14 INDEMNIFICATION BY CONTRACTOR:

6.14.1 Contractor shall defend, indemnify and hold harmless (collectively, "Indemnify") Owner, the Owner's Representative, the Principal Architect/Engineer, Principal Architect/Engineer's Consultants and Subconsultants and their respective officers, directors, partners, employees, agents and other Consultants (the "INDEMNIFIED PARTIES") from and against all claims, costs, losses, demands, injuries, liabilities, damages, causes of action and expenses (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or other dispute resolution costs) arising out of or resulting from the Work, provided that any such claim, cost, loss, demand, injury, liability, damage or cause of action:

- .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, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, even if caused in part by any negligence or omission of one

or more of the INDEMNIFIED PARTIES; save and except that Contractor's obligation to Indemnify shall not apply to the extent such claims, costs, losses, demands, injuries, liabilities, damages, causes of action or expenses are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of an Indemnified Party or any third party under the control or supervision of an Indemnified Party other than Contractor or its agent or employee or Subcontractors of any tier.

6.14.2 Notwithstanding Subsection 6.14.1, **CONTRACTOR AGREES TO AND SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS (COLLECTIVELY "INDEMNIFY") OWNER, THE OWNER'S REPRESENTATIVE, THE PRINCIPAL ARCHITECT/ENGINEER, PRINCIPAL ARCHITECT/ENGINEER'S CONSULTANTS AND SUBCONSULTANTS AND THEIR RESPECTIVE OFFICERS, DIRECTORS, PARTNERS, MEMBERS, EMPLOYEES, AGENTS AND OTHER CONSULTANTS (COLLECTIVELY THE "INDEMNIFIED PARTIES" OR INDIVIDUALLY AN "INDEMNIFIED PARTY") FROM AND AGAINST ANY AND ALL CLAIMS, COSTS, LOSSES, DEMANDS, INJURIES, LIABILITIES, DAMAGES, AND CAUSES OF ACTION, INCLUDING BUT NOT LIMITED TO ALL EXPENSES OF LITIGATION, COURT COSTS AND ATTORNEYS' FEES (COLLECTIVELY, IN THIS SUBSECTION 6.14.2, "EMPLOYEE CLAIMS"), FOR BODILY INJURY OR DEATH OF ANY EMPLOYEE OF CONTRACTOR, ITS AGENTS, OR ITS SUBCONTRACTORS OF ANY TIER (COLLECTIVELY "EMPLOYEE" FOR THE PURPOSE OF THIS SECTION 6.14.2), ACTUALLY OR ALLEGEDLY OCCASIONED BY, CONTRIBUTED TO OR ARISING OUT OF, IN WHOLE OR IN PART, THE WORK OR THIS CONTRACT, INCLUDING BUT NOT LIMITED TO CLAIMS DUE TO NEGLIGENCE, GROSS NEGLIGENCE, BREACH OF WARRANTY, BREACH OF CONTRACT, VIOLATION OF ANY STATUTE, RULE OR REGULATION OR OTHER ACT OR OMISSION BY CONTRACTOR, ITS EMPLOYEES, AGENTS OR ANY SUBCONTRACTOR OF CONTRACTOR OF ANY TIER, OR THEIR RESPECTIVE AGENTS OR EMPLOYEES, OR ANY OTHER PARTY FOR WHOSE ACTS CONTRACTOR IS LIABLE. CONTRACTOR'S OBLIGATION TO INDEMNIFY SHALL APPLY EVEN IF SUCH EMPLOYEE CLAIMS ARE ACTUALLY OR ALLEGEDLY CAUSED IN WHOLE OR IN PART BY THE ACTS, OMISSIONS, OR NEGLIGENCE OF AN INDEMNIFIED PARTY, EVEN IF SUCH NEGLIGENCE OR OTHER ACTS OR OMISSIONS ARE ACTIVE OR PASSIVE, DIRECT OR INDIRECT, SOLE OR CONCURRENT. THIS INDEMNITY AGREEMENT IS INTENDED TO INDEMNIFY THE INDEMNIFIED PARTIES FROM THE CONSEQUENCES OF THEIR OWN NEGLIGENCE, AS PROVIDED ABOVE.**

6.14.3 The indemnification obligation under Section 6.14.1 and 6.14.2 shall not be limited in any way by any insurance required by or provided in connection with this Contract or otherwise, or by any limitation on the amount or type of damages, or compensation or benefits payable by or for Contractor or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

- 6.14.4** Notwithstanding anything in Section 6.14.1 or 6.14.2 to the contrary, the obligations of Contractor under Section 6.14.1 and 6.14.2 shall not extend to the liability of a registered architect, a licensed engineer, or an agent, servant or employee of a registered architect or a licensed engineer, for damage that is caused by or results from defects in plans, designs or specifications prepared, approved or used by the architect or engineer, or negligence of the architect or engineer in the rendition or conduct of professional duties called for or arising out of the construction contract and the plans, designs or specifications that are a part of the construction contract; and arises from personal injury or death, property injury, or any other expense that arises from personal injury, death, or property injury.
- 6.14.5** In the event Contractor fails to follow Owner's directives concerning use of the Site, scheduling or course of construction, or engages in other conduct which results in damage to property based on inverse condemnation or otherwise, then and in that event, Contractor shall indemnify Owner against all costs and claims resulting therefrom except to the extent such costs or claims are caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of Owner or any third party under the control or supervision of Owner other than Contractor or its agent or employee or Subcontractors of any tier.
- 6.14.6** Subject to the limitation as set out in Section 6.14.4, in the event Contractor's negligence or breach of contract results in Delay in the progress of the Work or the performance of services being done by others on the Site or otherwise with regard to the Project (including Owner's separate contractors, design professionals, and consultants) so as to result in loss for which Owner becomes liable to such others, then Contractor shall indemnify Owner from and reimburse Owner for such loss, except to the extent such loss is caused by negligence or fault, breach or violation of a statute, ordinance, governmental regulation, standard or rule or breach of contract of Owner or any third party under the control or supervision of Owner other than Contractor or its agent or employee or Subcontractors of any tier.
- 6.15 Not used.**
- 6.16 Not used.**
- 6.17 Notice of Claim:** Should Contractor suffer injury or damage to person or property because of any error, omission or act of Owner or of any of Owner's employees or agents or others for whose acts Owner is liable, a Claim must be made to Owner within five (5) calendar days of the event giving rise to such injury or damage. The provisions of this Section 6.17 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or statute of repose.
- 6.18 Liquidated Damages or Economic Disincentives:** Contractor and its Surety shall be liable for liquidated damages or economic disincentives as provided in the Contract for the failure of the Contractor to timely complete the Work within the Contract Time Requirements.

6.19 Commissioning: The Contractor will be responsible to provide all of the required commissioning of the mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project. This is the process of verification, preliminary testing, starting up and functional operations testing of all such equipment and systems which are part of the Project. The term "commissioning" shall specifically include the drafting, review and verification of all test plans and test reports for all equipment and systems which are part of the Project. The verification, testing, start-up and commissioning of the mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work.

6.19.1 At least ninety (90) days prior to the planned dates for the initiation of the preliminary testing of any mechanical, electrical, instrumentation, and proprietary equipment and systems for the Project, or within a time-frame agreed upon at the Pre-Construction Meeting, the Contractor shall prepare and submit an overall Project Testing and Commissioning Program for Owner, Owner's Representative, and Principal Architect/Engineers' review and approval.

6.19.2 Project Testing and Commissioning Program: The Project Testing and Commissioning Program shall cover all aspects of the Project and shall contain as a minimum, all of the following information:

.1 Equipment Test Plans: An individual Equipment Test Plan configured for each piece of mechanical, electrical, instrumentation, and proprietary equipment and items on the entire Project that identifies how each piece of such equipment or item is to be verified, tested and commissioned including what functional elements must be demonstrated and precisely how those functional elements will be demonstrated to be operational to the Owner, Owner's Representative, and the Principal Architects/Engineers.

6.20 Shop Drawings & Submittals: The Contractor shall be required to provide submittals, samples and Shop Drawings to the Owner's Representative for transmittal to the Principal Architect/Engineer for approval in accordance with the Schedule of Submittals and section 01 33 00 of Division 01 Submittals.

6.20.1 Each submittal shall be identified in a format and in quantities as may be required by the Owner and section 01 33 00 of Division 01 Submittals. Contractor shall utilize Owner's standard forms unless otherwise approved in writing by the Owner.

6.20.2 Where a Shop Drawing or sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Principal Architect/Engineer's review and approval of the pertinent submittal will be at the sole risk and expense of Contractor.

6.20.3 Before submitting each Shop Drawing or sample, Contractor shall have:

.1 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 determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - .3 determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - .4 determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
- 6.20.4** Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's preparation, review and approval of that submittal.
- 6.20.5** With each submittal, Contractor shall give Principal Architect / Engineer specific written notice of any variations that the Shop Drawing or sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or sample submittal; and, in addition, by a specific notation made on each Shop Drawing or sample submitted to Principal Architect / Engineer for review and approval of each such variation.
- 6.20.6** Principal Architect/Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Principal Architect/Engineer. Engineer's review and approval will be only to evaluate whether the items covered by the submittals appear that they 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.
- 6.20.7** Principal Architect/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.
- 6.20.8** Principal Architect/Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Section 6.20.5 and Principal Architect/Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or sample. Principal Architect / Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Section 6.20.3.

- 6.20.9** Contractor shall make corrections required by Principal Architect / 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 Principal Architect/Engineer on previous submittals.
- 6.21 Operation & Maintenance Manuals:** The Contractor shall be required to provide Operations & Maintenance Manuals for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed as part of the Work. The Contractor must compile all specified instructions, maintenance manuals and operating data as defined under this section and in the Specifications. The compilation and assembly of the Operations & Maintenance Manuals for the Work can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work. The Contractor shall strictly adhere to all of the requirements for the assembly, formatting and printing of the O&M Manuals as more thoroughly defined in the Contract Documents.
- 6.22 Training of Owner's Personnel:** The Contractor shall be required to provide training of the Owner's designated personnel for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed on the Project. The Contractor must provide this training as defined under this section, Division 01 and the Specifications. The training of the Owner's designated personnel for all mechanical, electrical, instrumentation, and proprietary equipment and items being installed on the Project can be performed by the Contractor's personnel or it can be part of a subcontract work package with the Contractor managing and supervising that Scope of Work.

ARTICLE 7 - OTHER WORK

- 7.1** Owner may perform other work related to the Project at the Site by Owner's own forces, or let other contracts for the other work, or have other work performed by utility owners. Contractor and Owner agree to and shall use best efforts to cooperate and coordinate the Work with others performing work and other work related to the Project in order to avoid conflicts and Delays in the Work.
- 7.2** Contractor shall afford Owner's Independent Contractors and each utility owner (and Owner, if Owner is performing the additional 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 connect and 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 make its several parts come together properly and 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 advance written consent of Owner's Representative and the other contractors whose work will be affected. Unless expressly so consented to by such parties, Contractor shall promptly remedy damage caused by Contractor to completed or partially completed construction or to property of the Owner or separate contractors.

- 7.3** If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Owner's Representative 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 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.
- 7.4** Owner shall provide for coordination of the activities of the Owner's own forces and of Owner's Independent Contractors with the Work of Contractor, who shall cooperate with them. Contractor shall participate with Owner's Independent Contractors and Owner's Representative in reviewing their construction schedules when directed to do so. On the basis of such review, Contractor shall make any revisions to the Project Schedule agreed upon as necessary after a joint review. The agreed upon construction sequences shall then constitute the Project Schedules to be used by Contractor, separate contractors and Owner until subsequently revised.
- 7.5** Contractor shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with Owner's Independent Contractors, Contractor agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

- 8.1** Prior to the start of construction, Owner will designate in writing a person or entity to act as Owner's Representative during construction. The Owner shall retain the right to communicate directly with the Contractor. However, except as otherwise provided in these General Conditions, the Owner shall issue communications to Contractor through the Owner's Representative. Owner's Representative will be responsible for providing Owner-supplied information and approvals. Owner's Representative will also endeavor to provide Contractor with prompt notice if it observes a failure on the part of the Contractor to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work; however, failure of the Owner's Representative to provide Contractor with such notice shall not relieve Contractor of any of its responsibilities under the Contract Documents.
- 8.2** Owner and Owner's Representative 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. Owner and Owner's Representative are not responsible for any failure of Contractor to comply with Legal Requirements applicable to furnishing or performing the Work. Owner and Owner's Representative are not responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of Owner or Owner's Representative to discover, or object to or condemn any Defective Work or material shall not relieve Contractor from the obligation to properly and fully perform the Contract.
- 8.3** Owner and Owner's Representative are not responsible for the acts or omissions of Contractor, or of any Subcontractor, any Manufacturer or Supplier, or of any other

person or organization performing or furnishing any of the Work. Contractor acknowledges and agrees that Owner's or Owner's Representative's direction to perform Work in accordance with the approved Master Project Schedule is not a demand for acceleration or a dictation of Contractor's means or methods.

8.4 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness. The Owner or Owner's Representative shall have a reasonable amount of time to investigate Site conditions, review submittals, analyze requests for changes, and to make other decisions in the orderly administration of the Contract. Contractor must notify the Owner and/or Owner's Representative in writing, if the time for the investigation, review, analysis of any submittals, required for changes or otherwise required for Owner's decision, impacts in any way the Critical Path of the approved Master Project Schedule.

8.5 Furnishing of Services and Information

8.5.1 Owner may provide, at its own cost and expense, for Contractor's information and use, any of the following, all of which are not binding on Owner, are not Contract Documents, are not warranted or represented in any manner to accurately show the conditions at the Site of the Work, and shall not be the basis for any Claim for damages, additional compensation or extension of time should the actual conditions in the course of the Work vary or differ from conditions or information contained in or inferable from them:

- .1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;
- .2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;
- .3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Contractor to perform the Work;
- .4 A legal description of the Site;
- .5 As-built and record drawings of any existing structures at the Site; and
- .6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, known by the Owner to be in existence at the Site.

ARTICLE 9 – PRINCIPAL ARCHITECT/ENGINEER'S STATUS DURING CONSTRUCTION

9.1 Principal Architect/Engineer's Authority and Responsibilities:

9.1.1 The duties and responsibilities and the limitations of authority of Principal Architect/Engineer during construction, as set forth in the Contract Documents, may be assigned or assumed by the Owner, but shall not be extended without written consent of Owner and/or Principal Architect/Engineer. The assignment of any authority, duties or responsibilities to Principal Architect/Engineer under the Contract Documents, or under any agreement between Owner and Principal

Architect/Engineer, or any undertaking, exercise or performance thereof by Principal Architect/Engineer, is intended to be for the sole and exclusive benefit of Owner and not for the benefit of Contractor, Subcontractor, Supplier, or any other person or organization, or for any surety or employee or agent of any of them.

- 9.1.2** Principal Architect/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. Principal Architect/Engineer is not responsible for any failure of Contractor to comply with Legal Requirements applicable to the furnishing or performing the Work. Principal Architect/Engineer is not responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents. Failure or omission of Principal Architect/Engineer to discover, or object to or condemn any Defective Work or material shall not relieve Contractor from the obligation to properly and fully perform the Contract.
- 9.1.3** Principal Architect/Engineer is not responsible for the acts or omissions of Contractor, or of any Subcontractor, any Manufacturer or Supplier, or of any other person or organization performing or furnishing any of the Work.
- 9.1.4** If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer will review the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by Article 14, but only to determine generally that their content appears to comply 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.
- 9.1.5** The limitations upon authority and responsibility set forth in this Section 9.1 shall also apply to Principal Architect/Engineer's Consultants, Resident Project Representative and assistants.
- 9.2 Visits to Site:** If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer will make visits to the Site at intervals appropriate to the various stages of construction as requested by the Owner or the Owner's Representative and as Principal Architect/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, Principal Architect/Engineer will endeavor for the benefit of Owner to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Principal Architect/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. Principal Architect/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 on-site observations, Principal Architect/Engineer will keep Owner and Owner's Representative informed of the progress of the Work and will endeavor to guard Owner against Defective Work. Principal Architect/Engineer's visits and on-

site observations are subject to all the limitations on Principal Architect/Engineer's authority and responsibility set forth in Section 9.1 above.

- 9.3 Resident Project Representative:** If Owner and Principal Architect/Engineer agree, Principal Architect/Engineer may furnish a Resident Project Representative to assist Principal Architect/Engineer in providing more continuous observation of the Work. Owner may designate another representative or agent to represent Owner at the Site who is not a Principal Architect/Engineer, Principal Architect/Engineer's consultant, agent or employee.
- 9.4 Clarifications and Interpretations:** Principal Architect/Engineer may determine that written clarifications or interpretations of the requirements of the Contract Documents (in the form of drawings or otherwise) are necessary. Such written clarifications or interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents, will be issued by the Principal Architect/Engineer after consultation with the Owner, and the Contractor will comply with same. If Contractor believes that a written clarification or interpretation alters the Scope of Work and justifies an adjustment in the Contract Amount or the Contract Time Requirements, Contractor may make a Claim as provided in Article 11 or 12.
- 9.5 Rejecting Defective Work:** Principal Architect/Engineer will recommend that Owner disapprove or reject Work which Principal Architect/Engineer believes fails to conform to a requirement of the Contract Documents or believes will not produce a completed Project that conforms to the Contract Documents, or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
- 9.6** The Principal Architect/Engineer shall not have the authority to issue changes in the field without the express written approval of the Owner.
- 9.7 Shop Drawings:** Refer to Division 01 for Principal Architect/Engineer's authority concerning Shop Drawings.

ARTICLE 10 - CHANGES IN THE WORK

10.1 Changes:

- 10.1.1** Without invalidating the Contract and without providing notice to any Surety, Owner may, at any time or from time to time, order additions, deletions or revisions in the Work. Such changes in the Work will be authorized by Change Order, Change Directive or Field Order. In the event that the Owner and the Contractor are unable to negotiate the terms of a Change Order for the performance of additional Work, the Owner may, at its election, perform such additional Work with its own forces or an Independent Contractor and such work will be considered "Other Work" in accordance with Article 7 or issue a Change Directive.
- 10.1.2** Changes in the Work shall be performed under applicable provisions of the Contract Documents, and Contractor shall proceed promptly, unless otherwise provided in the Change Order, Change Directive or Field Order. Contractor's proposals for changes in the Contract Amount and/or Contract

Time Requirements shall be submitted within ten (10) Calendar Days as requested by the Owner, including estimated impacts to the approved Master Project Schedule if any. Owner will review each proposal and promptly respond to Contractor. After initial review of Contractor's proposal by Owner, Contractor shall provide any supporting data requested by Owner, including but not limited to any Subcontractor or Supplier proposal, within seven (7) Calendar Days, unless Owner grants an extension.

- 10.1.3** Contractor shall not be entitled to an increase in the Contract Amount or an extension of the Contract Time Requirements with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in Sections 3.3.1 and 3.3.2, except in the case of an emergency as provided in Section 6.11.15 or in the case of uncovering Work as provided in Section 13.4.
- 10.1.4** Except in the case of an emergency as provided in Section 6.11.15, a Change Order or Change Directive is required before Contractor commences any activities associated with a change in the Work which, in Contractor's opinion, will result in a change in the Contract Amount and/or Contract Time Requirements. Any Work performed prior to Contractor's receipt of a Change Order or Change Directive, will be at Contractor's sole risk and expense, including potential cost impacts and any Delay to the Critical Path of the Master Project Schedule.
- 10.1.5** Not used.
- 10.1.6** Contractor shall provide to the Owner's Representative's all Contractor documentation/records deemed necessary by Owner or Owner's Representative to evaluate the Contractor's Claim including, but not limited to certified payroll, receipts, bills of lading, invoices, schedules, contractor daily reports, and equipment logs. Other documents, if any, shall be provided pursuant to the Contract Documents.

10.2 Change Orders:

- 10.2.1** Owner and Contractor shall execute appropriate written Change Orders covering:
- .1 a change in the Work, subject to limitations in Article 10 and elsewhere in the Contract;
 - .2 the amount of the adjustment in the Contract Amount, if any; and
 - .3 the extent of the adjustment in the Contract Time Requirements, if any.
- 10.2.2** An executed Change Order shall constitute a settlement of and represent the complete, equitable, and final amount of adjustment in the Contract Amount and/or Contract Time Requirements owed to Contractor or Owner as a result of the occurrence or event causing the change in the Work encompassed by the Change Order.

10.3 Change Directives:

- 10.3.1** Owner may, by written Change Directive, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Amount and Contract Time Requirements being adjusted as the Owner may deem necessary. A Change Directive may be used in the absence of complete and prompt agreement on the terms of a Change Order, or as otherwise may be deemed to be necessary by the Owner. Where practicable, any items or elements of changed Work that may be agreed upon, prior to the performance of Work under this Article, will be included in a separate Change Order.
- 10.3.2** If the Change Directive provides for an adjustment to the Contract Amount, the adjustment shall be based on one of the methods provided in Article 11.4.1.
- 10.3.3** A Change Directive signed by Contractor indicates the agreement of Contractor with the proposed basis of adjustment in the Contract Amount and Contract Time Requirements as described within that Change Directive. Such agreement shall be effective immediately and shall be recorded later by preparation and execution of an appropriate Change Order.
- 10.3.4** The Contractor is not obligated to execute a Change Directive, but that Change Directive still constitutes valid direction to the Contractor from the Owner. The refusal by the Contractor to accept the terms incorporated within a Change Directive does not invalidate the content of the Change Directive or undermine in any manner the Owner's right to provide the directive contained within that Change Directive. Upon receipt of a Change Directive, Contractor shall promptly proceed with the change in the Work involved, provided, prior to the commencement of any Work under this section, the Contractor must submit its proposed Work plan, anticipated schedule, and a list of its work force and equipment proposed to be used in such Work for Owner's approval. Upon such approval, Contractor must promptly commence and make continuous progress in the Change Directive Work. The Owner reserves the right to withhold payment for low production or lack of progress.
- 10.3.5** The Owner will allow the Contractor to bill for all portions of a Change Directive for which the Work has been successfully completed, if and to the extent the Change Directive provides for an adjustment to the Contract Amount.
- 10.4 Field Order:**
- 10.4.1** Owner may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Amount or the Contract Time Requirements and are compatible with the design concept of the completed Project as a functioning whole as intended by the Contract Documents. These minor variations shall be accomplished by written Field Order and shall be binding on Owner and on Contractor who shall perform the Work involved promptly. Contractor shall promptly acknowledge in writing the receipt of a Field Order.

10.4.2 If Contractor believes that a Field Order justifies an adjustment in the Contract Amount and/or Contract Time Requirements, Contractor shall make a prompt written request to Owner for a Change Order or Change Directive. Any request by Contractor for an adjustment in Contract Amount and/or Contract Time Requirements must be made in writing prior to the Contractor or the Contractor's Subcontractors beginning the Work covered by the Field Order.

10.5 Limitation on Damages for Delay:

10.5.1 Contractor shall receive no compensation or damages for Delays except when, and only to the extent that, Contractor demonstrates to the reasonable satisfaction of Owner that direct and unavoidable extra cost to Contractor is caused by: (a) Change Orders or Change Directives (not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence) that Delay the Work; or (b) specific orders given by Owner to stop or suspend Work (not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence) that Delay the Work; or (c) failure of Owner to:

.1 provide permits or material, which is to be furnished by Owner, or

.2 provide access to the Work,

and only to the extent that such circumstances continue after the Contractor furnishes Owner with written notice of such failure, such circumstances are not attributable to Contractor's failure to comply with the Contract Documents or other fault or negligence, and such failure causes Delay;

(a "Compensable Delay").

10.5.2 When extra compensation or damages are claimed for a Compensable Delay, Written Notice and support shall be delivered to the Owner as Provided in Section 12.1.1, and a written statement thereof shall be presented by Contractor to Owner's Representative for Owner's Representative and Owner's review and consideration. Contractor's application for extra compensation or damages shall, however, be subject to review and approval by the Owner. In no event other than a Compensable Delay shall the Contractor be entitled to any compensation or recovery of any damages in connection with any Delays, including without limitation: consequential damages, lost opportunity costs, lost profits, unabsorbed home office overhead or other similar damages, and Contractor hereby expressly waives and releases any and all rights to claim or recover any such compensation or damages. The Owner's exercise of any of its rights or remedies under the Contract Documents (including without limitation ordering changes in the Work, or directing suspension, rescheduling, or correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as active interference in the Contractor's performance of the Work.

10.5.3 In the event of a Compensable Delay, Contractor's sole and exclusive remedy (other than as provided in Section 10.5.4) shall be recovery of Contractor's General Conditions Costs for the period of time during any Working Day that Contractor is prevented from performing Work on the Critical Path, and Contractor hereby expressly waives and releases any and

all rights to claim or recover any other compensation or damages arising out of or related to a Compensable Delay. "General Conditions Costs" consist only of actual and direct costs necessarily incurred by the Contractor and which Contractor was unable to mitigate despite the exercise of reasonable diligence, for standby costs of facilities, machinery, and equipment on Site ("Standby Equipment Costs"), and "Jobsite Overhead" as defined below, calculated as follows:

- .1 Standby Equipment Costs will not be claimable, due or paid for periods when the facilities, machinery or equipment would have otherwise been idle. Claims for Standby Equipment Costs time are limited to no more than eight (8) hours per twenty-four (24) hour day, forty (40) hours per week, and one hundred seventy-six (176) hours per month. Standby Equipment Costs will be payable at 50 percent (50%) of the applicable Blue Book Rental Rates and calculated by dividing the monthly rate by one hundred seventy-six (176), multiplying the result by the number of standby hours, and multiplying that number by the regional adjustment factor and the rate adjustment factor contained in the Blue Book. Operating costs will not be claimable or payable.
- .2 Jobsite Overhead will be claimable and payable based on actual costs that the Contractor will be required to document. "Jobsite Overhead" is defined as the wages or salaries of the Contractor's on-Site administrative and supervisory personnel (when unable to perform other services for Contractor), and reasonable office expenses incurred at the Site office, and will not include any element of home office labor, employees or overhead expenses.

10.5.4 Except as otherwise provided in this Section 10.5, an extension of the Contract Time Requirements, to the extent permitted under Article 12, shall be the sole remedy of the Contractor for any claimed Delays, or loss, costs, expenses or damages incurred as a result of same.

10.5.5 This Section 10.5 is intended as a limitation on damages available to Contractor and as a defense in favor of Owner against damages not compensable in accordance with its terms, in both cases pursuant to Section 271.155 of Subchapter I of Chapter 271 of the Texas Local Government Code. Contractor and Owner agree that such limitation and defense shall apply even if Owner is found to have breached the Contract.

ARTICLE 11 - CHANGE OF CONTRACT AMOUNT

11.1 The Contract Amount is stated in the Contract and, including authorized adjustments, is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents.

11.2 Contractor agrees and acknowledges that, unless otherwise permitted by law, the original Contract Amount may not be increased by more than twenty-five percent (25%).

11.3 The Contract Amount shall only be changed by a Change Order or Change Directive. Any Claim by Contractor for an adjustment in the Contract Amount shall be made by Written Notice delivered to Owner promptly (but in no event later than fifteen (15)

calendar days) after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by Contractor, and shall represent that the adjustment claimed covers all known amounts to which Contractor is entitled as a result of said occurrence or event. If Owner and Contractor cannot otherwise agree, all Claims by Contractor for adjustment in the Contract Amount shall be determined as set out in Article 16.

11.4 Determination of Value of Change Order or Change Directive Work:

11.4.1 The value of any Work covered by a Change Order or Change Directive for an adjustment in the Contract Amount will be determined by one of the following methods:

- .1 by application of unit prices contained in the Contract Documents or subsequently agreed upon to the quantities of the items involved.
- .2 by a mutually agreed lump sum properly itemized and supported by sufficient substantiating data to permit evaluation.
- .3 by a cost which has been determined in a manner agreed upon by the Parties and mutually acceptable fixed or percentage fee; or
- .4 as provided in Subsection 11.5.

11.4.2 No cost will be included in the Change Order or Change Directive for the Contractor's time spent preparing the Change Order or responding to the Change Directive, nor will costs be included for the time to negotiate the Change Order or Change Directive costs for machinery, tools, or equipment as described in Subsection 11.5.3.

11.4.3 Before using the method described in Section 11.4.1.4, Owner and Contractor agree to attempt to negotiate a Change Order or Change Directive using the methods identified in Sections 11.4.1.1 through 11.4.1.3, as appropriate, to determine the adjustment in the Contract Amount.

11.5 Determination of Value of Change Order or Change Directive Work When No Agreement: If none of the methods defined in Sections 11.4.1.1, 11.4.1.2 or 11.4.1.3 can be agreed upon before a change in the Work is commenced which will result in an adjustment in the Contract Amount, then the change in the Work will be performed by Change Directive, and the appropriate adjustment determined using the Force Account method set forth below in Subsections 11.5.1 through 11.5.6. The "Cost of the Work" consists only of those items specified in Subsections 11.5.1 through 11.5.5, below.

11.5.1 For all personnel, Contractor or Subcontractors will be entitled to reimbursement for wages or salaries and employee benefit costs for extra Work performed using the employees' actual wages or salaries and a forty percent (40%) burden rate. No charge for additional superintendence will be permitted unless considered necessary and ordered by Owner;

11.5.2 Contractor will be entitled to the actual cost, including freight charges, of the materials used and installed on such Work. In case material invoices

indicate a discount may be taken, the actual cost will be the invoice price minus the discount;

- 11.5.3** For machinery, trucks, power tools, or other similar equipment (the "equipment") agreed to be necessary by Owner and Contractor, Contractor will be entitled to reimbursement for actual rental costs;
- 11.5.4** Contractor will be entitled to the actual cost of Contractor's premiums for Bond(s) and insurance on the extra Work, based on invoices from Surety and insurance carriers. Contractor shall provide Owner's Representative or Owner with invoices from Surety and insurance carriers indicating such cost when requested by Owner's Representative or Owner;
- 11.5.5** Contractor will be entitled to reimbursement for actual, direct additional General Conditions Costs, but without duplication of any costs otherwise recoverable under this Subsection 11.5, reasonably and necessarily incurred by Contractor in the performance of the extra Work and which can be reasonably demonstrated to the Owner to be necessary to implement the changed Work; and
- 11.5.6** Contractor will be entitled to allowances for overhead and profit as stated below.
 - .1** The maximum allowance for overhead and profit on increases due to Change Orders and Change Directives:

	Overhead	Profit
To Contractor for change in the Work performed by Subcontractors:	10 percent	0 percent
To first tier Subcontractors for change in the Work performed by its Subcontractors:	10 percent	0 percent
To Contractor and Subcontractor for change in the Work performed by their respective firms:	10 percent	5 percent
 - .2** For changes in the Work performed by Contractor and Subcontractors, allowance for overhead and profit will be applied to an amount equal to cost of all additions less cost of all deletions to the Work. Allowance for overhead to Contractor and first tier Subcontractors on changes performed by Sub-Subcontractors are applied to an amount equal to the sum of all increases to the Work by applicable Sub-Subcontractors, less any decreases in such Sub-subcontractors' Work.
- 11.5.7** If Owner deletes Work or makes a change which results in a net decrease in the Contract Amount, the Owner is entitled to a credit calculated in accordance with Subsections 11.4.1.1 through 11.4.1.4.
- 11.5.8** The compensation, as herein provided for, shall be received by Contractor and any affected Subcontractor as payment in full for Work done by Change Directive and will include use of small tools, and total overhead expense and

profit. Contractor shall maintain in accordance with generally accepted accounting principles a documented, itemized accounting, evidencing the expenses and savings, including overhead and profit, associated with such changes, both for expenses and savings, in the performance of the Work resulting from the change. Contractor shall submit to Owner's Representative records of Work done by Change Directive at the end of each day, which records will be made upon forms provided for this purpose by Owner, and Contractor shall request that Contractor and Owner's Representative compare records of Work done by Change Directive at the end of each day. Any record of such comparison shall be signed by both Owner's Representative and Contractor, with one copy being retained by Owner and one by Contractor. Refusal by Contractor to sign these records within two (2) working days of presentation does not invalidate the accuracy of the record.

11.6 Unit Price Work:

- 11.6.1** The following Sections 11.6.1 through 11.6.7 apply only to those elements of the Work which are identified in the Contract Documents as being "Unit Price Work".
- 11.6.2** Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Amount will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as set forth in the Bid/Proposal. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids/Proposals and determining an initial Contract Amount. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Owner's Representative. Owner's Representative will review with Contractor the determinations on such matters before rendering a written decision thereon (by recommendation of payment on an Application for Payment or otherwise).
- 11.6.3** When "plan quantity" is indicated for a Bid/Proposal item, Contractor shall be paid the amount specified in the Contract Documents without any measurements.
- 11.6.4** Contractor agrees each Unit Price includes amounts for all overhead and profit associated with performing the units of Work for which the Unit Prices applies.
- 11.6.5** A Major Item is any individual Bid/Proposal item in the Bid/Proposal that has a total cost equal to or greater than five percent (5%) of the original Contract Amount or \$50,000, whichever is greater, computed on the basis of Bid/Proposal quantities and Contract Unit Prices.
- 11.6.6** Owner or Contractor may make a Claim for an adjustment in the Contract Amount in accordance with Article 11 if:

- .1 the actual quantity of any Major Item should become as much as twenty five percent (25%) more than or twenty five percent (25%) less than that in the Bid/Proposal; or
 - .2 Contractor presents documentation contesting accuracy of a "plan quantity" and Owner verifies actual quantity and determines the "plan quantity" is in error by five percent (5%) or more;
- 11.6.7** Provided, however, in the event a Major Item is reduced by twenty-five percent (25%) or more relative to the quantity amount in the Bid/Proposal, no additional Article 11.5.6 profit or overhead will be added, if, due to other additions in the Work, the net value of the Contract Amount is not reduced.

ARTICLE 12 - CHANGE OF CONTRACT TIMES

12.1 Requisites for Changes in Contract Time Requirements:

- 12.1.1** The Contract Time Requirements (including Milestones) may only be changed by Change Order duly executed by both Contractor and Owner or by Change Directive. Any Claim for an adjustment of the Contract Time Requirements (including Milestones) or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 shall be made by Written Notice delivered by the party making the Claim to the other party promptly (but in no event later than five (5) calendar days after the start of the occurrence or event giving rise to the Delay) and stating the general nature of the Delay. Notice of the extent of the Delay and any requested adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5, with supporting data, shall be delivered within thirty (30) calendar days after Written Notice of Claim is delivered by claimant, and shall represent that the adjustment claimed is the entire adjustment to which claimant is entitled as a result of said occurrence or event. If Owner and Contractor cannot otherwise agree, all Claims for adjustment in the Contract Time Requirements (including Milestones) and/or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 shall be determined in accordance with and subject to the requirements of Article 16. Notwithstanding anything in the Contract Documents to the contrary, no Claim for an adjustment in the Contract Time Requirements (including Milestones) and/or adjustment of the Contract Amount due to any Compensable Delay as provided in Section 10.5 will be valid if not submitted in accordance with the requirements of this Article.
- 12.1.2** When Contractor is at fault and Owner stops the Work so that corrections in the Work can be made by Contractor, no extensions of time will be allowed.
- 12.1.3** In the event of a Delay attributable to Force Majeure, an extension of the Contract Time Requirements (including Milestones) in an amount equal to the time lost due to such Delay shall be Contractor's sole and exclusive remedy for such Delay. "Force Majeure" is circumstances beyond the control of both Owner and Contractor, and not attributable to the fault or negligence of Contractor, any Subcontractor or any other party for whose

acts Contractor is liable, and includes an Act of God, war, riot, terrorism, civil commotion, sovereign conduct, industry-wide delays or disruptions in manufacture or delivery of materials or equipment required for the Work, and Unusual Inclement Weather and the direct effects thereof such as standing water or loss of Site power. In such an event, Contractor shall take all commercially reasonable action to mitigate the Delay, and Owner and Contractor will meet no later than three (3) business days after cessation of the event to establish a proposed new Project Schedule for the Project. Any claimed Force Majeure Delay attributable to industry-wide delays or disruptions in manufacture or delivery of materials or equipment required for the Work shall be supported by the following documentation:

- (a) By copies of purchase orders for Delayed item(s) indicating date ordered by Contractor/Subcontractor and date of purchase order receipt by Supplier;
- (b) If item(s) require Shop Drawings or other submittal information in accordance with the Contract Documents, by providing records of dates Contractor forwarded submittal(s) to Owner's Representative, dates Owner or Principal Architect/Engineer returned submittal(s) to Contractor, and dates submittal(s) were forwarded to Manufacturer or Supplier;
- (c) By copies of document(s) from Manufacturer or Supplier, on Manufacturer's or Supplier's letterhead, indicating date(s) item(s) would be ready for shipment and/or actual shipment date(s);
- (d) By copies of correspondence between Contractor / Subcontractor and Manufacturer or Supplier indicating Contractor / Subcontractor's efforts to expedite item(s); and
- (e) If item(s) are being purchased by a Subcontractor, by providing correspondence, meeting notes, etc., that reflect Contractor's efforts with the Subcontractor to expedite delivery of the item(s).

12.1.4 The Contractor will only be entitled to an extension of time for Delays that can be demonstrated by the Contractor through critical path analysis as causing Delay, and only for any Delay caused by Force Majeure, Changes ordered in the Work by the Owner through Change Order or Change Directive which justify additional time, or other Delays as described in Section 10.5. No extension of time shall relieve Contractor or Surety on its performance Bond from all of Contractor's obligations hereunder which shall remain in full force and effect.

12.2 Weather Delays:

12.2.1 Contractor may be granted an extension of time because of "Unusual Inclement Weather", as defined below. However, the Contractor will not be granted an extension of time for "Normal Rain Days", as defined below.

12.2.2 "Unusual Inclement Weather" is defined as a rain event, or extreme temperatures, high winds, hail or lightning, which occurs at the Site and is of sufficient magnitude to prevent Contractor from performing units of Work critical to maintaining the Master Project Schedule on a day when Work is scheduled to be performed and is otherwise capable of being performed,

and which is beyond the Normal Rain Days as defined in Section 12.2.3 below.

- 12.2.3** Baseline Rain Day Determination. "Normal Rain Days" are based on U.S. Weather Bureau Records available for the most immediate area of the Site of the Work, and are included in Owner's Project Schedule, are not a justification for an extension of time, and are broken down by the number of calendar days in each month as follows:

January	7 days	July	6 days
February	6 days	August	7 days
March	7 days	September	6 days
April	7 days	October	7 days
May	8 days	November	6 days
June	8 days	December	6 days

- 12.2.4** Not used.

- 12.2.5** Rainfall will be measured with the Owner's Representative's approval at the Site using an approved rain gauge or with the Owner's Representative's approval at the nearest operational public weather data collection facility to the Site.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- 13.1 Notice of Defects:** All Defective Work may be rejected, corrected or accepted as provided in Article 13. Contractor must give Owner, Owner's Representative, and Principal Architect/Engineer prompt notice of any Defective Work of which Contractor has actual knowledge. Prompt notice of all Defective Work of which Owner, Owner's Representative, Owner's CMT Consultant, or Principal Architect/Engineer has actual knowledge may be given to Contractor. Payment may be withheld by the Owner for identified Defective Work until such time as the Owner, Owner's Representative, or Principal Architect/Engineer has determined the Defective Work has been corrected such that it complies with all applicable Contract requirements.

- 13.2 Access to Work:** Owner, Owner's Representative, Owner's CMT Consultant, Principal Architect/Engineer, Principal Architect/Engineer's Consultants, other representatives and personnel of Owner, independent testing laboratories and governmental agencies having jurisdiction will have access to the Work at reasonable times for observing, 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.

- 13.3 Tests and Inspections:**

- 13.3.1** Contractor shall give at least twenty-four (24) hours advance notice of readiness of the Work for all required inspections, tests or approvals, and shall coordinate and cooperate with inspection and testing personnel to facilitate the required inspections or tests.
- 13.3.2** Owner shall employ and pay for 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 Section 13.3.3 and 13.3.4 below;
 - .2 for costs incurred with tests or inspections conducted pursuant to Section 13.4.3 below shall be paid as provided in Section 13.4.3;
 - .3 for reinspecting or retesting Defective Work; and
 - .4 as otherwise specifically provided in the Contract Documents.

All testing laboratories shall meet the requirements of ASTM E-329.

- 13.3.3** If Legal Requirements require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of any governmental entity or public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith and furnish Owner's Representative the required certificates of inspection or approval.
- 13.3.4** Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for Owner's, Owner's CMT Consultant's, Owner's Representative's, and Principal Architect/Engineer's review of materials or equipment to be incorporated in the Work, or of materials, mix designs or equipment submitted for review prior to Contractor's purchase thereof for incorporation in the Work.

13.4 Uncovering Work:

- 13.4.1** If any Work that is to be inspected, tested or approved is covered by Contractor without prior written concurrence of Owner's Representative, or if any Work is covered contrary to the written request of Owner's Representative, Contractor must, if requested by Owner's Representative, uncover and recover the Work at Contractor's expense, except as provided in Section 13.4.2.
- 13.4.2** Uncovering Work as provided in Section 13.4.1 shall be at Contractor's expense unless Contractor has given Owner's Representative timely notice of Contractor's intention to cover the same and Owner's Representative has not acted within five (5) working days of receipt of such notice.
- 13.4.3** If Owner's Representative considers it necessary or advisable that permissibly covered Work be observed, inspected or tested, Contractor shall uncover, expose or otherwise make available for observation, inspection or testing 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 or otherwise bear all claims, costs, losses and damages

arising out of or resulting from such uncovering, exposure, observation, inspection and testing and satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others). If, however, such Work is not found to be Defective, Contractor shall, subject to Section 13.4.1, be allowed an increase in the Contract Amount or an extension of the Contract Time Requirements (including Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction.

13.5 Owner May Stop the Work:

13.5.1 If the Work is Defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or 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 or obligation on the part of Owner to exercise this right for the benefit of Contractor or any Surety or other party.

13.5.2 If Contractor fails to correct Defective Work or submit a plan that is satisfactory to Owner for taking corrective action, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated, or Owner may take any other action permitted by this Contract. A notice to stop the Work, based on defects, shall not stop Calendar or Working Days charged against the Contract Time Requirements.

13.6 Correction or Removal of Defective Work: If required by Owner, Contractor shall promptly, as directed, either correct all Defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by Owner or Owner's Representative, remove it from the Site and replace it with Work that is not defective. Contractor shall correct or remove and replace Defective Work, or submit a plan of action detailing how the deficiency will be corrected, within the time frame identified in the notice of Defective Work. Contractor shall pay all claims, costs, losses and damages arising out of or resulting from such correction or removal (including but not limited to all costs of repair or replacement of Work of others, and all costs of reinspecting and/or retesting such Defective Work).

13.7 Corrective period:

13.7.1 If within one (1) year after the date of Substantial Completion or such longer period of time as may be prescribed by Legal Requirements or by the terms of any applicable special guarantee or express warranty required by the Contract Documents or by any specific provision of the Contract Documents (including but not limited to Section 14.11.2), any Work, including Work performed after the Substantial Completion date, is found to be Defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

- (a) correct such Defective Work, or, if it has been rejected by Owner, remove it from the Site and replace it with Work that is not Defective, and

(b) satisfactorily correct or remove and replace any damage to other Work or the work of others, or damage to other property, whether personal or real property, resulting from the correction, removal or replacement of such Defective Work.

Such one (1) year or longer period will renew and recommence for Work requiring correction upon the completion of correction of such Work.

- 13.7.2** If Contractor does not promptly comply with the terms of Owner's corrective action instructions, or in an emergency where Delay would result in unreasonable risk of loss or damage, Owner may have the Defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages arising out of or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid or otherwise borne by Contractor.
- 13.7.3** In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the corrective period for that item will still start to run from the date of Substantial Completion of the Work.
- 13.7.4** If correction of Defective Work will affect the function or use of the facility, Contractor shall not proceed with correction of Defective Work without prior coordination with and approval of Owner.
- 13.7.5** The obligations of the Contractor to perform warranty and corrective work will survive the acceptance of the Work and any termination of the Contract.
- 13.7.6** Owner will utilize the "Warranty Item Form" a copy of which is attached hereto for the purpose of providing written notice of defects discovered during the corrective period. Contractor will acknowledge receipt of the notice by dating, signing, completing and returning the form to Owner when the defect is corrected, including such information on or attached to the form to describe the nature of the repairs or corrections that were made. If the defect cannot be corrected within seven (7) Calendar Days of receipt of notice, Contractor shall promptly provide a written explanation to Owner (or Owner's Representative) describing the repairs or other correction needed and the time required to complete the repairs or other correction.
- 13.7.7** Establishment of the required period for correction of Work as described in Subsection 13.7.1 above relates only to the specific obligation of the Contractor to correct defects in Work discovered during the corrective period, and has no relationship to the time within which any obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to any failure by Contractor to have complied with its obligations under the Contract Documents.
- 13.7.8** All Manufacturer and extended Manufacturer warranties shall be assigned to Owner as a condition of Final Completion.

13.8 Acceptance of Defective Work: If, instead of requiring correction or removal and replacement of Defective Work, Owner decides to accept it, Owner may do so. Contractor shall pay or otherwise bear all claims, costs, losses and damages attributable to Owner's evaluation of and determination to accept such Defective Work. If any such acceptance occurs prior to recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents and compensating Owner for the diminished value of the Defective Work. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner after a calculation by Owner of the diminution in value of the Defective Work.

13.9 Owner May Correct Defective Work: If Contractor fails within a reasonable time after Written Notice of Owner to correct Defective Work, or to remove and replace rejected Work, 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 (7) calendar days' Written Notice to Contractor, correct any such deficiency. If, in the sole discretion of the Owner, significant progress has not been made by Contractor during this seven (7) calendar day period to correct the deficiency, the Owner may exercise any actions necessary to remedy the deficiency. In exercising the rights and remedies under this paragraph, Owner may proceed expeditiously. In connection with such corrective or 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, 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, its agents and employees, Owner's other contractors, Principal Architect/Engineer and Principal Architect/Engineer's consultants access to the Site or any such offsite storage facility to enable Owner to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by Owner in exercising such rights and remedies will be paid or otherwise borne by Contractor and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work. 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. Contractor shall not be allowed an extension of the Contract Time Requirements (including Milestones), or entitled to make any claim for damages resulting from any Delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies hereunder.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Application for Progress Payment:

14.01.1 No more often than once a month, Contractor shall submit to Owner or if directed by Owner, to Owner's Representative, for review an Application for Payment, in a form acceptable to Owner, filled out and signed by Contractor covering the Work completed as of the last day of the month for which an Application for Payment is being made. Application for Payment shall be accompanied by such supporting documentation as is required by the Contract Documents. The Application for Payment shall constitute Contractor's representation that the Work has been performed

in accordance with the Contract Documents, has progressed to the point represented in the Application for Payment, and that title to all Work has passed or will pass to Owner free and clear of all claims, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Contractor's receipt of payment, whichever occurs earlier.

- 14.01.2** Such applications shall not include requests for payment on account of changes in the Work which have been properly authorized by Change Directives, if the Change Directive does not provide for an adjustment to the Contract Amount, or if the changes in the Work are not yet included in Change Orders.
- 14.01.3** Such applications shall not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or Manufacturer or Supplier because of a dispute or other reason.
- 14.01.4** If payment is requested on the basis of materials or 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 be accompanied by such bills of sale, data and other information satisfactory to Owner and Owner's Representative substantiating Owner's title to such materials or equipment or otherwise protecting Owner's interests therein. Payment on account of such materials or equipment will not include any amount for Contractor's overhead or profit or relieve Contractor of its obligation to protect and install such materials or equipment in accordance with the requirements of the Contract and to correct or restore damaged or Defective Work and shall in no event exceed eighty five percent (85%) of the line item valuation for such materials or equipment in the Schedule of Values. If materials or equipment are stored at another location, at the direction of the Owner they shall be stored in a bonded and insured facility, accessible to Owner's Representative and Principal Architect/Engineer, CMT Consultant, and Owner, and shall be clearly marked as property of Owner. Contractor shall insure such materials and equipment while so stored and in transit to the Site. Title to materials delivered to the Site of the Work or a staging area will pass to Owner upon payment by Owner without the necessity for further documentation. Risk of loss for all such materials and equipment will not pass to Owner until final payment.
- 14.01.5** In making progress payments, ten percent (10%) of the approved amount shall be retained until final completion and acceptance of the Contract Work. However, if the Owner at any time after fifty percent (50%) of the work has been completed finds that satisfactory progress is being made, Owner may authorize any of the remaining progress payments to be made in full. Also, if the Contractor has achieved Substantial Completion of the Work and the Owner finds the amount retained to be in excess of the amount adequate for the protection of the Owner, Owner, at its sole discretion, may release to the Contractor all or a portion of such excess amount. The Owner is not obligated to pay interest on amounts retained except as provided in the Agreement. The interest rate to be paid on such retainage shall be the rate of interest paid by the Owner's depository bank

on interest bearing accounts of similar amounts during the period of time interest accrues as provided herein.

14.01.6 Applications for Payment shall include the following documentation:

- .1 an updated Project Schedule and narrative;
- .2 an Affidavit of all bills paid to Subcontractors and Suppliers in the Monthly Subcontractor Payment Reporting Form included in the Specifications;
- .3 conditional waivers and releases from Contractor upon progress and final payments, in the forms included in the Specifications; and
- .4 a Contractor's Monthly Report;

14.02 Contractor's Warranty of Title: 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 free and clear of all claims no later than the time of payment to Contractor.

14.03 Review of Applications for Progress Payment:

14.03.1 Contractor shall submit its Application for Payment to the Owner's Representative not later than three (3) days after the first day of each month. The Owner's Representative will, within seven (7) calendar days after receipt of each Application for Payment, either indicate a recommendation for payment and forward the Application for Payment for processing by Owner, or return the Application for Payment to Contractor indicating Owner's Representative's reasons for refusing to recommend payment. In the latter case, Contractor shall make the necessary corrections and resubmit the Application for Payment.

14.03.2 Owner's Representative's recommendation of any payment requested in an Application for Payment will constitute a representation by Owner's Representative, based upon Owner's Representative's on-site observations of the executed Work and on Owner's Representative's review of the Application for Payment and the accompanying schedules and other information, that to the best of Owner's Representative's knowledge, information and belief:

- .1 the Work has progressed to the point indicated; and
- .2 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, and to any other qualifications stated in the recommendation).

14.03.3 By recommending any such payment, Owner's Representative will not be deemed to have represented that:

- .1 exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work;
- .2 examination has been made to ascertain how or for what purpose Contractor has used money previously paid on account of the Contract Amount;

- .3 Contractor's construction means, methods, techniques, sequences or procedures have been reviewed; or
- .4 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 from Contractor.

14.04 Decisions to Withhold Payment:

14.04.1 Owner may withhold or nullify the whole or part of any payment to such extent as may be necessary on account of:

- .01 Defective Work not remedied;
- .02 third party Claims filed or reasonable evidence indicating probable filing of such Claims;
- .03 failure of Contractor to timely or properly make payments to Subcontractors or for labor, materials or equipment;
- .04 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Amount;
- .05 damage to Owner or another contractor for which Contractor is responsible;
- .06 reasonable evidence that the Work will not be completed within the Contract Time Requirements, and that the unpaid balance would not be adequate to cover actual or liquidated damages or economic disincentives for the anticipated Delay;
- .07 failure of Contractor to submit a Schedule of Values in accordance with the Contract Documents;
- .08 failure of Contractor to submit a submittal schedule in accordance with the Contract Documents;
- .09 failure of Contractor to submit and update the construction Project Schedule in accordance with the Contract Documents;
- .10 failure of Contractor to maintain a record of changes on drawings and documents;
- .11 failure of Contractor to maintain weekly payroll reports and, as applicable, provide copies of reports in a timely manner upon request of Owner;
- .12 Contractor's neglect or unsatisfactory prosecution of the Work, including failure to clean up;
- .13 property damage claims that are the responsibility of the Contractor; or
- .14 failure of Contractor to comply with any provision of the Contract Documents.

14.04.2 When the above reasons for withholding payment are remedied or no longer exist, Contractor shall resubmit a statement for withheld amounts. Payment will be made within forty-five (45) calendar days of receipt by the Owner of an approved Application for Payment, subject to Article 14.05 and Government Code, Section 2251.025(b).

14.05 Delayed Payments: Owner shall endeavor to, but shall not be obligated to, make payment to Contractor within thirty (30) calendar days of receipt of an Application for Payment in acceptable form, including all supporting documents and information required. However, Contractor agrees that should Owner fail to make payment to Contractor of the sum due on any such Application for Payment within

forty-five (45) calendar days after the day on which Owner received the Application for Payment, then Owner will pay to Contractor, in addition to the sum due on such Application for Payment, interest thereon at the rate specified in Government Code, Section 2251.025(b) from date due until fully paid, which shall fully liquidate and shall be Contractor's sole and exclusive remedy for any injury to or damages incurred by Contractor arising out of such delay in payment.

14.06 Arrears: No money shall be paid by Owner upon any claim, debt, demand or account whatsoever, to any person, firm or corporation who is in arrears to the Owner for taxes; and the Owner shall be entitled to counterclaim and automatically offset against any such debt, claim, demand or account in the amount of taxes so in arrears and no assignment or transfer of such debt, claim, demand or account after said taxes are due, shall affect the right of Owner to so offset said taxes, and associated penalties and interest if applicable, against the same.

14.07 Substantial Completion:

14.07.1 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify Owner's Representative and request a determination as to whether the Work or designated portion thereof is substantially complete. If Owner, Owner's Representative or the Principal Architect/Engineer does not consider the Work substantially complete, Owner's Representative will notify Contractor giving reasons for that position. After performing any required Work, Contractor shall then submit another request for Owner's Representative to determine Substantial Completion. If Owner considers the Work substantially complete, Owner's Representative will prepare and deliver a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall include a punch list of items to be completed or corrected before final payment, shall establish the time within which Contractor shall complete or correct the punch list items, and shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, warranties, corrective periods, and insurance.

Failure to include an item on the punch list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If a Certificate of Occupancy or Certificate of Compliance is required by governmental entities or public authorities having jurisdiction over the Work, said certificate shall be issued before the Work or any portion thereof is considered to have achieved Substantial Completion. The certificate of Substantial Completion shall be signed by Owner and Contractor to evidence acceptance of the responsibilities assigned to them in such certificate.

.1 For water and wastewater lines construction, Substantial Completion means, in addition to the definition at Section 1.072, that the Work, including all testing and disinfection, have been completed and accepted and the line(s) placed into service. A certificate of Substantial Completion may not be issued. Work that remains after Substantial Completion could include the final pavement of roadways, adjustment of structures to final grade and re-vegetation.

Owner's Representative will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as having achieved Substantial Completion.

- .2 For water and wastewater lines construction that includes roadway construction and/or reconstruction, a certificate of partial Project Substantial Completion may be given for the Work described and deemed substantially complete per Article 14.07.1.1, exclusive of any Project roadway construction and/or reconstruction. Having received a certificate of partial Substantial Completion on the water and wastewater lines construction, a certificate of Substantial Completion of the entire or balance of the Project may be given when the roadway construction and/or reconstruction is found to be substantially complete as per Article 14.07.1.3. The requirements of Article 14.08 Partial Utilization, shall also apply.
 - .3 For roadway construction and/or reconstruction, Substantial Completion means, in addition to the definition at Section 1.072, that the Work, including the final surface course, all permanent traffic control devices (pavement markings, signs, etc.), punch list items, and final cleanup has been completed, accepted, and placed into service, and, any street lighting conduit that has been installed, lowered or relocated must be inspected for usability by, and must have received written approval from, the Owner as well as having been completed, accepted, and placed into service. A certificate of Substantial Completion may not be issued. Work that remains after Substantial Completion could include final clean up. The Owner's Representative will issue a notice specifying what portion of the Work is partially completed for the purpose of payment and what Work remains to be done on the portion being accepted as having achieved Substantial Completion.
 - .4 Substantial Completion shall also comprise the completion of Work associated with the Project so that the utilities, systems, equipment, and/or facilities are operating properly and functioning per their intended use, as designed. Work that can be completed between Substantial Completion and Final Completion includes finish work such as cleanup, finish painting, landscape repairs, and final documentation. However, Contractor shall provide all Owner required equipment and system operation and maintenance training and Manufacturer certifications, and shall submit all spare parts and final O&M Data in order for Substantial Completion to be deemed achieved.
- 14.07.2** Owner shall have the right to exclude Contractor from the Work after the date of Substantial Completion, but Owner will allow Contractor reasonable access to complete or correct items on the punch list and perform and complete warranty or corrective work.
- 14.07.3** Unless otherwise provided in the Contract Documents, for all periods prior to the issuance of a Certificate of Substantial Completion for the Project or for any designated area within the Project, the Contractor shall be responsible for the cost of all temporary and permanent utility charges

necessary to maintain the progress and quality of the construction Work which is under the Contractor's control.

- 14.07.4** Unless otherwise provided in the Contract Documents, for all periods prior to the issuance of a Certificate of Substantial Completion for the Project or for any designated area within the Project, the Contractor shall be responsible for the cost of all temporary structural support systems necessary for the safe execution of the Work. Such systems shall be the sole responsibility of the Contractor.
- 14.08 Partial Utilization:** Use by Owner, at Owner's option, of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) Owner 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 in accordance with the following:
- 14.08.1** Owner at any time may request Contractor 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 shall certify to Owner's Representative that such part of the Work is substantially complete and request Owner's Representative to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted. Contractor at any time may notify Owner's Representative that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Owner's Representative to issue a notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted. The provisions of Sections 14.7.1 and 14.7.2 will apply with respect to notice specifying what portion of the Work is substantially complete for the purpose of payment and what Work remains to be done on the portion being accepted.
- 14.08.2** Such partial utilization must be authorized to the extent required by any governmental entities or public authorities having jurisdiction over the Work.
- 14.08.3** Warranty and corrective period requirements for such partial utilization shall be in accordance with Section 13.7.3 above.
- 14.09 Final Inspection:** Upon Written Notice from Contractor that the entire Work or an agreed portion thereof is complete, Owner will make a final inspection with Contractor and provide Written Notice 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. Owner's Representative, Principal Architect/Engineer, CMT Consultant and other third party consultants and any other governmental entity or public authority with jurisdiction over the Project may assist Owner in the inspection and

testing of the Work and Contractor agrees to and shall cooperate with any such consultants or authorities with respect to any such inspections and tests.

14.10 Final Application for Payment: Contractor may make application for final payment following the procedure for progress payments after Contractor has completed all such corrections to the satisfaction of Owner (and Owner's Representative) and delivered the following documents:

14.10.01 Affidavit by Contractor certifying the payment of all debts and claims;

14.10.02 Architect's/Engineer's Certificate of Completion;

14.10.03 Three (3) complete final operating and maintenance manuals, each containing maintenance and operating instructions, schedules, guarantees, and other documentation required by the Contract Documents;

14.10.04 Record documents (as provided in Section 6.10);

14.10.05 Complete releases or waivers (satisfactory to Owner) of all claims arising out of or filed in connection with the Work;

14.10.06 Certificate evidencing that insurance required by the Contract, if any, will remain in force after final payment and through the warranty and corrective periods and any longer period of time required by the Contract;

14.10.07 Non-Use of Asbestos Affidavit (After Construction) and lead based paints;

14.10.08 TPDES records in accordance with Section 6.07.4;

14.10.09 Consent of Surety, if any, to final payment; and

14.10.10 Any other documentation required by the Contract Documents.

14.11 Final Payment and Acceptance:

14.11.1 If, on the basis of observation of the Work during construction, final inspection, and review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner's Representative and Owner are satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled and there are no outstanding claims, Owner's Representative will recommend the final Application for Payment and thereby notify the Owner, who, if it accepts such recommendation, will pay to Contractor the balance due Contractor under the terms of the Contract. If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation, Owner has the right to require Contractor to execute and deliver to Owner a re-vegetation letter with a reasonable fiscal amount posted via an irrevocable, callable on demand letter of credit issued by a financial

institution acceptable to Owner and at no cost to Owner to ensure completion of this item, as a condition of final payment. This Work must be accomplished within one hundred twenty (120) Calendar Days of the date of Final Completion of the Work. When the permanent erosion control has been established, Owner will initiate an inspection for final acceptance of the erosion controls. If the re-vegetation is not completed within the one hundred twenty (120) Calendar Days, Owner, at its option, may draw upon and complete the Work using the proceeds of the postedre-vegetation letter of credit.

14.11.2 Owner will issue a certificate of Final Completion to Contractor which establishes the Final Completion date. If the sole remaining unfinished item to complete the Work is the reestablishment of vegetation, and Contractor has executed the above-described re-vegetation letter of credit to ensure completion of this item, the Owner will issue a certificate of conditional acceptance to Contractor which establishes the Final Completion date.

14.11.3 Final payment is considered to have taken place when Contractor or any of its representatives negotiates Owner's final payment check, whether labeled final or not, for cash or deposits the check in any financial institution for its monetary return.

14.12 Waiver of Claims by Contractor: The making and acceptance of final payment will constitute A waiver of all claims by Contractor against Owner other than those previously made in writing and still unsettled at the time of the final payment.

14.13 Contractor's Payment Obligations Contractor will pay the Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Contractor has received from Owner on account of their work. Contractor will impose similar requirements on the Subcontractors to pay those parties with whom they have contracted. Contractor will defend and indemnify Owner from and against any claims for payment by any such parties.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 Owner May Suspend Work Without Cause: At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than one hundred twenty (120) calendar days by Written Notice to Contractor, or such longer period of time as agreed to in writing by Owner and Contractor. Contractor shall promptly resume the Work upon Owner's written direction to proceed. Contractor shall be allowed an adjustment in the Contract Amount or an extension of the Contract Time Requirements, or both, directly attributable to any such suspension if Contractor makes an approved Claim therefor as provided in Articles 10.5 and 12.1.

15.2 Owner May Terminate Without Cause: Upon seven (7) calendar days' Written Notice to Contractor, Owner may, without cause and without prejudice to any right or remedy of Owner, elect to terminate the Contract. In such case, Contractor shall be paid (without duplication of any items):

- 15.2.1 for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination;
- 15.2.2 for reasonable demobilization costs;
- 15.2.3 for reasonably anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on unperformed Work or unabsorbed overhead, or lost opportunity; and
- 15.2.4 for all costs reasonably incurred in settlement of terminated contracts with Subcontractors, Manufacturers, Suppliers and others, including for reasonably anticipated profits on completed and accepted Work not previously paid and not included in separate pay items calculated to date of termination but not for anticipated profit on unperformed Work or unabsorbed overhead, or lost opportunity. Contractor agrees to negotiate in good faith with Subcontractors, Manufacturers, Suppliers and others to mitigate its and Owner's costs.

15.3 Owner May Terminate With Cause:

- 15.3.1 Upon the occurrence of any one or more of the following events (each, a "default"):
 - .1 if Contractor persistently fails to perform the Work in accordance with the Contract Documents;
 - .2 if Contractor disregards Legal Requirements;
 - .3 if Contractor disregards the authority of Owner or Owner's Representative;
 - .4 if Contractor makes fraudulent statements;
 - .5 if Contractor fails to maintain a work force adequate to accomplish the Work within the Contract Time Requirements;
 - .6 if Contractor fails to make adequate progress and endangers successful completion of the Contract; or
 - .7 if Contractor otherwise breaches any provision of the Contract Documents;

Owner may, after giving Contractor (and the performance bond Surety, if any) seven (7) calendar days Written Notice, terminate in whole or in part the Contract or the Contractor's right to perform Work. Owner, at its option, may proceed with negotiation with Surety for completion of the Work. Alternatively, Owner may exclude Contractor from the Site and take possession of the Work (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 Amount exceeds all claims, costs, losses and damages sustained by Owner arising out of or resulting from the Contractor's default and Owner's completion of the Work, including attorneys' fees and other expenses and additional Owner's Architect/Engineer fees and other expenses in connection with such completion, Owner shall pay Contractor only for the value of unpaid,

conforming Work performed by Contractor prior to such termination up to but not more than such excess. If such claims, costs, losses and damages exceed such unpaid balance, Contractor or Surety shall pay the difference to Owner upon demand. In the event that a termination for cause is found to be wrongful, the termination shall be deemed converted to a termination without cause as set forth in Section 15.2 and Contractor's remedy for wrongful termination shall be exclusively limited to the recovery of the payments permitted for termination without cause as set forth in Section 15.2.

15.3.2 Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor and Surety then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

15.4 Contractor May Stop Work or Terminate: If through no act or fault of Contractor, the Work is suspended for a period of more than one hundred and twenty (120) calendar days by Owner or under an order of court or other governmental entity or public authority, or such longer period of time as agreed to in writing by Owner and Contractor, or (except during disputes) Owner's Representative fails to forward to Owner for processing any properly prepared and submitted Application for Payment within seven (7) calendar days after it is submitted, or (except during disputes) Owner fails for forty-five (45) calendar days after it is submitted to pay Contractor any sum finally determined by Owner to be due, then Contractor may, upon forty-five (45) calendar days' Written Notice to Owner, and provided Owner does not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Section 15.2. The provisions of this Section 15.4 are not intended to preclude Contractor from making a Claim under Articles 11 and 12 for an increase in Contract Amount or Contract Time Requirements or otherwise for expenses or damage directly attributable to Contractor's stopping Work pursuant to this Section.

15.5 Discretionary Notice to Cure: In its sole discretion, Owner may, but is not required to, provide a Notice to Cure to Contractor and its Surety to cure an event of default described in Section 15.3.1 above and/or an anticipatory breach of contract and, if required by Owner, the Contractor and Surety shall attend a meeting with Owner, regarding the Notice to Cure, the event of default, and/or the anticipatory breach of contract. If issued, the Notice to Cure will set forth the time limit by which the cure is to be completed or commenced and diligently prosecuted. Upon receipt of any Notice to Cure, Contractor shall prepare a report describing its program and measures to accomplish the cure of the event of default and/or anticipatory breach of contract within the time required by the Notice to Cure. The Contractor's report must be delivered to Owner at least three (3) days prior to any requested meeting with the Owner and Surety.

15.6 Bankruptcy: If Contractor declares bankruptcy or is adjudged bankrupt or makes an assignment for the benefit of creditors or if a receiver is appointed for the benefit of creditors or if a receiver is appointed by reason of Contractor's insolvency, Contractor may be unable to perform this Contract in accordance with the Contract requirements. In such an event, Owner may demand Contractor or its successor in interest provide Owner with adequate assurance of Contractor's ability to perform in

accordance with the terms and conditions of the Contract. If Contractor fails to provide adequate assurance of performance to Owner's reasonable satisfaction within ten (10) days of such a request, Owner may terminate the Contract or the Contractor's right to perform Work for cause or without cause, pursuant to Sections 15.2 or 15.3 above. If Contractor fails to provide timely adequate assurance of its performance and actual performance, Owner may prosecute the Work with its own forces or with other contractors on a time and material or other appropriate basis and the cost of which will be charged against the Contract balance or otherwise borne by Contractor.

15.7 Duty to Mitigate: In the event of any termination or suspension under this Contract, the Contractor agrees to and shall take all reasonable actions to mitigate its damages and any and all claims for damages which may be asserted against the Owner.

15.8 Responsibility during Demobilization: While demobilizing, the Contractor will take all necessary and reasonable actions to preserve and protect the Work, the Site and other property of the Owner or others at the Site.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 Filing of Claims:

16.1.1 All Claims by Contractor shall be made by Written Notice delivered to Owner within fifteen (15) calendar days after the start of the occurrence or event giving rise to the Claim and stating the general nature of the Claim. Notice of the amount of the Claim with supporting data shall be delivered in writing within thirty (30) calendar days after Written Notice of Claim is delivered by Contractor and shall represent that the adjustment claimed covers all known monetary amounts and/or extensions of time to which Contractor is entitled.

16.1.2 Within thirty (30) calendar days of receipt of notice of the amounts and/or time extensions sought by the Claim with supporting data, Owner's Representative and Contractor shall meet to discuss the Claim, after which a written offer of settlement or written notification of no settlement offer may be made to Contractor. If Contractor is not satisfied with any proposal presented, Contractor shall have thirty (30) calendar days in which to: (i) submit additional supporting data requested by the other party along with a written request to re-evaluate the Claim; (ii) modify the initial Claim; or (iii) request Alternative Dispute Resolution.

16.2 Alternative Dispute Resolution:

16.2.1 If a dispute exists concerning a Claim, the parties agree to use the following procedure prior to pursuing any other available remedies except that nothing herein shall preclude the Owner from seeking injunctive or other extraordinary relief in a court of competent jurisdiction prior to the completion of the following procedure. Owner reserves the right to include the Owner's Representative, Principal Architect/Engineer and/or the CMT Consultant as a party. Similarly, Contractor agrees to participate at its own cost in similar dispute resolution procedures for any dispute between Owner

and any such other parties, and Contractor agrees to require its Subcontractors to participate in the following procedures in any dispute between Owner and Contractor, upon Owner's written request, if in Owner's sole discretion the participation of Contractor and/or any Subcontractor is necessary to the resolution of any such dispute.

16.2.2 Negotiating with Previously Uninvolved Personnel: Either party may make a written request for a meeting to be held between representatives of each party within fourteen (14) Calendar Days of the request or such later period that the parties may agree to. Each party shall endeavor to include, at a minimum, one (1) previously uninvolved senior level decision maker (an owner, officer, or employee of each organization) with the authority to negotiate and settle the dispute on behalf of their organization. If a previously involved senior level decision maker is unavailable due to the size of the Contractor's organization or any other reason, the Contractor shall nonetheless provide an appropriate senior level decision maker for the meeting. The purpose of this and any subsequent meetings will be good faith negotiations and resolution of the matters constituting the dispute. Negotiations shall be concluded within thirty (30) Calendar Days of the first meeting, unless mutually agreed otherwise. This step may be waived by a written agreement signed by both parties, in which event the parties may proceed directly to mediation as described below.

16.2.3 Mediation:

- .1 If the procedure described in 16.2.2 proves unsuccessful or is waived pursuant to its terms, the parties shall initiate the mediation process. Owner and Contractor agree to select within thirty (30) calendar days a mediator trained in mediation skills, and experienced in the mediation of construction disputes, to assist with resolution of the dispute. Owner and Contractor agree to act in good faith in the selection of the mediator and to give all due consideration to qualified individuals nominated to act as mediator. Should the parties fail to agree on a mediator within thirty (30) calendar days of initiation of the mediation process, the parties agree to ask the American Arbitration Association to select a qualified individual, which selection shall be binding on the parties. If the dispute is technical in nature, the mediator appointed by the American Arbitration Association shall be qualified by at least ten (10) years' experience in construction, engineering, and/or public works projects. If a party refuses to participate in the selection of a mediator or refuses to attend a scheduled mediation, the other party may pursue other remedies available to it.
- .2 Mediation is a forum in which an impartial person, the mediator, facilitates communication between parties to promote reconciliation, settlement, or understanding among them. The parties hereby agree that mediation, at a minimum, shall provide for (i) conducting an on-site investigation, if appropriate, by the mediator for fact gathering purposes, (ii) a meeting of all parties for the exchange of points of view and (iii) separate meetings between the mediator and each party to the dispute for the formulation of resolution alternatives. The parties agree to participate in mediation in good faith for up to thirty (30) calendar days after the date of the first mediation session, unless

mutually agreed otherwise. Should the parties fail to reach a resolution of the dispute through mediation, then the parties may pursue other remedies available to them.

ARTICLE 17 – MISCELLANEOUS

- 17.1 Computation of Times:** When any period of time is measured in the Contract Documents in 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 legal holiday, such day will be omitted from the computation.
- 17.2 Venue; Choice of Law:** Venue for any suit at law or in equity involving the Contract or the parties' relationship created by it shall lie exclusively in Montgomery County, Texas. The Contract and any disputes arising out of it shall be construed in accordance with and governed by the laws of the State of Texas, without regard to its conflict of laws principles. Any claims or causes of action arising under or in conjunction with this Contract shall be brought in a court of competent jurisdiction in Montgomery County, Texas. In the event of litigation relating to this Contract or the performance or nonperformance of Work hereunder, the Contractor and the Owner voluntarily and irrevocably consent to the jurisdiction of the applicable courts in Montgomery County, Texas, and hereby waive any argument that such a forum is inconvenient.
- 17.3 Extent of Contract:** This Contract represents the entire and integrated agreement between the Owner and Contractor with respect to the subject matter hereof and supersedes all prior and contemporaneous negotiations, representations or agreements, whether written or oral, and each party disclaims any reliance upon any such prior or contemporaneous negotiation, representation or agreement.
- 17.4 Remedies Cumulative:** Except as limited by this Contract, remedies provided for herein are cumulative, and in addition to and not in lieu of those provided by law or available in equity.
- 17.5 Severability:** If any word, phrase, clause, sentence or provision of the Contract, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, void, invalid or unenforceable, then such word, phrase, clause, sentence or provision shall be deemed severed herefrom and the remainder of this Contract shall remain in full force and effect.
- 17.6 Independent Contractor:** The Contract shall not be construed as creating an employer/employee relationship, a partnership, or a joint venture. Contractor is an independent contractor and Contractor's work and services shall be those of an independent contractor. Without limiting the generality of the foregoing, Contractor agrees and understands that the Contract does not grant any rights or privileges to any employee of Contractor, its Subcontractors or Suppliers which are established for employees of Owner.
- 17.7 Prohibition of Gratuities:** Owner may, by Written Notice to Contractor, terminate the Contract without liability if Owner determines that gratuities were offered or given by Contractor or any agent or representative of Contractor to any officer or employee of Owner with a view toward securing the Contract or securing

favorable treatment with respect to the awarding or amending or the making of any determinations with respect to the performing of such Contract. In the event the Contract is terminated by Owner pursuant to this provision, Owner shall be entitled, in addition to any other rights and remedies, to recover or withhold the amount of the cost incurred by Contractor in providing such gratuities, to the extent Contractor attempted to charge Owner for same or included any such costs in the Contract Amount.

17.8 Prohibition Against Personal Interest in Contracts: No officer, employee, independent consultant, or elected official of Owner who is involved in the development, evaluation, or decision-making process of the performance of any solicitation shall have a financial interest, direct or indirect, in the Contract resulting from that solicitation. Any violation of this provision shall render the Contract voidable by Owner.

17.9 Owner's Right to Audit:

17.9.1 "Records" means all records generated by or on behalf of Contractor and each Subcontractor and Supplier of Contractor, whether paper, electronic, or other media, which are in any way related to performance of or compliance with this Contract, including, without limitation:

- .01 accounting records;
- .02 written policies and procedures, contractor daily diaries, and pay reports;
- .03 subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.);
- .04 original estimates and estimating work sheets;
- .05 correspondence;
- .06 Change Order files (including documentation covering negotiated settlements);
- .07 back charge logs and supporting documentation;
- .08 general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends;
- .09 subcontracts, purchase orders or other agreements between Contractor and any Subcontractor or Manufacturer, or Supplier;
- .10 records necessary to evaluate Contract compliance, Change Order pricing, and any Claim submitted by Contractor or any of its payees;
- .11 SWP3 Documentation;
- .12 job cost reports; and
- .13 any other Contractor record that may substantiate any charge or claim related to this Contract.

17.9.2 Contractor shall allow Owner's agent or its authorized representative to inspect, audit, and/or reproduce, or all three, all Records generated by or on behalf of Contractor and each Subcontractor and Manufacturer or Supplier, upon Owner's written request. Further, Contractor shall allow Owner's agent or authorized representative to interview any of Contractor's employees, all Subcontractors and all Manufacturers and Suppliers, and any of their respective employees.

17.9.3 Contractor shall retain all its Records, and require all its Subcontractors and Manufacturers and Suppliers to retain their respective Records, during the

performance of this Contract and for three (3) years after final payment or any termination, until all audit and litigation matters that Owner has brought to the attention of Contractor are resolved, or as otherwise required by law, whichever is longer. Owner's right to inspect, audit or reproduce Records, or interview employees of Contractor or its respective Subcontractors or Manufacturers and Suppliers exists during the performance of this Contract, and for three (3) years after final payment or any termination, until all audit and litigation matters that Owner has brought to Contractor's attention are resolved, or as otherwise required by law, whichever is longer, and at no cost to Owner.

- 17.9.4** Contractor must provide sufficient and accessible facilities during its normal business hours for Owner to inspect, audit or reproduce Records, or all three, and to interview any person about the Records.
- 17.9.5** Contractor shall insert these requirements in each written contract between Contractor and any Subcontractor, Manufacturer or Supplier and require each Subcontractor, Manufacturer and Supplier to comply with these provisions.
- 17.10 Survival of Obligations:** All representations, indemnifications, warranties and guarantees made in, required by or provided pursuant to the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Contract.
- 17.11 No Waiver:** The waiver of any provision of this Contract will not be deemed to be a waiver of any other provision of this Contract. No provision of this Contract will be deemed waived whatsoever unless expressly provided in writing, nor will a waiver of any default be deemed a waiver of any subsequent defaults of the same type. The failure at any time to enforce this Contract, whether the default is known or not, shall not constitute a waiver of or estoppel against the right to do so.
- 17.12 Condition Precedent to Right to Sue:** Notwithstanding anything in the Contract Documents to the contrary, the Contractor must have provided at least 90 days prior written notice of a claim for damages as a condition precedent to the right to sue on the Contract.
- 17.13 WAIVER OF THE RIGHT TO JURY TRIAL. OWNER AND CONTRACTOR HEREBY, KNOWINGLY, IRREVOCABLY AND INTENTIONALLY WAIVE ANY RIGHTS EITHER PARTY MAY HAVE TO A TRIAL BY JURY IN RESPECT TO ANY CLAIM, CAUSE OF ACTION, PROCEEDING OR COUNTER CLAIM BASED UPON THE CONTRACT DOCUMENTS, OR ARISING OUT OF, UNDER OR IN CONNECTION WITH THE CONSTRUCTION OF THE WORK OR ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. HOWEVER, THIS WAIVER OF JURY TRIAL SHALL NOT APPLY TO LITIGATION WHICH MAY BE INITIATED BY ANY THIRD PARTIES.**
- 17.14 Attorneys' Fees and Costs.** If Contractor brings any suit against Owner and Contractor does not prevail in such suit, Contractor shall be

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026.1007.2C001

**GENERAL CONDITIONS
OF THE CONTRACT**

liable for all attorneys' fees and costs incurred by Owner as a result of such suit. "Prevail" as used in this Section 17.14 means the Contractor recovers a judgment against Owner for at least eighty percent (80%) of all relief sought by Contractor in Claims against Owner in the Written Notice(s) as provided in Section 16.1.1 above, and the judgment is greater than any relief offered to Contractor by Owner in any written settlement offer.

END OF GENERAL CONDITIONS TERMS

WARRANTY ITEM NO. _____

(PROJECT NAME)

The General Conditions of the Contract require that Defects be corrected within seven (7) days after written notice is received.

TO: _____
name/ address / telephone / fax / email

ATTENTION OF: _____

FROM: _____
project manager name / address / telephone / fax / email

PROJECT: _____
name / location / CIP ID number

END DATE OF WARRANTY OR CORRECTIVE PERIOD: _____

SUBJECT: _____

If checked, the defect requires immediate attention. The Contractor has been called.

If checked, the Owner has been asked to consult with the Contractor on the defect.

PLEASE CORRECT THE FOLLOWING ITEM(S):

DATE OF REQUEST _____ SIGNATURE _____
Project Manager

_____ Phone No. _____

_____ Phone No. _____

_____ Phone No. _____

RESPONSE FROM Contractor: DATE CORRECTION WAS MADE: _____

The Contractor must endeavor to correct the defect within seven (7) calendar days after written notice is received. If the defect cannot be corrected by that time, Contractor shall provide a written explanation to the Owner describing the repairs or other correction needed and the time required to complete the repairs or corrections.

Description of corrections made:

DATE OF REPLY: _____ SIGNATURE: _____

PRINTED NAME: _____

When the repair/correction is complete, the contractor should return a copy to each of the following:

_____ Phone No. _____

_____ Phone No. _____

_____ Phone No. _____

END OF SECTION

4812-4844-0915, v. 1-6602-9900, v. 4-6602-9900, v. 3-6602-9900, v. 2

SECTION 00 73 43
WAGE SCALE FOR CONSTRUCTION

- 1.1 Contractor and its Subcontractors must pay the general prevailing wage rates for building construction for each craft or type of worker or mechanic employed in the execution of any building construction or repair under the Contract in accordance with Chapter 2258 of the Texas Government Code. The San Jacinto River Authority ("SJRA") has determined the prevailing wage rate in the locality in which the work is being performed, which is set forth in Exhibit "A".
- 1.2 In bidding, Contractor warrants and represents that it has carefully examined the classifications for each craft or type of worker needed to execute the Contract and determined that such classifications in Exhibit "A" include all necessary categories to perform the work under the Contract.
- 1.3 If Contractor believes that an additional classification for a particular craft or type of worker is necessary to perform work under the Contract, it must submit with its bid a request to the San Jacinto River Authority to use an additional labor classification not listed in Exhibit "A" and specify the proposed new classification. The SJRA shall determine whether a proposed classification is already covered in Exhibit "A", and, if it is, specify which classification is appropriate. The SJRA's decision is conclusive. If the SJRA decides that a new classification is necessary, it will determine the appropriate prevailing wage rate for any resurveyed, amended, new, or additional craft or type of worker not covered by Exhibit "A". Such determination must be decided in accordance with procedures established by the SJRA, and in compliance with Chapter 2258 of the Texas Government Code.
- 1.4 Contractor must not use any labor classification not covered by Exhibit "A" until such classification is established and approved for use by the SJRA.

A Contractor or Subcontractor who violates Chapter 2258 of the Texas Government Code must pay to the SJRA \$60 per each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates set forth in Exhibit "A".
- 1.5 The SJRA may withhold money required to be withheld under Chapter 2258 of the Texas Government Code from the final payment to Contractor or earlier payments if the SJRA makes a determination that there is good cause to believe that Contractor has not complied with these provisions and Chapter 2258 of the Government Code, in which

case the SJRA may withhold the money at any time subsequent to the finding by the SJRA.

- 1.6 Contractor and Subcontractors must keep records as required by Chapter 2258 of the Government Code, and specifying:
- (1) the name and classification of each worker employed under the Contract; and
 - (2) the actual per diem wages paid to each worker, and the applicable hourly rate.
- The records must be open at all reasonable hours for inspection by the officers and agents of the SJRA.
- 1.7 The prevailing wage rate does not prohibit the payment of more than the rates stated.
- 1.8 The hourly cost of salary for non-exempt workers for labor in excess of 40 hours per worker per week, shall be calculated at 1.5 times the worker's base pay, plus 1.0 times fringe benefits, for the applicable craft and level.

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EXHIBIT "A"

LABOR CLASSIFICATIONS AND PREVAILING WAGE RATES
 FOR
 CONSTRUCTION
 2018

Heavy Construction Projects- Flood Control Only

County Name: Montgomery County and Harris County

Wages based on DOL General Decision: TX180067 01/05/2018 TX67

CLASSIFICATION	RATE	FRINGES
Asphalt Distributer	\$9.47	
Asphalt Paving Machine	\$10.05	
Asphalt Raker	\$8.28	
Asphalt Shoveler	\$7.45	
Batching Plant Weigher	\$11.11	
Broom or Sweeper Operator	\$8.01	
Bulldozer	\$9.91	
Carpenter	\$10.35	
Concrete Curbing Mach.	\$8.80	
Concrete Finisher-Paving	\$9.87	
Concrete Finisher-Structures	\$9.86	
Concrete Finishing Machine	\$11.79	
Concrete Joint Sealer	\$10.50	
Concrete Paving Float	\$9.30	
Concrete Paving Saw	\$10.01	
Concrete Paving Spreader	\$9.32	
Concrete Rubber	\$9.00	
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel	\$11.35	
Crusher or Screening Plant Operator	\$11.00	
Electrician	\$16.15	
Flagger	\$7.25	
Form Builder (Structures)	\$9.96	
Form Liner – Paving & Curb	\$9.03	
Form Setter (Paving/Curb)	\$8.86	
Form Setter – Structures	\$9.05	
Foundation Drill Operator, Crawler Mounted	\$12.59	
Foundation Drill Operator, Truck Mounted	\$12.73	
Front End Loader	\$9.29	
Labor Common	\$7.45	
Labor – Utility	\$8.53	
Lineperson	\$7.50	
Manhole Builder (Brick)	\$8.49	

Mechanic	\$11.38	
Milling Machine Operator	\$10.43	
Mixer	\$7.94	
Motor Grader:		
Fine Grade	\$11.11	
Other	\$10.67	
Oiler	\$9.56	
Painter - Structures	\$14.00	
Pavement Marking Machine	\$7.45	
Piledriver	\$10.96	
Pipe Layer	\$8.49	
Reinforcing Steel Setter Paving	\$12.50	
Reinforcing Steel Setter Structures	\$12.47	
Roller, Pneumatic, Self Propelled	\$7.96	
Roller, Steel Wheel Other Flatwheel or Tamping	\$7.61	
Roller, Steel Wheel Plant Mix Pavements	\$9.25	
Scraper	\$8.69	
Servicer	\$9.51	
Sign Erector	\$10.06	
Sign Installer	\$7.45	
Slipform Machine Operator	\$9.20	
Spreader Box Operator	\$9.08	
Steelworker Structural	\$10.35	
Tractor – Crawler Type	\$10.12	
Tractor – Pneumatic	\$8.99	
Traveling Mixer	\$9.35	
Trenching Machine, Heavy	\$13.56	
Trenching Machine, Light	\$10.50	
Truck Driver Lowboy Float	\$11.29	
Truck Driver Single Axle Heavy	\$8.76	
Truck Driver Single Axle, Light	\$8.15	
Truck Driver Tandem Axle Semi-Trailer	\$8.00	
Wagon Drill, Boring Machine	\$10.15	
Welder	\$10.43	
Work Zone Barricade	\$7.45	
Welders – Receive rate prescribed for craft performing operation to which welding is incidental.		

END OF SECTION

DIVISION 01

GENERAL REQUIREMENTS

SECTION 01 11 13

WORK COVERED BY CONTRACT DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Definitions.
 - 2. Work Covered by Contract Documents.
 - 3. Cash Allowances.
 - 4. Owner-Furnished Products.
 - 5. Document Management Software
 - 6. Work Sequence.
 - 7. Work Guidelines.
 - 8. Coordination of Work.
 - 9. Contractors Use of Premises.
 - 10. Contract Clarification.
 - 11. Alternate Construction Methods.
 - 12. Utility Lines.
 - 13. Warranty.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 DEFINITIONS

- A. Mobilization Area: For Work at facilities, an area, defined on the Contract Drawings, for Contractor staging and storage of construction equipment, tools, products, and spare parts.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

The Lake Houston Pump Station (LHPS) has three pump discharge pipes that have shown signs of wear and degradation. The construction activities associated with the repair of the damaged pipes generally consist of the following:

1. Install, maintain, and operate (if necessary) a temporary diversion pumping system with at least 2 pumps to deliver up to 30 MGD capacity from Lake Houston to the SJRA Main Canal. Pumping system shall remain on standby and be ready for operation at all times in the event SJRA requests to engage the system. Contractor must be able to provide operator for system within 4 hours of request for operation by SJRA. The diversion pumping discharge shall be located downstream of the outlet structure. The discharge piping shall be constructed to cross beneath the access road to Lake Houston Dam as shown in the Drawings.
2. Construct small cofferdam downstream of outlet structure in SJRA Main Canal to prevent backflows during 3-day (maximum) shut down of canal system (to be coordinated with SJRA). Perform regrading of canal downstream of outlet structure and removal of portions of existing riprap. Install new 18-inch thick broken concrete riprap layer and grout in place.
3. Install owner-furnished stainless steel slide gate on the vertical face of the existing headwall at the outlet structure. Perform headwall repairs to the structure as necessary to install the slide gate. The newly installed slide gate will provide the ability to dewater the junction box while keeping Pump no. 4 in operation during the project.
4. Perform disassembly of pump components, dresser coupling, and discharge piping spool piece for Pumps No. 2 and 3 and shift pumps to provide working access to repair areas (to be performed by Weisinger Incorporated).
5. Dewater the junction box and provide access through the existing flap gates for access to the piping repair areas. Maintain dry conditions in work area and junction box throughout duration of repair work.
6. Prepare the inside of three existing pump discharge pipes and install a Carbon Fiber Reinforced Polymer (CFRP) liner from the upstream end of the pipes in the pump station to the downstream end of the reducer for Pipe No. 3 and to the downstream end of the bend for Pipe Nos. 1 and 2 as shown on the drawings.
7. Prepare the inside of the existing pump discharge pipes as necessary to install mortar patching for holes and spalling inside pipes as shown on the drawings.
8. Provide video inspection for completed pipe repairs to be reviewed by Owner and Owner's Representative prior to acceptance.
9. Perform reassembly of pump components, dresser coupling, and discharge piping spool piece for Pumps No. 2 and 3 once pipe repair has been inspected and approved by Owner and Owner's Representative (to be performed by Weisinger Incorporated).
10. Demobilize diversion pumping system after Pumps No. 2 and 3 have been operational for at least 48 hours.
11. Perform restoration of site (including removal of diversion pumping discharge pipe crossing and road replacement) and hydromulching/sodding for disturbed areas.
12. Provide traffic control and flagman during discharge canal work, mobilization of diversion pumping system and material deliveries.

1.6 CASH ALLOWANCES

- A. Include the following specific Allowances in the Contract Price:
 - 1. Allow the Stipulated sum as indicated in Section 00 41 00.02 – Proposal Form for miscellaneous work associated with disassembly and reassembly of Pumps No. 2 and 3 (to be performed by Weisinger Incorporated).
- B. Contractor's cost for administering services, overhead, profit and other expenses contemplated for the allowance shall be included in the Contract Price and not in the allowance.
- C. Whenever costs are more or less than the stipulated allowance, the Contract Price shall be adjusted accordingly via Change Order, see Specification Section 01 26 63 – Change Orders. The amount of the Change Order shall be the difference between actual costs and the amount of the allowance stated in the Bid or Proposal.

1.7 OWNER-FURNISHED PRODUCTS

- A. Items furnished by the Owner for installation and final connection by Contractor:
 - 1. The Owner will provide warning stickers, decals and/or medallions as required for proposed utility line markers, flushing hydrants, and project signs.
 - 2. The Owner will supply aluminum slide gate for installation on the vertical concrete headwall at the pump discharge outfall as shown on the Drawings. Contract shall supply required anchors for mounting slide gate to headwall.
- B. Contractor's Responsibilities:
 - 1. Arrange and pay for product delivery to site.
 - 2. Receive and unload products at site; jointly with Owner's Representative, inspect for completeness or damage.
 - 3. Handle, store, install, and finish products.
 - 4. Repair or replace damaged items.

1.8 DOCUMENT MANAGEMENT SOFTWARE

- A. Contractor and the Owner's Representative shall be given the applicable number of Document Management System user names and passwords.

- B. Contractor shall use the Owner's internet based document management system to transmit its documents to the Owner's Representative, including but not limited to Requests for Information (RFIs), shop drawing submittals, applications for payment, and letters of correspondence. Refer to Specification Section 01 33 00 – Submittals. The document management software should be able to automatically notify all team members of a submittal upload regardless of the originator, i.e. contractor, Principal Architect/Engineer, Owner's Representative, or Owner. Notification of new uploads should go to all team members regardless if they are the Principal Architect/Engineer or not, i.e. sub-consultants for construction management & inspection, but are not tasked as the Principal Architect/Engineer.
- C. A minimum of one (1) and a maximum of three (3) accounts on the document management system will be provided by the Owner. Additional accounts may be requested by the Contractor.
- D. Each account will allow one (1) user to access the document management system. Training on the document management system will be provided by the Owner as requested by the Contractor at a mutually agreed upon date and location.

1.9 WORK SEQUENCE

- A. Construct Work in phases during the construction period. Coordinate construction schedule and operations with the Owner's Representative. Subcontractors shall coordinate its activities and operations with the Contractor.
- B. Construction of this project may require using multiple crews working concurrently in order to complete the project within the specified Contract Time. At no time will multiple crews be allowed to work in consecutive traffic control phases during construction.
- C. Due to overall project complexity submit a sequence of construction activities for review by the Owner's Representative. Proposed sequence of construction shall address proposed method and timing of all major construction activities to be undertaken.
- D. Data for all facilities and utilities shown were taken from available plans, record drawings, and/or utility maps made available from several sources. Actual field locations of facilities and utilities may vary from that shown on the Drawings. Contractor shall make a complete and independent verification of utility locations prior to submittal of subsequent shop drawings. Unless otherwise approved by the Owner's Representative, work shall not continue at locations where there is a conflict with existing utilities.
- E. Construction disturbing traffic shall be conducted during off-peak hours, 9:00 a.m. to 4:00 p.m. weekdays and/or weekends 7:00 p.m. Friday to 4:00 a.m. Monday, dependent upon provisions of Texas Department of Transportation. Exception to these times, if necessary, shall be sought during the permit

application process. Contractor to refer to Specification Section 01 14 19 – Use of Premises for specific working hours.

- F. The Contractor shall coordinate with Owner regarding the timing of a three (3) day canal shut down for the slide gate installation and diversion pumping outfall work. Contractor shall give the Owner fourteen (14) calendar day notice prior to the shutdown. The Contractor shall have all materials and equipment located on-site, and the diversion pumping system in place prior to the canal shutdown.
- G. The diversion pumping system must be maintained and ready for operation (if determined necessary by SJRA) at all times (for flow up to 30 MGD).

1.10 WORK GUIDELINES

- A. Maintain local driveway access to public schools, residential and commercial properties adjacent to work areas at all times. Provide temporary driveway access in accordance with Specification Sections 01 55 26 – Traffic Control and 01 14 19 – Use of Premises. Coordinate work and schedule with Coastal Water Authority, impacted business owners, schools, and residents in conjunction with the Owner, well in advance of commencing the Work in the area(s) of the impacted entities.
- B. Contractor to refer to Specification Section 01 14 19 – Use of Premises for working hours.
- C. Contractor shall adhere to each privately owned and operated utility company's construction guidelines when constructing the proposed Work adjacent-to or across each such entities wet or dry utility.
- D. Contractor shall coordinate its Work with the respective pipeline companies' at all proposed utility crossings. See appropriate Contract Drawings for additional and /or related information.
- E. Obtain right-of-entry agreement(s), insurance, crossing permit(s), and other documentation as required or deemed necessary by each utility or pipeline company or other such entity at no additional cost to the Owner.
- F. Contractor shall coordinate its Work schedule with those utility companies who require a representative of their company to be present (onsite) during the construction adjacent-to or across their wet or dry utility.
- G. Site restoration at all crossings shall be performed immediately upon completion of the Work. Restoration shall be performed in accordance with all applicable Specification Sections and utility company requirements.
- H. Hand dig within one (1) foot of underground service lines (public or private).
- I. Contractor shall bear the sole responsibility for damage to existing traffic cables resulting from its construction activities. The Contractor shall be responsible for the repair of damaged traffic cables including the re-cabling of the entire intersection if required, at no additional cost to the Owner.

1.11 COORDINATION OF WORK

- A. Coordinate activity schedule and extend full cooperation to other Contractors who have responsibilities either concurrent with, proceeding, or following this project's duration along the work site. The Coastal Water Authority (CWA) has plans to install an aerial fiber optic cable in the area as approximated on the Drawings. Contractor to coordinate construction activities with CWA Contractor. Ensure availability of access to selected portions of this project area to others and provide appropriate information for planning purposes to other Contractors. No compensation or time extension will be allowed as a result of conflicting construction activities.
- B. Comply with coordination requirements outlined in Specification Section 01 14 19 – Use of Premises.
- C. Coordinate work with the following construction activities by others:
 - 1. CWA Lake Houston Dam project, Contact Pat Giordano 713-252-2316.
- D. Dial 811 to contact either Texas 811 or Lone Star 811 One-Call all three (3) One-Call centers in the state of Texas a minimum of forty-eight (48) hours prior to construction within twenty-five (25) feet of a private pipeline.

Contact numbers for such centers are as follows:

- 1. TESS (Texas) One Call (800) 344-8377
 - 2. Texas One-Call (800) 245-4545
 - 3. Texas (Lone Star) One Call (800) 669-8344
- E. All work shall be performed to the lines, grades, elevations, and locations shown on the Drawings.
 - F. Prevent overstress or damage of any structure and any part or member of it during construction. This applies to new and existing facilities, utilities, and structures affected by construction operations. Contractor shall monitor and record the effect of its construction operations on new and existing facilities, utilities and structures and provide engineered temporary supports and connections as required to assure the safety and stability of the same to prevent overstress of any part
 - G. Prior to commencing any Work involving state or local agencies, agency stipulated notifications shall be made by the Contractor.

1.12 CONTRACTOR USE OF PREMISES

- A. Comply with all requirements outlined in Specification Section 01 14 19 – Use of Premises.

1.13 CONTRACT CLARIFICATION

- A. Should clarification of the Contract Documents be requested, request clarification before proceeding with Work by submitting a Request for Information (RFI). Such requests shall be preceded by a diligent investigation of the Contract Documents. Include evidence of such investigation(s) in all requests for clarification.

1.14 ALTERNATE CONSTRUCTION METHODS

- A. Alternate construction means and methods will be permitted in accordance with applicable Contract Document details and specification at no additional cost to the Owner. Alternate construction means and methods shall provide a substantial benefit to the project and/or the Owner. Contractor accepts full responsibility for all additional costs of geotechnical investigations and other incidental items, including any re-design that may be necessary to permit the alternate construction means and methods.
- B. Contractor shall submit the below listed modifications for alternate construction methods to the Owner's Representative for Principal Architect/Engineer and Owner's consideration. Submittal shall be made prior to commencement of any construction activity utilizing an alternate construction method. Contractor execution of alternate construction methods prior to its receiving Principal Architect/Engineer and Owner's approval shall be at the sole risk of the Contractor for removal and replacement at no additional cost to the Owner. The following modifications must also be signed and sealed by a Licensed Professional Engineer registered in the State of Texas prior to submittal to Owner's Representative.
 - 1. Proposed construction method and detailed plan of approach;
 - 2. Proposed diversion pumping plan;
 - 3. Revisions to material specifications, and;
 - 4. applicable.
- C. If alignment revisions are requested, Contractor shall immediately inform the Owner Representative of any proposed changes and any potential impacts the revised alignment may have on that portion of the transmission line segment and all adjacent line segments, existing or proposed.

1.15 UTILITY LINES

- A. All utilities represented on the Drawings are shown as an approximate location and are based on the best information available during project design. Contractor shall field-verify the exact location of all utilities prior to commencing construction. The Contractor shall be responsible for any and all damage to these utilities, caused or resulting from their failure to locate, protect and/or maintain these utilities during construction.

1.16 WARRANTY

- A. Comply with the warranty requirements stipulated in Contract Document General Conditions and the warranty requirements of the various specification sections of this project manual.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 19
USE OF PREMISES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for:
 - a. Contractor Responsibilities
 - b. Temporary Utilities
 - c. Limits of Construction
 - d. Storage Sheds and Buildings
 - e. Working Times
 - f. Site Access Times
 - g. Notification to Adjacent Occupants
 - h. Safety Requirements
 - i. First Aid Equipment
 - j. Fire Protection
 - k. Security Measures
 - l. Protection of Utilities, Pipelines, and Property
 - m. Surface Restoration
 - n. Traffic Control and Use of Public Rights of Way
 - o. Contractor's Roads and Parking
 - p. Coordination with Facility Owner's Operations
 - q. Contractor's Field Office
 - r. Principal Architect/Engineer's Field Office
 - s. Project Photographs
 - t. Special Considerations Related to Adjacent Properties and Facilities
 - u. Historical and Archaeological Sites

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Proposing Requirements, Contract Forms, and General Conditions of the Contract.

- 2. Division 01 – General Requirements.
- 3. Division 31 – Earthwork
- 4. Division 32 – Exterior Improvements

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS

- A. See Specification Section 01 33 00 – Submittals for the requirements for the mechanics and administration of the submittal process.
- B. Contractors Safety Program.
- C. All proposed notifications to adjacent occupants.
- D. Planning requests for temporary Owner's facility shutdowns.

1.4 CONTRACTOR RESPONSIBILITIES

- A. Comply with applicable requirements specified in other sections of Project Specifications.
- B. Comply with procedures for access to the site and Contractor's use of rights-of-way.
- C. Maintain and operate temporary construction facilities and temporary systems to assure continuous service of Owner's and other adjacent existing facilities.
- D. Modify and extend temporary systems as Work progress requires.
- E. Completely remove materials and equipment when no longer required.
- F. Restore existing facilities used for temporary services to original or better condition, or as specified.
- G. Prior to installation of material, equipment and/or other work, verify with subcontractors, material or equipment manufacturers, and installers that the substrate or surface to which those materials will attach is acceptable for installation of those materials or equipment. (Substrate is defined as any building or construction surfaces to which materials or equipment are attached to, or required prior to installation i.e., floors, walls, ceilings, soils, utilities, site grading, and backfill etc.).
- H. Correct unacceptable substrate until acceptable for installation of equipment or materials.

1.5 TEMPORARY UTILITES

- A. Obtaining Temporary Service:
 - 1. Make arrangements with utility service companies for temporary services,

unless provided by Owner.

2. Abide by rules and regulations of utility service companies and/or authorities/agencies/entities having jurisdiction.
3. Be responsible for utility service costs and permits until de-mobilization from site. Included services are fuel, power, light, heat, and any other utility services necessary for execution, completion, testing, and initial operation of Work.
4. Be responsible for providing approved metering devices, as necessary, for any temporary utilities.

B. Water:

1. Contractor to provide water required for performance of Work, specified tests of piping, equipment, devices, or other equipment, and for other uses as necessary.
2. Provide and maintain adequate supply of potable water for consumption by Contractor personnel and Owner's Representatives.
3. Provide necessary approved metering devices and backflow preventers.

C. Electricity and Lighting:

1. Contractor may use existing Owner electrical service required for Work, such as power for lighting, operation of equipment, and other use as necessary. Contractor to verify service provided is sufficient for intended use and provide additional service as necessary for completion of work. Contractor shall request and receive approval from Owner before using existing service.
2. Minimum lighting level shall be ten (10) foot-candles for open areas; twenty (20) foot-candles for stairs and shops. Provide minimum of one (1) 300 watt lamp for each 200 square feet of work area.

D. Heat and Ventilation:

1. Provide temporary heat as necessary for protection or completion of Work.
2. Provide temporary heat and ventilation to assure safe working conditions. Maintain enclosed areas at minimum of 50°F.

E. Sanitary Facilities:

1. Provide and maintain sanitary facilities for persons on job site. Comply with regulations of State and local departments of health.
2. Enforce use of sanitary facilities by construction personnel at job site. Enclose sanitary facilities. Pit-type toilets will not be permitted. No discharge will be allowed from these facilities. Collect and store sewage and waste so as not to cause nuisance or health problem. Haul sewage and

waste off-site and properly dispose of in accordance with all applicable regulations.

3. Locate toilets near Work site, within 500 feet of working activities for line work projects and secluded from view as best as possible. Keep toilets clean and supplied throughout course of Work. Locate toilets a minimum of 100 feet from all water wells.

1.6 LIMITS OF CONSTRUCTION

- A. Construction operations and storage areas are limited to Owner's property, permanent easements, temporary construction easements (TCE), and/or the Limits of Construction or Construction Limits as indicated on the Contract Drawings.
- B. Unauthorized use of areas, or trespassing on land outside of defined limits, is not permitted.
- C. Make arrangements, at no cost to the Owner, for Contractor's temporary use of any private properties which may be needed by Contractor for performance of Work. Contractor and Contractor's surety shall indemnify and hold harmless the Owner and Owner's Representatives against claims or demands arising from use of properties outside the Limits of Construction. Submit notarized copy of any separately negotiated agreement(s) between private property owner(s) and Contractor prior to use of area.
- D. Where Limits of Construction are shown on Contract Drawings to extend to a property or Right-of-Way line, keep equipment, materials, and stockpiles a minimum of 5 feet from boundary, or existing fence lines.
- E. There are unique terms and conditions associated with the various public and private easements, rights-of-entry, encroachment and crossing documents (collectively, the easement documents) which may be site specific. Contractor shall familiarize itself with all easement Documents. Easement documents are available from the Owner on a case by case basis upon request.
- F. The Contractor, at its sole expense, shall be responsible for complying with all terms and conditions of all easement documents and the easement rights described therein for this project.
- G. Contractor shall safely, properly, and adequately assume and perform all of the duties, indemnities, responsibilities, and liabilities of the Owner under the easement documents.
- H. Contractor, at its cost, shall provide all insurance required by the easement documents. All land included within the tracts covered by the easement documents and easements described herein shall be restored to its original condition prior to Substantial Completion of the construction (including, without limitation, repair or replacement of pavement, concrete, signs, fencing, trees,

sidewalks, landscaping, shrubbery, and grass) unless otherwise specified in the Contract Documents.

1.7 STORAGE SHEDS AND BUILDINGS

- A. Provide adequately ventilated, watertight storage facilities with floor above ground level for protection of materials and equipment susceptible to weather damage.
- B. Store materials in neat and orderly manner. Store materials and equipment to permit easy access for identification, inspection, and inventory.
- C. Storage of materials not susceptible to weather damage may be on blocks off ground.
- D. Storage of all fuels and chemicals shall be in designated areas by Contractor.
- E. Refer to Specification Section 01 65 50 – Product Delivery, Storage, and Handling for additional requirements.
- F. Fill and grade site for temporary structures to provide positive drainage away from Work area, but not to impact adjacent property owners.
- G. Avoid obstructing drainage ditches or inlets. When obstruction is unavoidable due to requirements of Work, provide grading and temporary drainage structures to maintain unimpeded drainage flow. Failure of the Contractor to maintain proper site drainage shall prohibit it from making a claim against the Owner for monetary or time damages due to drainage impacts.

1.8 WORKING TIMES

- A. Construction shall be conducted during working hours of 7:00 am to 7:00 pm, Monday through Saturday. Contractor will be permitted to work 24 hours, seven (7) days a week, if needed, for 30 consecutive days of the 60-day contract duration. Contractor to show proposed 30 day extended work schedule on progress schedule.

1.9 SITE ACCESS TIMES

- A. Contractor to coordinate all site access, including deliveries, outside of working hours with Owner's Representative. Neither Owner nor Owner's Representatives shall sign for any Contractor deliveries. Refer to Specification Section 01 65 50 – Product Delivery, Storage, and Handling.
- B. Contractor shall coordinate with Owner to not interfere with Owner's facility operations.

1.10 NOTIFICATION OF ADJACENT OCCUPANTS (NOT USED)

1.11 SAFETY REQUIREMENTS

- A. Beware of overhead power lines existing in area and in close proximity to project. When 10 feet of clearance between energized overhead power line

and construction-related activity cannot be maintained, submit a request to the appropriate utility provider to de-energize or move conflicting overhead power line(s).

- B. Submit Contractor's Safety Program in accordance with Specification Section 01 33 00 – Submittals. Include Site Safety and Site Security in accordance with Specification Section 00 72 00 – General Conditions of the Contract. Include documented response to trench safety requirements as specified in Specification Section 00 31 32.10 – Trench Safety Geotechnical Information.
- C. Conduct operations in strict accordance with the Contractor's Safety Program, in accordance with applicable Federal, State, and local safety codes and statutes, and with good construction practice. Establish and maintain procedures for safety of all work, personnel, and equipment involved in Project.
- D. Observe and comply with Texas Occupational Safety Act (Art. 5182a, V.C.S.) and with all safety and health standards promulgated by Secretary of Labor under Section 107 of Contract Work Hours and Standards Act, published in 29 CFR Part 1926 and adopted by Secretary of Labor as occupational safety and health standards under Williams-Steiger Occupational Safety and Health Act of 1970, and to other legislation enacted for safety and health of Contractor employees. Safety and health standards apply to subcontractors and their employees as well as to Contractor and its employees.
- E. Observance of and compliance with regulations is solely and without qualification responsibility of Contractor without reliance or superintendence of or direction by the Owner or Owner's Representative. Immediately advise Owner's Representative of investigation or inspection by Federal Safety and Health Inspectors of Contractor or subcontractor's work or place of work on job site under this Contract, and after investigation or inspection, advise Owner's Representative of results. Submit one copy of accident reports to Owner's Representative within 10 days of occurrence.
- F. Protect areas occupied by workmen using best available devices for detection of lethal and combustible gases. Test devices frequently to assure functional capability. Constantly observe infiltration of liquids into Work area for visual or odor evidences of contamination, and immediately take appropriate steps to seal off entry of contaminated liquids into Work area.
- G. Implement safety measures, including but not limited to safety personnel, first-aid equipment, ventilating equipment, and other safety equipment, as specified or detailed on the Contract Drawings.
- H. Maintain required coordination with Police and Fire Departments during entire period covered by Contract.
- I. In safety plan, include project safety analysis. Itemize major tasks and potential safety hazards. Plan to eliminate hazards or protect workers and

public from each hazard.

1.12 FIRST AID EQUIPMENT

- A. Provide first aid kit throughout construction period. List telephone numbers for hospitals, and ambulance services in first aid kit.
- B. Have at least one person thoroughly trained in first aid and cardiopulmonary resuscitation (CPR) procedures present on site whenever Work is in progress. Contractor to conform to protocols and requirements for training and protection against "blood borne pathogens."

1.13 FIRE PROTECTION

- A. Conform to specified fire protection and prevention requirements established by Federal, State, or local governmental agencies and as provided in Contractor's Safety Program.

1.14 SECURITY MEASURES

- A. Protect all Work materials, equipment, and property from loss, theft, damage, and vandalism. Perform duty to protect property of the Owner used in connection with performance of Work.
- B. If existing fencing or barriers are breached or removed for purposes of construction, provide and maintain temporary security fencing equal to existing.

1.15 PROTECTION OF UTILITIES, PIPELINES, AND PROPERTY

- A. Utilize Utility Coordinating Committee One Call System (telephone number, (713) 223-4567), which must be called 48 hours in advance to locate utilities. Toll free telephone number is 1-800-669-8344, Texas (Lone Star) One Call System.
- B. Prevent damage to existing utilities during construction. Utilities shown on Drawings are at approximate locations. Pre-locate, by whatever means may be required (metal detection equipment, probes, excavation, survey), underground utilities before excavating in accordance with the Critical Locations investigation described in Specification Section 31 21 33 – Trenching, Backfilling and Compacting for Utilities. Perform investigative work and repairs required after investigation. Contractor is responsible for damages caused by failure to locate and preserve these underground utilities. Give owners of utilities a minimum of five (5) days' notice before commencing Work in area, for locating utilities during construction and for making adjustments or relocation of utilities when they conflict with proposed Work. Include cost for temporary relocation of utilities necessary to accommodate construction in unit costs for utility construction unless otherwise noted on Drawings. Bypassing of sanitary waste to storm drainage facilities is not allowed. Utility service laterals are not shown on Drawings. Contractor shall anticipate that service lines exist and repair them when damaged due to construction activity. No separate payment

will be made for repair work. Include payment in unit prices for work in appropriate sections.

- C. Contractor shall adhere to each privately owned and operated utility company's construction guidelines when working adjacent-to or across each such entities wet or dry utility.
- D. Prior to abandonment of any utility indicated on the Drawings, make arrangements with Owner's Representative and utility owner to terminate service, remove meters, valves, appurtenances, transformers, and/or poles, as required.
- E. Utility Outages and Shutdowns: Provide a notification to the Owner's Representative and private utility companies (when applicable) a minimum of 48 hours, excluding weekends and holidays, in advance of required utility shutdown. Shutdown planning and coordination activities shall commence a minimum of 2-weeks prior to scheduled shutdown. Coordinate all work as required.
- F. Protect and prevent damage to existing crossing, parallel, and adjacent pipelines during construction in accordance with Specification Section 01 11 13 – Work Covered by Contract Documents.
- G. When excavating near product pipelines and prior to start of excavation, request that representative of pipeline company come to the construction site(s) to meet representatives of Contractor and Owner's Representative to discuss actual procedures that will be used. Request that pipeline company's representative probe and locate pipelines in at least three locations: one at each side of proposed excavation and one at centerline of proposed Work. Representative of the pipeline company and Owner's Representative must be present to observe activities of Contractor at all times when excavation is being conducted within 15 feet of existing pipelines.
- H. Protection of the Work, and Public and Private Property
 1. Take precautions, provide programs, and take actions necessary to protect the Work, and public and private property from damage.
 2. Do not alter condition of properties adjacent to and along Limits of Construction.
 3. Do not use ways, means, methods, techniques, sequences, or procedures that result in damage to adjacent properties or improvements.
 4. Restore properties damaged by Contractor outside of designated Limits of Construction at no cost to Owner.
 5. Take action to prevent damage, injury, or loss, including, but not limited to, the following:

- a. Store materials, supplies, and equipment in orderly, safe manner that will not interfere with progress of Work or work of others.
 - b. Provide suitable storage for materials subject to damage by exposure to weather, theft, breakage, or otherwise.
 - c. Place upon Work or any part thereof only safe loads.
 - d. Frequently clean up refuse, rubbish, scrap materials, and debris created by construction operations, keeping Project site safe and orderly.
 - e. Provide safe barricades and guard rails to protect pedestrian and vehicular traffic around openings, scaffolding, temporary stairs and ramps, excavations, elevated walkways, and other hazardous areas.
6. Assume full responsibility for preservation of public and private property on or adjacent to the Limits of Construction. When direct or indirect damage is done by or on account of any act, omission, neglect, or misconduct in execution of Work by Contractor, restore to condition equal to or better than that existing before damage was done.
7. Perform daily clean up in affected construction areas in order to restore site to existing or better conditions. Areas should be free of debris, scrap material, dirt, mud, and other items identified by Owner's Representative. Do not leave buildings, roads, streets, or other construction areas unclean. If deemed necessary by the Owner's Representative, Contractor shall employ street sweeping/cleaning equipment to maintain area streets.
- I. Barricades and Warning Signals:
1. Where Work is performed on or adjacent to any roadway, right-of-way, or public place, furnish and erect barricades, fences, lights, warning signs, and danger signals, and take other precautionary measures, for protection of persons or property and of the Work.
 2. Paint barricades to be visible at night. From sunset to sunrise, furnish and maintain at least one light at each barricade.
 3. Erect sufficient barricades to keep vehicles and pedestrians from entering the area under construction.
 4. Maintain barricades, signs, lights and provide watchmen until Project is accepted by the Owner or the site has been completely restored to its preconstruction condition.
 5. Whenever Work creates encroachment on public roadways, station flagmen to manage traffic flow in accordance with approved traffic control plan. Refer to Specification Section 01 55 26 – Traffic Control.
- J. Protection of Existing Structures:

1. Underground Structures:
 - a. Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, manholes, boxes, chambers, electrical signal and communication conduits, tunnels, and other existing subsurface installations located within or adjacent to limits of Work.
 - b. Known underground structures including water, sewer, electric, and telecommunication services are shown on Contract Drawings. This information is not guaranteed to be correct or complete.
 - c. Explore ahead of trenching and excavation work and sufficiently uncover obstructing underground structures to determine their location, to prevent damage to them, and to prevent interruption of utility services. Restore underground structures to original conditions at no additional cost if damaged during construction.
 - d. Locate and protect private lawn sprinkler systems which may exist within site. Repair or replace damaged systems to condition existing at start of Work, or better.
 - e. Necessary changes in location of Work may be made by the Owner to avoid unanticipated underground structures.
 - f. If permanent relocation of underground structures or other subsurface installations is required and not otherwise provided in Contract, the Owner will direct Contractor in writing to perform Work, which is paid for under provisions for changes as described in Specification Section 00 72 00 - General Conditions of the Contract.
2. Surface Structures: Surface structures are defined as existing buildings, structures and other constructed installations above ground surface. Included with structures are their foundations and any extensions below the surface. Surface structures include, but are not limited to buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks, guard cables, fencing, and other facilities visible above ground surface.
3. Existing Condition Survey: Contractor shall survey and adequately document the condition and elevation of existing structures adjacent to the proposed alignment.
4. Protection of Underground and Surface Structures:
 - a. Support in place and protect from direct or indirect damage underground and surface structures located within or adjacent to limits of Work.
 - b. Prevent overstress or damage to any structure and any part or member of structures during construction. This applies to new and existing facilities, utilities, and structures affected by construction operations.

Contractor shall monitor and record the effect of its construction operations on new and existing facilities, utilities, and structures, and shall provide engineered temporary supports and connections as required to assure the safety and stability of the structures and prevent overstress of any part. Employ a registered Professional Engineer licensed in the State of Texas to design temporary supports to assure safety and integrity of structures and facilities.

- c. Install temporary supports carefully and as required by party owning or controlling structure. Before installing structure supports, satisfy Owner's Representative that methods and procedures have been approved by owner of structure.
- d. Avoid moving or changing property of public utilities or private corporations without prior written consent of responsible official of that service or public utility. Representatives of these utilities reserve the right to enter within limits of this Project for purpose of maintaining their properties, or of making changes or repairs to their property that may be considered necessary by performance of this Contract.
- e. Notify owners and/or operators of utilities and pipelines adjacent to the Work of the nature of construction operations and dates when operations will be performed. When construction operations are required in immediate vicinity of existing structures, pipelines, or utilities, give minimum of 5 working days advance notice. Probe and flag location of underground utilities prior to commencement of excavation. Keep flags in place until construction operation reaches and uncovers utility.
- f. Assume risks attending presence or proximity of underground and surface structures within or adjacent to Work including but not limited to damage and expense for direct or indirect damage caused by Contractor's Work to structure. Immediately repair damage.

K. Protection of Installed Products:

- 1. Provide protection of installed products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to final completion of Work.
- 2. Control traffic to prevent damage to equipment, materials, and surfaces.
- 3. Provide coverings to protect equipment and materials from damage. Cover projections, wall corners, jambs, sills, and exposed sides of openings in areas used for traffic and passage of materials in subsequent work.

1.16 SURFACE RESTORATION

- A. Restore site to the condition which existed before construction in accordance with Specification Section 01 74 23 – Restoration of Site, unless otherwise

noted in Contract Documents.

1.17 TRAFFIC CONTROL AND USE OF PUBLIC RIGHTS OF WAY

- A. Comply with traffic regulation in accordance with Specification Section 01 55 26 - Traffic Control, and approved traffic control plan(s).
- B. Provide barricades and signs in accordance with Section VI of the State of Texas Manual on Uniform Traffic Control Devices.
- C. Obtain necessary permits and Owner's approval when the nature of Work requires closing an entire street. Obtaining permits required for street closure are the Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners. Avoid closing more than two (2) consecutive intersections at one time, except by permission of Owner.
- D. Notify Owner's Representative at least 48 hours prior to closing a street or street crossing. It is the Contractor's responsibility to obtain all required permits for street closures in advance.
- E. Maintain 10-foot-wide minimum access lane for emergency vehicles, including access to fire hydrants, at all times.
- F. Remove surplus materials and debris and open each 500 lineal foot length of roadway for public use when work within that length is complete.
- G. Contractor shall provide and install signs indicating entrances to businesses whose normal entry is impaired or detoured as a result of construction. Proposed signs shall be submitted to the Owner's Representative for approval prior to manufacture and installation.
- H. Final acceptance of any portion of Work is not based on return of roadway to public use.
- I. Avoid obstructing driveways or entrances to private property.
- J. Provide temporary access or complete excavation and backfill in one continuous operation to minimize duration of obstruction when excavation is required across drives or entrances.
- K. Contractor shall bear the sole responsibility for damage to existing traffic cables resulting from its construction activities. The Contractor shall be responsible for the repair of damaged traffic cables including the re-cabling of the entire intersection if required, at no additional cost to the Owner.
- L. Construct and maintain temporary detours, ramps, and/or roads to provide for normal public traffic flow when use of public roads or streets is closed by necessities of Work. Contractor shall obtain all required roadway closure or detour permits in advance of commencing the proposed temporary detour, ramps, and/or roadway Work.

- M. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment, large tandem axle trucks or equipment that will damage existing roadway surface. Contractor shall repair or replace damaged roadway not scheduled for removal and/or replacement at no additional cost to the Owner. Repairs or replacement shall be in conformance with the roadway owner's requirements.
- N. Provide daily sweeping of hard-surface roadways to remove soils tracked onto public roadways.

1.18 CONTRACTORS ROADS AND PARKING

- A. Prevent interference with traffic on existing roads.
- B. Construct and maintain temporary access roads and parking areas.
- C. Designate temporary parking areas to accommodate Contractor's and Owner's Representative personnel. When site space is not adequate, provide additional off-site parking. Locate as approved by Owner's Representative.
- D. Minimize use by construction traffic of existing streets and driveways.
- E. Do not allow heavy vehicles or construction equipment in existing parking areas.
- F. Do not inhibit the ability of the Owner's personnel to access, operate, and maintain existing facilities during construction.

1.19 COORDINATION WITH FACILITY OWNER'S OPERATIONS

- A. Definition: A "shutdown" is when a portion of the normal operation of Owner's facility, whether equipment, systems, piping, or conduit, has to be temporarily suspended or taken out of service to perform the Work.
- B. Work that may interrupt normal operations shall be accomplished at times convenient to, and approved by Owner.
- C. Contractor may utilize existing overhead crane in pump station to mobilize equipment into the work area. Prior to crane use, all personnel shall attend a safety briefing by SJRA and contractor shall sign a waiver releasing the SJRA from any liability incurred while utilizing crane.
- D. Except for necessary shutdowns, perform the Work such that Owner's facilities remain in continuous satisfactory operation during the Project. Schedule and conduct the Work such that the Work does not:
 - 1. Impede Owner's production or processes,
 - 2. Create potential hazards to public health or wellbeing,
 - 3. Create potential hazards to operating equipment and personnel,
 - 4. Reduce the quality of Owner's facilities' product(s) or effluent, or

5. Cause odors or other nuisances.
- E. Coordinate shutdowns with Owner. When possible, combine activities into a single shutdown to minimize impacts on Owner's operations and processes.
- F. Submit a shutdown plan to the Owner and Principal Architect/Engineer a minimum of 14 days prior to a planned shutdown. Shutdown plan shall consist of the following:
 1. For each shutdown, submit an inventory of labor and materials required to perform the shutdown and activities, an estimate of time required to accomplish the complete shutdown including time for Owner to take down and start up existing equipment, systems, or conduits, and written description of steps required to complete the Work associated with the shutdown. No shutdown will be permitted until all equipment and materials needed for the work are located on site.
- G. Shutdown of pumping operations at the Lake Houston Pump Station shall not exceed duration of 72 hours.
- H. After acceptance of shutdown planning submittal and prior to starting the shutdown, provide written notification to Owner of date and time each shutdown is to start. Provide written notification submitted to the Owner's Representative at least 72 hours in advance of each shutdown.
- I. Furnish at the Site, in close proximity to the shutdown and tie-in work areas, tools, equipment, spare parts and materials, both temporary and permanent, necessary to successfully complete the shutdown. Complete to the extent possible, prefabrication of piping and other assemblies prior to the associated shutdown. Demonstrate to Owner's satisfaction that Contractor has complied with these requirements before commencing the shutdown.
- J. If Contractor's operations cause an unscheduled interruption of Owner's operations, immediately re-establish satisfactory operation for Owner.
- K. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of Owner's facilities that result in fines or penalties by authorities having jurisdiction shall be paid solely by Contractor.
- L. Shutdowns of Electrical Systems: Comply with Laws and Regulations, including the National Electric Code. Contractor shall lock out and tag circuit breakers and switches operated by Owner and shall verify that affected cables and wires are de-energized to ground potential before shutdown Work is started. Upon completion of shutdown Work, remove the locks and tags and notify Owner that facilities are available for use.

1.20 CONTRACTOR'S FIELD OFFICE (NOT USED)

1.21 PRINCIPAL ARCHITECT/ENGINEER'S FIELD OFFICE (NOT USED)

1.22 PROJECT PHOTOGRAPHS

A. Refer to Specification Section 01 32 36.01 – Project Photographs

1.23 SPECIAL CONSIDERATIONS RELATED TO ADJACENT PROPERTIES AND FACILITIES

- A. Contractor shall be responsible for negotiations of any waivers or alternate arrangements required to enable transportation of materials to the site.
- B. Maintain conditions of access road to site such that access is not hindered as the result of construction related deterioration.
 - 1. Provide daily sweeping of hard-surface roadways to remove soils tracked onto roadway.

1.24 HISTORICAL AND ARCHAEOLOGICAL SITES

- A. If, during the course of construction, evidence of deposits of historical or archeological interest are found, the Contractor shall cease operations affecting the find and shall notify Owner.
 - 1. No further disturbance of the deposits shall ensue until the Contractor has been notified by Owner that Contractor may proceed.
 - 2. Owner will issue a notice to proceed after appropriate authorities have surveyed the find and made a determination to Owner.
 - 3. Compensation to the Contractor, if any, for lost time or changes in construction resulting from the find shall be determined in accordance with changed or extra work provisions of the Contract Documents.
 - 4. The site has been previously investigated and has no known history of historical or archaeological finds. Refer to letter provided by Freese and Nichols, Inc. dated September 3, 2015. Letter was acknowledged and approved by Texas Historical Commission on October 8, 2015.
- B. Refer to Specification Section 00 72 00 – General Conditions of the Contract including paragraph 4.2.4.

1.25 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 MAINTENANCE

- A. Maintain temporary facilities in a clean, neat, and orderly manner including maintenance of all-weather surface driveway, parking areas, and equipment or

materials furnished and supplied as part of any storage yard for duration of Contract.

3.2 OWNER TRAINING (NOT USED)

END OF SECTION

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SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Authority
 - 2. Unit Quantities Specified
 - 3. Measurement
 - 4. Payment Plus Conditions
 - 5. Nonconformance Assessment
 - 6. Nonpayment for Rejected Products
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Measurement:
 - 1. Hourly Measurement: Measured by the amount of time (hours) of service.
 - 2. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
 - 3. Stipulated Price Measurement: By unit designated in Agreement.
 - 4. Other: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of Work.
 - 5. Measurement by Each: Measured by each instance or item provided.
 - 6. Measurement by Lump Sum: Measure includes all associated work.
- B. Payment:
 - 1. Payment Includes: Full compensation for required supervision, labor, products, tools, equipment, plant, transportation, services, and incidentals; and erection, application or installation of an item of Work; and Contractor's overhead and profit.
 - 2. Total compensation for required Unit Price Work shall be included in Unit Price provided in Proposal. Claims for payment as Unit Price Work, but not specifically covered in list of unit prices contained in Proposal, will not be accepted.

3. Interim payments for stored materials will be made only for materials to be incorporated under items covered in unit prices, unless disallowed in Supplementary Conditions.
4. Progress payments will be based on Owner's Representative's observations and evaluations of quantities incorporated in Work multiplied by unit price.
5. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities determined by Owner's Representative multiplied by unit price for Work which is incorporated in or made necessary by the Work.

1.3 SUBMITTALS (NOT USED)

1.4 AUTHORITY

- A. Measurement methods delineated in Specification sections are intended to complement criteria of this section. In event of conflict, the order of governance is: General Conditions, Individual Specifications, 01 22 00 – Unit Prices.
- B. Owner's Representative will take measurements and compute quantities accordingly.
- C. Assist by providing necessary equipment, workers, and survey personnel.

1.5 UNIT QUANTITIES SPECIFIED

- A. Quantity and measurement estimates stated in Agreement are for contract purposes only. Quantities and measurements supplied or placed in Work and verified by Owner's Representative (GCs 11.6.2) shall determine payment as stated in Specifications Section 00 72 00 - General Conditions of the Contract.
- B. When actual Work requires greater or lesser quantities than those quantities indicated in Proposal, provide required quantities at unit prices contracted as stated in Specifications Section 00 72 00 – General Conditions of the Contract.

1.6 NONCONFORMANCE ASSESSMENT

- A. Remove and replace Work, or portions of Work, not conforming to Contract Documents.
- B. When not practical to remove and replace Work, Owner's Representative will direct one of the following remedies:
 1. Nonconforming Work will remain as is, but Unit Price will be adjusted lower at discretion of Owner's Representative.
 2. Nonconforming Work will be modified as authorized by Owner's Representative, and Unit Price will be adjusted lower at discretion of Owner's Representative, when modified Work is deemed less suitable than specified.
- C. Specification sections may modify above remedies or may identify a specific formula or percentage price reduction.

D. Authority of Owner's Representative to assess nonconforming work and identify payment adjustment is final.

1.7 NONPAYMENT FOR REJECTED PRODUCTS

A. Payment will not be made for the following:

1. Products wasted or disposed of in unacceptable manner.
2. Products determined as nonconforming before or after placement.
3. Products not completely unloaded from transporting vehicle.
4. Products placed beyond lines and levels of required Work.
5. Products remaining on hand after completion of Work, unless specified otherwise.
6. Loading, hauling, and disposing of rejected products.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 25 13
PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. The procedure for requesting the approval of substitution of a product that is not equivalent to a product which is specified by descriptive or performance criteria or defined by reference to one or more of the following:
 - a. Name of manufacturer.
 - b. Name of vendor.
 - c. Trade name.
 - d. Catalog number.
2. Substitutions are not "or-equals".
3. This Specification Section does not address substitutions for major equipment.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

C. Request for Substitution – General:

1. Base all bids on materials, equipment, and procedures specified.
2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers.
 - a. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog

numbers, provided said products are "or-equals," as determined by Owner's Representative.

3. Other types of equipment and kinds of material may be acceptable substitutions under the following conditions:
 - a. Or-equals are unavailable due to strike, discontinued production of products meeting specified requirements, or other factors beyond control of Contractor; or,
 - b. Contractor proposes a cost and/or time reduction incentive to the Owner.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE

- A. In making request for substitution or in using an approved product, Contractor represents Contractor:
 1. Has investigated proposed product, and has determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended.
 2. Will provide same guarantee for substitute item as for product specified.
 3. Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
 4. Waives all claims for additional costs related to substitution which subsequently arise.

1.5 DEFINITIONS

- A. Product: Manufactured material or equipment.

1.6 PROCEDURE FOR REQUESTING SUBSTITUTION

- A. Substitution shall be considered only:
 1. After award of Contract.
 2. Under the conditions stated herein.
- B. Written request through Contractor only.
- C. Transmittal Mechanics:
 1. Follow the transmittal mechanics prescribed for Shop Drawings in Specification Section 01 33 00 – Submittals.

- a. Product substitution will be treated in a manner similar to "deviations," as described in Specification Section 01 33 00 – Submittals.
- b. List the letter describing the deviation and justifications on the transmittal form in the space provided under the column with the heading DESCRIPTION.
 - 1) Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in the following paragraph below.

D. Transmittal Contents:

1. Product identification:
 - a. Manufacturer's name.
 - b. Telephone number and representative contact name.
 - c. Specification Section or Drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.
2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
 - a. Size.
 - b. Composition or materials of construction.
 - c. Weight.
 - d. Electrical or mechanical requirements.
4. Product experience:
 - a. Location of past projects utilizing product.
 - b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.
 - c. Available field data and reports associated with proposed product.
5. Data relating to changes in construction schedule.
6. Data relating to changes in cost.
7. Samples:
 - a. At request of Owner's Representative.
 - b. Full size if requested by Owner's Representative.
 - c. Held until substantial completion.

- d. Owner's Representative not responsible for loss or damage to samples.

1.7 APPROVAL OR REJECTION

- A. Written approval or rejection of substitution given by the Owner's Representative, Principal Architect/Engineer, and the Owner.
- B. Owner's Representative reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
- C. In the event the substitution is approved, the resulting cost and/or time reduction will be documented by Change Order in accordance with the General Conditions.
- D. Substitution will be rejected if:
 - 1. Submittal is not through the Contractor with his stamp of approval.
 - 2. Request is not made in accordance with this Specification Section.
 - 3. In Owner's Representative opinion, acceptance will require substantial revision of the original design.
 - 4. In the Owner's Representative opinion, substitution will not perform adequately the function consistent with the design intent.
- E. Contractor shall reimburse Owner for the cost of the Owner's Representative evaluation whether or not substitution is approved.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 26 63
CHANGE ORDERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

Procedures for processing Change Orders, including:

1. Quality Assurance.
2. Responsible Individual.
3. Documentation of Change in Contract Price and Contract Time.
4. Change Procedures.
5. Proposals and Contract Modifications.
6. Work Change Directive.
7. Change Order.
8. Execution of Change Documentation.
9. Correlation of Contractor Submittals.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT (NOT USED)

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE

A. Reference Standards:

1. Equipment Rental Rates: equipmentwatch.com. Rental Rate is defined as full unadjusted base rental rate for appropriate item of construction equipment.

1.5 RESPONSIBLE INDIVIDUAL

- A. Provide letter to the Owner's Representative indicating name, title, address and contact information of individual authorized to execute change documents and who is responsible for informing others in Contractor's employ and Subcontractors of changes to the Work. Information should be provided at the

Preconstruction Conference but, no later than 10 calendar days following the Preconstruction Conference.

1.6 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

- A. Maintain detailed records of changes in Work. Provide full information required for identification and evaluation of proposed changes, and substantiate costs of changes in Work.
- B. Document each proposal for change in cost or time with sufficient data to allow evaluation of proposal. Provide additional information upon request of the Owner or the Owner's Representative.
- C. Proposals shall include the following minimum information:
 - 1. Quantities of items in original Proposal with additions, reductions, deletions, and substitutions.
 - 2. Quantities and cost of items in original schedule of values with additions, reductions, deletions, and substitutions.
 - 3. Provide unit prices for items not included in original Proposal with supporting information when absent from original Proposal Work.
 - 4. Justification for changes in Contract Time.
 - 5. Additional data upon request.
- D. For changes in Work performed on a time-and-materials basis, provide the following additional information:
 - 1. Quantities and description of products and equipment.
 - 2. Taxes, insurance and bonds.
 - 3. Overhead and profit as noted in Document 00 72 00 - General Conditions, Article 11.5.
 - 4. Dates, times, and by whom work was performed.
 - 5. Time records and certified copies of applicable payrolls.
 - 6. Invoices, receipts for products, rented equipment, and subcontracts, similarly documented.
- E. For changes in Work performed on a time-and-materials basis, payment for rental equipment will be as follows:
 - 1. Actual invoice cost for duration required to complete extra work without markup for overhead and profit. When extra work comprises only a portion of rental invoice where equipment would otherwise be on site, compute

- hourly equipment rate by dividing the actual monthly invoice by 288. (One day equals 12 hours and 1 week equals 72 hours.)
2. Do not exceed estimated operating costs given on equipmentwatch.com website for items of equipment. Overhead and profit will be allowed on operating cost.
- F. For changes in Work performed on a time-and-materials basis using Contractor-owned equipment, use equipmentwatch.com rates as follows:
1. Contractor-owned equipment will be paid at Rental Rate for duration of time required to complete extra work without markup for overhead and profit. Utilize lowest cost combination of hourly, daily, weekly, or monthly rates. Use 150 percent of Rental Rate for double shifts (one extra shift per day) and 200 percent of Rental Rate for more than two shifts per day. Standby rates shall be 50 percent of appropriate Rental Rate shown on equipmentwatch.com website. No other rate adjustments apply.
 2. Do not exceed estimated operating costs given on equipmentwatch.com. Overhead and profit will be allowed on operating cost. Operating costs will not be allowed for equipment on standby.

1.7 CHANGE PROCEDURES

- A. Changes to Contract Price or Contract Time can only be made by issuance of Change Order. Issuance of Work Change Directive will be formalized into a Change Order. Changes will be in accordance with requirements of the General Conditions.
- B. The Owner's Representative will advise of minor changes in Work not involving an adjustment to Contract Price or Contract Time as authorized by the General Conditions by issuing supplemental instructions.
- C. Request clarification of Drawings, Specifications, Contract Documents, or other information by using Request for Information. Response by the Owner's Representative to Requests for Information does not authorize Contractor to perform tasks outside scope of Work. Changes must be authorized as described in this section.

1.8 PROPOSALS AND CONTRACT MODIFICATIONS

- A. The Owner or the Owner's Representative may issue a Request for Proposal (RFP), which includes detailed description of proposed change with supplementary or revised Drawings and Specifications. The Owner or the Owner's Representative may also request a proposal in response to a Request for Information. Prepare and submit proposal within 7 days or as specified in the request.
- B. Submit request for Contractor changes to Owner's Representative describing proposed change and its full effect on Work, with a statement describing reason

for change and effect on Contract Price and Contract Time including full documentation.

C. The Owner may use the Principal Architect/Engineer to review Change Orders.

1.9 WORK CHANGE DIRECTIVE

A. The Owner may issue a signed Work Change Directive instructing Contractor to proceed with a change in Work. Work Change Directive will subsequently be incorporated in Change Order.

B. Document will describe changes in Work and designate method of determining change in Contract Price or Contract Time.

C. Proceed promptly to execute changes in Work in accordance with Work Change Directive.

1.10 CHANGE ORDER

A. Stipulated Price Change Order

1. Stipulated Price Change Order will be based on accepted proposal.

B. Unit Price Change Order

1. Where Unit Prices for affected items of Work are included in Proposal, unit price Change Order will be based on unit prices, subject to the General Conditions.

2. Where unit prices of Work are not pre-determined in Proposal, Work Change Directive or accepted proposal will specify unit prices to be used.

C. Time-and-Material Change Order

1. Provide itemized account and supporting data after completion of change, within time limits indicated for claims in the General Conditions.

2. The Owner will determine change allowable in Contract Price and Contract Time as provided in the General Conditions.

3. Maintain detailed records of work done on time-and-material basis as specified in paragraph 1.4, Documentation of Change in Contract Price and Contract Time.

4. Provide full information required for evaluation of changes and substantiate costs for changes in Work.

1.11 EXECUTION OF CHANGE DOCUMENTATION

A. The Owner or the Owner's Representative will issue Change Orders, Work Change Directives, or accepted proposal for signatures of parties as described in the General Conditions.

1.12 CORRELATION OF CONTRACTOR SUBMITTALS

A. For Stipulated Price Contracts, promptly revise Schedule of Values and Application for Payment forms to record authorized Change Orders as separate line item.

- B. For Unit Price Contracts, next monthly estimate of Work after acceptance of a Change Order will be revised to include new items not previously included and appropriate unit rates.
- C. Promptly revise progress schedules to reflect change in Contract Time, and to adjust time for other items of work affected by change, and resubmit for review.
- D. Promptly enter changes to on-site and record copies of Drawings, Specifications, or Contract Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 29 73
SCHEDULE OF VALUES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Measurement and Payment
 - 2. Definition
 - 3. Preparation
 - 4. Submittal
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS

- A. Submit Schedule of Values in accordance with requirements of Section 01 33 00 – Submittals. Submit at least 10 days prior to submitting first application for progress payment. Submit via SharePoint.
- B. Revise Schedule of Values and resubmit for items affected by contract modifications, Change Orders, and Work Change Directives. After changes are reviewed without exception by Authority's Principal Architect/Engineer, make submittal at least 10 days prior to submitting next application for progress payment.

1.4 DEFINITIONS

- A. Schedule of Values: Is a schedule, prepared and maintained by the Contractor, allocating portions of the Contract Amount to various portions of the Work, including a tabulation of all of the costs of the various Subcontracts and materials which in the aggregate make up the Cost of the Work. The Schedule of Values shall be subject to Owner's approval and, after such approval, be used as the basis for reviewing the Contractor's Application for Payment.
- B. Break down costs to list major products or operations for each line item which has an installed value of more than \$5000.

1.5 PREPARATION

- A. For stipulated price contracts, subdivide Schedule of Values into logical portions of Work, such as major work items or work in contiguous geographic areas.
- B. Schedule and Schedule of Values shall be developed together. At a minimum, the Schedule of Values shall be broken out by trade and split between materials and labor as approved by the Owner. Such Prices will include overhead and profit applicable to each item of work.
- C. For lump sum equipment items where submittal of operation/maintenance data and testing are required, include separate item for equipment operation and maintenance data submittal valued at 5 percent of lump sum amount for each equipment item and separate item for testing and adjusting valued at 5 percent of lump sum amount for each equipment item.
- D. Round off figures for each listed item to nearest \$100 except for value of one item, when necessary, to make total of items in Schedule of Values equal Contract Price for stipulated price contracts or lump sum amount in Schedule of Unit Price Work.
- E. Submit Schedule of Values in approved electronic spreadsheet, formatted to print on 11" x 17" paper, to the Owner's Document Management System.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Specific requirements for the preparation, submittal, updating, status reporting and management of the construction Progress Schedule.
- B. Provide Construction Schedules for Work included in Contract in accordance with requirements in this Section. Create Construction Schedule using Critical Path Method (CPM) computer software capable of mathematical analysis of Precedence Diagramming Method (PDM) plans. Provide printed activity listings and bar charts in formats described in this Section.
- C. Combine activity listings and bar charts with narrative report to form Construction Schedule submittal for Owner and the Owner's Representatives.
- D. Related Specification Sections include, but are not necessarily limited to:
 - 1. Division 00 - Bidding Requirements, Contract Forms and Conditions of the Contract.
 - 2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost of construction scheduling in overhead cost for this project.

1.3 SCHEDULING STAFF

- A. Employ or retain services of individual experienced in critical path scheduling for duration of Contract. Individual shall cooperate with Owner's Representative and shall update schedule (Progress Schedule) monthly as required by the Contract's General Conditions, to indicate current status of Work.

1.4 QUALITY ASSURANCE

- A. The person preparing and revising the construction Progress Schedule shall be experienced in the preparation of schedules of similar complexity.
- B. Within five (5) days from award of the Contract, Contractor shall submit to Owner's Representative the name of the person responsible for the preparation, maintenance, updating and revision of all schedules.
 - 1. Qualifications necessary:
 - a. At least five (5) years verifiable experience in the preparation and updating of complex construction schedules for projects of similar type, size and complexity.

b. Proficient in the use of Microsoft© Project® 2007.

1.5 DEFINITIONS

A. The following definitions shall apply to this Specification Section:

1. **BASELINE SCHEDULE:** The initial as-bid, detailed, cost and resource loaded Progress Schedule prepared by the Contractor to define its plan for constructing the Project as required by the Contract Documents, and accepted by the Owner or Owner's Representative as meeting the requirements of the Contract Documents for specified constraints, sequences, milestones and completion dates.
2. **PROGRESS SCHEDULE:** The initially accepted Baseline Schedule, or subsequently approved Revised Baseline Schedules, updated each month to reflect actual start and finish dates of schedule activities and all time impact events whether caused by Contractor or Owner or factors beyond the control of either party.
3. **REVISED BASELINE SCHEDULE:** The initially accepted Baseline Schedule revised to reflect only approved changes.
4. **WORKING SCHEDULE:** A schedule developed from the Progress Schedule, utilizing scheduling software features not allowed for Baseline and Progress Schedules at the Contractor's sole discretion, to indicate the Contractor's plan for executing the Work, and providing for schedule recovery when approved time extensions are not sufficient to provide for timely completion due to Contractor inefficiencies beyond the control of the Owner or outside the risks accepted by the Owner.

1.6 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Scheduler qualifications.
3. Baseline Schedule: Submitted within 15 days after Effective Date of Agreement.
4. Monthly Progress Schedules.
5. Revised Baseline Schedules.
6. Working Schedules.
7. Look-Ahead Schedules.

1.7 GENERAL REQUIREMENTS

A. Contractor shall prepare and submit Baseline and Progress Schedules and updates and revisions to them as specified herein.

1. All scheduling to be performed in Microsoft© Project® 2007.

2. The Baseline and Progress Schedules shall be a calendar day-based and cost-loaded Critical Path Method (CPM) network diagram with supporting data.

B. Disallowed Scheduling Software Features:

1. The following specific features are not allowed to be applied in the Baseline and Progress Schedules:
 - a. Resource leveling.
 - b. Activity or event constraints, other than those specified by the Contract Documents.
 - c. Leads and lags:
 - 1) Create specific activities with specific durations in-lieu-of leads and lags.
 - 2) Durations shall have positive values.
 - d. Default progress data:
 - 1) Start and finish dates shall not be automatically updated.
 - 2) Update with actual start and finish dates documented from field reports.
 - 3) Work activities shall be updated by actual Work progression, not cash flow driven.
 - 4) Updating of activity percent complete and remaining duration shall be independent functions, not one parameter calculated from the other.
 - 5) Out-of-sequence progress shall be accounted for through retained logic, not a default option of progress override.
 - e. Multiple calendars.
2. Any float suppression techniques or other software features that corrupts the pure mathematical model calculating the critical path.
 - a. The following CPM schedule outputs will be rejected without further review:
 - 1) Schedules indicating the start of the critical path at a date point or activity beyond the date of Notice to Proceed, or schedules indicating a discontinuous critical path from Notice to Proceed to Contract completion.
 - 2) Schedules defining critical activities as those on a path or paths having some minimum value of float.
 - 3) Schedules with multiple critical paths.
 - 4) Schedules indicating a completion date beyond the contractual completion date.

3. Contractor, at Contractor's sole discretion, may employ the disallowed scheduling software features for Contractor's exclusive use in preparing a Working Schedule.
- C. Float Time:
 1. Neither the Owner nor the Contractor owns the float; the project owns the float.
 2. As such, liability for delay of the project completion date rests with the party actually causing delay to the project completion date.
- D. By preparing and submitting the Baseline Schedule, the Contractor represents that it can and intends to execute the Work and portions thereof within the specified times and constraints and that its bid covers the costs associated with the execution of the Work in accordance with the Construction Schedule.
- E. Contractor shall provide an electronic copy on CD media for the Baseline Schedule and Progress Schedule and all monthly updates of both to accompany hard copies of the schedules and tabular reports.
 1. Electronic submittal shall be in a format compatible with Microsoft® Project® 2007.
 2. Contractor shall provide with the schedules, a procedural outline of the system shut-downs and proposed tie-ins, and the Owner's O&M staff, which shall be subject to approval of the Owner.

1.8 SUBMITTAL PACKAGES

- A. Baseline Schedule:
 1. CPM time-scaled network diagram:
 - a. Three (3) prints of each sheet.
 - b. Minimum sheet size: 11 IN x 17 IN.
 - c. Provide electronic format (flash drive).
 2. Supporting data:
 - a. Three (3) sets of a list of project activities including the following:
 - 1) Holidays that will be observed during construction.
 - 2) Number of planned working days and shifts per week.
- B. Monthly updates that include the following:
 1. Narrative Schedule Report.
 2. Revised Baseline Schedule as appropriate.
 - a. Update to reflect approved Change Orders occurring since the prior update.

- b. If no new approved Change Orders since prior update, provide a narrative report indicating such, and acknowledging the pertinence of the previously approved Baseline Schedule.
 3. Updated Progress Schedule.
 4. Explanation of changes in logic, duration of activities.
 5. The number of opaque reproductions which Contractor requires, plus three (3) copies which will be distributed by the Owner's Representative.
 - a. Do not submit fewer than three (3) copies.
 6. Provide electronic format (flash drive).
 7. Upload electronic version (pdf) to SharePoint.
- C. Look-Ahead Rolling Schedule:
 1. A four-week rolling schedule shall be provided by the Contractor at each progress meeting.
 - a. The schedule shall provide an accurate representation of the work performed the previous week and work planned for the current week and subsequent two (2) weeks.
 2. The schedule shall be provided in a tabular format with bars representing work duration.
 - a. The schedule shall refer to activity ID numbers on the Baseline and Progress Schedules.
 - b. Activities that are on the critical path and activities that are behind schedule shall be noted by color, highlight, or underscore.
 3. Derived from the Working Schedule, if applicable.
- D. Narrative Schedule Report:
 1. Schedule reports for Initial Baseline and Revised Baseline Schedules shall include the following minimum data for each activity:
 - a. Preceding and succeeding activities.
 - b. Activity description and number.
 - c. Durations of activities:
 - 1) Original durations.
 - 2) Remaining durations.
 - d. Earliest start date (by calendar date).
 - e. Earliest finish date (by calendar date).
 - f. Actual start date (by calendar date).
 - g. Actual finish date (by calendar date).

- h. Latest start date (by calendar date).
 - i. Latest finish date (by calendar date).
 - j. Float.
 - k. Percentage of activity completed.
 - l. Activity constraints specified by the Contract Documents.
 - m. Type of Tabulation (Initial or Updated).
 - n. Project Duration.
 - o. Project Contractual Completion Date.
 - p. The date of commencement of the Work as stated in the Notice to Proceed.
 - q. If an updated (revised) schedule, cite the new project completion date and project status and date of revision.
2. Shall be organized in the following sequence with all applicable documents included:
- a. Contractor's transmittal letter.
 - b. Work completed during the period.
 - c. Identification of unusual conditions or restrictions regarding labor, equipment or material.
 - d. Description of the current critical path.
 - e. Changes to the critical path and scheduled completion date since the last schedule submittal.
 - f. Description of problem areas.
 - g. Current and anticipated delays:
 - 1) Cause of delay.
 - 2) Impact of delay on other activities, milestones and completion dates.
 - 3) Corrective action and schedule adjustments to correct the delay.
 - h. Pending items and status thereof:
 - 1) Permits.
 - 2) Change orders.
 - 3) Time adjustments.
 - 4) Non-compliance notices.
 - i. Reasons for an early or late scheduled completion date in comparison to the contract completion date.

1.9 START-UP, DEMONSTRATION, TRAINING, AND FINAL COMPLETION

- A. The Baseline Schedule must include broad-based activities for start-up, operator training, and final completion.
1. The Baseline Schedule may not necessarily contain sufficient detail on all activities listed in Specification Section 01 75 00 – Facility Start Up for start-up and demonstration.
 2. At least 90 days prior to any activities, submit a detailed schedule in conformance with the requirements of Specification Section 01 75 00 – Facility Start Up:
 - a. Identify task for the substantial completion notification.
 - b. Pre-demonstration period:
 - 1) Identify equipment start-up for all major equipment.
 - 2) Identify all operator trainings required by individual Specification Sections.
 - 3) Complete submission of all required submittals.
 - c. Demonstration period: Identify the demonstration period for each project classified system.

1.10 SCHEDULING CONFERENCE

- A. Contractor shall schedule and Owner's Representative will conduct a scheduling conference with Contractor's project manager and construction scheduler.
1. Conference must take place within 10 business days after the Preconstruction Conference.
 2. Owner's Representative will review the requirements of this Specification Section and other specified scheduling and sequencing requirements with Contractor.
 3. Baseline Construction Schedule:
 - a. Provide five (5) copies of a Baseline Schedule in the form of an arrow or precedence diagram covering the following project phases and activities:
 - 1) Schedule of Submittals of Shop Drawings and schedule dates for fabrication and delivery of key and long lead time items.
 - 2) Contractor's submittal information shall show intended submittal dates and shall include, as a minimum, the maximum allowable review period.
 - 3) The information shall provide sufficient durations for reasonable administration of re-submittals, fabrication and transportation to produce realistic delivery dates for those procurement items.
 4. Owner's Representative shall review the schedule and provide comments.

5. Provide approval of the schedule or request a meeting to review the schedule with Contractor within seven (7) days of receipt of the schedule.
 6. If requested, Contractor shall participate in a review and evaluation of the schedule with Owner's Representative.
 7. Any revisions necessary as a result of this review shall be resubmitted for review by Owner's Representative within five (5) business days.
- B. Contractor shall submit a general time-scaled logic diagram displaying the major activities and sequence of planned operations.
1. Contractor shall be prepared to discuss the proposed work plan and schedule methodology that comply with the Contract requirements.
 2. If Contractor proposes deviations to specified construction staging of the project, then the general time-scaled logic diagram shall also display the deviations and resulting time impacts.
 3. Contractor shall be prepared to discuss the proposal.
- C. Contractor shall provide the Preliminary Schedule of Values for the work to be performed.
1. This document must match the total quantities and costs associated with the scheduled tasks.
- D. Owner's Representative will review the logic diagram, WBS coding structure, and activity identification system, and provide required Baseline Schedule
- E. Changes to Contractor for implementation within seven (7) days following the Conference.
- F. Scheduling Conference (are required on a weekly basis until agreement to the Baseline Schedule is reached).
1. Contractor to provide copies of the revised schedule.
 2. Contractor to address specific comments from the previous meeting.
 3. Contractor to revise the narrative as required.

1.11 BASELINE SCHEDULE

- A. Schedule shall include, but not be limited to, activities that show the following that are applicable to the project:
1. Project characteristics, salient features, or interfaces, including those with outside entities that could affect time of completion.
 2. Project start date, scheduled completion date and other milestones.
 3. Work performed by Contractor, subcontractors and suppliers.
 4. Submittal development, delivery, review and approval, including those from Contractor, subcontractors and suppliers.

5. Procurement, delivery, installation and testing of materials, plants and equipment.
 6. Testing and settlement periods.
 7. Utility notification and relocation.
 8. Erection and removal of falsework and shoring.
 9. Finish work and final cleanup.
 10. Project float as the predecessor activity to the scheduled completion date.
- B. Schedule shall have not less than 40 activities, unless otherwise authorized by the Owner's Representative.
1. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.
 2. Schedule activities shall include the following:
 - a. A clear and legible description.
 - b. Start and finish dates.
 - c. A duration of not less than one (1) working day, except for event activities, and not more than 20 working days, unless otherwise authorized by the Owner's Representative.
 - d. At least one (1) predecessor and one (1) successor activity, except for project start and finish milestones.
 - e. Required constraints: Only contractually required constraints may be inserted into the Baseline Schedule.
 - f. Codes for responsibility, stage, work shifts, location and contract pay item numbers.
- C. Early Completion Time:
1. Contractor may show early completion time on any schedule provided that the requirements of the contract are met.
 2. Contractor may increase early completion time by improving production, reallocating resources to be more efficient, performing sequential activities concurrently or by completing activities earlier than planned.
- D. Working durations shall be planned to incorporate the effects of normal weather impacts. See {General Conditions Article 12.2 for the "Baseline Rain Day Determination"}.

1.12 PROGRESS SCHEDULE

- A. Develop Progress Schedule based on approved Baseline and Revised Baseline Schedules.

1. All restrictions on use of constraints, leads and lags, resource leveling, etc., shall also apply to Progress Schedules.
- B. The Progress Schedule will be updated once per month for monitoring progress.
 1. Contractor may submit one (1) additional update per month for its own convenience.
- C. Indicate progress by making entries on the most recently accepted version of the network diagram and supporting data to show:
 1. Activities completed.
 2. Activities started.
 3. Remaining duration for each activity started but not yet completed.
 4. Percent complete based on value of work in place and value of equipment or material delivered and properly stored.
 5. Status of activity due to be completed by the next scheduled progress meeting.
- D. Computerized Progress Schedule and percent completion of Work shall be used to verify Contractor's payment requests.
 1. Progress payments will not be processed by the Owner's Representative unless the updated Progress Schedule has been submitted concurrently with a pay request and found acceptable by the Owner's Representative.

1.13 REVISIONS TO PROGRESS SCHEDULE

- A. Contractor shall submit data for a revised Progress Schedule within five (5) days of the occurrence of any of the following:
 1. When contractor-caused delay in completion of any activity or group of activities indicates an overrun of the Contract Time or Control Dates by 30 working days or 10 percent of the remaining duration, whichever is less.
 2. When delays in submittals, deliveries, or work stoppages are encountered making necessary the replanning or rescheduling of the Work.
 3. When the schedule does not represent the actual progress of the Work.
 4. When a change order significantly affects the contract completion date.
- B. The revised Progress Schedule shall be the basis of a Working Schedule showing:
 1. How Contractor intends to return to schedule.
 2. How Contractor intends to avoid falling behind schedule on future activities.
- C. Show changes on the network diagram and supporting data including:
 1. New activities and their duration.
 2. Modifications to existing activities.

- D. Provide written narrative report as needed to define:
1. Problem areas, anticipated delays, and impact on the current schedule.
 2. Corrective action recommended, and its effect.
 3. Major changes in scope.
 4. Revised projections of progress and completion.
- E. Except as provided in the following subparagraphs 1 and 2, the cost of revisions to the Progress Schedule resulting from changes in the Work shall be included in the cost for the change in the Work, and shall be based on the complexity of the revision or Change Order, man-hours expended in analyzing the change, and the total cost of the change.
1. The cost of revision to the Construction Schedule not resulting from authorized changes in the Work shall be the responsibility of the Contractor.
 2. The cost of revision to the Construction Schedule for the Contractor's convenience shall be the responsibility of the Contractor.
- F. The revised network diagram and supporting data for the Progress Schedule shall be submitted to the Owner's Representative upon completion of the revisions, but not later than the next progress meeting.
- G. Revisions to the Progress Schedule for the Contractor's convenience:
1. Must be approved by the Owner's Representative before Contractor changes the sequence of Work.

1.14 TIME IMPACT ANALYSIS (TIA)

- A. The accepted initial Baseline Schedule or subsequently accepted Revised Baseline Schedule shall be used for TIA.
- B. Contractor shall submit a written TIA to the Owner's Representative with each request for adjustment of Contract Time, or when Contractor or Owner's Representative consider that an approved or anticipated change may impact the critical path or contract progress.
1. The TIA must be attached to any change order prior to approval of any change to time or cost.
- C. The TIA shall illustrate the impacts of each change or delay on the current scheduled completion date or internal milestone, as appropriate.
1. The analysis shall use the Baseline or Revised Baseline Schedule (accepted Baseline Schedule) that has a data date closest to and prior to the event.
 2. If the Owner's Representative determines that the accepted Baseline Schedule used does not appropriately represent the conditions prior to the event, the accepted Baseline Schedule shall be updated to the day before the event being analyzed.

3. The TIA shall include an impact schedule developed from incorporating the event into the accepted Baseline Schedule by adding or deleting activities, or by changing durations or logic of existing activities as appropriate to the nature of the change event.
 4. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the accepted Baseline Schedule, the difference between scheduled completion dates of the two (2) schedules shall be equal to the adjustment of Contract Time.
- D. Contractor shall submit a TIA in duplicate within 15 working days of receiving a written request for a TIA from the Owner's Representative.
1. Contractor shall allow the Owner's Representative two (2) weeks after receipt to approve or reject the submitted TIA.
 2. All approved TIA schedule changes shall be shown on the next update schedule.
- E. In the event of a TIA rejection:
1. If a TIA submitted by the Contractor is rejected by the Owner's Representative, the Contractor shall meet with the Owner's Representative to discuss and resolve issues related to the TIA.
 2. If agreement is not reached, the Contractor will be allowed 15 days from the meeting with the Owner's Representative to give notice.
 3. Contractor shall only show actual as-built work, not unapproved changes related to the TIA, in subsequent update schedules.
 4. If agreement is reached at a later date, approved TIA schedule changes shall be shown on the next update schedule.
 5. Owner's Representative will withhold remaining payment on the schedule contract item if a TIA is requested by Owner's Representative and not submitted by Contractor within 15 working days.
 6. The schedule item payment will resume on the next estimate after the requested TIA is submitted.
 - a. No other contract payment will be retained regarding TIA submittals.

1.15 NARRATIVE SCHEDULE REPORT

- A. Narrative Schedule Report shall list Activities Started This Month; Activities Completed This Month; Activities Continued This Month; Activities Scheduled To Start or Complete Next Month; Problems Encountered This Month; Actions Taken to Solve These Problems.
- B. Narrative Schedule Report shall describe changes made to Construction Schedule Logic (i.e., changes in Predecessors and Lags); Activities Added to Schedule; Activities Deleted from Schedule; any other changes made to Schedule other than addition of Actual Start Dates and Actual Finish Dates and

LAKE HOUSTON PUMP STATION DISCHARGE

PIPING REHABILITATION

SJRA Project No. HDPR0026-1007-2C001

**CONSTRUCTION
PROGRESS SCHEDULE**

changes of Data Date and Remaining Durations for recalculation of
mathematical analysis.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 32 36.01

PROJECT PHOTOGRAPHS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Technical and submittal requirements for project photographs, including:
 - a. Measurement and Payment
 - b. Project photographs for facility and pipeline projects. Facility projects may have one or more distinct sites. Pipeline projects may have more than one segment but are usually linear in nature, such as waterline or wastewater line projects.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 DEFINITIONS:

1. Pre-construction Photographs: Photographs taken, in sufficient numbers and detail, prior to beginning field activities, to show original construction site conditions.
2. Progress Photographs: Photographs, taken throughout the duration of construction at regular intervals from vantage points, approved by the Owner's Representative, that document progress of the Work.
3. Completed Project Photographs: Photographs, taken by a commercial photographer, which are suitable for framing and for use in brochures or on the Internet.

1.4 SUBMITTALS:

1. Refer to Section 01 33 00 – Submittals.
2. Format and Media. Digital photography shall be used for Preconstruction and Progress Photographs. Digital photography shall be used for Completed Project Photographs. Submit digital Joint Photographic Experts Group (JPEG) images for electronic submittals.

a. Media

- 1) Digital Photography. Use at least 6.0 megapixel density for photographs. Submit digital photographic files on compact disks (CD) in JPEG format. Submit disks in 3-hole punched plastic sheets with a maximum of two CD's per sheet. Mark disks with project name and dates of photos.
3. Submit Preconstruction Photograph digital images with embedded GPS coordinates (latitude, longitude and compass direction of view) shown on the image. In addition to the Compact Disk submittal, Contractor shall download digital images and GPS coordinates to the Owner's GIS system if directed by the Owner's Representative.
4. Submit Progress Photograph digital images with embedded GPS coordinates (latitude, longitude and compass direction of view) shown on the image.
5. Submit Completed Project Photograph images. GPS coordinates shall not be shown on Completed Project digital images.
6. Submittal Quantities and Frequencies
 - a. Preconstruction photographs: Submit one set of digital images. All photos(images) shall have embedded GPS coordinates (latitude, longitude) and the compass bearing (N, NE, E...) such that this information appears on the print (image).
 - 1) Multiple photographs shall be taken of the project site to document existing facilities, parking areas, driveways, surface features such as building, trees and other vegetation or landscaping. This shall be accomplished through the use of a 100 foot interval grid (50 foot grid for sites less than 1 acre) imposed on the site with photos taken at each node point along the grid lines (4 photos per node) or by other means as approved by the Owner's Representative.
 - b. Progress Photographs: Submit one set of digital images each month with each Application for Payment. Monthly Applications for Payment shall be deemed incomplete if not accompanied by the required Progress Photographs. Contractor's failure or election to not submit a monthly Application for Payment shall not affect the requirement for monthly Progress Photographs:
 - 1) Provide at least four (4) ground level color digital images of the Work with at least one photo taken approximately each week (one week apart) during the monthly period to show progress of the Work with locations and direction of the photo approved by the Owner's Representative.
 - c. Completed Project Photographs:
 - 1) Submit one set of digital images showing all completed works.

7. Labeling:

a. Digital Images: Place a label on the CD, Labels shall contain the following information:

- 1) Name of Project and Project Number
- 2) Name of Contractor.
- 3) Name and address of commercial photographer who took the photograph, if applicable
- 4) For each digital image create a file name which has as part of the name the date the photograph was taken and the location of the photograph by station, coordinates or other unique identifier

B. Quality Assurance:

1. Contractor shall be responsible for the quality of and timely execution and submittal of photographs.
2. Contractor shall schedule and coordinate photographer with Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanics and administration of the submittal process for:
 - a. Shop Drawings.
 - b. Samples.
 - c. Miscellaneous submittals.
 - d. Operation and Maintenance Manuals.
2. General content requirements for Shop Drawings.
3. Content requirements for Operation and Maintenance Manuals.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 - General Requirements.
3. Sections in Divisions 02 through 48 identifying required submittals.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS (NOT USED)

1.4 DEFINITIONS

A. Shop Drawings:

1. See General Conditions.
2. Product data and samples are Shop Drawing information.

B. Operation and Maintenance (O&M) Manuals:

1. Contain the information required for proper installation and maintenance of building materials and finishes.
2. Contain the technical information required for proper installation, operation and maintenance of process, electrical and mechanical equipment and systems.

C. Miscellaneous Submittals:

1. Submittals other than Shop Drawings and O&M Manuals.

2. Representative types of miscellaneous submittal items include but are not limited to:
 - a. Construction schedule.
 - b. Facility Shutdown Plan(s)
 - c. HVAC test and balance reports.
 - d. Installed equipment and systems performance test reports.
 - e. Manufacturer's installation certification letters.
 - f. Instrumentation and control commissioning reports.
 - g. Warranties.
 - h. Service agreements.
 - i. Construction photographs.
 - j. Record Documents.
 - k. Cost breakdown (Schedule of Values).
 - l. Safety Plan(s).

1.5 SUBMITTAL SCHEDULE

- A. Schedule of Shop Drawings:
 1. Submitted and approved within 20 days of receipt of Notice to Proceed.
 2. Account for multiple transmittals under any specification section where partial submittals will be transmitted.
- B. Shop Drawings: Submittal and approval prior to 50 percent completion.
- C. Operation and Maintenance Manuals and Completed Equipment Record Sheets: Initial submittal within 40 days after date Shop Drawings are approved.

1.6 PREPARATION OF SUBMITTALS

- A. General:
 1. All submittals and all pages of all copies of a submittal shall be completely legible.
 2. Submittals which, in the Owner's Representative's or Principal Architect/Engineer's sole opinion, are illegible will be returned without review.
- B. Shop Drawings:
 1. Scope of any submittal and shop drawing transmittal:
 - a. Submit shop drawings utilizing Owner's standard Submittal Transmittal Form.
 - b. Limited to one (1) Specification Section.

- c. Do not submit under any Specification Section entitled (in part) "Basic Requirements" unless the product or material submitted is specified, in total, in a "Basic Requirements" Section.
2. Numbering letter of transmittal:
 - a. Include a series number, "xx", beginning with "01" and increasing sequentially with each additional transmittal.
 - b. Assign consecutive series numbers to subsequent transmittals.
3. Describing transmittal contents:
 - a. Provide listing of each component or item in submittal capable of receiving an independent review action.
 - b. Identify for each item:
 - 1) Manufacturer and Manufacturer's Drawing or data number.
 - 2) Contract Document tag number(s).
 - 3) Unique page numbers for each page of each separate item.
 - 4) Use divider sheets with labeled tabs to separate independent items within a single submittal.
 - c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description.
4. Contractor stamping:
 - a. General:
 - 1) Contractor's review and approval stamp shall be applied either to the letter of transmittal or a separate sheet preceding each independent item in the submittal.
 - a) Contractor's signature and date shall be wet ink signature. Is an electronic signature acceptable as most submittals are uploaded to SharePoint as a .PDF electronic document?
 - b) Shop Drawing submittal stamp shall read "(Contractor's Name) has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval as stipulated under General Conditions Paragraph 6.20.4."
 - 2) Submittals containing multiple independent items shall be prepared with an index sheet for each item listing the discrete page numbers for each page of that item, which shall be stamped with the Contractor's review and approval stamp.
 - a) Individual pages or sheets of independent items shall be numbered in a manner that permits Contractor's review and approval stamp to be associated with the entire contents of a particular item.

- b) Use divider sheets with labeled tabs to separate independent items within a single submittal.
- b. Electronic stamps:
 - 1) Contractor may electronically embed Contractor's review and approval stamp to either the Submittal Transmittal Form or a separate index sheet preceding each independent item in the submittal.
 - 2) Contractor's signature and date on electronically applied stamps shall be wet ink signature. Is an electronic signature acceptable as most submittals are uploaded to SharePoint as a PDF electronic document?
- 5. Resubmittals:
 - a. Number with original root number and a suffix letter starting with "A" on a new Submittal Transmittal Form.
 - b. Do not increase the scope of any prior transmittal.
 - c. Account for all components of prior transmittal.
 - 1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate (See also 1.6, this Section).
 - a) Do not include submittal information for items listed with prior "A" or "B" in resubmittal.
 - 2) Indicate items to be resubmitted "at a later date" for any prior "C" or "D" Action item not included in resubmittal.
 - a) Obtain Principal Architect/Engineer's approval to exclude items.
- 6. For 8-1/2 x 11 In, 8-1/2 x 14 In, and 11 x 17 In hard copy size sheets, provide three (3) copies of each page for Principal Architect/Engineer's plus the number required by the Contractor. In today's electronic environment, is subsection No. 6 necessary to be included in the contract documents?
 - a. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed four (4) hard copies.
 - b. All other hard copy size sheets:
 - 1) Submit one (1) reproducible transparency or high resolution print and one (1) additional print of each Drawing until approval is obtained.
 - 2) Utilize mailing tube; do not fold.
 - 3) The Principal Architect/Engineer will mark and return the reproducible to the Contractor through the Owner's Representative for his reproduction and distribution.
- 7. Electronic submittals utilizing web based document management system (SharePoint®):
 - a. Shop drawing submittals shall be produced (scanned) in Adobe Acrobat's Portable Document Format (PDF) Version 5.0 or higher.

- b. Do not password protect and/or lock the PDF document.
- c. Create one (1) PDF document (PDF file) for each submittal.
- d. Drawings or other graphics must be converted to PDF format and made part of the single (one [1]) PDF document.
 - 1) Scanning to be used only where actual file conversion is not possible.
- e. Limit PDF document size to 5MB.
- f. Rotate pages that must be viewed in landscape to the appropriate position for easy reading.
- g. Images only shall be scanned at a resolution of 300 dpi or greater.
 - 1) Perform Optical Character Recognition (OCR) capture on all images.
 - 2) Achieve OCR with the "original image with hidden text" option.
 - 3) Word searches of the PDF document must operate successfully to demonstrate OCR compliance.
- h. Create bookmarks in the navigation frame, for each entry in the Table of Contents/Index.
 - 1) Normally three (3) levels deep (i.e., "Chapter," "Section," "Sub-section").
- i. Thumbnails must be generated for each PDF file.
- j. Set the opening view for PDF files as follows:
 - 1) Initial view: Bookmarks and Page.
 - 2) Magnification: Fit in Window.
 - 3) Page layout: Single page.
 - 4) Set the file to open to the cover page of the submittal with bookmarks to the left, and the first bookmark linked to the cover page.
- k. All PDF documents shall be set with the option "Fast Web View" to open the first pages of the document for the viewer while the rest of the document continues to load.
- l. File naming conventions:
 - 1) File names shall use a "nine dot three" convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Shop Drawing Root series number and Z is an ID number used to designate the associated volume.
 - a) Example 1:
 - (1) Two (2) pumps submitted as separate Shop Drawings under the same Specification Section:
 - (a) Pump 1 = 43 21 21-01-1.pdf.

- (b) Pump 2 = 43 21 21-02-1.pdf.
- b) Example 2:
 - (1) Control system submitted as one (1) Shop Drawing but separated into two (2) shop drawing submittals:
 - (a) Volume 1 = 40 90 00-01-1.pdf.
 - (b) Volume 2 = 40 90 00-01-2.pdf.
- 8. Provide clear space (3 In Sq) for Principal Architect/Engineer stamping of each component defined in the PREPARATION OF SUBMITTALS Article – Contractor Stamping.
- 9. Contractor shall not use red color for marks on transmittals.
 - a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
 - b. Outline Contractor marks on reproducible transparencies with a rectangular box.
- 10. Transmittal contents:
 - a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Owner's Representative and the Principal Architect/Engineer.
 - b. Identify equipment or material use, tag number, Drawing detail reference, weight, and other Project specific information.
 - c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
 - d. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8-1/2 x 11 In pages.
 - 1) Clearly mark (indicate) exact item or model and all options proposed.
 - e. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
 - 1) Arrange data and performance information in format similar to that provided in Contract Documents.
 - 2) Provide, at minimum, the detail specified in the Contract Documents.
 - f. Provide warranty information.

- g. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.
- C. Miscellaneous Submittals:
- 1. Prepare in the format and detail specified in Specification requiring the miscellaneous submittal.
- D. Operation and Maintenance Manuals:
- 1. Owner's use of manufacturer's Operation and Maintenance materials:
 - a. Materials are provided for Owner's use, reproduction and distribution as training and reference materials within Owner's organization.
 - 1) Applicable to hard copy or electronic media.
 - 2) Applicable to materials containing copyright notice as well as those with no copyright notice.
 - b. Notify manufacturer of this intended use of materials provided under the Contract.
 - 2. Number each Operation and Maintenance Manual transmittal with the original root number of the associated Shop Drawing.
 - a. Identify resubmittals with the original number plus a suffix letter starting with "A."
 - 3. Submittal format:
 - a. Interim submittals: Submit two (2) paper copies until manual is approved.
 - b. Final submittals:
 - 1) Within 30 days of receipt of approval, submit one (1) additional paper copy and two (2) electronic copies to the Owner's Document Management System (SharePoint) in Portable Document Format (PDF).
 - a) Compact discs to be secured in jewel cases.
 - 2) Electronic copies will be reviewed for conformance with the approved paper copy and the electronic copy (PDF) requirements of this Specification.
 - 3) Non-conforming CDs will be returned with comments.
 - a) Provide final CDs within 30 days of receipt of comments.
 - 4. Paper copy submittals:
 - a. Submit Operation and Maintenance Manuals printed on 8-1/2 x 11 In size heavy first quality paper with standard three-hole punching and bound in

appropriately sized three-ring (or post) vinyl view binders with clear overlays front, spine and back.

- 1) Provide binders with titles inserted under clear overlay on front and on spine of each binder.
 - a) As space allows, binder titles shall include, but not necessarily be limited to, Project Name, related Specification Number, Equipment Name(s) and Project Equipment Tag Numbers.
- 2) Provide a Cover Page for each manual with the following information:
 - a) Manufacturer(s).
 - b) Date.
 - c) Project Owner and Project Name.
 - d) Specification Section.
 - e) Project Equipment Tag Numbers.
 - f) Model Numbers.
 - g) Principal Architect/Engineer.
 - h) Contractor.
- 3) Provide a Table of Contents or Index for each manual.
- 4) Use plastic-coated dividers to tab each section of each manual per the manual's Table of Contents/Index for easy reference.
- 5) Provide plastic sheet lifters prior to first page and following last page.
- b. Reduce Drawings or diagrams bound in manuals to an 8-1/2 x 11 In or 11 x 17 In size.
 - 1) Where reduction is not practical to ensure readability, fold larger Drawings separately and place in vinyl envelopes which are bound into the binder.
 - 2) Identify vinyl envelopes with drawing numbers.
- c. Mark each sheet to clearly identify specific products and component parts and data applicable to the installation for the Project.
 - 1) Delete or cross out information that does not specifically apply to the Project.
5. Electronic copy submittals:
 - a. Electronic copies of the approved paper copy Operation and Maintenance Manuals are to be produced in Adobe Acrobat's Portable Document Format (PDF) Version 5.0 or higher.
 - b. Do not password protect and/or lock the PDF document.

- c. Create one (1) PDF document (PDF file) for each equipment O&M Manual.
- d. Drawings or other graphics must be converted to PDF format and made part of the one (1) PDF document.
 - 1) Scanning to be used only where actual file conversion is not possible.
- e. Rotate pages that must be viewed in landscape to the appropriate position for easy reading.
- f. Images only shall be scanned at a resolution of 300 dpi or greater.
 - 1) Perform Optical Character Recognition (OCR) capture on all images.
 - 2) Achieve OCR with the "original image with hidden text" option.
 - 3) Word searches of the PDF document must operate successfully to demonstrate OCR compliance.
- g. Create bookmarks in the navigation frame, for each entry in the Table of Contents/Index.
 - 1) Normally three (3) levels deep (i.e., "Chapter," "Section," "Sub-section").
- h. Thumbnails must be generated for each PDF file.
- i. Set the opening view for PDF files as follows:
 - 1) Initial view: Bookmarks and Page.
 - 2) Magnification: Fit in Window.
 - 3) Page layout: Single page.
 - 4) Set the file to open to the cover page of the manual with bookmarks to the left, and the first bookmark linked to the cover page.
- j. All PDF documents shall be set with the option "Fast Web View" to open the first pages of the document for the viewer while the rest of the document continues to load.
- k. File naming conventions:
 - 1) File names shall use a "ten dot three" convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Shop Drawing Root number and Z is an ID number used to designate the associated volume.
 - a) Example 1:
 - (1) Two (2) pumps submitted as separate Shop Drawings under the same Specification Section:
 - (a) Pump 1 = 43 21 21-01-1.pdf.
 - (b) Pump 2 = 43 21 21-02-1.pdf.

b) Example 2:

(1) Control system submitted as one (1) Shop Drawing but separated into two (2) O&M volumes:

(a) Volume 1 = 40 90 00-01-1.pdf.

(b) Volume 2 = 40 90 00-01-2.pdf.

I. Labeling:

1) As a minimum, include the following labeling on all CD-ROM discs and jewel cases:

a) Project Name.

b) Equipment Name and Project Tag Number.

c) Project Specification Section.

d) Manufacturer Name.

e) Vendor Name.

m. Binding:

1) Include labeled CD(s) in labeled jewel case(s).

a) Bind jewel cases in standard three-ring binder Jewel Case Page(s), inserted at the front of the Final paper copy submittal.

b) Jewel Case Page(s) to have means for securing Jewel Case(s) to prevent loss (e.g., flap and strap).

6. Operation and Maintenance Manuals for Materials and Finishes:

a. Building Products, Applied Materials and Finishes:

1) Include product data, with catalog number, size, composition and color and texture designations.

2) Provide information for re-ordering custom manufactured products.

b. Instructions for Care and Maintenance:

1) Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.

c. Moisture Protection and Weather Exposed Products:

1) Include product data listing, applicable reference standards, chemical composition, and details of installation.

2) Provide recommendations for inspections, maintenance and repair.

d. Additional requirements as specified in individual product specifications.

7. Operation and Maintenance Manuals for Equipment and Systems:

- a. Submission of Operation and Maintenance Manuals for equipment and systems is applicable but not necessarily limited to:
 - 1) Major equipment.
 - 2) Equipment powered by electrical, pneumatic or hydraulic systems.
 - 3) Specialized equipment and systems including instrumentation and control systems and system components for HVAC process system control.
 - 4) Valves and water control gates.
- b. Equipment and Systems Operation and Maintenance Manuals shall include, but not necessarily be limited to, the following completed forms and detailed information, as applicable:
 - 1) Fully completed type-written copies of the associated Equipment Record(s), Exhibits A1, A2 and A3, shall be included under the first tab following the Table of Contents of each Operation and Maintenance Manual.
 - a) Each section of the Equipment Record must be completed in detail.
 - (1) Simply referencing the related manual for nameplate, maintenance, spare parts or lubricant information is not acceptable.
 - b) For equipment items involving components or subunits, a fully completed Equipment Record Form is required for each operating component or subunit.
 - c) Submittals that do not include the associated Equipment Record(s) will be rejected without further content review.
 - d) Electronic copies of the Exhibits may be obtained by contacting the Project Manager.
 - 2) Equipment function, normal operating characteristics, limiting operations.
 - 3) Assembly, disassembly, installation, alignment, adjustment, and checking instructions.
 - 4) Operating instructions for start-up, normal operation, control, shutdown, and emergency conditions.
 - 5) Lubrication and maintenance instructions.
 - 6) Troubleshooting guide.
 - 7) Parts lists:
 - a) Comprehensive parts and parts price lists.
 - b) A list of recommended spare parts.

- c) List of spare parts provided as specified in the associated Specification Section.
- 8) Outline, cross-section, and assembly Drawings; engineering data; and electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams, word description of wiring diagrams and interconnection diagrams.
- 9) Test data and performance curves.
- 10) As-constructed fabrication or layout Drawings and wiring diagrams.
- 11) Instrumentation or tag numbers assigned to the equipment by the Contract Documents are to be used to identify equipment and system components.
- 12) Additional information as specified in the associated equipment or system Specification Section.

1.7 TRANSMITTAL OF SUBMITTALS

A. Shop Drawings, and Operation and Maintenance Manuals:

1. Transmit all submittals via Owner's Document Management System (SharePoint).
2. Transmit all paper submittals to the address provided below.

San Jacinto River Authority
1577 Dam Site Road
Conroe, TX, 77034
Attn: Daniel Hilderbrant

3. Utilize SJRA Standard Submittal Transmittal Form (to be provided by Owner) to transmit all Shop Drawings, Samples and Operation and Maintenance Manuals.
4. All submittals must be from Contractor.
 - a. Submittals will not be received from or returned to subcontractors.
 - b. Operation and Maintenance Manual submittal stamp may be Contractor's standard approval stamp.
5. Provide submittal information defining specific equipment or materials utilized on the Project.
 - a. Generalized product information, not clearly defining specific equipment or materials to be provided, will be rejected.

B. Miscellaneous Submittals:

1. Transmit under Contractor's standard Submittal Transmittal Form or letterhead.
2. Submit in triplicate or as specified in individual Specification Section.
3. Transmit to the address provided below.

San Jacinto River Authority
1577 Dam Site Road
Conroe, TX, 77034
Attn: Daniel Hilderbrandt

4. Provide copy of Submittal Transmittal without attachments to Owner's Representative.

C. Expedited Return Delivery:

1. Include prepaid express envelope or airbill in submittal transmittal package for any submittals Contractor expects or requires express return mail.
2. Inclusion of prepaid express envelope or airbill does not obligate Owner's Representative or Principal Architect/Engineer to conduct expedited review of submittal.

D. Fax Transmittals:

1. Permitted on a case-by-case basis to expedite review when approved by Principal Architect/Engineer.
2. Requires hard copy transmittal to immediately follow.
 - a. Principal Architect/Engineer will proceed with review of fax transmittal.
 - b. Principal Architect/Engineer's approval or rejection comments will be recorded and returned on hard copy transmittal.
3. Provisions apply to both:
 - a. Initial transmittal contents.
 - b. Supplemental information required to make initial transmittal contents complete.

1.8 PRINCIPAL ARCHITECT/ENGINEER 'S REVIEW ACTION

A. Shop Drawings and:

1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
 - a. NO EXCEPTION.
 - b. EXCEPTIONS AS NOTED.

- c. REVISE & RESUBMIT
 - d. REJECTED - RESUBMIT.
 - e. ACKNOWLEDGE RECEIPT.
 - f. FOR INFORMATION PURPOSES ONLY.
 - g. SUPPLEMENTARY INFORMATION.
2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
 - a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned without any action.
 3. In relying on the representation on the Contractor's review and approval stamp, Owner and Principal Architect/Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
 - a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
 - 1) Review and approval will be limited to the single item described on the transmittal letter.
 - 2) Other items identified in the submittal will:
 - a) Not be logged as received by the Principal Architect/Engineer.
 - b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
 - c) Be submitted by the Contractor as a new series number, not as a re-submittal number.
 - b. Principal Architect/Engineer, at Principal Architect/Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
 - 1) Unless Contractor notifies Principal Architect/Engineer in writing that the Principal Architect/Engineer's revision of the Submittal Transmittal Form item list and descriptions was in error, Contractor's review and
 - 2) Approval stamp will be deemed to have applied to the entire contents of the submittal package.
 4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
 - a. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.

- b. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
5. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:
 - a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
 - 1) One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
 - a) Correct and resubmit items so marked.
 - b. Items marked "A" or "B" will be fully distributed.
 - c. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
 - 1) This is at the sole discretion of the Principal Architect/Engineer.
 - 2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
 - 3) Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations: Requirements for the submittal of calculations in the individual Specification Sections shall be satisfied through the submittal of a certification sealed by the Principal Architect/Engineer that the calculations have been performed. Certification will be received for information purposes only and will be returned stamped "D. ACKNOWLEDGE RECEIPT".
8. Transmittals of submittals which the Principal Architect/Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior submittal, will be returned with Action "E. Acknowledge Receipt" (Principal Architect/Engineer's Review Not Required).
9. Samples may be retained for comparison purposes.
 - a. Remove samples when directed.
 - b. Include in bid all costs of furnishing and removing samples.

10. Approved samples submitted or constructed, constitute criteria for judging completed work.
 - a. Finished work or items not equal to samples will be rejected.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

EXHIBIT A1 Equipment Record

Equipment Data and Spare Parts Summary

Project Name		Specification Section:
Equipment Name		Year Installed:
Project Equipment Tag No(s).		
Equipment Manufacturer		Project/Order No.
Address		Phone
Fax	Web Site	E-mail
Local Vendor/Service Center		
Address		Phone
Fax	Web Site	E-mail

MECHANICAL NAMEPLATE DATA

Equip.		Serial No.		
Make		Model No.		
ID No.	Frame No.	HP	RPM	Cap.
Size	TDH	Imp. Sz.	CFM	PSI
Other:				

ELECTRICAL NAMEPLATE DATA

Equip.		Serial No.						
Make		Model No.						
ID No.	Frame No.	HP	V.	Amp.	HZ	PH	RPM	SF
Duty	Code	Ins. Cl.	Type	NEMA	C Amb.	Temp. Rise	Rating	
Other:								

SPARE PARTS PROVIDED PER CONTRACT

Part No.	Part Name	Quantity

RECOMMENDED SPARE PARTS

Part No.	Part Name	Quantity

**EXHIBIT A3
 Equipment Record
 Lubrication Summary**

Equipment Description	Project Equip. Tag No(s).
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Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						
Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						
Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						
Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						
Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						
Lubricant Point							
Lubricant Type	Manufacturer		Product	AGMA #	SAE #	ISO	
	1						
	2						
	3						
	4						
	5						

END OF SECTION

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SECTION 01 35 05

ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Addresses:

1. Minimizing the pollution of air, water, or land; control of noise, the disposal of solid waste materials, and protection of deposits of historical or archaeological interest.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost of same in associated items for this project.

1.3 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Prior to the start of any construction activities submit:
 - a. A detailed proposal of all methods of control and preventive measures to be utilized for environmental protection.
 - b. A drawing of the work area, haul routes, storage areas, access routes and current land conditions including trees and vegetation.
 - c. Submit manufacturer's catalog sheets and other product data on dispensing equipment, pump, and aboveground fuel storage tanks, indicating capacity and dimensions of tank.
 - d. Submit drawings to show location of tank protection area and driveway. Indicate nearest inlet or channelized flow area. Clearly dimension distances and measurements.
 - e. Submit list of spill containment equipment, and quantities thereof, located at fueling area.

1.4 ENVIRONMENTAL CONTROLS

- A. Provide and maintain methods, equipment, and temporary construction as necessary for controls over environmental conditions at construction site and adjacent areas.
- B. Work to minimize impact to surrounding environment. Adopt construction procedures that do not cause unnecessary excavation and filling of terrain, indiscriminate destruction of vegetation, air or stream pollution, nor harassment or destruction of wildlife.
- C. Recognize and adhere to environmental requirements of Project. Limit disturbed areas to boundaries established by Contract. Avoid pollution of "on-site" streams, sewers, wells, or other water sources.
- D. Burning of rubbish, debris, or waste materials is not permitted.

1.5 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious substances from construction operations.
- B. Provide equipment and personnel to perform required emergency measures to contain spillage, and to remove contaminated soils or liquids. Excavate and dispose of contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- C. Provide systems for control of atmospheric pollutants.
 - 1. Prevent toxic concentrations of chemicals.
 - 2. Prevent harmful dispersal of pollutants into atmosphere.
- D. Use equipment that conforms to current Federal, State, and local laws and regulations.
- E. Install or otherwise implement positive controls to prevent hazardous materials migrating from Work area.

1.6 PEST AND RODENT CONTROL

- A. Provide rodent and pest control as necessary to prevent infestation of construction or storage areas.
- B. Employ methods and use materials which will not adversely affect conditions at site or on adjoining properties.

1.7 NOISE CONTROL

- A. Provide vehicles, equipment, and construction activities that minimize noise to greatest degree practicable. Conform noise levels to latest OSHA standards. Do not permit noise levels to interfere with Work or create nuisance in surrounding areas.

- B. Conduct construction operations during daylight hours except as approved by Owner's Representative.
- C. Select construction equipment to operate with minimum noise and vibration. When in opinion of Owner's Representative, objectionable noise or vibration is produced by equipment, rectify conditions without additional cost to Owner. Sound Power Level (PWL) of equipment shall not exceed 85 dbA (re: 10-12 watts) measured 5 feet from piece of equipment. Explicit equipment noise requirements are specified with equipment specifications.

1.8 DUST CONTROL

- A. Control objectionable dust caused by operation of vehicles and equipment. Apply water or use other methods, subject to approval of Owner's Representative, to control amount of dust generated.

1.9 WATER RUNOFF AND EROSION CONTROL

- A. Comply with Texas Pollutant Discharge Elimination System (TPDES) permit when required.
- B. In addition to TPDES requirements:
 - 1. Provide methods to control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to Work, site, or adjoining properties.
 - 2. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff courses so as to prevent erosion, sedimentation or damage.
 - 3. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.
 - 4. Dispose of drainage water in manner to prevent flooding, erosion, or other damage to portion of site or to adjoining areas and in conformance with environmental requirements.
 - 5. Retain existing drainage patterns external to construction site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as needed to control conditions.
 - 6. Plan and execute construction and earth work by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 - a. Minimize area of bare soil exposed at one time.
 - b. Provide temporary control measures, as berms, dikes, and drains.
 - 7. Construct fills and waste areas by selective placement to eliminate erosion of surface silts or clays.

8. Inspect earthwork periodically to detect evidence of start of erosion. Apply corrective measures as required to control erosion.

1.10 QUALITY ASSURANCE

- A. Person conducting visual examination for pollutant shall be fully knowledgeable about the TPDES Construction General Permit, detecting sources of storm water contaminants, inspection of aboveground storage tank and appurtenances for leakage, and the day-to-day operations that may cause unexpected pollutant releases.

PART 2 - PRODUCTS

2.1 CONCRETE

- A. Provide concrete with minimum strength of 4,000 psi at 28 days.

2.2 AGGREGATES

- A. Coarse aggregate shall consist of crushed stone, gravel, crushed blast furnace slag, or combination of these materials. Aggregate shall be composed of clean, hard, durable materials, free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.
- B. Coarse aggregates shall conform to following gradation requirements.

Sieve Size (Square Mesh)	Percent Retained (By Weight)
2-1/2"	0
2"	0 - 20
1-1/2"	15 - 50
3/4"	60 - 80
No. 4	95 - 100

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.
- B. No clearing and grubbing or rough cutting permitted until erosion and sediment control systems are in place, other than site Work specifically directed by Owner's Representative to allow soil testing and surveying.

- C. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage caused by construction traffic to erosion and sediment control systems.
- D. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Owner's Representative to remove and discard existing system.
- E. Regularly inspect and repair or replace damaged components of erosion and sediment control systems as specified in this Section. Unless otherwise directed, maintain erosion and sediment control systems until project area stabilization is accepted by the Owner. Remove erosion and sediment control systems promptly when directed by Owner's Representative. Discard removed materials off site.
- F. Remove and dispose sediment deposits at designated spoil site for Project. If a project spoil site is not designated on Drawings, dispose of sediment off site at location not in or adjacent to stream or flood plain. Assume responsibility for off-site disposal. Spread sediment evenly throughout site, compacted and stabilized. Prevent sediment from flushing into a stream or drainage way. If sediment has been contaminated, dispose of in accordance with existing federal, state, and local rules and regulations.
- G. Assume responsibility for collecting, storing, hauling, and disposing of spoil, silt, and waste materials as specified in this or other Specifications and in compliance with applicable federal, state, and local rules and regulations.
- H. Employ protective measures to avoid damage to existing trees to be retained on project site. Conduct construction operations under this Contract in conformance with erosion control practices described in Drawings and this or other Specifications.
- I. Prepare spill response and containment procedures to be implemented in event of significant materials spill. Significant materials include but are not limited to: raw materials; fuels; materials such as solvent, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; chemical required to be reported pursuant to Section 313 of Title III of SARA; fertilizers; pesticides, and waste products such as slag, ashes and sludge that have potential to be released with storm water discharges. Spill containment procedures shall be kept on-site or in construction field office.
- J. Spill containment equipment appropriate to size of operation is to be located in close proximity of fueling area. Such equipment includes, but not limited to, suitable waste containers for significant materials, drip pans, booms, inlet covers, or absorbent.
- K. Properly label significant materials or waste containers used for construction activities and stored on-site overnight.

L. Install, maintain, and inspect erosion, sediment control measures and practices as specified in Drawings and in this or other Specifications

M. Land Protection:

1. Except for any work or storage area and access routes specifically assigned for the use of the Contractor, the land areas outside the limits of construction shall be preserved in their present condition.
 - a. Contractor shall confine his construction activities to areas defined for work within the Contract Documents.
2. Manage and control all borrow areas, work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to the work site.
3. Restore all disturbed areas including borrow and haul areas and establish permanent type of locally adaptable vegetative cover.
4. Unless earthwork is immediately paved or surfaced, protect all side slopes and back slopes immediately upon completion of final grading.
5. Plan and execute earthwork in a manner to minimize duration of exposure of unprotected soils.
6. Except for areas designated by the Contract Documents to be cleared and grubbed, the Contractor shall not deface, injure or destroy trees and vegetation, nor remove, cut, or disturb them without approval of the Owner's Representative.
 - a. Any damage caused by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense.
7. Utilize, as necessary, erosion control methods to protect side and backslopes, minimize and the discharge of sediment to the surface water leaving the construction site as soon as rough grading is complete.
 - a. These controls shall be maintained until the site is ready for final grading and landscaping or until they are no longer warranted and concurrence is received from the Owner's Representative.
 - b. Physically retard the rate and volume of run-on and runoff by:
 - 1) Implementing structural practices such as diversion swales, terraces, straw bales, silt fences, berms, storm drain inlet protection, rockered outlet protection, sediment traps and temporary basins.
 - 2) Implementing vegetative practices such as temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffers, hydroseeding, anchored erosion control blankets, sodding, vegetated swales or a combination of these methods.

- 3) Providing Construction sites with graveled or rocked access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.
8. Discharges from the construction site shall not contain pollutants at concentrations that produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.

N. Solid Waste Disposal:

1. Collect solid waste on a daily basis.
2. Provide disposal of degradable solid waste to an approved solid waste disposal site.
3. Provide disposal of nondegradable solid waste to an approved solid waste disposal site or in an alternate manner approved by Owner's Representative and regulatory agencies.
4. No building materials wastes or unused building materials shall be buried, dumped, or disposed of on the site.

O. Fuel and Chemical Handling:

1. Store and dispose of chemical wastes in a manner approved by regulatory agencies.
2. Take special measures to prevent chemicals, fuels, oils, greases, herbicides, and insecticides from entering drainage ways.
3. Do not allow water used in onsite material processing, concrete curing, cleanup, and other waste waters to enter a drainage way(s) or stream.
4. The Contractor shall provide containment around fueling and chemical storage areas to ensure that spills in these areas do not reach waters of the state.

P. Control of Dust:

1. The control of dust shall mean that no construction activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction.
 - a. Reasonable measures may include paving, frequent road cleaning, planting vegetative groundcover, application of water or application of chemical dust suppressants.
 - b. The use of chemical agents such as calcium chloride must be approved by the State of Texas DOT.
2. Utilize methods and practices of construction to eliminate dust in full observance of agency regulations.

3. The Owner's Representative will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to Owner.

Q. Burning:

1. Do not burn material on the site.
2. If the Contractor elects to dispose of waste materials by burning, make arrangements for an off-site burning area and conform to all agency regulations.

R. Control of Noise:

1. Control noise by fitting equipment with appropriate mufflers.

S. Completion of Work:

1. Upon completion of work, leave area in a clean, natural looking condition.
2. Ensure all signs of temporary construction and activities incidental to construction of required permanent work are removed.

T. Historical Protection:

1. If during the course of construction, evidence of deposits of historical or archaeological interests is found, cease work affecting find and notify Owner's Representative.
 - a. Do not disturb deposits until written notice from Owner's Representative is given to proceed.
2. The Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures.

3.2 TOPSOIL PLACEMENT FOR EROSION AND SEDIMENT CONTROL SYSTEMS

- A. When topsoil is specified as a component of another Specification, conduct erosion control practices described in this Specification during topsoil placement operations.
- B. When placing topsoil, maintain erosion and sediment control systems consisting of swales, grade stabilization structures, berms, dikes, waterways, and sediment basins.
- C. Maintain grades which have been previously established on areas to receive topsoil.
- D. After areas to receive topsoil have been brought to grade, and immediately prior to dumping and spreading topsoil, loosen subgrade by discing or by scarifying to a depth of at least 2 inches to permit bonding of topsoil to subsoil. Compact by passing bulldozer up and down slope, tracking over entire surface area of slope to create horizontal erosion control slots.

- E. No sod or seed shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials.

3.3 DUST CONTROL

- A. Implement dust control methods to control dust creation and movement on construction sites and roads and to prevent airborne sediment from reaching receiving streams or storm water conveyance systems, to reduce on-site and off-site damage, to prevent health hazards, and to improve traffic safety.
- B. Control blowing dust by using one or more of following methods:
 1. Mulches bound with chemical binders such as Carasol, Terratack, or equal.
 2. Temporary vegetative cover.
 3. Spray-on adhesives on mineral soils when not used by traffic.
 4. Tillage to roughen surface and bring clods to surface.
 5. Irrigation by water sprinkling.
 6. Barriers using solid board fences, snow fences, burlap fences, crate walls, bales of hay, or similar materials.
- C. Implement dust control methods immediately whenever dust can be observed blowing on project site.

3.4 KEEPING STREETS CLEAN

- A. Keep streets clean of construction debris and mud carried by construction vehicles and equipment. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas. Vehicle/equipment wash area (stabilized with coarse aggregate) may be installed adjacent to stabilized construction exit, as needed. Release wash water into a drainage swale or inlet protected by erosion and sediment control measures. Construction exit specified in Section 01 57 13.02 - Stabilized Construction Access.
- B. In addition to stabilized construction exits, shovel or sweep pavement to extent necessary to keep street clean. Water hosing or sweeping of debris and mud off of street into adjacent areas is not allowed.

3.5 EQUIPMENT MAINTENANCE AND REPAIR

- A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose. Locate areas so that oils, gasoline, grease, solvents, and other potential pollutants cannot be washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid as well as solid waste. Clean and inspect maintenance areas daily.
- B. On construction site where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance

operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.6 WASTE COLLECTION AND DISPOSAL

- A. Formulate and implement a plan for collection and disposal of waste materials on construction site. In plan, designate locations for trash and waste receptacles and establish a collection schedule. Specify and carry out methods for ultimate disposal of waste in accordance with applicable local, state, and federal health and safety regulations. Make special provisions for collection and disposal of liquid wastes and toxic or hazardous materials.
- B. Keep receptacles and waste collection areas neat and orderly to extent possible. Waste shall not be allowed to overflow its container or accumulate from day-to-day. Locate trash collection points where they shall least likely be affected by concentrated storm water runoff.

3.7 WASHING AREAS

- A. Avoid washing concrete delivery trucks or dump trucks and other construction equipment at locations where runoff shall flow directly into a watercourse or storm water conveyance system. Designate special areas for washing vehicles. Locate these areas where wash water shall spread out and evaporate or infiltrate directly into ground, or where runoff can be collected in temporary holding or seepage basin. Beneath wash areas construct a gravel or rock base to minimize mud production.

3.8 STORAGE OF CONSTRUCTION MATERIALS AND CHEMICALS

- A. Isolate sites where chemicals, cements, solvents, paints, or other potential water pollutants are stored in areas where they shall not cause runoff pollution.
- B. Store toxic chemicals, materials, pesticides, paints, and acids in accordance with manufacturers' guidelines. Protect groundwater resources from leaching by placing a plastic mat, packed clay, tar paper, or other impervious materials on areas where toxic liquids are to be opened and stored.

3.9 DEMOLITION AREAS

- A. Demolition activities which create large amounts of dust with significant concentrations of heavy metals or other toxic pollutants shall use dust control techniques to limit transport of airborne pollutants. However, retain water or slurry used to control dust contaminated with heavy metals or toxic pollutants on site, and prevent runoff directly into watercourses or storm water conveyance systems. Carry out methods of ultimate disposal of these materials in accordance with applicable local, state, and federal health and safety regulations.

3.10 SANITARY FACILITIES

- A. Provide construction sites with adequate portable toilets for workers in accordance with applicable health regulations.

3.11 PESTICIDES

- A. Use and store pesticides during construction in accordance with manufacturers' guidelines and with local, state, and federal regulations. Avoid overuse of pesticides which could produce contaminated runoff. Take great care to prevent accidental spillage. Never wash pesticide containers in or near flowing streams or storm water conveyance systems.

3.12 CONSTRUCTION METHODS

- A. Provide fuel tank protection area and driveway as shown on Drawings.
- B. Do not locate fueling area in or near channelized flow area or close to storm sewer conveyance system. Provide sufficient space to allow installation of other erosion and sediment controls to protect those areas.
- C. Clear and grub fueling area to remove unsuitable materials. Place geotextile fabric as permeable separator to prevent mixing of coarse aggregate with underlying soil. Overlap fabric minimum of 6 inches. Place coarse aggregate on top of geotextile fabric to minimum depth of 8 inches.
- D. Grade protection area and driveway to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar methods to prevent sediment from entering public right-of-way, receiving stream or storm water conveyance system. Provide driveway to fuel tank area with minimum width of 15 feet for one-way traffic and 30 feet for two-way traffic.
- E. Place aboveground storage tank on top of cast-in-place or pre-cast foundation. Base size and thickness of foundation on size and weight of tank to be used, with minimum thickness of 6 inches. Enclose concrete foundation by 5-inch by 5-inch concrete curb and extend minimum of 1 foot beyond tank and dispenser assemblies, so that leak and drip can be contained within concrete foundation.
- F. Slope concrete foundation minimum of 1 percent toward 6-inch wide by 12-inch long by 4-inch deep sump pit. Install minimum of 2-inch pipe inside sump pit with valve on outside of curb to allow draining of concrete foundation.
- G. Install portable concrete Jersey Barrier around concrete foundation. Provide minimum clearance of 2 feet from edge of foundation. In lieu of Jersey barrier, install 4-inch diameter steel pipe bollards around foundation. Bury bollards minimum of 3 feet deep, 3 feet above ground, and 4 feet on center, encased in 12-inch wide concrete foundation.

3.13 MAINTENANCE

- A. Inspections shall be conducted by designated health and safety officer qualified to conduct health and safety inspections.
- B. Inspect stabilized areas after every storm event and at least once a week. Provide periodic top dressing with additional coarse aggregate to maintain required depth. Repair and clean out damaged control measures used to trap sediment.

- C. Inspect fuel tank foundation's bermed area after every storm event and at least once a week. Visually examine storm water contained in tank's bermed foundation area for oil sheen or other obvious indicators of storm water pollution. Properly dispose of storm water when pollutant is present. Record visual examination of storm water discharge in Report noting date and time of examination, name of examiner, observations of water quality, and volume of storm water discharged from bermed area. Keep Report with other storm water pollution control inspection reports on site, in readily accessible location.

3.14 TEMPORARY FUELING AREA CLOSURE

- A. Dispose of temporary vehicle and equipment fueling area by removal of sediment and erosion controls properly off site. Owner's Representative will inspect top soils in fueling area and immediate vicinity for evidence of fuel leaks. If Owner's Representative determines that sufficient pollutants have been released, remove soil and properly dispose off site. Other remediation methods may be required.

END OF SECTION

SECTION 01 45 16.32
CONTRACTOR'S QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Measurement and Payment
 - 2. Quality Assurance/Control of Installation
 - 3. References
 - 4. Manufacturer's Field Services and Reports
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS (NOT USED)

1.4 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality at no additional cost to the Owner.
- B. Comply fully with manufacturers' installation instructions, including each step in sequence.
- C. Request clarification Owner's Representative before proceeding when manufacturers' instructions conflict with Contract.
- D. Comply with specified standards as minimum requirements for Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce specified level of workmanship.

1.5 REFERENCES

- A. Obtain copies of standards and maintain at job site when required by individual Specification sections.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual Specification sections or as required by Owner's Representative, provide material or product suppliers' or manufacturers' technical representative to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, operator training, test, adjust and balance of equipment as applicable and to initiate operation, as required. Conform to minimum time requirements for start-up operations and operator training when defined in Specification sections.
- B. At Owner's Representative's request, submit qualifications of manufacturers' representative to Owner's Representative 15 days in advance of required representatives' services. Representative is subject to approval by Owner's Representative.
- C. A manufacturers' representative is to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to a manufacturer's written instructions. Submit report within 14 days of observation to Owner's Representative for review.
- D. CFRP liner installer shall provide letter to owner from quality control specialist (QCS) or manufacturer's field engineer certifying that existing discharge pipe surface preparation is adequate prior to installation of CFRP liner.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 29
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Testing laboratory services
2. Requirements of this section apply to testing laboratories employed by the Contractor for approval of manufactured products, materials, including mix designs and quality control of materials
3. Requirements of this section also apply to testing laboratories employed by the Owner for approval of materials and the constructed Work on site.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

A. No separate payment will be made for this item. Include the cost in associated items for this project

1.3 QUALITY ASSURANCE

A. Reference Standards

1. ASTM E 329 – Standard Specification for Minimum Requirements for Agencies Engaged the Testing and/or Inspection of Materials Used in Construction.
2. ISO/IEC 17025 – General Requirements for the Competence of Calibration and Testing Laboratories.
3. ICC AC125, Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber Reinforced Polymer (CFRP) Composite Systems.
4. ASTM D7565, Standard Test Method for Determining Tensile Properties of Fiber Reinforced Polymer Matrix Composites Used for Strengthening of Civil Structures.
5. ASTM D4541, Standard Test Method for Pull-off Strength of Coating Using Portable Adhesive-Testers.
6. ASTM D7290, Standard Practice for Evaluating Material Property Characteristic Values for Polymeric Composites for Civil Engineering Structural Applications.

1.4 RELATED REQUIREMENTS

- A. To test products and materials and provide certifications as identified in Part 2 Products, in the individual Specification sections, the Contractor shall either
 - 1. Select, employ and pay for services of an independent testing laboratory or laboratories, or
 - 2. Cause its suppliers to perform required inspection and testing using an independent testing laboratory or a qualified in-house laboratory.
- B. Owner's Representative may, at its option, observe or witness any and all testing of materials and products which are to be utilized in the construction of the Work as they are being tested by the Contractor's laboratories.
- C. Owner will select, employ, and pay for services of an independent testing laboratory to perform inspection and testing identified in Part 3 of individual Specification sections.
- D. Employ and pay for services of independent testing laboratory or laboratories to perform inspection and testing identified in Part 2 of individual Specification sections.
- E. Employment of testing laboratory by Owner does not relieve the Contractor of obligation to perform the Work in accordance with requirements of Contract Documents.
- F. Owner's Representative schedules and monitors Owner's testing laboratory. Provide minimum 24 hours notice of testing to Owner's Representative to avoid delay of the Work.

1.5 QUALIFICATION OF LABORATORY

- A. Meet laboratory qualification requirements of ASTM E 329 and applicable requirements of ASTM C 1077, ASTM D 3666, and ASTM D 3740.
- B. Meet ISO/IEC 17025 conditions for accreditation by the American Association for Laboratory Accreditation (A2LA) in specific fields of testing required in individual Specification sections.
- C. If laboratory subcontracts are part of testing services, such work will be placed with laboratory complying with requirements of this Section.

1.6 LABORATORY

- A. Owner's testing laboratory will provide and distribute copies of laboratory reports to the distribution list provided by Owner's Representative at the

preconstruction conference. Distribution will include download to the Owner's electronic document management system (Sharepoint) for the Project.

- B. Keep one copy of each laboratory report at site field office for duration of project.
- C. Contractor's testing laboratory will provide and distribute copies of laboratory test reports for materials to be incorporated into this Work to the distribution list provided by Owner's Representative at the preconstruction conference. Distribution will include download to the Owners electronic document management system (Sharepoint) for the Project
- D. Laboratories will email material supplier, Contractor, and Owner's Representative no later than close of business on working day following test completion and review, reports which indicate failing test results.

1.7 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge requirements of Contract.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume duties of Contractor or the Owner
- D. Laboratory has no authority to stop the Work.

1.8 SUBMITTALS (NOT USED)

1.9 CONTRACTOR RESPONSIBILITIES

- A. Provide safe access to the Work and to manufacturer's facilities for Owner's Representative, and for testing laboratory personnel.
- B. Provide testing laboratory with copy of construction schedule and copy of each update to construction schedule.
- C. Notify Owner's Representative and testing laboratory during normal working hours of the day previous to expected time for operations requiring inspection and testing services. When Contractor fails to make timely prior notification, then do not proceed with operations requiring inspection and testing services.
- D. Notify Owner's Representative 24 hours in advance when Specification requires presence of Owner's Representative for sampling or testing.
- E. Request and monitor testing as required to provide timely results and avoid delay to the Work. Where specified, provide samples to laboratory in sufficient time to allow required test to be performed in accordance with specified test methods before intended use of material.
- F. Cooperate with laboratory personnel in collecting samples on site. Provide incidental labor and facilities for safe access to the Work to be tested; to obtain

and handle samples at site or at source of products to be tested; and to facilitate tests and inspections including storage and curing of test samples.

- G. Arrange with laboratory through Owner's Representative. Payment for additional testing will be made in accordance with Document 00 72 00 - General Conditions of the Contract:
1. Retesting required for failed tests
 2. Retesting for nonconforming Work
 3. Additional sampling and tests requested beyond specified requirements
 4. Insufficient notification of cancellation of tests for Work scheduled but not performed.

PART 2 - PRODUCTS (NOT USED)

- A. Video Inspection. – Contractor to provide a video inspection of the inside of the three rehabilitated pipes. Video shall provide enough clarity to adequately document the entire length of each of the rehabilitated pipes from the flap gate (or blind flange) to the end of the pipes in the pump station. Provide detailed video footage of areas that are observed to have defects, CFRP end terminations, and cement mortar patched areas.

PART 3 - EXECUTION

3.1 CONDUCTING TESTING

- A. Conform laboratory sampling and testing specified in individual Specification sections to latest issues of ASTM standards, or other recognized test standards as approved by Owner's Representative.
- B. Requirements of this section also apply to those tests for approval of materials, for mix designs and for quality control of materials as performed by employed testing laboratories.

END OF SECTION

SECTION 01 55 26
TRAFFIC CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes traffic control requirements for signs, signals, control devices, flares, lights, as well as construction parking control, English-speaking flagpersons, peace officers, designated haul routes and bridging of trenches and excavations.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Traffic Control and Regulation. Measurement is on a lump sum basis for traffic control and regulation, including submittal of traffic control plan if different from plan shown on Drawings, provision of traffic control devices, and provision of equipment and personnel as necessary to protect Work and public. Amount invoiced shall be based on Schedule of Values submitted for traffic control and regulation.

1.3 SUBMITTALS

- A. Conform to requirements of Specification Section 01 33 00 – Submittals.
- B. For both traffic control plan and flagperson use, submit Schedules of values within 30 days following notice to proceed. Refer to Specification Section 01 29 73 – Schedule of Values.
- C. Provide information and records regarding use of qualified flagmen to verify use of “peace officers” as flagmen in compliance with Contract and Texas law, including but not limited to, Article 4413 (29bb), commonly referred to as Private Investigators and Private Security Agencies Act, and Article 2.12, Texas Code of Criminal Procedure.
- D. Provide information and records regarding use of qualified flagmen to verify Contractor’s use of “certified flagmen” as flagmen is in compliance with Contract.

1.4 FLAGMEN

- A. Use flagmen, qualified as described under Paragraph 1.4.B, Uniformed Peace Officers, and Paragraph 1.4.C, Certified Flagmen, to control, regulate, and direct even flow and movement of vehicular and pedestrian traffic when construction operations encroach on public traffic lanes.

- B. Uniformed Peace Officer: Individual who has full-time employment as peace officer and receives compensation as flagman for private employment as individual employee or independent contractor. Private employment may be either employee-employer relationship or on an individual basis. Flagman may not be in employ of another peace officer and may not be a reserve peace officer.
1. Peace officer is defined as:
 - a. Sheriffs and their deputies
 - b. Constables and deputy constables
 - c. Marshals or police officers of an incorporated city, town, or village
 - d. As otherwise provided by Article 2.12, Texas Code of Criminal Procedure, as amended
 2. Individual who has full-time employment as a peace officer is one who is actively employed in a full-time capacity as a peace officer working, on average, a minimum of 32 paid hours per week, being paid a rate of pay not less than prevailing minimum hourly wage rate set by federal Wage and Hour Act and entitled to full benefits of participation in retirement plan, vacation, holidays, and insurance benefits. A reserve peace officer does not qualify, under this definition, as a peace officer.
- C. Certified Flagman: Individual who receives compensation as flagman and meets the following qualifications and requirements:
1. Formally trained and certified in traffic control procedures.
 2. Required to wear distinctive uniform, bright-colored vest, and be equipped with appropriate flagging and communication devices
 3. English speaking, with Spanish as advantageous, but not required, primary, or secondary language.
 4. Paid as Certified Flagman, equivalent to hourly wage rate set for Flagger under Specification Section 00 73 43 – Wage Scale for Construction.
 5. Required to carry proof of training/certification and photographic identification card issued by training institute to allow Owner's Representative to easily determine necessary full-time traffic control is actually provided when and where construction work encroaches upon traffic lanes.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PUBLIC ROADS

- A. Abide by laws and regulations of governing authorities when using public roads. If Work requires public roads be temporarily impeded or closed, obtain approvals from governing authorities and pay permits before starting any Work. Coordinate activities with Owner's Representative.
- B. Maintain 10-foot-wide, all-weather lane adjacent to Work areas for use of emergency vehicles. Keep all-weather lane free of construction equipment and debris.
- C. Cover or remove the permanent signs and construction signs that are incorrect or that do not apply to the current situation for a particular phase. Do not mount signs on drums or barricades, except those listed in the latest Barricades and Construction standard sheets.
- D. Construction activities not to obstruct normal flow of traffic from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on designated major arterials or as directed by the Owner.
- E. Maintain local driveway access to residential and commercial properties adjacent to Work areas at all times. Use all-weather materials as approved by Owner's Representative when maintaining temporary driveway access to commercial and residential driveways.
- F. Cleanliness of Surrounding Streets: Keep streets used for entering and leaving job area free of excavated material, debris, and foreign material resulting from construction operations.
- G. Notify local schools, churches, bus lines, police department, commercial businesses, and fire department in writing of construction a minimum of 5 working days prior to beginning Work.

3.2 CONSTRUCTION PARKING CONTROL AND ACCESS

- A. Control vehicular parking to prevent interference with public traffic and parking, and access by emergency vehicles.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.
- D. Contractor and all personnel shall not utilize adjacent private driveways for access to project site unless Contractor receives written approval from landowner(s).

3.3 FLARES AND LIGHTS (NOT USED)

3.4 HAUL ROUTES

- A. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.5 TRAFFIC SIGNS AND SIGNALS (NOT USED)

3.6 BRIDGING TRENCHES AND EXCAVATIONS

- A. Whenever necessary, bridge trenches and excavation to permit an unobstructed flow of traffic. Provide steel plates that can be laid across construction areas.

3.7 REMOVAL

- A. Remove equipment and devices when no longer required.
- B. Repair damage caused by installation.

3.8 TRAFFIC CONTROL, REGULATION, AND DIRECTION

- A. Use flagmen to control, regulate, and direct even flow and movement of vehicular and pedestrian traffic including but not limited to the following conditions:
 - 1. Where multi-lane vehicular traffic must be diverted into single lane vehicular traffic
 - 2. Where vehicular traffic must change lanes abruptly
 - 3. Where construction equipment must enter or cross vehicular traffic lanes and walks
 - 4. Where construction equipment may intermittently encroach on vehicular traffic lanes and unprotected walks and crosswalks
 - 5. Where traffic regulation is needed due to rerouting of vehicular traffic around Work site.
 - 6. Other areas of Work where construction activities might affect public safety and convenience.
- B. Use and maintain flagmen at points for periods of time as may be required to provide for public safety and convenience of travel and as shown in drawings.
- C. Use of flagmen is for purpose of assisting in regulation of traffic flow and movement and does not relieve Contractor of full responsibility for taking other steps and providing other flaggers or personnel as Contractor may deem necessary to protect Work and public.

3.9 INSTALLATION STANDARDS (NOT USED)

3.10 MAINTENANCE OF EQUIPMENT AND MATERIAL

- A. Designate individual to be responsible for maintenance of traffic handling around construction area. Individual must be accessible at all times to immediately correct any deficiencies in equipment and materials used to handle traffic. Give name, address, and telephone number of designated individual to Owner's Representative.

END OF SECTION

SECTION 01 56 39

TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for tree and plant protection.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Unless a separate bid item has been established, no separate payment will be made for tree and plant protection specified herein. Include cost in price bid for related work items.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit name and experience of qualified Arborist to Owner's Representative.

1.4 PROJECT CONDITIONS WHEN TREES AND PLANTS ARE IDENTIFIED TO REMAIN

- A. Preserve and protect existing trees and plants from foliage, branch, trunk, or root damage that could result from construction operations when trees and plants are identified to remain.
- B. Do not allow any vehicular traffic, construction equipment, parking of vehicles or stockpiling of excavated material or construction materials within protected tree root zone areas. Refer to Section 1.6 DEFINITIONS, for Dripline/Root Zone Area definition.
- C. Prevent the following types of damage:
 - 1. Compaction of root zone area by equipment, vehicles, foot traffic or materials storage.
 - 2. Suffocating roots by placing soil in excess of three inches (3") within root zone areas, including placement of any select fill or soil with high clay content.
 - 3. Trunk and limb damage resulting from contact with equipment and vehicles.
 - 4. Poisoning by pouring solvents, fuel, and other injurious materials on or near root zone areas or in areas where such materials will leak or wash into root zone areas.

5. Changing soil pH within root zones by depositing concrete, powdered lime or other materials used to stabilize or dehydrate soils.
6. Cutting roots measuring one inch (1") in diameter and larger within protected areas unless required for root pruning.
7. Scorching of foliage, twigs and limbs caused by direct contact with expulsion of hot exhaust from equipment or vehicles.
8. Branch damage due to improper pruning or trimming.
9. Damage from permanently altering drainage patterns near root zones.
10. Trunk and branch damage resulting from nailing or bolting.

1.5 DAMAGE ASSESSMENT

- A. When trees other than those designated for removal are destroyed or badly damaged as result of construction operations, remove and replace with same size, species, and variety up to and including 8 inches in trunk diameter. Any tree larger than 8 inches in diameter shall be replaced with 8-inch diameter tree of same species and variety and total contract amount shall be reduced by amount determined from following International Shade Tree Conference formula: $0.7854 \times D^2 \times \38.00 where D is diameter in inches of tree or shrub trunk measured 12 inches above grade.

1.6 DEFINITIONS

- A. Dripline/Root Zone Area - The ground area delineated by the branch spread of a single plant or group of plants. This area is considered the most critical area of roots and should be protected, excluding the area within the street located between curbs.
- B. Zero Curb Cut - The process in which required street work is conducted without cutting or otherwise disturbing soil located immediately behind the existing curb.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Protection Fencing - Orange, plastic mesh fencing, four feet (4') in height with six feet (6') high steel T-bar posts. Set posts eighteen inches (18") into ground. Stretch fencing material taut prior to securing.
- B. Fertilizer - A low salt, slow release fertilizer containing twenty-seven percent (27%) nitrogen, nine percent (9%) phosphorus and nine percent (9%) potassium (potash) or similar.
- C. Plastic Vapor Barrier - Polyethylene sheeting at least 6-mil thickness and three feet width to prevent leaching of stabilized material into native soil.
- D. Tree Replacements - Shall be as approved by Owner's Representative as necessary.

PART 3 - EXECUTION

3.1 PROTECTION AND MAINTENANCE OF EXISTING TREES AND SHRUBS

- A. Except for trees shown on Drawings or determined by Owner's Representative to be removed or relocated, trees within Project area are to remain in place, protected from damage and maintained by Contractor.
- B. If required by the Project specifications, employ a qualified Arborist. The Arborist must be approved by Owner's Representative and shall have a minimum of 5 (five) years of experience in the field of tree protection.
- C. Perform the following services as required by construction activities for trees that remain:
 1. Trimming
 - a. Trees shall be pruned in accordance ANSI A300 (Part 1) - 2001 Pruning Revision of ANSI A300-1995 Tree, Shrub and Other Woody Plant Maintenance - Standard Practices. Pruning shall be done by a professional arborist who has received training in proper pruning techniques.
 - b. Pruning shall not alter the natural shape or character of the tree or leave holes in the canopy. Trees and shrubs should be pruned for balance as well as to maintain proper form and branching habit.
 - c. Cut limbs at branch collar. No stubs should remain on trees. Branch cuts should not gouge outer layer of tree structure or trunk.
 2. Root Pruning
 - a. When excavating with equipment within the root zone area is unavoidable and roots cannot be preserved, root prune prior to excavation to minimize damage to the portion of the root system that will remain.
 - b. Prune roots using a conventional trenching machine. Trench along the proposed edge of excavation limits to a depth of three feet (3'). Do not allow ripping of roots with a backhoe or other equipment.
 - c. Following trenching with the machine, re-cut roots measuring one inch (1") in diameter and larger using appropriate sharpened, pruning shears or pruning saws to make a clean, smooth-cut surface. Cut roots flush with edge of soil to limit root exposure.
 - d. Backfill trench in a manner that will not allow settling using clean, native soil.
 3. Fertilizing and Watering
 - a. Trees should be fertilized in accordance with the American National Standard for tree fertilization ANSI A300 (Part 2) - 1998 Tree, Shrub and Other Woody Plant Maintenance - Standard Practices (Fertilization).

- b. Deep root fertilize all trees that have received disturbance or damage to their root zone area.
 - c. Fertilize entire root zone area within the dripline of the tree and continue ten feet (10') beyond the dripline.
 - d. Mixture shall be injected into the top ten inches (10") of soil, under pressure of one hundred and fifty pounds per square inch (150 psi) to two hundred pounds per square inch (200 psi). Mix and apply per product label instructions.
 - e. Inject one-half gallon (1/2) of solution at a depth of ten inches (10") on spacing of three feet (3') between injection points.
 - f. Fertilizer shall be mixed in a tank with mechanical agitation.
 - g. Fertilizer to be added to tank and mixed on site.
 - h. During periods of inadequate rainfall, water trees once weekly to saturate soil to a depth of six inches (6") to eight inches (8") within root zones. Allow soils to dry between watering. Do not allow soils to remain wet.
4. Water areas currently being served by private sprinkler systems to maintain health of existing landscapes if the affected systems are temporarily taken out of service due to construction activities.
5. Contractor's option with Owner's Representative's permission, shrubs to remain may be temporarily transplanted and returned to original positions under supervision of professional horticulturist.

3.2 PROTECTION

A. Construction Methods

1. General

- a. Contractor shall attend a pre-construction meeting conducted by the Owner's Representative to review tree preservation requirements and sequence of services for the construction process.
- b. Protect tree limbs, trunks and foliage from direct exposure to hot exhaust from equipment and vehicles by providing adequate exhaust pipe deflectors.
- c. Cover exposed roots within 24 hours to reduce damage caused by desiccation. Roots may be covered with soil or mulch to help protect them from drying.
- d. Protect root zone areas from damage that may result from soil compaction or from noxious materials in solution caused by run-off or spillage during mixing and placement of construction materials, or drainage from stored materials.

- e. Minimize cut to two inches (2") below grade when installing silt fence within tree root zones or anchor base of fabric on grade using gravel or staples. Do not cut roots 1" in diameter or larger.
 - f. Site preparation work and/or construction work shall not begin in any area where tree preservation measures have not been completed and approved by the Owner's Representative.
2. Preparation
- a. Contractor shall not allow any vehicular traffic, parking of vehicles or stockpiling of excavated material or construction material within the root zone area of trees to be preserved.
 - b. When access within protected root zone areas by equipment traffic or frequent foot traffic cannot be avoided, contact Owner's Representative for review prior to entrance. Place a three-quarter inch (3/4") thick layer of plywood on natural grade within root zones to minimize soil compaction. Overlap edges of plywood by six inches (6") to twelve inches (12") to ensure adequate coverage. This is not acceptable bridging for driving over exposed tree roots. Exposed roots should not be driven over.
 - c. Contractor shall notify Owner's Representative if existing tree locations differ from locations represented on construction drawings. The tree location and dripline/root zone area as observed in the field shall supersede that outlined on construction plans.
3. Tree Protection Fencing
- a. Each tree located adjacent to proposed soil excavation shall be protected with a tree protection fence or as designated on the plans. Fence locations shall be approved by Owner's Representative.
 - b. Contractor shall not remove or relocate tree protection fencing and shall not operate within the limits shown without approval of the Owner's Representative.
 - c. Fences shall be placed in continuous alignment to protect a tree or group of trees.
 - d. Posts shall be installed on eight-foot (8') centers at eighteen inches (18") below grade. The fencing shall be continuous between posts, shall be pulled taut prior to securing to posts, and shall be firmly attached to the posts with a minimum of three (3) wire ties.
 - e. Place fencing in a manner that will not obstruct traffic site lines at curbs, intersections or driveways.
 - f. Fencing shall be removed only after all work within the immediate area is complete.

- g. Contractor shall immediately repair fences if damage occurs at no additional charge to client.
4. Excavation within Root Zone Areas
- a. For excavation within root zone areas, where required for personal safety, provide excavation protection by using vertical-wall-shoring techniques at excavations to minimize excavation width. Do not bench cut or step cut edge where such techniques will encroach on root zone areas.
 - b. If roots are encountered and must be severed, roots measuring one inch (1") in diameter and larger shall be cut using a sharpened pruning instrument to leave a smooth, clean-cut surface.
5. Zero Curb Cut and Vapor Barrier Installation
- a. Where existing curb is to be removed within tree root zone areas, do not disturb soil immediately back of curb. Do not allow forms and stakes to disturb roots.
 - b. A vapor barrier shall be installed to provide a non-leaching barrier between any stabilized material and/or concrete and tree roots and soils.
 - c. Vapor barrier shall be installed vertically to a depth of five inches (5") below limits of stabilized material. Vapor barrier to be extended ten inches (10") above natural grade and ten feet (10') beyond the dripline limits of the tree. Trim vertical vapor barrier to approximately one inch (1") above grade after installation of final grade.
6. Boring/Tunneling
- a. In areas indicated, bore under root systems of trees at a minimum depth of four feet (4') from the top of pipe to the soil surface at natural grade.
 - b. Bore pits and receiving pits shall be located outside of protected root zone areas.
 - c. Equipment and material shall be positioned outside of protected root zone areas. When access within protected root zone area by equipment traffic or frequent foot traffic cannot be avoided, place a three-quarter inch (3/4") thick layer of plywood on natural grade within root zones to minimize soil compaction, refer to Section 3. 2, A, 2.
7. Trunk Barricading
- a. Install trunk barricading to protect trees in close proximity of moving or mechanical equipment and construction work when work is required within the tree protection fencing as shown on the plans.
 - b. Place trunk barricading around entire tree trunks to protect tree trunks located within five feet (5') of construction activities.
 - c. Install 2x4's or 2x6's (5-foot to 6-foot lengths) spaced 3 inches (3") apart around the circumference of the tree trunk.

d. Tie in place with 9 to 12 gauge steel wire.

B. Sequence of Tree Protection and Services

1. Fertilize trees affected by construction between the months of October and May.
2. Prune/trim trees for clearance and safety.
3. Root Prune trees.
4. Place tree protection fence and trunk barricades to protect trees. Place fencing prior to any construction activities.
5. Remove tree protection upon completion of project.

C. Existing Stressed and Declining Trees

1. Prior to beginning the construction phase, trees located within the right-of-way should be reviewed and trees that appear to be stressed or declining in health should be documented. Immediately notify the Owner's Representative of any dead and dying trees.

D. Accidental Spills of Toxic Materials

1. Concrete, lime or other chemicals placed or accidentally spilled within root zone protection areas shall be completely removed. Contaminated soil shall be completely removed at the time of the spill and removed by hand shovel. Fresh soil shall be added as necessary to bring the soil level to that of natural grade.

3.3 MAINTENANCE OF NEWLY PLANTED TREES AND REPLANTED TREES

A. Show proof of capacity to water during dry periods.

B. Guarantee trees planted for this Project shall remain alive and healthy at least until end of 1-year warranty period.

1. Within 4 weeks notice from Owner's Representative, replace dead trees or trees that in opinion of Owner's Representative have become unhealthy, unsightly or have lost their natural shape as result of additional growth, improper pruning, maintenance or weather conditions.
2. When tree must be replaced, guarantee period begins on date of tree replacement, subject to Owner's Representative's inspection, for no less than 1 year.
3. Straighten leaning trees and bear entire cost.
4. Dispose of trees rejected by Owner's Representative and bear entire cost.

END OF SECTION

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SECTION 01 57 13.01

TPDES REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

Preparation of Storm Water Pollution Prevention Plan and notifications to TCEQ.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 DEFINITIONS

A. Commencement of Construction Activities: The exposure of soil resulting from activities such as clearing, grading, and excavating.

B. Large Construction Activity: Project that:

1. Disturbs 5 acres or more, or
2. Disturbs less than 5 acres but is part of a larger common plan of development that will disturb 5 acres or more of land.

C. Small Construction Activity: Project that:

1. Disturbs 1 or more acres but less than 5 acres, or
2. Disturbs less than 1 acre but is part of a larger common plan of development that will ultimately disturb 1 or more acres but less than 5 acres.

D. TPDES Operator:

1. The person or persons who have day-to-day operational control of the construction activities which are necessary to ensure compliance with the SWP3 for the site or other Construction General Permit conditions.

1.4 SUBMITTALS (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION**3.1 SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWP3)**

- A. Prepare a SWP3 following Part III of the Construction General Permit.
- B. Update or revise the SWP3 as needed during the construction following Part III, Section E of the Construction General Permit.
- C. Submit the SWP3 and any updates or revisions to Owner's Representative for review and address comments prior to commencing, or continuing, construction activities.

3.2 NOTICE OF INTENT FOR LARGE CONSTRUCTION ACTIVITY

- A. Fill out, sign, and date TCEQ Form 20022 (3/5/2008) Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR150000), **ATTACHMENT 1** of this Section 01 57 13.01 – TPDES Requirements.
- B. Submit the Notice of Intent by one of the following methods:
 - 1. Submit online at TCEQ ePermits (www6.tceq.state.tx.us/steers) and pay the \$225 application fee. Transmit a copy of the electronic certificate provided by TCEQ to Owner's Representative.
 - 2. Send a \$325 check and completed TCEQ Form 20022 (3/5/2008) to the Texas Commission on Environmental Quality. Transmit a copy of the check and completed form to Owner's Representative.
- C. Owner will complete a separate Owner's copy of TCEQ Form 20022 (3/5/2008) for NOI, and will submit Notice, along with application fee, to the TCEQ.
- D. Submission of the Notice of Intent form by Contractor to TCEQ is required a minimum of 7 days before Commencement of Construction Activities.

3.3 CONSTRUCTION SITE NOTICE FOR SMALL CONSTRUCTION ACTIVITY

- A. Fill out, sign, and date the Construction Site Notice, Attachment 2 to TPDES General Permit TXR150000, "Construction Site Notice," **ATTACHMENT 2** of this Section 01 57 13.01 – TPDES Requirements.
- B. Transmit the signed Construction Site Notice to Owner's Representative at least 7 days prior to Commencement of Construction Activity.

3.4 CERTIFICATION REQUIREMENTS

- A. Fill out TPDES Operator's Information form, **ATTACHMENT 3** of this Section 01 57 13.01 – TPDES Requirements, including Contractor's name, address, and telephone number and the names of persons or firms responsible for maintenance and inspection of erosion and sediment control measures. Use multiple copies as required to document full information.
- B. Contractor and Subcontractors shall sign and date the Contactor's/Subcontractor's Certification for TPDES Permitting, **ATTACHMENT**

4 of this Section 01 57 13.01 – TPDES Requirements. Include this certification with other Project certification forms.

- C. Submit properly completed certification forms to Owner's Representative for review before beginning construction operations.
- D. Conduct inspections in accordance with TCEQ requirements. Ensure persons or firms responsible for maintenance and inspection of erosion and sediment control measures read, fill out, sign, and date the Erosion Control Contractor's Certification for Inspection and Maintenance. Use the EPA NPDES Construction Inspection Form, **ATTACHMENT 5** of this Section 01 57 13.01 – TPDES Requirements; to record maintenance inspections and repairs.

3.5 RETENTION OF RECORDS

- A. Keep a copy of this document and the SWP3 in a readily accessible location at the construction site from Commencement of Construction Activity until submission of the Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity under TPDES Construction General Permit (TXR150000). Contractors with day-to-day operational control over SWP3 implementation shall have a copy of the SWP3 available at a central location, on-site, for the use of all operators and those identified as having responsibilities under the SWP3. Upon submission of the NOT, submit all required forms and a copy of the SWP3 with all revisions to Owner's Representative.

3.6 REQUIRED NOTICES

- A. Post the following notices from the effective date of the SWP3 until the date of final site stabilization as defined in the Construction General Permit:
 - 1. Post the TPDES permit number for Large Construction Activity, or a signed TCEQ Construction Site Notice for Small Construction Activity. Signed copies of the Contractor's NOI must also be posted.
 - 2. Post notices near the main entrance of the construction site in a prominent place for public viewing. Post name and telephone number of Contractor's local contact person, brief project description and location of the SWP3.
 - a. If posting near a main entrance is not feasible due to safety concerns, coordinate posting of notice with Owner's Representative to conform to requirements of the Construction General Permit.
 - b. If Project is a linear construction project (e.g., road, utilities, etc.), post notice in a publicly accessible location near active construction. Move notice as necessary.
 - 3. Post a notice to equipment and vehicles operators, instructing them to stop, check, and clean tires of debris and mud before driving onto traffic lanes. Post at each stabilized construction exit area.
 - 4. Post a notice of waste disposal procedures in a readily visible location on site.

3.7 ON-SITE WASTE MATERIAL STORAGE

- A. On-site waste material storage shall be self-contained and shall satisfy appropriate local, state, and federal rules and regulations.
- B. Prepare list of waste material to be stored on-site. Update list as necessary to include up-to-date information. Keep a copy of updated list with the SWP3.
- C. Prepare description of controls to reduce pollutants generate from on-site storage. Include storage practices necessary to minimize exposure of materials to storm water, and spill prevention and response measures consistent with best management practices. Keep a copy of the description with the SWP3.

3.8 NOTICE OF TERMINATION

- A. Submit an NOT, **ATTACHMENT 6** of this Section 01 57 13.01 – TPDES Requirements, to Owner’s Representative within 10 days after:
 - 1. Final stabilization has been achieved on all portions of the site that are the responsibility of the Contractor; or
 - 2. Another operator has assumed control over all areas of the site that have not been stabilized; and
 - 3. All silt fences and other temporary erosion controls have either been removed scheduled to be removed as defined in the SWP3, or transferred to a new operator, if the new operator has sought permit coverage.
- B. Owner’s Representative will complete NOT and submit Contractor’s notices to the TCEQ and MS4 entities.

END OF SECTION

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
 SJRA Project No. HDPR0026.1007.2C001 **TPDES REQUIREMENTS**

8. Independent Operator: <input type="checkbox"/> Yes <input type="checkbox"/> No (If governmental entity, subsidiary, or part of a larger corporation, check "No".)	
9. Number of Employees: <input type="checkbox"/> 0-20; <input type="checkbox"/> 21-100; <input type="checkbox"/> 101-250; <input type="checkbox"/> 251-500; or <input type="checkbox"/> 501 or higher	
10. Customer Business Tax and Filing Numbers <i>(This item is not applicable to Individuals, Government, GP or Sole Proprietor.)</i> REQUIRED for Corporations and Limited Partnerships (Verify the entity's status and filing no. with TX SOS at 512/463-5555)	
State Franchise Tax ID Number:	Federal Tax ID:
TX SOS Charter (filing) Number:	DUNS Number (if known):
B. APPLICATION CONTACT	
If TCEQ needs additional information regarding this application, who should be contacted?	
1. Name:	Title:
Company:	
2. Phone No.: ()	Extension:
3. Fax No.:	E-mail Address:
C. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE	
1. TCEQ Issued RE Reference Number (RN): RN <i>(Search Central Registry)</i>	
2. Name of Project or Site (the name as known by the community where this facility/project is located): (example: phase and name of subdivision or name of project that's unique to the site)	
3. Does the site have a physical address? If Yes, complete Section A for a physical address. If No, complete Section B for site location information.	
Section A: Enter the physical address for the site. <i>(verify it with USPS.com or other delivery source)</i>	
Street Number:	Street Name:
City:	ZIP Code:
Section B: Enter the site location information.	
If no physical address (Street Number & Street Name), provide a written location access description to the site: (Ex.: phase 1 of Woodland subdivision located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)	
City where the site is located or nearest city to site:	ZIP Code where site is located:
4. Identify the county where the site is located:	
5. Latitude: ° ' " N	Longitude: ° ' " W
6. What is the primary business of this entity? In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code)	
7. What is the mailing address for the regulated entity? Is the RE mailing address the same as the Operator? <input type="checkbox"/> Yes, address is the same as Operator <input type="checkbox"/> No, provide the address	
Street Number:	Street Name:
City:	State:
ZIP Code:	
D. GENERAL CHARACTERISTICS	
1. Is the site located on Indian Country Lands? <input type="checkbox"/> No <input type="checkbox"/> Yes – If Yes, do not submit this NOI. Contact EPA, Region VI If the site is on Indian country lands, you must obtain authorization through EPA, Region VI.	
2. What is the Standard Industrial Classification (SIC) code (see instructions for common codes): <i>(Search Osha.gov)</i> Primary: _____ Secondary: _____	

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3(a) What is the total number of acres disturbed? _____	
3(b) Is the project site part of a larger common plan of development or sale? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, the total number of acres disturbed can be less than 5 acres.	
If No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.	
4. Discharge Information (all information MUST be provided or the permit will be denied)	
4(a) What is the name of the water body(s) to receive the storm water runoff or potential runoff from the site? _____	
4(b) What is the segment number(s) of the classified water body(s) that the discharge or potential discharge will eventually reach? _____	
4(c) Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) list of impaired waters? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, provide the name of the impaired water body(s). _____	
4(d) Is the discharge into an MS4? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If Yes, what is the name of the MS4 Operator? _____	
Note: The general permit requires you to send a copy of the NOI to the MS4 Operator.	
4(e) Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If the answer is Yes, please note that a copy of the agency approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) must be included or referenced in the Storm Water Pollution Prevention Plan.	
E. CERTIFICATION	
Check "Yes" to the certifications below. Failure to certify to all items will result in denial.	
<input type="checkbox"/> Yes	I certify that I have obtained a copy and understand the terms and conditions of the general permit (TXR150000) .
<input type="checkbox"/> Yes	I certify that the full legal name of the entity (Operator) applying for this permit has been provided and is legally authorized to do business in Texas.
<input type="checkbox"/> Yes	I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed.
<input type="checkbox"/> Yes	I certify that a storm water pollution prevention plan has been developed and implemented prior to construction, and that is compliant with any applicable local sediment and erosion control plans and prepared and implemented as required in the general permit TXR150000.
Operator Certification:	
I, _____ <div style="display: flex; justify-content: space-between; width: 80%; margin: 0 auto;"> Typed or printed name <i>(Required & must be legible)</i> Title <i>(Required & legible)</i> </div>	
certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.	
Signature: _____ (Use blue ink)	Date: _____

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Did you complete everything? Use this checklist to be sure!

Are you ready to mail your form to TCEQ? Go to the General Information Section of the Instructions for mailing addresses.

Customer GP Notice of Intent Checklist TXR150000	
✓	This checklist is for use by the operator to ensure a complete application. Missing information may result in denial of coverage under the permit. (See NOI Process description in the Instructions)
<input type="checkbox"/>	Application Fee of \$325.00 was mailed separately to TCEQ's Cashiers's Office (separate from the NOI) or the EPAY payment voucher is attached.
	OPERATOR INFORMATION - Confirm each item is complete: ✓
<input type="checkbox"/>	Customer Number (CN) issued by TCEQ Central Registry
<input type="checkbox"/>	Legal Name as filed to do business in Texas (Call TX SOS 512/463-5555)
<input type="checkbox"/>	Name and Title of person signing the application. This person must meet signatory requirements in 30 TAC Section 305.43
<input type="checkbox"/>	Operator Mailing Address is complete & verifiable with USPS. www.usps.com
<input type="checkbox"/>	Phone Numbers/E-mail Address
<input type="checkbox"/>	Type of Operator (Entity Type)
<input type="checkbox"/>	Independent Operator
<input type="checkbox"/>	Number of Employees
<input type="checkbox"/>	For Corporations or Limited Partnerships – Tax ID and SOS Filing numbers are REQUIRED
	Application Contact person we can call for questions about this application.
	REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE - Confirm each item is complete: ✓
<input type="checkbox"/>	Regulated Entity Reference Number (RN) (if site is already regulated by TCEQ)
<input type="checkbox"/>	Site/Project Name/Regulated Entity
<input type="checkbox"/>	Site/Project (RE) Physical Address Please do not use a rural route or post office box for a site location
<input type="checkbox"/>	Or if no physical address, the location information that includes description, zip code and city is listed.
<input type="checkbox"/>	Latitude and Longitude TCEQ USGS Topographic Map Viewer or TerraServer-USA
<input type="checkbox"/>	Business description
<input type="checkbox"/>	Site Mailing Address (checked same as operator or complete & verifiable with USPS. www.usps.com)
	GENERAL CHARACTERISTICS - Confirm each item is complete: ✓
<input type="checkbox"/>	Indian Country Lands –the facility is not on Indian Country Lands
<input type="checkbox"/>	Standard Industrial Classification (SIC) code www.osha.gov/oshstats/sicser.html
<input type="checkbox"/>	Acres Disturbed is provided and qualifies for coverage through a NOI.
<input type="checkbox"/>	Common plan of development or for sale?
<input type="checkbox"/>	Discharge Information:
<input type="checkbox"/>	receiving water body
<input type="checkbox"/>	segment number(s) is REQUIRED
<input type="checkbox"/>	water body on the latest EPA-Approved Clean Water Act 303(d) list of impaired waters
<input type="checkbox"/>	MS4 Operator
<input type="checkbox"/>	Edwards Aquifer Rule
<input type="checkbox"/>	CERTIFICATION Certification statements have been checked indicating "Yes" Signature meets 30 Texas Administrative Code (TAC) §305.44 and is original and has been provided for the Operator.

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<p>Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity under TPDES General Permit (TXR150000) General Information and Instructions</p>	
<p>GENERAL INFORMATION</p>	
<p>Where to Send the Notice of Intent (NOI) and other related forms:</p>	
<p>BY REGULAR U.S. MAIL Texas Commission on Environmental Quality Storm Water Processing Center (MC228) P.O. Box 13087 Austin, TX 78711-3087</p>	<p>BY OVERNIGHT/EXPRESS MAIL Texas Commission on Environmental Quality Storm Water Processing Center (MC228) 12100 Park 35 Circle Austin, TX 78753</p>
<p>TCEQ Contact list:</p>	
<p>Application Processing Questions relating to the status and form requirements: Technical Questions relating to the general permit: Environmental Law Division: Records Management for obtaining copies of forms submitted to TCEQ: Information Services for obtaining reports from program data bases (as available): Financial Administration's Cashier's office:</p>	<p>512/239-3700, 512/245-0130 or swpermit@tceq.state.tx.us 512/239-4671 or swgpp@tceq.state.tx.us 512/239-0600 512/239-0900 512/239-DATA (3282) 512/239-0357 or 512/239-0187</p>
<p>Notice of Intent Process:</p>	
<p>When your NOI is received by the program, the form will be processed as follows:</p>	
<p>1. Administrative Review: Each item on the form will be reviewed for a complete response. In addition, the operator's legal name must be verified with Texas Secretary of State as valid and active (if applicable). The address(s) on the form must be verified with the US Postal service as an address receiving regular mail delivery. Never give an overnight/express mailing address.</p>	
<p>2. Notice of Deficiency: If an item is incomplete or not verifiable as indicated above, a notice of deficiency (NOD) will be mailed to the operator. The operator will have 30 days to respond to the NOD. The response will be reviewed for completeness.</p>	
<p>3. Acknowledgment of Coverage: An Acknowledgment Certificate will be mailed to the operator. This certificate acknowledges coverage under the general permit.</p>	
<p style="text-align: center;">-or-</p> <p>Denial of Coverage: If the application is too incomplete to process, or the operator fails to respond to the NOD or the response is inadequate, coverage under the general permit may be denied. If coverage is denied, the operator will be notified.</p>	
<p>General Permit (Your Permit) If filing the NOI through ePermits online application, coverage under the general permit begins the day the NOI is submitted to TCEQ through epermits. Sign up now for on line NOI at https://www6.tceq.state.tx.us/steers/</p>	
<p>If mailing a paper NOI, coverage under the general permit begins seven (7) days after a completed NOI is postmarked for delivery to the TCEQ. You should have a copy of your general permit when submitting your application.</p>	
<p>You may view and print your permit for which you are seeking coverage, on the TCEQ web site http://www.tceq.state.tx.us/permitting/water_quality/stormwater/TXR15_AIR.html.</p>	
<p>General Permit Forms The Notice of Intent (NOI), Notice of Termination (NOT), and Notice of Change (NOC) #20391 with instructions are available in Adobe Acrobat PDF format on the TCEQ web site http://www.tceq.state.tx.us/permitting/water_quality/stormwater/TXR15_AIR.html. Sign up now for on line Notice of Termination application at https://www6.tceq.state.tx.us/steers/</p>	
<p>Change in Operator An authorization under the general permit is not transferable. If the operator or owner of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted not later than 10 days prior to the change in Operator status.</p>	

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<p>TCEQ Central Registry Core Data Form The Core Data Form has been incorporated into this form. Do not send a core data form to TCEQ.</p> <p>After final acknowledgment of coverage under the general permit, the program will assign a Customer Number (CN) and Regulated Entity Number (RN). For Construction Permits, a new RN will be assigned for each Notice of Intent filed with TCEQ, since construction project sites can overlap with other Customers. The RN assigned to your construction project will not be assigned to any other TCEQ authorization.</p> <p>You can find the information on the Central Registry web site at www4.tceq.state.tx.us/crpub. You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Additional ID". Capitalize all letters in the permit number.</p> <p>The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area.</p> <p>Application Fees:</p> <p>\$225.00 application fee if submitting the NOI through ePermits. \$325.00 application fee if submitting a paper NOI for processing.</p> <p>The application fee is required to be paid at the time the NOI is submitted. Failure to submit payment at the time the application is filed will cause delays in acknowledgment or denial of coverage under the general permit.</p> <ul style="list-style-type: none">• Mailed Payments: DO NOT mail your check with the original Notice of Intent application. Use the attached Application Fee payment submittal form if mailing the payment. Do not include a copy of the NOI. <table border="0"><tr><td><p>BY REGULAR U.S. MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 P.O. Box 13088 Austin, TX 78711-3088</p></td><td><p>BY OVERNIGHT/EXPRESS MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 12100 Park 35 Circle Austin, TX 78753</p></td></tr></table> <ul style="list-style-type: none">• ePAY Electronic Payment: Go to www.tceq.state.tx.us/epay Select Water Quality, then select the fee category "GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION". You must include a copy of the payment voucher with your NOI. Your NOI will not be considered complete without the payment voucher.	<p>BY REGULAR U.S. MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 P.O. Box 13088 Austin, TX 78711-3088</p>	<p>BY OVERNIGHT/EXPRESS MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 12100 Park 35 Circle Austin, TX 78753</p>
<p>BY REGULAR U.S. MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 P.O. Box 13088 Austin, TX 78711-3088</p>	<p>BY OVERNIGHT/EXPRESS MAIL Texas Commission on Environmental Quality Financial Administration Division Cashier's Office, MC-214 12100 Park 35 Circle Austin, TX 78753</p>	
<p>The Annual Water Quality Fee has been consolidated into the Application Fee effective March 5, 2008. An annual fee will not be assessed and billed to operators on 9/1/2008. This does not relieve the operator of fees due for prior fiscal year assessments.</p> <p>The operator will continue to receive an invoice for payment of any past due annual fee. A 5% penalty will be assessed if the payment is received by TCEQ after the due date. Annual fee assessments cannot be waived as long as the authorization under the general permit was active on September 1 of the FY billed.</p>		

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INSTRUCTIONS FOR FILLING OUT THE NOI FORM	
A. OPERATOR (As defined in the general permit.)	
1. TCEQ Issued <u>Customer Number</u> (CN)	TCEQ's Central Registry will assign each customer a number that begins with "CN," followed by nine digits. This is not a permit number , registration number, or license number.
	<ul style="list-style-type: none"> If this customer has not been assigned a Customer Reference Number, leave the space for the Customer Reference Number blank. If this customer has already been assigned this number, enter the operator's Customer Reference Number in the space provided.
2. Legal Name	Provide the legal name of the facility operator, as authorized to do business in Texas. The name must be provided exactly as filed with the Texas Secretary of State (SOS), or on other legal documents forming the entity, that is filed in the county where doing business. You may contact the SOS at 512/463-5555, or go to http://www.sos.state.tx.us/corp/contact.shtml for more information related to filing in Texas. If filed in the county where doing business, provide a copy of the legal documents showing the legal name.
3. Name and Title of person signing the Notice of Intent application form.	Signature meets <u>30 Texas Administrative Code (TAC) §305.44</u>
4. Operator Mailing Address	Provide a complete mailing address for receiving mail from the TCEQ. The address must be verifiable with the US Postal Service at www.usps.com , for regular mail delivery (not overnight express mail). If you find that the address is not verifiable using the USPS web search, please indicate the address is used by the USPS for regular mail delivery.
5. Phone Number	This number should correspond to this customer's mailing address given earlier. Enter the area code and phone number here. Leave "Extension" blank if this customer's phone system lacks this feature.
6. Fax Number and E-mail Address	This number and E-mail address should correspond to operator's mailing address provided earlier. (Optional Information)
7. Type of Entity	Check only one box that identifies the type of entity. Use the descriptions below to identify the appropriate entity type: Individual is a customer who has not established a business, but conducts an activity that needs to be regulated by the TCEQ. Sole Proprietorship— D.B.A. is a customer that is owned by only one person and has not been incorporated. This business may: <ul style="list-style-type: none"> be under the person's name have its own name ("doing business as," or d.b.a.) have any number of employees Partnership is a customer that is established as a partnership as defined by the Texas Secretary of State's Office. Corporation the customer meets all of these conditions: <ul style="list-style-type: none"> is a legally incorporated entity under the laws of any state or country is recognized as a corporation by the Texas Secretary of State has proper operating authority to operate in Texas. Government- Federal, state, county, or city government (as appropriate) the customer is either an agency of one of these levels of government or the governmental body itself. Other is Estate, Trust, etc. the customer does not fit one of the above descriptions. Enter a short description of the type of customer in the blank provided.
8. Independent Operator	Check "No" if this customer is a subsidiary, part of a larger company, or is a governmental entity. Otherwise, check "Yes."
9. Number of Employees	Check one box to show the number of employees for this customer's entire company, at all locations. This is not necessarily the number of employees at the site named in the NOI.
10. State Franchise Tax ID Number	Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter this number here.
Federal Tax ID	All businesses, except for some small sole proprietors, individuals, or general partnerships should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Sole proprietors, individuals, or general partnerships do not need to provide a federal tax ID.
TX SOS Charter (filing) Number	Corporations and Limited Partnerships required to register with the Texas Secretary of State are issued a charter or filing number. You may obtain further information by calling SOS at 512/463-5555 http://www.sos.state.tx.us/corp/contact.shtml .

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DUNS Number Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.
B. Application Contact Provide the name, title and communication information of the person that TCEQ can contact for additional information regarding this application. If the application is missing information and there is no contact person to call, the application may be denied.
C. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE
1. <u>Regulated Entity Reference Number (RN)</u> This is a number issued by TCEQ's Central Registry to sites (a location where a regulated activity occurs) regulated by TCEQ. This is not a permit number, registration number, or license number. <ul style="list-style-type: none"> • If this Regulated Entity has not been assigned a Regulated Entity Number, leave this space blank. • If this customer has been assigned this number, enter the operator's Regulated Entity Number.
2. Site/Project Name/Regulated Entity If the site is already regulated by TCEQ, use the same name as on the existing <u>Regulated Entity Reference Number (RN)</u> . If new, provide the name of the site as known by the public in the area where the site is located. The name you provide on this application will be used in the TCEQ Central Registry as the Regulated Entity.
3. Site/Project (RE) Physical Address Section A: Enter the complete physical address of where the site is located. This must be a street number and street name for a complete physical address. This address must be validated through US Postal Service or your local police (911 service) as a valid address. Please confirm this to be a complete and valid address. In some rural areas, new addresses are being assigned to replace rural route addresses. Please do not use a rural route or post office box for a site location. Section B: If a site does not have an actual physical address that includes a street number and street name, then provide a complete written location access description, and the zip code and city where the site is located. For example: "The site is located 2 miles west from intersection of Hwy 290 & IH35, located on the southwest corner of the Hwy 290 South bound lane." This includes authorizations for construction projects such as highways and subdivision.
4. Identify the County where the site is located. If the site covers more than one county, provide the county that is most affected by the authorized activity and list the additional county(s) as secondary.
5. Latitude and Longitude Enter the latitude and longitude of the site in either degrees, minutes, and seconds or decimal form. For help obtaining the latitude and longitude, go to: TCEQ USGS Topographic Map Viewer , or TerraServer-USA
6. Description of Activity Regulated In your own words, briefly describe the primary business being conducted at the site. (A description specific to what you are doing that requires this authorization - Do not repeat the SIC Code(s).)
SITE MAILING ADDRESS Provide a complete mailing address to be used by TCEQ for receiving mail at the site. In most cases, the address is the same as the operator. If so, simply place a check mark in the box. If you provide a different address, please verify the address with USPS as instructed above for the operator address.
D. GENERAL CHARACTERISTICS
1. Indian Country Lands If your site is located on Indian Country Lands, the TCEQ does not have authority to process your application. You must obtain authorization through EPA, Region VI, Dallas. Do not submit this form to TCEQ. Indian Country means (1) all land within the limits of any American Indian reservation under the jurisdiction of the U.S. government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation; (2) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or outside the limits of a State; and (3) all Indian allotments, the Indian titles which have not been extinguished, including rights-of-way running through the same. Indian Tribe means any Indian Tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers.
2. Standard Industrial Classification (SIC) code Provide the SIC code that best describes the construction activity being conducted at the site. Common SIC Codes related to construction activities include: 1521 Construction of Single Family Homes; 1522 Construction of Residential Bldgs. Other than Single Family Homes; 1541 Construction of Industrial Bldgs. and Warehouses; 1542 Construction of Non-residential Bldgs. other than Industrial Bldgs. and Warehouses; 1611 Highway & Street Construction, except Highway Construction; 1622 Bridge, Tunnel, & Elevated Highway Construction; 1623 Water, Sewer, Pipeline & Communications, and Power Line Construction. For help with SIC codes, go to: www.osha.gov/oshstats/sicser.html

ATTACHMENT 1

<p>3. Estimated Area of Land Disturbed 3(a). Provide the approximate number of acres that the construction site will disturb. 3(b). Indicate is the site is part of a common plan of development or for sale.</p> <p>Construction activities that disturb less than one acre, unless they are part of a larger common plan that disturbs more than one acre, do not require permit coverage.</p> <p>Construction activities that disturb between one and five acre, unless they are part of a common plan that disturbs five acres or more acres, do not require submission of an NOI. Therefore, the estimated area of land disturbed should not be less than five, unless the project is part of a larger common plan that disturbs five or more acres.</p> <p>"Disturb" means any clearing, grading, excavating, or other similar activities. If you have any questions about this item, please call the storm water technical staff at (512)239-4671.</p>
<p>4. Discharge Information 4 (a). The storm water may be discharged directly to a receiving stream or through a MS4* from your site. It eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. You must provide the name of the water body that receives the discharge from the site (a local stream or lake).</p> <p>4 (b). The classified segment number(s) is REQUIRED to get coverage. Go to the link to find the segment number of the classified water body where storm water will flow http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/viewer/viewer.html . Call Water Quality Assessments at 512/239-4671 for further assistance. Another source for segments is: http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/gi/gi-316/index.html</p> <p>4 (c). If any surface water body(s) receiving discharges from the construction site are on the latest EPA-approved CWA § 303(d) list of impaired waters, provide the name(s) of the water body(s).</p> <p>EPA approved CWA 303d list of impaired waters can be found at: Texas Water Quality Inventory and 303(d) List - Texas Commission on Environmental Quality - www.tceq.state.tx.us</p> <p>4 (d). Identify the MS4* Operator name if the storm water discharge is into an MS4.</p> <p>*MS4 is an acronym for Municipal separate storm sewer system. MS4 is defined as a separate storm sewer system owned or operated by a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, that discharges to water in the state.</p> <p>For assistance, you may call the technical staff of the Water Quality Assessment & Standards Section at 512/239-4671.</p>
<p>4 (e). Edwards Aquifer Rule See maps on the TCEQ website to determine if the site is located within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer at http://www.tceq.state.tx.us/compliance/field_ops/eapp/viewer.html.</p> <p>If the discharge or potential discharge is within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer, a site specific authorization approved by the Executive Director under the Edwards Aquifer Protection Program (30 TAC Chapter 213) is required before construction can begin.</p> <p>The general permit requires the approved Contributing Zone Plan or Water Pollution Abatement Plan to be included as a part of the Storm Water Pollution Prevention Plan. The certification must be answered "Yes" for coverage under the general permit.</p>
<p>E. CERTIFICATIONS Failure to indicate "Yes" to ALL of the certification items may result in denial of coverage under the general permit. The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code §305.44</p>
<p>IF YOU ARE A CORPORATION:</p> <p>The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.</p>
<p>IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:</p> <p>The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or</p>

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similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to §305.44(a)(3). The signatory requirement may not be delegated to a government representative other than those identified in the regulation. By signing the NOI or similar form, you are certifying that you are either a ranking elected official or principal executive officer as required by the administrative code. Documentation demonstrating your position as a ranking elected official or principal executive officer may be requested by the TCEQ.

If you have any questions or need additional information concerning the signatory requirements discussed above, please contact the Texas Commission on Environmental Quality's Environmental Law Division at 512/239-0600.

30 Texas Administrative Code
§305.44. Signatories to Applications.

(a) All applications shall be signed as follows.

(1) For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

(2) For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

ATTACHMENT 2



**CONSTRUCTION SITE NOTICE
 FOR THE
 Texas Commission on Environmental Quality (TCEQ)
 Storm Water Program
 TPDES GENERAL PERMIT TXR150000**

The following information is posted in compliance with **Part II.D.2** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:

http://www.tceq.state.tx.us/permitting/water_quality/stormwater/TXR15_AIR.html

Contact Name and Phone Number:	
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	
Location of Storm Water Pollution Prevention Plan :	

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

Signature and Title

Date

ATTACHMENT 3

TPDES OPERATOR'S INFORMATION

Owner's Name and Address:

Telephone:

Contractor's Names and Addresses:

General Contractor:

Telephone:

Site Superintendent:

Telephone:

Erosion Control and Maintenance Inspection:

Telephone:

Subcontractor's Names and Addresses:

_____	_____
_____	_____
_____	_____
_____	_____
Phone: _____	Phone: _____

Note: Insert name, address, and telephone number of persons or firms.

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ATTACHMENT 4
CONTRACTOR'S / SUBCONTRACTOR'S
CERTIFICATION FOR TPDES PERMITTING

I certify under penalty of law that I understand the terms and conditions of TPDES General Permit No. TXR150000 and the Storm Water Pollution Prevention Plan for the construction site identified as part of this certification.

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

Signature:

Name: (printed or typed)

Title:

Company:

Address:

Date:

ATTACHMENT 5



**EPA NPDES
 Construction
 Inspection Form**



The following inspection is being performed in compliance with Part IV.D.4. of the NPDES Region 6 Storm Water Construction General Permit [63 Fed. Reg. 36502] and being retained in accordance with Part V of the Permit. Qualified personnel (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, placement and effectiveness of structural control measures, and locations where vehicles enter or exit the site. Inspections shall be performed at least once every 14 days and within 24 hours of the end of a storm event of 0.5 inches or greater. Where sites have been temporarily stabilized, runoff is unlikely due to winter conditions, or during seasonal arid periods in arid areas (0-10 inches of rainfall annually) and semi-arid areas (10-20 inches annually) such inspections shall be conducted at least once every month. This form is primarily intended for use with construction projects in Texas and New Mexico. Permittees on Indian Country lands in Oklahoma, Louisiana and Arkansas and some oil and gas facilities in Oklahoma may use this form if they are eligible for this permit. Other facilities need to check with their NPDES authority before using this form.

If you do not know your NPDES Permit Number, contact the NOI Processing Center at (301)495-4145. This form was prepared as an example and it is not a required form for use with the permit. Alternative forms may be used if they contain all of the required information as set forth in the permit. This form and additional information regarding the NPDES Region 6 storm water program may be found on the Internet at <http://www.epa.gov/region6/sw/>. Any person with a complaint about the operation of this facility in regards to this permit should contact EPA Region 6 at (214)665-7112.

Permit Number(s) covered by this inspection (e.g. owners, developers, general contractor, builders)	
Signature and Certification in accordance with Part VI.G of the permit:	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signature _____ Date _____
Date of Inspection	
Inspector Name	
Is there a copy of the permit language with the SWPPP?	• YES • NO
Is the inspector qualified and are the qualifications documented in the SWPPP?	• YES • NO
Is an NPDES storm water construction sign posted at the entrance for all permittees?	• YES • NO
<p>You may want to use EPA Region 6 construction checklist to assure components of the SWPPP are complete. This form, the construction sign, and the checklist are available on the Region 6 NPDES Storm Water Forms and Documents web page which may be found on the internet at http://www.epa.gov/earth1r6/6en/w/formsw.htm In addition to the checklist, you should provide a narrative (see next page) on the existing Best Management Practices and Structural Controls found during each inspection. Any problems identified in an inspection should be corrected within 7 days. The inspection should cover all components of the SWPPP and all potential pollutants. While eroded soil is the primary pollutant of concern, do not forget to inspect for other pollutant sources such as fuel tanks, paints, solvents, stabilization materials, concrete hardener, batch plants, and construction debris. The inspector will need to update the SWPPP to reflect findings of the inspection. The site map should be updated after an inspection to show controls that have been added or removed, to ensure the site map is kept current in accordance with Part IV.C. of the permit.</p>	

Revision 4, March 1, 2000



ATTACHMENT 5

Narrative Findings of the inspection:

Observations should include any findings of Best Management Practices or controls that are not in accordance with the SWPPP. If a control is not in place or failed, observe the reason why. A control removed temporarily for work is not necessarily a violation if properly recorded in the SWPPP. If it has been removed, record why it was removed and, if applicable, when it will be reinstalled. If the control has failed, observe the conditions so a conclusion may be made as to whether the control failed for improper maintenance or improper design. The qualified inspector will know when a failed control is inadequate and should be replaced by an improved control mechanism. Qualified inspectors are to have authority to make changes to the SWPPP to assure compliance. Controls that have not been installed should be given a reason why they are not installed and/or a scheduled date for installation if they are designed for a later phase of construction. After the inspection, the SWPPP and its site map should be updated to reflect current conditions of controls and Best Management Practices at the time of the inspection. This includes removing uninstalled controls from the site map or otherwise denoting on the site map if they are no longer installed if the controls have been removed because they are no longer necessary (e.g. stabilization has been achieved in that area).

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ATTACHMENT 6

	<p>Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000</p>	<p>TCEQ Office Use Only Permit No.: RN: CN:</p>	<div style="border: 1px solid black; padding: 5px; display: inline-block; color: red; font-weight: bold;">Reset Form</div>
 <p>Sign up now for on line NOT at http://www.tceq.state.tx.us/permitting/steers/steers.html Get your NOT Confirmation letter immediately after submitting the on line NOT form.</p>			
<p>What is the permit number to be terminated? Processing will be delayed without the permit number. TXR15_____</p>			
A. OPERATOR (applicant)			
1. What is the Customer Number (CN) issued to this entity? CN _____			
2. What is the full Legal Name of the current permittee?			
<i>This must be the current permittee of the permit to be terminated.</i>			
3. What is the applicant's mailing address as recognized by the US Postal Service?			
Address: _____ Suite No./Bldg. No./Mail Code: _____			
City: Houston _____		State: _____ ZIP Code: _____	
Country Mailing Information (if outside USA): _____		Country Code: _____ Postal Code: _____	
4. Phone No.: () _____		Extension: _____	
5. Fax No.: () _____		E-mail Address: _____	
B. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE			
1. What is the TCEQ Issued RE Reference Number (RN)? RN _____			
2. Name of Project or Site as currently permitted):			
<i>(example: phase and name of subdivision or name of project that's unique to the site)</i>			
3. Physical Address of Project or Site as currently permitted: (enter in spaces below)			
Street Number: _____		Street Name: _____	
City: _____		ZIP Code: _____ County (Counties if >1): _____	
4. If no physical address (Street Number & Street Name), provide the written location access description to the site:			
C. REASON FOR TERMINATION			
Check the reason for termination:			
<input type="checkbox"/> Final stabilization has been achieved on all portions of the site that are the responsibility of the Operator and all silt fences and other temporary erosion controls have either been removed, or scheduled for removal as defined in the SWP3.			
<input type="checkbox"/> Another permitted Operator has assumed control over all areas of the site that have not been finally stabilized, and temporary erosion controls that have been defined in the SWP3 have been transferred to the new Operator.			
<input type="checkbox"/> The activity is now authorized under an alternate TPDES permit.			
<input type="checkbox"/> The activity never began at this site that is regulated under the general permit.			
D. CERTIFICATION			
I, _____ Title _____			
Typed or printed name			
certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.			
I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.			
Signature: _____		Date: _____	
(Use blue ink)			

ATTACHMENT 6

Notice of Termination (NOT) for Authorizations under TPDES General Permit TXR150000 General Information and Instructions	
GENERAL INFORMATION	
Where to Send the Notice of Intent (NOI):	
BY REGULAR U.S. MAIL Texas Commission on Environmental Quality Storm Water Processing Center (MC228) P.O. Box 13087 Austin, TX 78711-3087	BY OVERNIGHT/EXPRESS MAIL Texas Commission on Environmental Quality Storm Water Processing Center (MC228) 12100 Park 35 Circle Austin, TX 78753
TCEQ Contact list:	
Application Processing Questions relating to the status and form requirements:	512/239-4671
Technical Questions relating to the general permit:	512/239-4671
Environmental Law Division:	512/239-0600
Records Management for obtaining copies of forms submitted to TCEQ:	512/239-0900
Information Services for obtaining reports from program data bases (as available):	512/239-DATA (3282)
Financial Administration's Cashier's office:	512/239-0357 or 512/239-0187
Notice of Termination Process:	
A Notice of Termination is effective on the date postmarked for delivery to TCEQ . When your NOT is received by the program, the form will be processed as follows:	
1. Administrative Review: The form will be reviewed to confirm the following: <ul style="list-style-type: none"> • the permit number is provided • the permit is active and has been approved • the entity terminating the permit is the current permittee • the site information matches the original permit record • the form has the required original signature with title and date 	
2. Notice of Deficiency: If an item is incomplete or not verifiable as indicated above, a phone call will be made to the applicant to clear the deficiency. A letter will not be sent to the permittee if unable to process the form.	
3. Confirmation of Termination: A Notice of Termination Confirmation letter will be mailed to the operator.	
General Permit (Your Permit) Coverage under the general permit begins 48 hours after a completed NOI is postmarked for delivery to the TCEQ . You should have a copy of your general permit when submitting your application. You may view and print your permit for which you are seeking coverage, on the TCEQ web site www.tceq.state.tx.us	
General Permit Forms The Notice of Intent (NOI), Notice of Termination (NOT), and Notice of Change (NOC) with instructions are available in Adobe Acrobat PDF format on the TCEQ web site www.tceq.state.tx.us .	
Change in Operator An authorization under the general permit is not transferable. If the operator or owner of the regulated entity changes, the present permittee must submit a Notice of Termination and the new operator must submit a Notice of Intent. The NOT and NOI must be submitted not later than 10 days prior to the change in Operator status.	
TCEQ Central Registry Core Data Form The Core Data Form has been incorporated into this form. Do not send a core data form to TCEQ.	
After final acknowledgment of coverage under the general permit, the program will assign a Customer Number (CN) and Regulated Entity Number (RN). For Construction Permits, a new RN will be assigned for each Notice of Intent filed with TCEQ, since construction project sites can overlap with other Customers. The RN assigned to your construction project will not be assigned to any other TCEQ authorization.	
You can find the information on the Central Registry web site at https://www6.tceq.state.tx.us/epay/ . You can search by the Regulated Entity (RN), Customer Number (CN) or Name (Permittee), or by your permit number under the search field labeled "Additional ID" Capitalize all letters in the permit number.	

ATTACHMENT 6

The Customer (Permittee) is responsible for providing consistent information to the TCEQ, and for updating all CN and RN data for all authorizations as changes occur. For General Permits, a Notice of Change form must be submitted to the program area.

Annual Water Quality Fee: This fee is assessed to operators with an active authorization under the general permit on September 1 of each year. The operator will receive an invoice for payment of the annual fee in November of each year. The payment will be due 30 days from the invoice date. A 5% penalty will be assessed if the payment is received by TCEQ after the due date. Annual fee assessments cannot be waived as long as the authorization under the general permit is active on September 1.

It's important for the operator to submit a **Notice of Termination (NOT)** when coverage under the general permit is no longer required. A NOT is effective on the postmarked date of mailing the form to TCEQ. It is recommended that the NOT be mailed using a method that documents the date mailed and received by TCEQ.

- **Mailed Payments:**
You must return your payment with the billing coupon provided with the billing statement.
- **ePAY Electronic Payment:**
Go to <https://www6.tceq.state.tx.us/epay/>
You must enter your account number provided at the top portion of your billing statement. Payment methods include Mastercard, Visa, and electronic check payment (ACH). A transaction over \$500 can only be made by ACH.

INSTRUCTIONS FOR FILLING OUT THE NOT FORM

A. OPERATOR (current permittee.)

1. TCEQ Issued Customer Number (CN)

2. Legal Name of Operator
The operator must be the same entity as previously submitted on the original Notice of Intent for the permit number provided.

3. Operator Mailing Address
Provide a complete mailing address for receiving mail from the TCEQ. Update the address if different than previously submitted in the Notice of Intent or Notice of Change.

4. Phone Number, Fax Number, and E-mail Address
Provide updated contact information.

B. REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

1. Regulated Entity Reference Number (RN)

2. Site/Project Name/Regulated Entity
Provide the name of the site as previously submitted in the Notice of Intent for the permit number provided.

3. Site/Project (RE) Physical Address
Provide the physical address or location access description as previously submitted for the permit number provided.

C. REASON FOR TERMINATION

Indicate the reason for terminating the permit by checking one of the options. If the reason is not listed then provide an attachment that explains the reason for termination.

Please read your general permit carefully to determine when to terminate your permit. Permits will not be reactivated after submitting a termination form. The termination is effective on the date postmarked for delivery to TCEQ.

D. CERTIFICATIONS

The certification must bear an original signature of a person meeting the signatory requirements specified under 30 Texas Administrative Code (TAC) §305.44.

IF YOU ARE A CORPORATION:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(1) (see below). According to this code provision, any corporate representative may sign an NOI or similar form so long as the authority to sign such a document has been delegated to that person in accordance with corporate procedures. By signing the NOI or similar form, you are certifying that such authority has been delegated to you. The TCEQ may request documentation evidencing such authority.

IF YOU ARE A MUNICIPALITY OR OTHER GOVERNMENT ENTITY:

The regulation that controls who may sign an NOI or similar form is 30 Texas Administrative Code §305.44(a)(3) (see below). According to this code provision, only a ranking elected official or principal executive officer may sign an NOI or similar form. Persons such as the City Mayor or County Commissioner will be considered ranking elected officials. In order to identify the principal executive officer of your government entity, it may be beneficial to consult your city charter, county or city ordinances, or the Texas statute(s) under which your government entity was formed. An NOI or similar document that is signed by a government official who is not a ranking elected official or principal executive officer does not conform to

END OF SECTION

SECTION 01 57 23.02

CONTROL OF GROUND WATER AND SURFACE WATER

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

Control of ground water and surface water.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for this Work is included in the total Stipulated Price

1.3 REFERENCES

- A. ASTM D698 – Standard Test Methods for Laboratory Compaction of Soils Using Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³).
- B. Federal Regulations 29 CFR Part 1926, Standards-Excavation, Occupational Safety and Health Administration (OSHA).

1.4 DEFINITIONS

- A. Ground water control includes both dewatering and depressurization of water-bearing soil layers.
1. Dewatering includes lowering water table and intercepting seepage that would otherwise emerge from slopes or bottoms of excavations, or into tunnels and shafts, and disposing of removed water. Intent of dewatering is to increase stability of tunnel excavations and excavated slopes, prevent dislocation of material from slopes or bottoms of excavations, reduce lateral loads on sheeting and bracing, improve excavating and hauling characteristics of excavated material, prevent failure or heaving of bottom of

excavations, and to provide suitable conditions for placement of backfill materials and construction of structures and other installations.

2. Depressurization includes reduction in piezometric pressure within strata not controlled by dewatering alone, as required to prevent failure or heaving of excavation bottom or instability of tunnel excavations.
- B. Excavation drainage includes keeping excavations free of surface and seepage water.
- C. Surface drainage includes use of temporary drainage ditches and dikes and installation of temporary culverts and sump pumps with discharge lines as required to protect work from any source of surface water.
- D. Equipment and instrumentation for monitoring and control of ground water control system includes piezometers, monitoring wells and flow meters for observing and recording flow rates.
- E. Surface water includes water from rainfall, runoff, the SJRA canal, and all other sources not considered ground water.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide dewatering of pump station discharge piping junction box during construction.
- B. Provide cofferdam to prevent backflow in canal during work at outlet structure/diversion pumping system discharge.
- C. Provide drainage of seepage water and surface water, as well as water from any other source entering excavation. Excavation drainage may include placement of drainage materials, crushed stone and filter fabric, together with ditches and sump pumping.
- D. Provide ditches, berms, pumps, and other methods necessary to divert and drain surface water from excavation and other work areas.

1.6 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit Ground Water and Surface Water Control Plan for review by Owner's Representative prior to start of any field work.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Comply with requirements of agencies having jurisdiction.

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

- A. Use optional equipment and materials as necessary to achieve desired results for dewatering. Selected equipment and materials are subject to review of

Owner's Representative through submittals required in Paragraph 1.6,
Submittals.

- B. Equipment must be in good repair and operating order.
- C. Keep sufficient standby equipment and materials available to ensure continuous operation, where required.

PART 3 - EXECUTION

3.1 GROUND WATER CONTROL

- A. Provide labor, material, equipment, techniques and methods to lower, control and handle ground water in manner compatible with construction methods and site conditions. Monitor effectiveness of installed system and its effect on adjacent property.
- B. Install, operate, and maintain ground water control systems in accordance with Ground Water and Surface Water Control Plan. Notify Owner's Representative in writing of changes made to accommodate field conditions and changes to Work. Provide revised drawings and calculations with notification.
- C. Remove system upon completion of construction or when dewatering and control of surface or ground water is no longer required.
- D. Compact backfill to not less than 95 percent of maximum dry density in accordance with ASTM D 698.

3.2 REQUIREMENTS FOR EDUCTOR, WELL POINTS, OR DEEP WELLS (NOT USED)

3.3 EXCAVATION DRAINAGE

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

3.4 MAINTENANCE AND OBSERVATION

- A. Maintain sump pumps and cofferdams as necessary to ensure dry work area.

3.5 MONITORING AND RECORDING (NOT USED)

3.6 SURFACE WATER CONTROL

- A. Provide dry area to perform work for outlet structure/diversion pumping system discharge.
- B. Intercept surface water and divert it away from excavations through use of dikes, ditches, curb walls, pipes, sumps or other approved means.

Requirement includes temporary works required to protect adjoining properties from surface drainage caused by construction operations.

- C. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains, when approved by agencies having jurisdiction. Provide settling basins when required by agencies.
- D. SJRA reserves the right to operate their canal up to the full height of their embankments.

END OF SECTION

SECTION 01 65 50

PRODUCT DELIVERY, STORAGE, AND HANDLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for product delivery, storage and handling.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 - General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No payment will be made to Contractor for equipment or materials not properly stored and insured or without approved Shop Drawings.
 - 1. Previous payments for items will be deducted from subsequent progress estimate(s) if proper storage procedures are not observed.

1.3 SUBMITTALS

- A. Provide Owner project Log Book.

1.4 TRANSPORTATION

- A. Make arrangements for transportation, delivery, and handling of equipment and materials required for timely completion of Work.
- B. Transport and handle products in accordance with instructions.
- C. Consign and address shipping documents to proper party giving name of Project, street number, and city. Shipments shall be delivered to Contractor.

1.5 DELIVERY

- A. Scheduling: Schedule delivery of products or equipment as required to allow timely inspection and installation, and to avoid prolonged storage, overburdening of limited storage space, conflicts with other contractors on site. Confirm availability of equipment and personnel for handling products prior to delivery.
- B. Packaging: Deliver products or equipment in manufacturer's original unopened and unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.
- C. Identification: Clearly and fully mark and identify as to manufacturer, item, and installation location.
- D. Protection and Handling: Provide manufacturer's instructions for storage and handling.

PART 2 - PRODUCTS

- A. Products: Means material, equipment, or systems forming Work. Does not include machinery and equipment used for preparation, fabrication, conveying, and erection of Work. Products may also include existing materials or components designated for reuse.
- B. For material and equipment specifically indicated or specified to be reused in the work:
 - 1. Use special care in removal, handling, storage and reinstallation, to assure proper function in completed work.
 - 2. Arrange for transportation, storage and handling of products which require offsite storage, restoration or renovation. Pay all costs for such work.
- C. When contract documents require that installation of work comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in installation, including two copies to Owner's Representative. Maintain one set of complete instructions at job site during installation until completion.
- D. Provide equipment and components from fewest number of manufacturers as practical, in order to simplify spare parts inventory and allow for maximum interchangeability of components. For multiple components of same size, type, or application, use same make and model of component throughout Project.

PART 3 - EXECUTION

3.1 PROTECTION, STORAGE AND HANDLING

- A. Protection:
 - 1. Protect materials in accordance with manufacturer's recommendations and requirements of these Specifications.
 - a. Store products or equipment in location to avoid loss or physical damage to items while in storage.
 - 2. Protect equipment from exposure to elements and keep thoroughly dry.
 - 3. When space heaters are provided in equipment, connect and operate heaters during storage until equipment is placed in service.
- B. Storage:
 - 1. Store materials in accordance with manufacturer's recommendations and requirements of these Specifications.
 - 2. Make necessary provisions for safe storage of materials and equipment. Place loose soil materials, and materials to be incorporated into Work to prevent damage to any part of Work or existing facilities and to maintain free access at all times to all parts of Work and to utility service company

installations in vicinity of Work. Keep materials and equipment neatly and compactly stored in locations that will cause minimum inconvenience to other contractors, public travel, adjoining owners, tenants, and occupants. Arrange storage to provide easy access for inspection.

3. Restrict storage to areas available on construction site for storage of material and equipment as shown on Drawings or approved by Owner's Representative.
4. Provide off-site storage and protection when on-site storage is not adequate. Provide addresses of and access to off-site storage locations for inspection by Owner's Representative.
5. Do not use lawns, grass plots, or other private property for storage purposes without written permission of owner or other person in possession or control of premises.
6. Store in manufacturers' unopened containers.
7. Neatly, safely, and compactly stack materials delivered and stored along line of Work to avoid inconvenience and damage to property owners and general public, and maintain at least 3 feet from fire hydrant. Keep public, private driveways, and street crossings open.
8. Repair or replace damaged lawns, sidewalks, streets, or other improvements to satisfaction of Owner's Representative. Total length which materials may be distributed along route of construction at one time is 1,000 linear feet, unless otherwise approved in writing by Owner's Representative.

C. Handling:

1. Handle materials in accordance with manufacturer's recommendations and requirements of these Specifications.
2. Coordinate off-loading of materials and equipment delivered to job site. If necessary to move stored materials and equipment during construction, relocate materials and equipment at no additional cost to Owner. Do not allow the off-loading of materials in those parking areas used for crew's personal vehicles.
3. Provide equipment and personnel necessary to handle products by methods to prevent damage to products or packaging.
4. Provide additional protection during handling as necessary to prevent breaking, scraping, marring, or otherwise damaging products or surrounding areas.
5. Handle products by methods to prevent over bending or over stressing.
6. Lift heavy components only at designated lifting points.
7. Do not drop, roll, or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

3.2 STORAGE FACILITIES

- A. Temporary Storage Building (if required):
1. Provide a weatherproof temporary storage building specifically for the purpose of providing for protection of products and equipment.
 - a. Size building to accommodate anticipated storage items
 2. Equip building with lockable doors and lighting, and provide electrical service for equipment space heaters and heating or ventilation as necessary to provide storage environments acceptable to specified manufacturers.
 3. Provide methods of storage of products and equipment off the ground.
 4. Provide this structure within 10 days after Notice to Proceed.
 - a. Locate building on-site where shown on the Drawings or in location approved by the Owner's Representative.
 - b. Remove building from site prior to startup and demonstration period.

3.3 FIELD QUALITY CONTROL

- A. Inspect Deliveries:
1. Inspect all products or equipment delivered to the site prior to unloading.
 - a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.
- B. Monitor Storage Area: Monitor storage area to ensure suitable temperature and moisture conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01 71 13

MOBILIZATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for mobilization.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Mobilization payments will be included in periodic progress payment upon written application subject to following provisions:
 - 1. Authorization for payment of 50 percent of Contract Price for mobilization will be made upon receipt and approval by Owner's Representative of the following items, as applicable:
 - a. Schedule of Values submittal in accordance with Section 01 29 73 – Schedule of Values
 - b. Construction Schedule submittal in accordance with Section 01 32 16 – Construction Progress Schedule
 - c. Preconstruction photographs in accordance with Section 01 32 36.01 – Project Photographs
 - d. Control of groundwater and surface water plan in accordance with Section – 1 57 23.02 – Control of Ground Water and Surface Water, when required
 - 2. Authorization for payment of remaining 50 percent of Contract Price for mobilization will be made upon completion of Work amounting to 5 percent of Contract Price less mobilization unit price.
- B. Mobilization payments will be subject to retainage amounts stipulated in Specification Section 00 72 00 – General Conditions of the Contract.

1.3 SUBMITTALS (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 74 13

CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes intermediate and final cleaning of Work, not including special cleaning of closed systems specified elsewhere.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS (NOT USED)

1.4 STORAGE AND HANDLING

- A. Store cleaning products and cleaning wastes in containers specifically designed for those materials.

1.5 SCHEDULING

- A. Schedule cleaning operations so that dust and other contaminants disturbed by cleaning process will not fall on newly painted surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents:
 - 1. Compatible with surface being cleaned.
 - 2. New and uncontaminated.
 - 3. For Manufactured Surfaces: Material recommended by manufacturer.

PART 3 - EXECUTION

3.1 CLEANING - GENERAL

- A. Prevent accumulation of wastes that create hazardous conditions.
- B. Conduct cleaning and disposal operations to comply with laws and safety orders of governing authorities.

- C. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains or sewers.
- D. Dispose of degradable debris at an approved solid waste disposal site.
- E. Dispose of nondegradable debris at an approved solid waste disposal site or in an alternate manner approved by regulatory agencies.
- F. Handle materials in a controlled manner with as few handlings as possible.
- G. Do not drop or throw materials from heights greater than 4 FT or less than 4 FT if conditions warrant greater care.
- H. On completion of work, leave area in a clean, natural looking condition.
 - 1. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.
- I. Do not burn on-site.

3.2 INTERIOR CLEANING

A. Cleaning During Construction:

- 1. Keep work areas clean so as not to hinder health, safety or convenience of personnel in existing facility operations.
- 2. At maximum weekly intervals, dispose of waste materials, debris, and rubbish.
- 3. Vacuum clean interior areas when ready to receive finish painting.
 - a. Continue vacuum cleaning on an as-needed basis, until Substantial Completion.

B. Final Cleaning:

- 1. Complete immediately prior to Demonstration Period.
- 2. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed surfaces.
- 3. Wipe all lighting fixture reflectors, lenses, lamps and trims clean.
- 4. Wash and shine glazing and mirrors.
- 5. Polish glossy surfaces to a clear shine.
- 6. Ventilating systems:
 - a. Clean permanent filters and replace disposable filters if units were operated during construction.
 - b. Clean ducts, blowers and coils if units were operated without filters during construction.
- 7. Replace all burned out lamps.
- 8. Broom clean process area floors.

9. Mop office and control room floors.

3.3 EXTERIOR (SITE) CLEANING

A. Cleaning During Construction:

1. Construction debris:
 - a. Confine in strategically located container(s):
 - 1) Cover to prevent blowing by wind.
 - 2) Store debris away from construction or operational activities.
 - 3) Haul from site minimum once a week.
 - b. Remove from work area to container daily.
 - c. Site clean-up prior to storm events. Thoroughly clean site of all loose or unsecured items which may become airborne or transported by flowing water during storm events.
2. Vegetation: Keep weeds and other vegetation trimmed to 3 IN maximum height.
 - a. The use of chemical weed control substances should be avoided unless prior Owner approval is received.
3. Soils, sand, and gravel deposited on paved areas and walks:
 - a. Remove as required to prevent muddy or dusty conditions.
 - b. Do not flush into storm sewer system.

B. Final Cleaning:

1. Remove trash and debris containers from site.
 - a. Repair areas disturbed by location of trash and debris containers to Owner's satisfaction including but not limited to re-seeding, sod placement, pavement repair, asphalt repair, sidewalk repair, and rut removal and/or fill placement.
2. Clean paved roadways.

3.4 FIELD QUALITY CONTROL

- A. Immediately prior to Demonstration Period, conduct an inspection with Owner's Representative to verify condition of all work areas.

END OF SECTION

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SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for construction waste management and disposal.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for waste material disposal under this Section. Include payment in unit price for related sections.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Obtain and submit disposal permits for proposed disposal sites if required by local ordinances. Submit a copy of all disposal permits to the Owner's Representative.
- C. Submit copy of written permission from property owner(s) outside limits of Project, with description of property, prior to disposal of excess material. Submit written and signed release from property owner upon completion of disposal work. Copies of the permission and release documents are to be submitted to the Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SALVAGEABLE MATERIAL

- A. Excavated Material: When indicated on Drawings, load, haul, and deposit excavated material at location or locations shown on Drawings outside limits of Project.
- B. Other Salvageable Materials: Conform to requirements of individual Specification Sections.
- C. Coordinate with the Owner's Representative the loading of salvageable material.

3.2 EXCESS MATERIAL

- A. Remove and legally dispose of vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage from job site.
- B. Excess soil may be deposited on private property outside the Project limits when written permission is obtained from property owner. See Paragraph 1.3C above.
- C. Verify flood plain status of any proposed disposal site. Do not dispose of excavated materials in area designated as within 100-year Flood Hazard Area unless the proper permit has been obtained. Remove excess material placed in "100-year Flood Hazard Area" at no additional cost to the Owner.
- D. Remove waste materials from site daily, in order to maintain site in neat and orderly condition, unless otherwise authorized by the Owner.

END OF SECTION

SECTION 01 74 23
RESTORATION OF SITE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for the restoration of sites affected by Utility Work, Roadway Reconstruction or Widening, or Facilities Work. Section does not apply to roadway extension projects.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 32 90 00 – Seeding, Sodding, and Landscaping.
 - 4. Section 32 92 13 – Hydro-Mulching.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 REFERENCES

- A. ANSI Z60.1 – American Standard for Nursery Stock.

1.4 DEFINITIONS

- A. Site Restoration is replacement or reconstruction of site improvements to rights-of-way, easements, public property, and private property that are affected or altered by construction operations, with improvements to restore to a condition which is equal to, or better than, that which existed prior to construction operations.
- B. Site Improvement includes but is not limited to pavement, curb and gutter, esplanades, sidewalks, driveways, culverts, headwalls, mail boxes, lighting, signage, fences, lawns, irrigation systems, and landscaping.
- C. Line Segment. Length of water line and bends as designated on Drawings, and to end of stubs or termination of pipe.

1.5 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit qualifications of nursery or landscaping firm to be used.

1.6 QUALITY ASSURANCE

- A. Have trees, landscape shrubs, and plantings performed by qualified personnel.

1.7 SCHEDULING

- A. After paving or utility work is completed on line segment and segment is submitted on monthly estimate for payment, complete site restoration for that segment in accordance with 3.1 of this Section, unless extended in writing by Owner's Representative.
- B. For utility work requiring testing or post-installation TV inspection, completion of segment is not considered to include testing or TV inspection. Schedule for completion of site restoration is not determined by completion of testing or TV inspection.

1.8 WARRANTY

- A. Provide 2-week warranty on plants and sod grasses that die due to shock or damage only.
- B. Replace plants that fail during warranty period according to specifications governing original plants.
- C. At the end of the warranty period, provide written notification to homeowner(s) stating the underlying property owner, advising that home owner is subsequently responsible for watering, maintaining replaced plants and grasses. Provide copy of notice to Owner's Representative. Notice to include date and time notice was provided, who provided the notice and how was delivered.
- D. Damage caused by natural hazards including hail, high winds or storm is not covered by warranty.
- E. Existing plant material required to be moved on site are covered under warranty.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Pavement and Driveways. Repair and/or replace driveways with material that matches existing.
- B. Seeding and Sodding.
 - 1. Provide sod and mechanically seed as specified in Section 32 90 00 – Seeding, Sodding, and Landscaping. For areas to be seeded, conform to
 - 2. Provide hydro-mulching/seeding in accordance with Section 32 92 13 – Hydro-Mulching.

PART 3 - EXECUTION

3.1 COORDINATION (NOT USED)

3.2 EXAMINATION

- A. Construction Site Photographs. Document conditions on and adjacent to construction site with construction photographs as specified in Section 01 32 36.01 – Project Photographs.
- B. Make photographs of all areas where construction operations will be conducted including driveways and sidewalks within or adjacent to Work area.

3.3 PREPARATION

- A. Remove existing access road as needed to install diversion pumping system piping..

3.4 INSTALLATION

- A. Pavement, Sidewalk, and Driveway Restoration.
 - 1. Replace pavement, curb and gutter, culverts, headwalls, sidewalks, and driveways removed or damaged as result of construction operations.
 - 2. Where replacement sidewalks terminate at street curb radius, construct wheel chair ramp that meets current Texas Accessibility Standards.
- B. Seeding and Sodding.
 - 1. Clean up construction debris and level area with bank sand so that resulting surface of new grass matches level of existing grass and maintains pre-construction drainage patterns. Level minor ruts or depressions caused by construction operations where grass is still viable by filling with bank sand.
 - 2. Restore previously existing turfed areas with sod and fertilize in accordance with Section 32 90 00 – Seeding, Sodding, and Landscaping. Sod to match existing turf.
 - 3. Restore unpaved areas not requiring sodding with hydromulch methods conforming to Section 32 92 13 – Hydro-Mulching.

3.5 CLEANING

- A. Remove debris and trash to maintain clean and orderly site as described in General Conditions and Section 01 74 19 – Construction Waste Management and Disposal.

3.6 MAINTENANCE

- A. Maintain shrubs, plantings, sodded areas and seeded areas through warranty period.
- B. Replace shrubs, plantings, and seeded or sodded areas that fail to become established through warranty period.

- C. Refer to Section 01 56 39 – Temporary Tree and Plant Protection, Section 32 92 13 – Hydro-Mulching and Section 32 90 00 – Seeding, Sodding, and Landscaping for additional maintenance requirements.

END OF SECTION

SECTION 01 77 19

CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for closeout of a construction project.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Introductory Information, Proposing Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. No separate payment will be made for this item. Include the cost in associated items for this project.

1.3 SUBMITTALS (NOT USED)

1.4 SUBSTANTIAL COMPLETION

- A. Comply with Specification Section 00 72 00 – General Conditions of the Contract regarding Substantial Completion when Contractor considers the Work, or portion thereof designated by Owner’s Representative, to be substantially complete.
- B. Insure the following items have been completed when included in the Work, prior to presenting a list of items to be inspected by Owner’s Representative for issuance of a Certificate of Substantial Completion:
 - 1. Installation and inspection of slide gate;
 - 2. Installation of grouted riprap in canal;
 - 3. Installation and video inspection of CFRP lining system and pipe repairs;
 - 4. Re-assembly of Pumps No. 2 and 3 and operation of pumps for at least 48 hours;
 - 5. Demobilization of diversion pumping system, including removal of road crossing;
 - 6. Installation of all bid items included in Specification Section 00 41 00.02 – Proposal Form and approved Contract Document changes with the exception of hydromulch/sodding.
- C. Assist Owner’s Representative with inspection of Contractor’s list of items and complete or correct the items, including items added by Owner’s Representative, within a time period of 30 days or as mutually agreed.
- D. Should Owner’s Representative’s inspection show failure of Contractor to comply with substantial completion requirements, including those items in

Paragraph 1.2B of this specification, Contractor shall complete or correct the items, before requesting another inspection by Owner's Representative.

1.5 CLOSEOUT PROCEDURES

- A. Comply with Specification Section 00 72 00 – General Conditions of the Contract regarding Final Inspection and Final Payment when Work is complete and ready for Owner's Representative's final inspection.
- B. Provide Project Record Documents in accordance with Section 01 78 39 – Project Record Documents.
- C. Complete or correct items on punch list, with no new items added. Address new items during warranty period.
- D. Owner will occupy portions of Work as specified in other Sections.

1.6 FINAL CLEANING

- A. Execute final cleaning prior to Final Inspection.
- B. For facilities, clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition.
- D. Clean or replace filters of operating equipment.
- E. Clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Clean site; sweep paved areas, rake landscaped surfaces clean.
- G. Remove waste and surplus materials, rubbish, and temporary construction facilities from site following final test of utilities and completion of Work.

1.7 ADJUSTING

- A. Adjust operating equipment to ensure smooth and unhindered operation in accordance with manufacturer's written instructions. Value of this testing and adjusting is five (5) percent of Lump Sum Amount in Schedule of Values for item being tested.

1.8 OPERATION AND MAINTENANCE DATA

- A. Submit operations and maintenance data as noted in Section 01 33 00 – Submittals.
- B. Five (5) percent of Lump Sum Amount of each piece of equipment as indicated in Schedule of Unit Price Work or Schedule of Values shall be paid after required O&M data submissions are received and approved by Owner's Representative.

1.9 WARRANTIES

- A. Provide one original and two copies of each warranty from subcontractors, suppliers, and manufacturers.

- B. Provide Table of Contents and assemble warranties in three-ring/D binder with durable plastic cover.
- C. Submit warranties prior to final progress payment.
- D. Warranties shall commence in accordance with requirements in Document 00 72 00 – General Conditions of the Contract.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance, and extra materials in quantities specified in individual Specification sections.
- B. Deliver to location as directed by Owner's Representative; obtain receipt prior to final Payment Application.

1.11 TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR) INSPECTION (NOT USED)

1.12 FINAL PHOTOS

- A. Provide per Specification Section 01 32 36.01 – Project Photographs.

1.13 PROJECT RECORD DOCUMENTS

- A. Provide per Specification Section 01 78 39 – Project Record Documents.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Maintenance and Submittal.
 - 2. Recording.
 - 3. Submittals.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one record copy of documents at site in accordance with Specification Section 00 72 00 – General Conditions of the Contract.
- B. Store Record Documents and samples in field office when field office is required by Contract, or in secure location. Provide files, racks, and secure storage for Record Documents and samples.
- C. Label each document “PROJECT RECORD” in neat, large, printed letters.
- D. Maintain Record Documents in clean dry and legible condition. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and Samples available for inspection by Owner’s Representative.
- F. Bring Record Drawings to progress review meetings for viewing by Owner’s Representative.

1.3 RECORDING

- A. Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- B. Contract Drawings: Legibly mark each item to record actual construction, or “as built” conditions, including:
 - 1. Measured depths of elements of foundation in relation to finish first floor datum.
 - 2. Measured horizontal locations and elevations of underground utilities and appurtenances, referenced to permanent surface improvements.

3. Elevations of underground utilities referenced to bench mark utilized for Project.
 4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 5. Field changes of dimension and detail.
 6. Modifications made by Change Order.
 7. Details not on original Contract Drawings.
 8. References to related shop drawings and modifications.
- C. Maintain on site at all times an instrument for accurately measuring elevations. Survey every joint of water main at time of construction and record on drawings water main invert elevation, including elevation top of manway and centerline horizontal location relative to baseline.
- D. Record information with red felt-tip marking pen on set of blue line opaque drawings.
- E. Legibly mark Record Drawings to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.
- F. Legibly annotate shop drawings to record changes made after review.

1.4 SUBMITTALS

- A. At Contract closeout, deliver Project Record Documents to Owner's Representative.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

DIVISION 03

CONCRETE

SECTION 03 31 32

CONCRETE FINISHING AND REPAIRS OF SURFACE DEFECTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete finishing and repair of surface defects inside existing mortar lined steel pipe and reinforced concrete outlet structure vertical headwall using high strength mortar repair material.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

A. Referenced Standards:

1. American Concrete Institute (ACI):
 - a. 116R – Cement and Concrete Terminology.
2. ASTM International (ASTM):
 - a. C39 – Compressive Strength
 - b. C150 – Standard Specification for Portland Cement.
 - c. C157 Modified – Shrinkage
 - d. C266 – Setting Time
 - e. C309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - f. C496 – Splitting Tensile Strength
 - g. C882 Modified – Slant Shear Bond Strength
 - h. C1315 – Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
 - i. D4258 – Standard Practice for Surface Cleaning Concrete for Coating.
 - j. D4259 – Standard Practice for Abrading Concrete.
3. Society for Protective Coatings/NACE International (SSPC/NACE):

a. SP 13/NACE No. 6 – Surface Preparation of Concrete.

B. Qualifications:

1. Manufacturer of repair mortar shall be ISO 9001 certified and have a recognized ongoing quality assurance program independently audited on a regular basis.
2. Manufacturer of repair mortar shall have minimum of five (5) years of experience in manufacturing of same with documented performance history for similar installations.
3. Installer/applicator of repair mortar shall have minimum of five (5) years experience installing similar products and shall be licensed or approved in writing by manufacturer to install/apply this product.

1.4 DEFINITIONS

A. Vertical Surface Defects:

1. Any void in the face of the concrete deeper than 1/8 IN, such as:
 - a. Tie holes.
 - b. Air pockets (bug holes).
 - c. Honeycombs.
 - d. Rock holes.
2. Scabbing:
 - a. Scabbing is defect in which parts of the form face, including release agent, adhere to concrete.
3. Foreign material embedded in face of concrete.
4. Fins 1/16 IN or more in height.
5. Spalls or missing concrete areas.

B. Installer or Applicator:

1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
2. Installer and applicator are synonymous.

C. Other words and terms used in this Specification Section are defined in ACI 116R.

1.5 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Product technical data including:

- a. Product compressive strength, bond strength and mix components
- b. Acknowledgement that products submitted meet requirements of standards referenced.
- c. Manufacturer's installation instructions, product data sheets, and safety data sheets
- d. Certificate of contractor approval from Manufacturer for installation of product

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's recommendations and requirements for materials used.

1.7 WARRANTY

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
 1. Bonding Agents:
 - a. Sika Corporation
 - b. Five Star Products, Inc.
 2. Pipe and Vertical Headwall Repair Material:
 - a. Sika Corporation
 - b. Five Star Products, Inc.
- B. Submit request for substitution in accordance with Specification Section 01 25 13 – Product Substitutions.

2.2 MATERIALS

- A. Bonding agent:
 1. Multi-purpose, two-component, 100% solids, moisture-tolerant, structural epoxy adhesive.
 2. Sikadur 32 Hi-Mod, Five Star Bonding Agent, or approved equal.
- B. Repair Mortar Material:
 1. One-component, pre-packaged, ready-to-use, high strength shrinkage-compensated mortar.

2. SikaCem 226 CI, Five Star Structural Concrete V/O, or approved equal.
3. Material shall have the following properties:
 - a. Minimum 28-day compressive strength: 5000 psi
 - b. Minimum 7-day bond strength: 2000 psi
 - c. Shrinkage: < 0.12%
 - d. Initial Set Time: 3 hours
4. The mortar shall be a blend of selected portland cements, microsilica fibers and specially graded aggregates. It shall be applicable for horizontal, vertical and overhead surfaces.
5. Material shall be non-combustible, both before and after cure
6. Materials shall be supplied in a factory proportioned unit.
7. Mortar shall be placeable from 3/8 inches in depth or greater.
8. Material shall contain a corrosion inhibitor.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Preparation

1. Clean surfaces in accordance with ASTM D4258 to remove dust, dirt, form oil, grease, or other contaminants prior to abrasive blasting, chipping, grinding or wire brushing.
2. Mechanically prepare concrete substrate to obtain a surface profile of $\pm 1/8$ " (CSP 6 or greater as per ICRI Guidelines) with a new exposed aggregate surface. Area to be patched shall not be less than 3/8" in depth.
 - a. If additional chipping or wire brushing is necessary, make edges perpendicular to surface or slightly undercut.
 - b. No feathered edges will be permitted.
 - c. The edges of the repair shall be vertical and have a rough profile. The perimeter of the repair shape shall be kept simple; avoid reentrant corners.
3. Rinse surface with clean water and allow surface water to evaporate prior to repairing surface defects.
4. Refer to bonding agent and repair mortar material manufacturer literature for additional surface preparation requirements.

B. Preparation of Bonding Agent:

1. Mix and prepare bonding agent per manufacturer instructions.

C. Preparation of Repair Mortar Material:

1. Mechanically mix in an appropriate sized mortar mixer per Manufacturer's requirements. Add the powder while continuing to mix. Mix to a uniform consistency. Should smaller quantities be needed, the components shall be measured in the correct ratio and that the component is uniformly blended before mixing the components together. Mix only that amount of material that can be placed. Do not retemper material.
2. Let stand with frequent manipulation with a trowel, until mix has reached stiffest consistency to allow placement.
3. Refer to repair mortar material manufacturer literature for additional preparation requirements.

3.2 INSTALLATION AND APPLICATION

- A. Do not repair defects when temperature is or is expected to be below 50 DegF.
1. If necessary, enclose and heat area to between 50 and 70 DegF during repair of surface defects and curing of patching material.
 - a. Use only clean fuel, indirect fired heating apparatus.
 2. At time of application, surface should be Saturated Surface Dry (SSD) but hold no standing water. Apply material by spraying or troweling for repairing vertical or overhead surfaces. After applying the material, allow to stiffen for approx. 10 minutes before removing bumpy areas with a trowel. If another layer is desired, allow the material to reach initial set. Begin and finish a given patch on the same day.
 3. Refer to bonding agent and repair mortar material manufacturer literature for additional installation and curing requirements.
 4. Repair mortar material shall be cured prior to drilling into headwall for installation of slide gate.
 5. Adhere to all procedures, limitations and cautions in the manufacturer's current printed Product Data Sheet (PDS) and literature.

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DIVISION 09

FINISHES

SECTION 09 80 11

CARBON FIBER REINFORCED POLYMER (CFRP) COMPOSITE SYSTEM

PART 1 - GENERAL

1.2 SUMMARY

- A. This specification is intended to define the minimum requirements of structural strengthening using internally bonded carbon fiber reinforced polymer (CFRP) composite systems.
- B. The work includes the furnishing of all materials, labor, equipment and services for the supply, installation and finish of all structural strengthening using internally bonded CFRP composite system to rehabilitate pump discharge piping as shown on the Drawings.
- C. Scope includes all cleaning and surface preparation of the existing pipeline segments, and installation of the bonded carbon fiber reinforced polymer (CFRP) composite laminates, designed per the requirements of this Specification, using the wet lay-up technique to the inside surface of pipeline as described herein. All scope listed herein including surface preparation, water mitigation, confined space attendant and confined space program, maintenance of environmental control equipment, mixing of epoxies, saturation of reinforcing fabrics, installation of the CFRP system, supply of QA/QC representative from the CFRP MANUFACTURER to onsite for the duration of the project, and installation of end joint details shall be self-performed by the CFRP INSTALLER, meeting the experience requirements outlined in this specification.
- D. Access for all equipment, materials, and crew will be through the access points indicated by the OWNER and shown on the Drawings.
- E. The CFRP INSTALLER will provide water mitigation, if there are any holes or leaks in the pipe. This will occur prior to the CFRP installation.
- F. Cure all installed CFRP as required.
- G. Clean the pipeline of all debris, equipment, and left-over materials.
- H. OWNER shall provide all available relevant documents including specifications sheets, lay schedules, plan and profile drawings showing the locations of access points with a minimum of one access point on either side of any pipe to be repaired, and if available, reports of pipeline condition assessment and past performance, photographs of repair pipes, geotechnical reports, and all other relevant data and reports.

1.3 MEASUREMENT AND PAYMENT

- A. Payment for Diversion Pumping System components will be based on the following:
1. CFRP Liner Installation – Stipulated price (lump sum). Include design, pipe surface preparation, water mitigation, materials, labor, equipment, inspection, testing, ventilation and environmental controls, services and associated items listed in Section 1.2 for complete installation of CFRP liner.
 2. Steel Pipe Repairs – Unit Price per square foot of repair. Include materials, equipment, and labor required to repair steel pipe prior to installation of CFRP liner.
 3. CFRP Liner Installation Equipment on Standby – Unit Price per hour. Include equipment cost for CFRP installation to be onsite in standby mode (not in use) during steel pipe repairs.

1.4 QUALITY ASSURANCE

- A. Referenced Standards:

The publications listed below form a part of this specification to the extent referenced. Where a date is given for referenced standards, the edition of that date shall be used. Where no date is given for reference standards, the latest edition available on the date of the Notice of Invitation to Bid shall be used.

1. International Code Council (ICC)
 - a. ICC AC125, Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber Reinforced Polymer (CFRP) Composite Systems.
2. American Standard for Testing and Materials (ASTM)
 - a. ASTM D7565, Standard Test Method for Determining Tensile Properties of Fiber Reinforced Polymer Matrix Composites Used for Strengthening of Civil Structures.
 - b. ASTM D4541, Standard Test Method for Pull-off Strength of Coating Using Portable Adhesive-Testers.
 - c. ASTM D7290, Standard Practice for Evaluating Material Property Characteristic Values for Polymetric Composites for Civil Engineering Structural Applications.

1.5 CONTRACTOR SUBMITTALS

A. Product Data

1. MANUFACTURER's product data sheet indicating physical, mechanical and chemical characteristics of all materials used in the CFRP system. Also, test reports shall be provided with the mechanical properties of the CFRP system, durability of the GFRP laminated based on the environmental conditions, and physical properties of the resin listed in this Specification. Reported properties shall be based on the listed standards and the number of tests required in these tables.
2. The test reports shall indicate clearly the commercial names of the products used, batch ID, sample dimensions, number of samples tested, number of fabric layers used, load and strain measurement techniques, failure modes, and obtained strength, modulus, and ultimate elongation for each sample tested.
3. A list of two different MANUFACTURER approved testing laboratories that can perform the required ASTM D7565 and/or ASTM D3039 tests.
4. Written documentation with client contact information showing successful design of the proposed rehabilitation system on a minimum of fifteen (15) independent internal pipe rehabilitation projects for 36-inch diameter or greater pressure pipes that were designed as a stand-alone system within the past three years.

B. Qualifications of the CFRP INSTALLER:

1. Surface bonded CFRP composite system shall be installed by CFRP INSTALLER with written consent from MANUFACTURER that the CFRP INSTALLER has been trained. CFRP INSTALLER shall have a minimum of 10 years of experience in performing CFRP composite retrofits.
2. Written verification from the MANUFACTURER that the CFRP INSTALLER has received the required certifications and training.
3. CONTRACTOR is to provide documentation confirming that the CFRP INSTALLER will provide ancillary equipment for the project including surface preparation equipment, ventilation, environmental controls units and generators. Include information on the equipment models for each typically utilized. The CONTRACTOR and CFRP INSTALLER shall provide an access and ventilation plan including confined space certification for all employees.
4. The CONTRACTOR shall provide a five-year bonded warranty for the work performed under this task order from the date that all of the work is accepted by the ENGINEER against all faulty or imperfect materials and against all imperfect, careless, and/or unskilled workmanship. The

warranty shall cover installation, materials and labor for repair of the defects stated in this Specification.

C. Design and Working Drawings:

1. Stamped and signed structural calculations and drawings by a professional Civil or Structural ENGINEER registered in the state of Texas. Design shall be based on the clearly written performance criteria defined on the structural drawings and in accordance with AWWA C305 code requirements and assumptions.
2. Working drawings shall detail the type, locations, dimensions, numbers of layers, and orientation of all CFRP materials and coatings to be installed. Working Drawings Shall Provide the Following:
 - a. Type of Carbon Reinforcement Fabric Composite System.
 - b. Product Name of Reinforcing Fabric(s).
 - c. Product Name of Saturating Epoxy, the Primer Epoxy, and the Top Coat Epoxy.
 - d. Weight of fabric, number of layers and orientation.
 - e. Minimum overlap circumferentially and longitudinally.
 - f. Repair procedures and details for damaged fabric layers.
 - g. Detail of proposed method of terminating carbon fiber-reinforced composite so as to provide a watertight seal that prevents any water from penetrating between the carbon fiber-reinforced composite layers and the end terminations of the existing pipe. At a minimum, stainless steel expansion rings shall be included at each end termination for the CFRP system.

D. Working Calculations

1. Shall Provide the Following:
 - a. The composite material properties used in the design calculations. The properties used shall be equal to or more conservative than the properties listed on the product data sheets for the materials used.
 - b. The design requirements utilized in the design calculations shall be equal to or greater than the design requirements provided by this Specification.
 - c. Calculations associated with each of the design limit states outlined in this specification.

E. Installation Procedures

1. Provide written installation procedures, maintenance instructions, and general recommendations regarding the overall system and each material to be used including:
 - a. Method for preparing surfaces to accept CFRP. Include methods for steel and mortar lined steel pipe.
 - b. Method, equipment and procedures to be used to apply CFRP. Include methods for steel and mortar lined steel.
 - c. Method and drawings detailing transition of new CFRP lining to existing pipe. Include methods for steel and mortar lined steel.
 - d. Names of key personnel (foreman, head supervisor and top three carbon fiber installation technicians) scheduled to perform the work. Documentation that all workers who plan to work on the pipeline have received annual first aid training, confined space training and MANUFACTURER provided certified applicator training shall also be provided.
 - e. Name of personnel responsible for quality assurance.
 - f. Testing program for CFRP system.
 - g. Surface evaluation procedure.
 - h. Material testing of CFRP.
 - i. Method for ensuring that the adhesion of CFRP epoxy will conform to specified and indicated requirements.
 - j. Methods for repairing defective linings.
 - k. Contingency plan to meet specified requirements in the event of an interruption to the CFRP placement.

F. Post Construction Submittals

1. All quality control forms completed throughout the construction, including post-installation corrective actions, if any.
2. As-Built rehabilitation drawings indicating all CFRP liner details and end terminations installed.
3. Report of all repair and testing activities performed are in compliance with the specifications.
4. Report of all inspections and tests performed on site with traceable records, notes, measurements, and photographs, and location and extent of post-installation repairs, if any.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials for the CFRP system have been pre-qualified and shall be supplied by the following MANUFACTURERS:
1. Fyfe Co. LLC (3940 Ruffin Rd., Suite C, San Diego, CA 92123. Tel: 858-642-0694, Fax: 858-444-2982, Email: info@fyfeco.com)
 2. Structural Technologies (10150 Old Columbia Rd, Columbia, MD 21046). Tel: 972-210-9511, Email: mlarsen@structuraltec.com
 3. Approved alternate CFRP MANUFACTURER. Alternate CFRP systems must provide all items listed in Specification Section 01 25 13 – Product Substitutions.
- B. Primer
1. The steel substrate shall be primed with an epoxy material, which shall penetrate the pore structure of the substrate. The primer shall be 100% solids, low viscosity epoxy resin.
 2. The primer shall have following minimum properties obtained according to ASTM D638 at 72°F and 40% relative humidity:
 - a. Tensile strength: 2,500 psi, minimum
 - b. Tensile modulus: 105 ksi, minimum
- C. Thickened Epoxy
1. Thickened epoxy shall have a high enough viscosity to fill all voids in the steel substrate and provide a smooth base for the subsequent CFRP laminates.
 2. Thickened epoxy shall either be pre-formulated and brought to site in pre-proportioned containers, or prepared on site by mixing the impregnating resin with Cab-O-Sil TS-720 treated fumed silica to achieve the required viscosity.
- D. Impregnating Resin
1. All fabrics shall be impregnated with 100% solids, low viscosity epoxy resin.
 2. The CFRP repair design shall use a two-component epoxy with the following mechanical properties obtained according to ASTM D638 at 72°F and 40% relative humidity and reported by the MANUFACTURER:
 - a. Maximum water absorption when tested in accordance with ASTM D570 (24 hours): 2 percent

- b. Minimum compressive yield strength of 10,000 psi when tested in accordance with ASTM D695 (75F, 7-day cure);
- c. Minimum tensile strength with an elongation of greater than 2 percent when tested in accordance with ASTM D638 (14-day cure): 6,000 psi
- d. Tensile modulus: 300 ksi
- e. Minimum flexural strength when tested in accordance with ASTM D790 (14-day cure): 7,500 psi

E. Carbon Fiber-Epoxy Laminates

- 1. The CFRP rehabilitation design shall use carbon fiber composite laminates with the following mechanical and physical properties:
 - a. The tensile properties of the CFRP lamina shall be determined according to ASTM D3039 and statistically analyzed according to ASTM D7290 to determine the characteristic values.
 - b. Minimum tensile modulus of elasticity (ASTM D7290): 9,000 ksi
 - c. Minimum laminate thickness: 0.04 inch
 - d. Maximum laminate thickness: 0.10 inch
 - e. Minimum tensile strength (ASTM D7290): 100 ksi;
 - f. Minimum flexural modulus of 350,000 psi
 - g. Minimum flexural strength of 14,000 psi
 - h. Minimum strain at CFRP rupture, when tested in accordance with ASTM D3039: 0.85 percent (obtained as the ratio of characteristic tensile strength and Weibull mean of the modulus)

F. GFRP System

- 1. A glass fiber reinforced polymer (GFRP) composite system shall be used as insulator between any steel components and CFRP to avoid possible galvanic corrosion and also shall be used as a watertightness layer.
- 2. The GFRP composite system components shall be provided by the same MANUFACTURER of CFRP system. The GFRP composite laminates shall have the following mechanical and physical properties:
 - a. Minimum tensile modulus of elasticity: 2,000 ksi
 - b. Minimum laminate thickness: 0.01 inch
 - c. Maximum laminate thickness: 0.10 inch
 - d. Minimum tensile strength: 30 ksi
 - e. Minimum strain at GFRP rupture (ASTM D3039): 1.0 percent

G. Topcoat

1. The CFRP system shall be top-coated with a coating recommended by the CFRP system MANUFACTURER and in conformance with the following:
 - a. The topcoat shall consist of the same thickened epoxy used between the CFRP layers or potable water coating, if needed.
 - b. Seams in fabric and edges shall be smoothed with thickened epoxy prior to application of the topcoat.
 - c. The topcoat material shall have been used successfully as a finished assembly on a minimum of five past documented pipe strengthening projects.
2. Topcoat shall be installed in accordance with the MANUFACTURER's published installation instructions. The duration elapsed between the application of the last CFRP layer and the topcoat shall not exceed the time specified by the MANUFACTURER.

H. Epoxy Mortar

1. Epoxy mortar shall consist of one-part mixed epoxy combined with five parts sand or equivalent demonstrated to have the ability to bond to concrete, steel, and CFRP in overhead and all other positions.

I. Steel Expansion Ring

1. Weko-Seal stainless steel expansion ring, or approved equivalent with a 1/4 in. rubber strip expanded against pipe wall to achieve minimum 100 psi interface pressure. All expansion rings, wedges, and shims shall conform to the grade recommended by the MANUFACTURER for the expected exposure condition and to ASTM A240.

J. General System Parameters

1. Only two-part 100% solids, ambient cure epoxy resin systems shall be permitted. No polyester or vinyl ester resins will be accepted as alternates to an epoxy resin. Also, the method of application of the carbon fiber system shall be the wet layup method only. Precured laminates or the dry layup method shall not be permitted.
2. Provide an ICC Evaluation Service Report, compliant with the 2012 IBC, for the proposed products.
3. Products that do not have an ICC-ESR must provide all the durability test defined in ICC AC 125 to validate the proposed system durability to provide statistical validation of the CFRP design properties extrapolated at 50 years

4. Large-scale structural testing using the proposed composite system on similar sections of 36-inch diameter or larger pipeline under pressures of at least 150 psi. The test reports shall include:
 - a. Internal pressure testing on CFRP applied to host pipe
 - b. External load testing on CFRP applied to host pipe
 - c. External load testing on CFRP pipe (ASTM D2412) – minimum of 9 samples tested.
5. Provide watertightness testing to verify that no loss of watertightness occurs at twice the working pressure required by the project. A minimum of three specimens shall be provided. The submitted design for this project shall be equal to or greater than the submitted configuration.
6. Installation procedures, maintenance instructions, and general recommendations regarding each material to be used.
7. Certification by the MANUFACTURER that supplied products complies with local regulations controlling use of volatile organic compounds (VOC's).
8. Products that require the use of respirators do not comply with local regulations controlling use of VOC's and shall not be allowed.
9. NSF Certification for the proposed composite system is required when any part of the system may come in contact with the potable water being transported by the pipeline. A printout from the NSF website dated within one week of the request for submittals showing the current and valid certification of the proposed system's NSF approval shall be submitted.
10. Written and notarized certification that the CONTRACTOR has authority to use intended methods without infringing on U.S. patents related to this scope of work.

3.2 DESIGN REQUIREMENTS

- A. The pipe rehabilitation system shall be designed as a stand-alone buried pipe, no contribution from the host pipe shall be considered. Design shall be based on the clearly written performance criteria defined on the structural drawings and in strict accordance with AWWA C305 code requirements and assumptions (with the exception of surface preparation due to steel pipe substrate). The design shall be based on the maximum of the forces resulting from different load combinations and the design shall be based on a minimum 50-year design life assumption and shall include the following:

1. The CFRP liner shall be designed as a stand-alone buried flexible pipe (i.e., CFRP carrying 100% of the internal and external loads acting on the pipe).
 2. No contribution from the host pipe shall be considered.
 3. The CFRP design shall include factors of safety that are selected for long term loads, short-term loads, and buckling based on established procedures.
 4. The CFRP design shall prevent the pumped water from getting behind the liner at any point.
 5. Design shall be in strict accordance with the AWWA C305 Draft Standard.
 6. Calculations shall use the nominal thickness of any layers of CFRP.
 7. Material properties of any GFRP materials or intermediate layers of thickened epoxy shall be excluded from the design.
 8. The design shall include factors of safety that are selected for long-term loads, short-term loads, and buckling based on established procedures.
- B. The design parameters listed below are applicable for the rehabilitation of all proposed pipeline sections as shown on the Drawings. The design of the proposed rehabilitation system shall be based on the following parameters:

Internal steel piping diameter (inch)	<u>27.5 to 30</u>
Internal mortar lined steel piping diameter, max (inch)	<u>42</u>
Internal working pressure (psi)	<u>20</u>
Soil cover height at pump station wall varies, min. height is approx. (ft)	<u>6.5</u>
Height of ground water below the ground surface (ft)	<u>13</u>
Live loads (equivalent to HS20 truck axle, lbs)	<u>32,000</u>
Average temperature change of water	<u>20 deg</u>
Bends	<u>45 deg</u>

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which structural epoxy-resin fabric composite systems will be applied (with installer present) for

compliance with requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

- B. Perform necessary substrate repair prior to preparing surfaces to receive composite. CFRP INSTALLER shall be responsible to provide a substrate that is sound, visibly dry, and free of moisture.
- C. Notify the ENGINEER in writing of anticipated problems using composite over substrate.
- D. The CONTRACTOR shall examine the existing conditions to identify potential obstructions and constraints; shall verify dimensions, and geometry of repair locations; and shall map all visible voids and cracks in the steel wall. Identify and stop leaks near repair area and correct all unsatisfactory conditions prior to system installation.

3.2 SURFACE PREPARATION

- A. The installation of the CFRP is a bond critical application that requires a complete bond between the CFRP system and the host pipe.
- B. Any mortar lined steel pipe shall have all mortar removed and the existing steel pipe shall be prepared to accept CFRP.
- C. Clean, prepare, and treat substrate according to MANUFACTURER's written instructions. Provide a minimum, clean, dust-free, rust-free, and dry substrate for composite application. The steel pipe shall be prepared with sand blasting or sponge blasting to remove scale and prepare for bonding. A surface profile of SSPC SP 10, near white metal blast shall be achieved for all steel substrates to receive CFRP.
- D. The CONTRACTOR shall examine the existing conditions to identify potential obstructions and constraints, shall verify dimensions and geometry and shall repair all flaws and cracks in the steel that may compromise the performance of the CFRP system.
- E. Mask off adjoining surfaces not receiving composite to prevent spillage affecting other construction.
- F. Voids in the substrate shall be filled prior to system installation. Small voids no more than 0.50 inches in depth shall be filled with a thickened epoxy and larger voids filled with epoxy mortar.

3.3 ENVIRONMENTAL CONDITIONS

- A. The installation of an CFRP system requires temperature and moisture control. CONTRACTOR and or/ CFRP INSTALLER shall provide and use dehumidification equipment for shop or field environmental control during surface preparation and/or coating application. Dehumidification

equipment shall be properly sized to maintain dew point temperature as required by the CFRP system MANUFACTURER.

- B. The presence of moisture inhibits the adhesion of epoxies to steel surfaces and therefore the CONTRACTOR must ensure that there is no free moisture on the surfaces to receive composite. The environment shall be maintained to meet the recommendation of the project MANUFACTURER. Surface moisture shall not exceed that used for surface bonding qualifications and shall be 5°F min. above the dew point.
- C. If fluid leakage exists through cracks or joints, fluid flow must be stopped prior to installation. The CONTRACTOR and./or CFRP INSTALLER shall be responsible for maintaining dry conditions. CONTRACTOR and/or CFRP INSTALLER shall be responsible for welding structural patches or mitigating the leaks with hydrophobic foams and epoxy injection materials, then patching the areas with CFRP materials to resist pore pressure while CFRP curing are methods that can be used to ensure flow is stopped prior to installation.
- D. Proper dust control and ventilation shall be provided to meet local safety requirements.
- E. Epoxy resins (including primers) shall be mixed according to the CFRP system MANUFACTURER'S installation instructions.
- F. Mixed epoxy resins that exceed the pot life specified by the MANUFACTURER shall not be used.

3.4 INSTALLATION

- A. The application of the CFRP system including topcoat shall be performed in accordance with the MANUFACTURER'S instructions. The CONTRACTOR and CFRP INSTALLER shall follow all OSHA and local health and safety requirements, especially confined space entry permit requirements, underground construction requirements and ventilation requirements.
- B. The epoxy coating shall be installed only on surfaces that have been roughened and cleaned as per the contract Drawings. After the surface is properly prepared and the surface of the steel is dry, a high solids epoxy primer shall be applied to fill any recesses and to act as a prime coat.
- C. If required by the OWNER, special CFRP detailing shall be used to provide a localized patch repair on steel through wall hole in addition to the existing temporary repair prior to CFRP installation.
- D. The wet-layup method shall be the only approved method for CFRP installation. The CONTRACTOR and CFRP INSTALLER shall have the proper equipment consisting of a fabric saturator and rolling mechanism such that the epoxy saturated fabric is transported to the point of

application and then applied to the surface of the pipe in a wet layup process.

- E. The saturation machine shall be properly calibrated to ensure proper fiber resin ratio. Weight comparison, fabric to resin weight ratio shall follow the MANUFACTURER's recommendations. The saturated fabric shall be weighed periodically to ensure the saturator is calibrated properly, such that the total weight of the resin absorbed by the fabric matches the ratio listed above. This weight comparison is called the fabric to resin weight ratio. The allowable variance in the fabric to resin weight ratio is + or - 10%.
- F. The CFRP INSTALLER shall apply the CFRP material in accordance with the approved submittal for the CFRP system. Saturated fabric shall be pressed into the surface to achieve intimate contact. Entrapped air between layers shall be released or rolled without wrinkling of the fibers.
- G. CFRP laminate shall be isolated from the host pipe using a layer of glass fiber reinforced fabric with a minimum of 0.01in thickness to provide the necessary dielectric barrier.
- H. A misalignment of more than ½ inch per foot or more than 5° will be rejected. Any fabric kinks, folds or severe waviness shall not be permitted. There shall be a minimum circumferential overlap of 12 inches between layers to ensure a full transfer of load through shear.
- I. When multiple ply installation, the sequence and stacking shall follow the special instructions in the construction documents. Each ply shall be installed before the onset of complete gelation of the previous layer. Multiple plies are typically installed in one immediate application but they can also be applied in several days and after the previous ply is cured, provided that the surface is roughened by sanding and is cleaned from dust and residue.
- J. Following the application of the CFRP layers, a final epoxy coating in accordance with the MANUFACTURER's recommendation shall be applied over all exposed surfaces including seams and edges of the composite material to seal the surface. The thickness of the final epoxy layer shall be based on the design by the MANUFACTURER.
- K. The final seal coat shall be cured prior to putting the pipe back into service (full flow).

3.5 INSPECTION AND TESTING

- A. The CONTRACTOR shall provide a Quality Control Specialist (QCS) or MANUFACTURER's field ENGINEER during all stages of the installation of the CFRP product. The QCS shall provide structural observation during the CFRP installation to ensure compliance with shop drawings and bid documents. The QCS shall inspect surface preparation, monitor

acceptable atmospheric conditions, supervise or perform all necessary quality testing, ensure proper material installation as per the approved submittal documents, and inspect installed material for any defects per the MANUFACTURER's quality control standards. The QCS shall review all laboratory test results to ensure compliance with the submitted material properties and bid documents. The QCS will report any non-conformance to the ENGINEER-of-record/OWNER and provide suggested remedial measures as necessary.

- B. The QCS or MANUFACTURER'S field ENGINEER shall inspect the surface preparation of the pipes and provide letter to Owner certifying that existing discharge pipe surface preparation is adequate prior to installation of CFRP liner.

C. In-situ Testing

ASTM D7522 and/or ASTM D4541 – Adhesion Tests

1. Direct tension adhesion testing of cored samples shall be conducted using the method described by ASTM D7522 and/or ASTM D4541. The CONTRACTOR shall install one layer of GFRP in at least one 2ft by 2ft area to be used as mock-ups of the installed CFRP system in accordance with ASTM D4541. The location shall be representative and selected by the ENGINEER and may be on adjacent non-repair pipe provided that surface preparation is the same as that to be used for the repair pipe. The location can also be located within repair scope. Mock-up shall be prepared on each type of substrate or for each surface preparation technique used if variations in such conditions exist.
2. The CONTRACTOR shall perform at least five pull-off tests in the mockup area in the presence of the third-party inspector/MANUFACTURERs field ENGINEER according to ASTM D4541 and using testers with documented calibration. The CONTRACTOR shall take precautions to ensure proper alignment and shimming of the test fixture to prevent non-perpendicular forces on the test specimen which can produce low bond strength results.
3. The prepared surface of the bonded CFRP system shall be allowed to cure a minimum of 72 hours before execution of the direct tension pull-off test. The minimum acceptable value for any single tension test is 500 psi. If bond strength is less than 500 psi or failure is between the CFRP system and steel substrate, the ENGINEER shall be notified for evaluation and acceptance. Minimum bond strength to cement mortar liner shall be 200 psi.
4. Do not start work until the inspector (with ENGINEER's approval if necessary) has approved the mock-ups unless the OWNER allows commencement of work prior to testing of mock-ups.

D. Laboratory Testing

1. Responsibility Allocation

- a. Fabrication, shipping and all costs associated with the CFRP tensile testing shall be the responsibility of the CFRP Installer.
- b. Approval of the tensile testing laboratory proposed by the CFRP Installer shall be the responsibility of the OWNER.

2. Sampling

- a. Record lot number of fabric and epoxy resin used, and location of installation. Measure square footage of fabric and volume of epoxy used each day. Label each sample from each day's production.
 - c. A "sample batch" shall consist of two 12" by 14" sample panels of cured composite. A minimum of two "sample batches" shall be made daily. Prepare sample on a smooth, flat, level surface covered with polyethylene sheeting, or 16 mil plastic film, prime with epoxy resin. Then place **one** layer of saturated fabric and apply additional topping of epoxy. Cover with plastic film and squeegee out all bubbles.
 - d. Samples shall be stored in a sample box and not moved for a minimum 48 hours after casting. The prepared, identified samples shall be given to a pre-approved and experienced testing agency. The testing agency shall be a qualified testing laboratory that is independent from the installer, capable of performing tests according to the ASTM standards. The laboratory shall then precondition samples for 48 hours at 140°F before testing.
3. ASTM D7565 and/or ASTM D3039 – Tension Tests
- a. Testing specimens shall be cut from samples and tested for ultimate tensile strength, tensile modulus and percentage elongation as per ASTM D7565 and/or ASTM D3039 in the longitudinal fiber direction.
 - b. Test a minimum of 15% of all test panels as per ICC AC178. A minimum of five (5) samples shall be tested for each test panel. If one coupon fails (has tensile strength modulus or strain values below the values used in the design calculations), additional specimens from the same 12" x 14" sample will be tested. If these specimens also fail, the other 12" x 14" sample from the same "sample batch" will be tested. In the extreme case that this sample also fails, the remaining "sample batch" for that day will be tested and appropriate remediation shall be taken to ensure integrity of the system at locations from the failed "sample batch".

- c. The results of the testing shall be carried out no later than two weeks after the completion of the carbon fiber application and shall be supplied to the ENGINEER within two weeks of laboratory testing.
- d. CFRP design values must be lower than the calculated mean determined from the test results received from the ASTM D7565 and/or ASTM D3039 field test specimens. Acceptable minimum values for ultimate tensile strength, tensile modulus, and elongation shall not be below the submitted design values.
- e. Any values below the submitted design values will require remediation.

3.6 CURING

- A. All CFRP areas shall be cured using the curing schedule recommended by the MANUFACTURER in writing and approved by the ENGINEER prior to Construction.
- B. The CFRP INSTALLER'S work schedule shall allow sufficient time between completion of repairs and refilling of the pipeline so that all CFRP completes at least 85% cure before being exposed to water based on the cure temperature versus time relationship provided by the MANUFACTURER, unless adequacy of lesser percent cure is proven by test data. The ENGINEER shall reject the work schedule is sufficient for curing in not provided.
- C. The INSPECTOR shall check the cure progress by performing hardness tests on the CFRP system and based on the percent completion versus Barcol or Shore D hardness relationship provided by the MANUFACTURER, and inform the ENGINEER of any nonconformance.
- D. The ENGINEER may specify a revised curing schedule during construction, if needed, based on the cure progress reported by the INSPECTOR.
- E. Curing shall take place in a dry environment to prevent amine blush. If heating is used, direct-fired gas or kerosene "salamander" type heater shall not be permitted. Only electric or indirect-fired heaters shall be permitted.
- F. Curing at elevated temperatures is strongly encouraged. This not only minimizes the risk of amine blush but reduces the required curing time and increases the glass transition temperature of the epoxy. Satisfactory performance of the curing schedules used shall be proven by the MANUFACTURER with documentation of pervious satisfactory applications or thermal test results indicating the curing behavior of the epoxy.

- G. Exhaust fumes from vehicles or equipment shall be kept away from CFRP applied areas during curing.

3.7 REQUIRED REMEDIATION

- A. Small defects (including bubbles, delaminations, and fabric tears) less than 2 sq. in. each do not require corrective action, as long as the total delaminated area is less than 5% of the total laminate area and there are no more than ten such delaminations per 10 sq. ft.
- B. Large defects (including delaminations, and fabric tears), greater than 25 sq. in., shall be repaired by selectively cutting away the affected laminate, abrading the surface and wiping the surface of the remaining layers with materials recommended by the MANUFACTURER and allowed by the OWNER, allowing the surface to dry, applying a coat of thickened epoxy, and applying an overlapping CFRP patch of equivalent layers and fiber orientations. Some large repairs methods shall be reviewed and accepted by the ENGINEER.
- C. Moderate defects (including bubbles, delaminations, and fabric tears) less than 25 sq. in. shall be repaired by filling the delamination by low-pressure injection of the epoxy resin or by the previous procedure specified for large delaminations.
- D. Repair procedures for conditions that are not specifically addressed in this Specification shall be submitted for approval by the ENGINEER prior to the repair work.
- E. All areas of corrective actions shall be re-inspected and approved by the OWNER/Third Party INSPECTORS if required. Any required repairs shall be at the CONTRACTOR'S expense.

3.8 WARRANTY

- A. The CONTRACTOR shall warrant all of the work performed under this task order for a period of five (5) years from the date that all of the work is accepted by the ENGINEER against all faulty or imperfect materials and against all imperfect, careless, and/or unskilled workmanship.
 - 1. The certified applicator, upon receipt of written notice from the OWNER, shall replace with proper workmanship and materials and shall execute, correct or repair (without cost to the OWNER) any work that may be found to be improper or imperfect.
 - 2. The CONTRACTOR shall provide a 5-year bonded warranty for the proposed rehabilitation system as outlined further in this Specification.
 - 3. Defects to be covered under the CFRP composite strengthening warranty shall include, but not be limited to, interfacial peel-off of

*LAKE HOUSTON PUMP STATION DISCHARGE
PIPING REHABILITATION*

SJRA PROJECT NO. HDPR0026.1007.2C001

CFRP COMPOSITE SYSTEM

CFRP layers, blisters in the CFRP top coat, and debonding of CFRP layers from pipe substrate.

END OF SECTION

DIVISION 31

EARTHWORK

SECTION 31 23 00
EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Earthwork and construction of canal levees with excess excavated material and borrow (if necessary).

B. Related Specification Sections include, but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.
3. Section 31 24 00.01 – Borrow.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

A. Referenced Standards:

1. ASTM International (ASTM):
 - a. C33 – Standard Specification for Concrete Aggregates.
 - b. D698 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).
 - c. D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - d. D1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m)).
 - e. D3786 – Standard Test Method for Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm.
 - f. D4253 – Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - g. D4254 – Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
 - h. D4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

- i. D 6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

A. Shop Drawings:

1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
2. Test reports:
 - a. Soils inspection and testing results.

B. Samples:

1. Submit samples and source of fill and backfill materials proposed for use.
2. Submit samples and source of borrow materials proposed for use.

1.5 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fill and Backfill: Selected material approved by Owner's representative (Soils Engineer) from site excavation or from off site borrow.
- B. Classify materials for backfill for purpose of quality control in accordance with Unified Soil Classification Symbols as defined in ASTM D 2487. Class Designations Based on Laboratory Testing:
 1. Class I: Well-graded gravels and sands, gravel-sand mixtures, crushed well-graded rock, little or no fines (GW, SW):
 - a. Plasticity index: non-plastic.
 - b. Gradation: D_{60}/D_{10} - greater than 4 percent; amount passing No. 200 sieve - less than or equal to 5 percent.
 2. Class II: Poorly graded gravels and sands, silty gravels and sands, little to moderate fines (GM, GP, SP, SM):
 - a. Plasticity index: non-plastic to 4.
 - b. Gradations:
 - 1) Gradation (GP, SP): amount passing No. 200 sieve - less than 5 percent.
 - 2) Gradation (GM, SM): amount passing No. 200 sieve - between 12 percent and 50 percent.
 - 3) Borderline gradations with dual classifications (e.g., SP-SM): amount passing No. 200 sieve - between 5 percent and 12 percent.

3. Class III: Clayey gravels and sands, poorly graded mixtures of gravel, sand, silt, and clay (GC, SC, and dual classifications, e.g., SP-SC):
 - a. Plasticity index: greater than 7.
 - b. Gradation: amount passing No. 200 sieve - between 12 percent and 50 percent.
 4. Class IVA: Lean clays (CL).
 - a. Plasticity Indexes:
 - 1) Plasticity index: greater than 7, and above A line.
 - 2) Borderline plasticity with dual classifications (CL-ML): PI between 4 and 7.
 - b. Liquid limit: less than 50.
 - c. Gradation: amount passing No. 200 sieve - greater than 50 percent.
 - d. Inorganic.
 5. Class IVB: Fat clays (CH).
 - a. Plasticity index: above A line.
 - b. Liquid limit: 50 or greater.
 - c. Gradation: amount passing No. 200 sieve - greater than 50 percent.
 - d. Inorganic.
 6. Use soils with dual class designation according to ASTM D 2487, and which are not defined above, according to more restrictive class.
- C. Soils classified as silt (ML), elastic silt (MH), organic clay and organic silt (OL, OH), and organic matter (PT) are not acceptable as backfill materials.
- D. Provide backfill material that is free of stones greater than 2 IN, free of roots, waste, debris, trash, organic material, unstable material, non-soil matter, hydrocarbon or other contamination, conforming to the following limits for deleterious materials:
1. Clay lumps: Less than 0.5 percent for Class I, and less than 2.0 percent for Class II, when tested in accordance with ASTM C142.
 2. Lightweight pieces: Less than 5 percent when tested in accordance with ASTM C123.
 3. Organic impurities: No color darker than standard color when tested in accordance with ASTM C40.
 4. Clay Clods: Less than 4 inches in least dimension.
- E. Native Backfill: Any suitable soil or mixture of soils initially excavated during excavation, meeting the requirements of section 2.1 D of this Specification, and within Classes I, II, III and IV.

F. Refer to Section 31 24 00.01 - Borrow for acceptable borrow materials.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect existing surface and subsurface features on-site and adjacent to site as follows:

1. Protect trees, shrubs, lawns, existing structures, and other features outside of embankment limits.
2. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing items indicated to remain in place.
3. Protect and maintain bench marks, monuments or other established reference points and property corners.
 - a. If disturbed or destroyed, replace at own expense to full satisfaction of Owner and controlling agency.
4. Verify location of utilities.
 - a. Omission or inclusion of utility items does not constitute non-existence or definite location.
 - b. Secure and examine local utility records for location data.
 - c. Take necessary precautions to protect existing utilities from damage due to any construction activity.
 - d. Repair damages to utility items at own expense.
 - e. In case of damage, notify Owner's Representative at once so required protective measures may be taken.
5. Maintain free of damage, existing sidewalks, structures, and pavement, not indicated to be removed.
 - a. Any item known or unknown or not properly located that is inadvertently damaged shall be repaired to original condition.
 - b. All repairs to be made and paid for by Contractor.
6. Provide full access to public and private premises, fire hydrants, street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.
7. Maintain stockpiles and excavations in such a manner to prevent inconvenience or damage to structures on-site or on adjoining property.
8. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.

B. Salvageable Items: Carefully remove items to be salvaged, and store on Owner's premises unless otherwise directed.

- C. Dispose of waste materials, legally, off site.
 - 1. Burning, as a means of waste disposal, is not permitted.

3.2 SITE EXCAVATION AND GRADING

- A. The work includes all operations in connection with excavation, borrow, construction of fills and embankments, rough grading, and disposal of excess materials in connection with the preparation of the site(s) for construction of the proposed facilities.
- B. Excavation and Grading: Perform as required by the Contract Drawings.
 - 1. Contract Drawings may indicate both existing grade and finished grade required for construction of Project.
 - a. Stake all units, structures, piping, roads, parking areas and walks and establish their elevations.
 - b. Perform other layout work required.
 - c. Replace property corner markers to original location if disturbed or destroyed.
 - 2. Preparation of ground surface for embankments or fills:
 - a. Before fill is started, scarify to a minimum depth of 6 IN in all proposed embankment and fill areas.
 - b. Where ground surface is steeper than one vertical to four horizontal, plow surface in a manner to bench and break up surface so that fill material will bind with existing surface.
 - 3. Protection of finish grade:
 - a. During construction, shape and drain embankment and excavations.
 - b. Maintain ditches and drains to provide drainage at all times.
 - c. Protect graded areas against action of elements prior to acceptance of work.
 - d. Reestablish grade where settlement or erosion occurs.
- C. Borrow:
 - 1. Provide necessary amount of approved fill compacted to density equal to that indicated in this Specification Section and in Specification Section 31 24 00.01 – Borrow.
 - 2. Include cost of all borrow material in original proposal.
 - 3. Fill material to be approved by Owner's Representative (Soils Engineer) prior to placement.
- D. Construct embankments and fills as required by the Contract Drawings:
 - 1. Construct embankments and fills at locations and to lines of grade indicated.

- a. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed work.
2. Provide approved fill material which is free from roots, organic matter, trash, frozen material, and stones having maximum dimension greater than 6 IN.
 - a. Ensure that stones larger than 4 IN are not placed in upper 6 IN of fill or embankment.
 - b. Do not place material in layers greater than 8 IN loose thickness.
 - c. Place layers horizontally and compact each layer prior to placing additional fill.
3. Compact by sheepsfoot, pneumatic rollers, vibrators, or by other equipment as required to obtain specified density.
 - a. Control moisture for each layer necessary to meet requirements of compaction.

3.3 ROCK EXCAVATION (NOT USED)

3.4 USE OF EXPLOSIVES

- A. Blasting with any type of explosive is prohibited.

3.5 FIELD QUALITY CONTROL

- A. Do not include in bid price the cost of inspection and testing services indicated herein as being performed by the Owner's Representative (Soils Engineer).
- B. Moisture density relations to be established by the Owner's Representative (Soils Engineer) required for all materials to be compacted.
- C. Compaction Testing may be performed in accordance with ASTM D 1556 or ASTM D 6938 under provisions of Section 01 45 29 - Testing and Laboratory Services, depending on quantity of compacted fill necessary to perform work in accordance with contract documents.
- D. If testing is performed, a minimum of three tests will be taken for each 500 square yards of embankment per lift.
- E. If tests indicate work does not meet specified compaction requirements, recondition, recompact, and retest at no additional cost to Owner.
- F. Give minimum of 24 HR advance notice to Owner's Representative (Soils Engineer) when ready for compaction or subgrade testing and inspection.

3.6 TOLERANCES

- A. Top of compacted surface: Plus or minus ½-inch in cross section.

3.7 COMPACTION DENSITY REQUIREMENTS

- A. Obtain approval from Owner's Representative (Soils Engineer) with regard to suitability of soils and acceptable subgrade prior to subsequent operations.

- B. Provide dewatering system necessary to successfully complete compaction and construction requirements.
- C. Remove frozen, loose, wet, or soft material and replace with approved material as directed by Owner’s Representative (Soils Engineer).
- D. Stabilize subgrade with well graded granular materials as directed by Owner’s Representative (Soils Engineer).
- E. Assure by results of testing that compaction densities comply with the following requirements:

LOCATION	MATERIAL	COMPACTION DENSITY
All applicable areas	Bank sand	95 percent of standard proctor density, +2 to -1% optimum density, by ASTM D698 and ASTM D2922
	Pea gravel	95 percent of maximum relative density by ASTM D4253 and ASTM D4254
	Well-graded crushed stone	95 percent of maximum relative density by ASTM D4253 and ASTM D4254
	Native backfill	95 percent of standard proctor density, +2 to -1% optimum density, by ASTM D698 and ASTM D2922
	Cement stabilized sand	95 percent of standard proctor density, +2 to -1% optimum density, by ASTM D558 and ASTM D2992

3.8 PLACING EMBANKMENT

- A. Do not conduct placement operations during inclement weather or when existing ground or fill materials exceed 3 percent of optimum moisture content. Contractor may manipulate wet material to facilitate drying by disking or windrowing.
- B. Do not place embankment fill until density and moisture content of previously placed material comply with specified requirements.
- C. Scarify areas to be filled to minimum depth of 6 inches to bond existing and new materials. Mix with first fill layer.
- D. Spread fill material evenly, from dumped piles or windrows, into horizontal layers approximately parallel to finished grade. Place to meet specified compacted thickness. Break clods and lumps and mix materials by blading, harrowing, disking or other approved method. Extend each layer across full width of fill.
- E. Each layer shall be homogeneous and contain uniform moisture content before compaction. Mix dissimilar abutting materials to prevent abrupt changes in composition of fill.
- F. Layers shall not exceed the following compacted thickness: 12 inches
- G. For steep slopes, cut benches into slope and scarify before placing fill. Place increasingly wider horizontal layers of specified depth to level of each bench.
- H. Construct to lines and grades shown on Drawings.

- I. Remove unsuitable material and excess soil not being used for embankment from site in accordance with requirements of Section 01 74 19 – Construction Waste Management and Disposal.
- J. Maintain moisture content of embankment materials to attain required density.
- K. Compact to densities at moisture content of optimum to 3 percent above optimum as specified in section 3.7.

3.9 EXCAVATION, FILLING, AND BACKFILLING FOR STRUCTURES

A. General:

- 1. In general, work includes, but is not necessarily limited to, excavation for structures and retaining walls, removal of underground obstructions and undesirable material, backfilling, filling, and fill, backfill, and subgrade compaction.
- 2. Obtain fill and backfill material necessary to produce grades required.
 - a. Materials and sources to be approved by Owner's Representative (Soils Engineer).
 - b. Excavated material approved by Owner's Representative (Soils Engineer) may also be used for fill and backfill.
- 3. In this Specification Section, the word "foundations" includes footings, base slabs, foundation walls, mat foundations, grade beams, piers and any other support placed directly on soil.
- 4. In this Specification Section, the word "soil" also includes any type of rock subgrade that may be present at or below existing subgrade levels.

B. Excavation Requirements for Structures:

1. General:

- a. Do not commence excavation for foundations for structures until Owner's Representative (Soils Engineer) approves:
 - 1) The removal of topsoil and other unsuitable and undesirable material from existing subgrade.
 - 2) Density and moisture content of site area compacted fill material meets requirements of specifications.
 - 3) Site surcharge or mass fill material can be removed from entire construction site or portion thereof.
 - 4) Surcharge or mass fill material has been removed from construction area or portions thereof.
- b. Owner's Representative grants approval to begin excavations.

2. Dimensions:

- a. Excavate to elevations and dimensions indicated or specified.
- b. Allow additional space as required for construction operations and inspection of foundations.
3. Removal of obstructions and undesirable materials in excavation includes, but is not necessarily limited to, removal of old foundations, existing construction, unsuitable subgrade soils, expansive type soils, and any other materials which may be concealed beneath present grade, as required to execute work indicated on Contract Drawings.
 - a. If undesirable material and obstructions are encountered during excavation, remove material and replace as directed by Owner's Representative (Soils Engineer).
4. Level off bottoms of excavations to receive foundations, floor slabs, equipment support pads, or compacted fill.
 - a. Remove loose materials and bring excavations into approved condition to receive concrete or fill material.
 - b. Where compacted fill material must be placed to bring subgrade elevation up to underside of construction, scarify existing subgrade upon which fill material is to be placed to a depth of 6 IN and then compact to density stated in this Specification Section before fill material can be placed thereon.
 - c. Do not carry excavations lower than shown for foundations except as directed by Owner's Representative (Soils Engineer).
 - d. If any part of excavations is carried below required depth without authorization, maintain excavation and start foundation from excavated level with concrete of same strength as required for superimposed foundation, and no extra compensation will be made to Contractor therefore.
5. Make excavations large enough for working space, forms, dampproofing, waterproofing, and inspection.
6. Notify Owner's Representative (Soils Engineer) as soon as excavation is completed in order that subgrades may be inspected.
 - a. Do not commence further construction until subgrade under compacted fill material, under foundations, under floor slabs-on-grade, under equipment support pads, and under retaining wall footings has been inspected and approved by the Owner's Representative (Soils Engineer) as being free of undesirable material, being of compaction density required by this Specification Section, and being capable of supporting the allowable foundation design bearing pressures and superimposed foundation, fill, and building loads to be placed thereon.

- b. Owner's Representative (Soils Engineer) shall be given the opportunity to inspect subgrade below fill material both prior to and after subgrade compaction.
 - c. Place fill material, foundations, retaining wall footings, floor slabs-on-grade, and equipment support pads as soon as weather conditions permit after excavation is completed, inspected, and approved and after forms and reinforcing are inspected and approved.
 - d. Before concrete or fill material is placed, protect approved subgrade from becoming loose, wet, frozen, or soft due to weather, construction operations, or other reasons.
7. Dewatering:
- a. Where groundwater is or is expected to be encountered during excavation, install a dewatering system to prevent softening and disturbance of subgrade below foundations and fill material, to allow foundations and fill material to be placed in the dry, and to maintain a stable excavation side slope.
 - b. Groundwater shall be maintained at least 3 FT below the bottom of any excavation.
 - c. Review soils investigation before beginning excavation and determine where groundwater is likely to be encountered during excavation.
 - d. Employ dewatering specialist for selecting and operating dewatering system.
 - e. Keep dewatering system in operation until dead load of structure exceeds possible buoyant uplift force on structure.
 - f. Dispose of groundwater to an area which will not interfere with construction operations or damage existing construction.
 - 1) Install groundwater monitoring wells as necessary.
 - g. Shut off dewatering system at such a rate to prevent a quick upsurge of water that might weaken the subgrade.
8. Subgrade stabilization:
- a. If subgrade under foundations, fill material, floor slabs-on-grade, or equipment support pads is in a frozen, loose, wet, or soft condition before construction is placed thereon, remove frozen, loose, wet, or soft material and replace with approved compacted material as directed by Owner's Representative (Soils Engineer).
 - b. Provide compaction density of replacement material as stated in this Specification Section.

- c. Loose, wet, or soft materials, when approved by Owner's Representative (Soils Engineer), may be stabilized by a compacted working mat of well graded crushed stone.
 - d. Compact stone mat thoroughly into subgrade to avoid future migration of fines into the stone voids.
 - e. Remove and replace frozen materials as directed by Owner's Representative (Soils Engineer).
 - f. Method of stabilization shall be performed as directed by Owner's Representative (Soils Engineer).
 - g. Do not place further construction on the repaired subgrades, until the subgrades have been approved by the Owner's Representative (Soils Engineer).
9. Do not place floor slabs-on-grade including equipment support pads until subgrade below has been approved, piping has been tested and approved, reinforcement placement has been approved, and Contractor receives approval to commence slab construction.
- a. Do not place building floor slabs-on-grade including equipment support pads when temperature of air surrounding the slab and pads is or is expected to be below 40 DegF during the day of placement unless heated to a temperature of at least 50 DegF.
10. Protection of structures:
- a. Prevent new and existing structures from becoming damaged due to construction operations or other reasons.
 - b. Prevent subgrade under new and existing foundations from becoming wet and undermined during construction due to presence of surface or subsurface water or due to construction operations.
11. Shoring:
- a. Shore, sheet pile, slope, or brace excavations as required to prevent them from collapsing.
 - b. Remove shoring as backfilling progresses, but only when banks are stable and safe from caving or collapse.
12. Drainage:
- a. Control grading around structures so that ground is pitched to prevent water from running into excavated areas or damaging structures.
 - b. Maintain excavations where foundations, floor slabs, equipment support pads or fill material are to be placed free of water.
 - c. Provide pumping required to keep excavated spaces clear of water during construction.

- d. Should any water be encountered in the excavation, notify Owner's Representative (Soils Engineer).
 - e. Provide free discharge of water by trenches, pumps, wells, well points, or other means as necessary and drain to point of disposal that will not damage existing or new construction or interfere with construction operations.
13. Frost protection:
- a. Do not place foundations, slabs-on-grade, equipment support pads, or fill material on frozen ground.
 - b. When freezing temperatures may be expected, do not excavate to full depth indicated, unless foundations, floor slabs, equipment support pads, or fill material can be placed immediately after excavation has been completed and approved.
 - c. Protect excavation from frost if placing of concrete or fill is delayed.
 - d. Where a concrete slab is a base slab-on-grade located under and within a structure that will not be heated, protect subgrade under the slab from becoming frozen until final acceptance of the Project by the Owner.
- C. Fill and Backfill Inside of Structure and Below Foundations, Base Slabs, Floor Slabs, Equipment Support Pads and Piping:
1. General:
 - a. Subgrade to receive fill or backfill shall be free of undesirable material as determined by Owner's Representative (Soils Engineer) and scarified to a depth of 6 IN and compacted to density specified herein.
 - b. Surface may be stepped by at not more than 12 IN per step or may be sloped at not more than 2 percent.
 - c. Do not place any fill or backfill material until subgrade under fill or backfill has been inspected and approved by Owner's Representative (Soils Engineer) as being free of undesirable material and compacted to specified density.
 2. Obtain approval of fill and backfill material and source from Owner's Representative (Soils Engineer) prior to placing the material.
 3. Granular fill under floor slabs-on-grade: Place all floor slabs-on-grade on a minimum of 6 IN of granular fill unless otherwise indicated.
 4. Fill and backfill placement:
 - a. Prior to placing fill and backfill material, optimum moisture and maximum density properties for proposed material shall be obtained from Owner's Representative (Soils Engineer).
 - b. Place fill and backfill material in thin lifts as necessary to obtain required compaction density.

- c. Compact material by means of equipment of sufficient size and proper type to obtain specified density.
 - d. Use hand operated equipment for filling and backfilling next to walls.
 - e. Do not place fill and backfill when the temperature is less than 40 DegF and when subgrade to receive fill and backfill material is frozen, wet, loose, or soft.
 - f. Use vibratory equipment to compact granular material; do not use water.
5. Where fill material is required below foundations, place fill material, conforming to the required density and moisture content, outside the exterior limits of foundations located around perimeter of structure the following horizontal distance whichever is greater:
- a. As required to provide fill material to indicated finished grade.
 - b. 5 FT.
 - c. Distance equal to depth of compacted fill below bottom of foundations.
 - d. As directed by Owner's Representative (Soils Engineer).
- D. Filling and Backfilling Outside of Structures.
1. This paragraph of this Specification Section applies to fill and backfill placed outside of structures above bottom level of both foundations and piping, but not under paving.
 2. Provide material as approved by Owner's Representative (Soils Engineer) for filling and backfilling outside of structures.
 3. Fill and backfill placement:
 - a. Prior to placing fill and backfill material, obtain optimum moisture and maximum density properties for proposed material from Owner's Representative (Soils Engineer).
 - b. Place fill and backfill material in thin lifts as necessary to obtain required compaction density.
 - c. Compact material with equipment of proper type and size to obtain density specified.
 - d. Use only hand operated equipment for filling and backfilling next to walls and retaining walls.
 - e. Do not place fill or backfill material when temperature is less than 40 DegF and/or when subgrade to receive material is frozen, wet, loose, or soft.
 - f. Use vibratory equipment for compacting granular material; do not use water.

4. Backfilling against walls:
 - a. Do not backfill around any part of structures until each part has reached specified 28-day compressive strength and backfill material has been approved.
 - b. Do not start backfilling until concrete forms have been removed, trash removed from excavations, pointing of masonry work, concrete finishing, dampproofing and waterproofing have been completed.
 - c. Do not place fills against walls until floor slabs at top, bottom, and at intermediate levels of walls are in place and have reached 28-day required compressive strength to prevent wall movement.
 - d. Bring backfill and fill up uniformly around the structures and individual walls, piers, or columns.

E. Backfilling Outside of Structures Under Piping or Paving:

1. When backfilling outside of structures requires placing backfill material under piping or paving, the material shall be placed from bottom of excavation to underside of piping or paving at the density required for fill under piping or paving as indicated in this Specification Section.
2. This compacted material shall extend transversely to the centerline of piping or paving a horizontal distance each side of the exterior edges of piping or paving equal to the depth of backfill measured from bottom of excavation to underside of piping or paving.
3. Provide special compacted bedding or compacted subgrade material under piping or paving as required by other Specification Sections in the Project.

3.10 SPECIAL REQUIREMENTS

A. Erosion Control:

1. Conduct work to minimize erosion of site.
2. Construct stilling areas to settle and detain eroded material.
3. Remove eroded material washed off site.
4. Clean streets daily of any spillage of dirt, rocks or debris from equipment entering or leaving site.

3.11 OWNER TRAINING (NOT USED)

END OF SECTION

SECTION 31 23 16.19
CHANNEL EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
Channel Excavation
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 01 57 23.02 Control of Ground Water and Surface Water.
 - 4. Section 31 23 00 – Earthwork.
 - 5. Section 31 24 00.01 – Borrow.

1.2 WORK INCLUDED

- A. Furnish labor, materials, equipment and incidentals necessary to excavate for channels, utilize acceptable material in embankments, provide measures for the control of ground and surface water, and dispose of excess or unsatisfactory materials in an approved manner. Excavations shall be in accordance with the lines, grades and typical sections indicated.
- B. Furnish necessary equipment to perform the excavations noted and to shape the channel to the proper lines.

1.3 JOB CONDITIONS

- A. Suitable materials removed from the excavation shall be reused for the formation of embankments where possible. Excess material, or material unsatisfactory for use as fill, shall be removed from the site and disposed of in an acceptable manner.

1.4 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.5 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Implement surveying procedures to ensure that channel alignment is in accordance with the plans. Cut channel sides and bottom precisely to the lines, grades and section specified. Tolerances are plus or minus 0.2 foot, though positive drainage must be provided at all times during and after construction.
- B. Keep the channel and construction area drained of excess water during construction.

3.2 OWNER TRAINING (NOT USED)

END OF SECTION

SECTION 31 24 00.01
BORROW

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Borrow
- B. Related Specification Sections include, but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 31 23 00 – Earthwork

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. ASTM International (ASTM):
 - a. ASTM D 2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil, and Rock by Mass.
 - b. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit location and description of proposed borrow area for approval.
- C. Submit material samples for testing.

1.5 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 SOIL MATERIAL

- A. Grade borrow material used for embankment free of lumps greater than 6 inches, rocks larger than 3 inches, organic material, chemical waste or other contamination, and debris. Take borrow material from sources approved by Owner's Representative.

- B. Use material with plasticity index not less than 12, nor more than 20 when tested in accordance with ASTM D 4318. Maximum liquid limit shall be 45, unless approved by Owner's Representative. Do not use blend of cohesive and granular soils to achieve required plasticity index.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Notify Owner's Representative and testing laboratory 5 days in advance of opening borrow source to permit obtaining samples for qualification testing. When material does not meet specification requirements, locate another source of borrow.
- B. Clear approved source area of trees, stumps, brush, roots, vegetation, organic matter, and other unacceptable material before excavation.

3.2 TESTS

- A. Test and analyze soil materials in accordance with ASTM D 4318 and ASTM D 2216 under provisions of Section 01 45 29 - Testing Laboratory Services.

3.3 EXCAVATION

- A. Provide adequate drainage of surface water, so that surface water run off does not enter borrow pit excavation.

3.4 HAULING

- A. Use covered trucks.

3.5 EMBANKMENT

- A. Conform to requirements of Section 31 23 00 – Earthwork.

3.6 OWNER TRAINING (NOT USED)

END OF SECTION

SECTION 31 37 01
CONCRETE RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Concrete riprap for protection of canal slopes against erosion.
 2. Grouting of concrete riprap as shown on Drawings.
- B. Related Specification Sections include, but are not necessarily limited to:
1. Division 00 – Proposal Requirements, Contract Forms, and Conditions of the Contract.
 2. Division 01 – General Requirements.
 3. Section 31 23 00 – Earthwork.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
1. ASTM International (ASTM):
 - a. C88 – Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
 - b. C127 – Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
 - c. C136 – Standard Specification for Sieve Analysis of Fine and Coarse Aggregates.
 2. Corps of Engineers (COE):
 - a. CRD-C100 – Method of Sampling Concrete Aggregate and Aggregate Sources, and Selection of Material for Testing.

1.4 SUBMITTALS

- A. Shop Drawings:
1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
 2. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of all standards referenced.

- b. Gradation
- c. Unit weight
- d. Manufacturer and type of proposed non-shrink grout and grout cure/seal compound.
3. Certifications.
4. Test reports.
5. Submit all test reports and certification in a single coordinated submittal.
 - a. Partial submittals will not be accepted.

1.5 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 MATERIALS

A. Riprap:

1. The broken concrete riprap shall be dense, durable, and hard material free from cracks, seams, and other defects which would tend to increase deterioration from handling and natural conditions.
2. Riprap shall have a minimum unit weight of 150 pounds per solid cubic foot.
3. All exposed metal, including but not limited to rebar and wire mesh, shall be cut off flush with the surface of the block prior to placement.
4. Spalls, fragments, and chips shall not exceed 5% by weight. The dimension and shape limitations do not apply to this portion of the riprap.
5. Riprap blocks shall be provided in cubic form, rather than elongated (flat) shapes. No more than 25% of the blocks may have a length greater than 2.5 times the width or thickness. No length of block shall exceed 3 times the width or thickness.
6. The minimum thickness of each block shall be 6 IN.
7. Riprap shall be well graded and shall conform to the gradation given below. Acceptance of riprap material shall be based upon in-place gradations. The gradation below is to be used in normal applications, and may be noted on the drawings as new riprap, 18 IN thick riprap layer, or other similar designations.

Percent Lighter by Weight	Riprap Weight (LBS)		Volume (CF)		Cubical Shape (Ea. Side, FT)		Spherical Shape (Dia., FT)	
	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
100	180	265	1.20	1.77	1.06	1.21	1.31	1.50
50	80	110	0.53	0.73	0.81	0.90	1.01	1.12
15	40	60	0.27	0.40	0.64	0.74	0.80	0.91

Note: Theoretical cube and sphere dimensions are presented in the table for guidance only. The previously listed size and shape specifications shall govern.

2.2 MANUFACTURED PRODUCTS

A. Non-shrink Grout:

1. Non-shrink, non-metallic, non-corrosive, and non-staining.
2. Premixed with only water to be added in accordance with manufacturer's instructions at jobsite.
3. Grout to produce a positive but controlled expansion.
 - a. Mass expansion shall not be created by gas liberation or by other means.
4. Minimum 28 day compressive strength: 6500 psi.
5. Acceptable manufacturers:
 - a. BASF Admixtures, Inc. "Masterflow, 713 Plus".
 - b. Euclid Chemical "NS Grout".
 - c. Sauereisen Cements "F-100 Level Fill Grout".
 - d. U. S. Grout "Five Star Grout".
 - e. Set Products, Inc. "Set Non-Shrink Grout".
 - f. The Upco Corp "Upcon".
 - g. L&M "Crystex".
 - h. Sika Corporation "Sika Grout 212".
6. In accordance with COE CRD-C621.

2.3 SOURCE QUALITY CONTROL

- A. Obtain samples in conformance with COE CRD-C100.
- B. Source Tests:
 1. Supply certified tests and service records to determine acceptability and application of concrete riprap materials.

2. In event suitable test reports or a service record that is satisfactory are not available, as in the case of newly operated sources, subject material to tests necessary to determine its acceptability for use.
 3. Tests to which materials are to be subjected include:
 - a. Specific gravity.
 - b. Soundness in magnesium sulfate.
 - c. Such other tests as may be considered necessary to demonstrate satisfactorily that materials are acceptable including petrographic analysis, abrasion, absorption, and wetting and drying.
- C. Material Acceptability Tests:
1. Initial test:
 - a. On material from each ledge sampled prior to start of construction.
 - b. Specific gravity.
 - c. Soundness in magnesium sulfate.
 2. Control tests:
 - a. Perform control tests including one specific gravity and one soundness in magnesium sulfate for each type of concrete riprap material for total tonnage of material for this Project.
- D. Specific Gravity Test:
1. Conform with ASTM C127.
 2. Not less than 2.40 minimum.
- E. Soundness in Magnesium Sulfate:
1. Conform with ASTM C88, except maintain samples immersed in solution at a temperature of 80 DegF (26 DegC) +2 DegF.
 2. Not more than 12 percent loss at five cycles.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Trim and dress areas on which riprap is to be placed to conform to cross sections shown on the drawings within an allowable tolerance of plus or minus 2 IN from proposed slope lines and grades.
- B. Bring areas that are below allowable minus tolerance limit to grade by filling with material similar to adjacent material.
- C. Compact to density specified for backfill in accordance with Specification Section 31 23 00 – Earthwork.

- D. Do not place any riprap material on prepared base prior to inspection by Owner's Representative.

3.2 PLACING OF CONCRETE RIPRAP

- A. Place concrete riprap material on filter cloth, or bedding material within limits indicated.
- B. Place to produce a well-graded mass of riprap with minimum percentage of voids.
- C. Place to required thickness and grades.
- D. Place to full thickness in a single operation to avoid displacing the underlying material.
- E. Distribute entire mass to conform to gradation specified.
 - 1. Do not place riprap by dumping into chutes or by similar method likely to cause segregation.
- F. Keep finished riprap free from objectionable pockets of small blocks or clusters of larger blocks.
 - 1. Hand place as necessary to obtain a well-graded distribution.
- G. Placing riprap by dumping from top of slope, dumping into chutes, or by similar methods likely to cause segregation of the various sizes shall not be permitted.
- H. Elongated riprap blocks shall be well distributed throughout the riprap mat. Individual oversized blocks will not be permitted. These shall be broken to an acceptable size or removed and replaced with riprap within the gradation limits. Surface irregularities shall be minimal.
- I. Ensure a final tolerance of within 2 IN from indicated slope and grade lines.
- J. Place riprap in conjunction with embankment construction to prevent mixture of embankment and concrete riprap materials.
- K. Maintain concrete riprap until accepted by Owner.
- L. Grout riprap in place using non-shrink grout.
 - 1. Mix in a mechanical mixer.
 - 2. Use no more water than necessary to produce flowable grout.
 - 3. Place in accordance with manufacturer's instructions.
 - 4. Completely fill all spaces and cavities around riprap.
 - 5. Coat exposed edges of grout with cure or seal compound recommended by the grout manufacturer.
- M. Replace any displaced material to lines and grades shown in Contract Documents.

3.3 OWNER TRAINING (NOT USED)

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 90 00
SEEDING, SODDING AND LANDSCAPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Seeding, sodding and landscape planting:
- B. Related Specification Sections include, but are not necessarily limited to:
1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 2. Division 01 – General Requirements.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
1. American Nursery and Landscape Association/American National Standards Institute (ANLA/ANSI):
 - a. Z60.1 – American Standard for Nursery Stock.
 2. AOAC International (AOAC – Association of Official Agricultural Chemists.).
 3. ASTM International (ASTM):
 - a. D2028 – Standard Specification for Cutback Asphalt (Rapid-Curing Type).
 - b. D5276 – Standard Test Method for Drop Test of Loaded Containers by Free Fall.
- B. Quality Control:
1. Fertilizer:
 - a. If Owner’s Representative determines fertilizer requires sampling and testing to verify quality, testing will be done at Contractor's expense, in accordance with current methods of the AOAC.
 - b. Upon completion of Project, a final check of total quantities of fertilizer used will be made against total area seeded.
 - c. If minimum rates of application have not been met, Contractor will be required to distribute additional quantities to make up minimum application specified.

1.4 SUBMITTALS

- A. Shop Drawings:
- B. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
- C. Product technical data including:
 - 1. Acknowledgement that products submitted meet requirements of standards referenced.
 - 2. Manufacturer's installation instructions.
 - 3. Signed copies of vendor's statement for seed mixture required, stating botanical and common name, place of origin, strain, percentage of purity, percentage of germination, and amount of Pure Live Seed (PLS) per bag.
 - 4. Type of herbicide to be used during first growing season to contain annual weeds and application rate.
 - 5. Source and location of sod, plants, and plant material, as per Section 3.2 - Installation and Section 3.3 - Planting Trees, Shrubs, and Ground Covers of this Specification Section.
 - 6. Certification that each container of seed delivered will be labeled in accordance with Federal and State Seed Laws and equals or exceeds Specification requirements.
- A. Miscellaneous Submittals:
 - 1. See Specification Section 01 33 00 – Submittals for requirements for the mechanics and administration of the submittal process.
 - 2. Copies of invoices for fertilizer used on Project showing grade furnished, along with certification of quality and warranty.

1.5 SEQUENCING AND SCHEDULING

- A. Installation Schedule:
 - 1. Provide schedule showing when trees, shrubs, groundcovers and other plant materials are anticipated to be planted.
 - 2. Show schedule of when lawn type and other grass areas are anticipated to be planted.
 - 3. Indicate planting schedules in relation to schedule for irrigation system installation, finish grading and topsoiling.
 - 4. Indicate anticipated dates Owner's Representative will be required to review installation for initial acceptance and final acceptance.
- B. Pre-installation Meeting:

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1. Meet with Owner's Representative and other parties as necessary to discuss schedule and methods, unless otherwise indicated by Owner's Representative.

1.6 WARRANTY

- A. Provide 2-week warranty on plants and sod grasses.
- B. Replace sod that fails during warranty period.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS AND SUPPLIERS

- A. Subject to compliance with the Contract Documents, the manufacturers and suppliers listed in the applicable Articles below are acceptable.
- B. Submit request for substitution in accordance with Specification Section 01 25 13 – Product Substitutions.

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2.2 MATERIALS

BOTANICAL AND COMMON NAME	PERCENT BY WEIGHT (PLS)	MINIMUM PERCENT GERMINATION	MINIMUM PERCENT PURITY
Kentucky Bluegrass (Poa pratensis)	60	85	95
Fescue, Tall, KY 31 (Festura arundiancea 'KY 31')	30	85	98
Ryegrass, Perennial (Lolium perenne)	10	90	95

Pasture Seeding:

BOTANICAL AND COMMON NAME	MINIMUM PERCENT GERMINATION	MINIMUM PERCENT PURITY	LBS PLS PER ACRE
Smooth Brome Grass (Bromus inermis 'Leys')	80	90	14
Fescue, Tall, KY 31 (Festura arundiancea 'KY 31')	90	98	2.5
Switchgrass (Panicum virgatum)	90	95	3.5

BOTANICAL AND COMMON NAME	MINIMUM PERCENT GERMINATION	MINIMUM PERCENT PURITY
Pennegift Crownvetch (Coronilla veria) (Blue-tagged certified hulled)	75	98
Ryegrass, Perennial (Lolium perenne)	90	95

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A. Native Grass Seeding: Certified seed of locally adapted strains.

GRASSES	LBS PLS PER ACRE	APPROXIMATE NUMBER OF SEEDS PER LB (PLS)
Big bluestem(Andropogon gerardi)	2.4	165,000
Blue grama(Bouteloua gracilis)	0.1	825,000
Green needlegrass(Stipa viridula)	0.6	181,000
Indian grass(Sorghastrum nutans)	1.2	175,000
Little bluestem 'Blaze' (Andropogon scoparius 'Blaze')	1.4	260,000
Sideoats grama(Bouteloua curtipendula)	0.8	191,000
Switchgrass(Panicum virgatum)	1.0	389,000
Western wheatgrass(Agropyron smithii)	1.5	110,000
Sand reedgrass(Calamovilfia gigantea)	1.0	273,000
Sand bluestem(Andropogon hallii)	2.5	113000
Sand Lovegrass(Eragrostis trichodes)	0.3	1300000
Reed canarygrass(Phalaris arundinacea)	2.0	533000

FORBS	LBS PLS PER ACRE	APPROXIMATE NUMBER OF SEEDS PER LB (PLS)
Purple prairieclover (Petalostemen purpureum)	0.2	278.000
Pitcher Sage		
Salvia pitcheri	0.2	149,000
Upright prairieconeflower	0.1	461,000

Buffalograss lawn: Spring seeding or dormant fall seeding.

BOTANICAL AND COMMON NAME	LBS (PLS) PER ACRE	APPROXIMATE NUMBER OF SEEDS PER POUND
Buffalograss (Buchloe dactyloides)	20.0	52,000
Blue Grama (Bouteloua gracilis)	0.1	825,000

B. Soil Amendments:

C. Asphalt Binder: Emulsified asphalt per State specifications.

D. Water:

1. Water free from substances harmful to grass or sod growth.
2. Provide water from source approved prior to use.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

A. General:

1. Limit preparation to areas which will be planted soon after.
2. Provide facilities to protect and safeguard all persons on or about premises.
3. Protect existing trees designated to remain.
4. Verify location and existence of all underground utilities.
 - a. Take necessary precaution to protect existing utilities from damage due to construction activity.
 - b. Repair all damages to utility items at no cost to Owner.
5. Provide facilities such as protective fences and/or watchmen to protect work from vandalism.
 - a. Contractor to be responsible for vandalism until acceptance of work in whole or in part.

B. Preparation for Lawn-Type Seeding, Sprigging, Plugging or Sodding:

1. Loosen surface to minimum depth of 4 IN.
2. Remove stones over 1 IN in any dimension and sticks, roots, rubbish, and other extraneous matter.
3. Prior to applying fertilizer, loosen areas to be seeded with a double disc or other suitable device if the soil has become hard or compacted.
4. Correct any surface irregularities in order to prevent pocket or low areas which will allow water to stand.
5. Distribute fertilizer uniformly over areas to be seeded:
 - a. For lawn-type seeding: 30 LBS per 1000 SF.
 - b. For pasture seeding: 200 LBS per acre.
6. Incorporate fertilizer into soil to a depth of at least 2 IN by disking, harrowing, or other approved methods.
7. Remove stones or other substances from surface which will interfere with turf development or subsequent mowing operations.
8. Grade lawn areas to a smooth, even surface with a loose, uniformly fine texture.
 - a. Roll and rake, remove ridges and fill depressions, as required to meet finish grades.
 - b. Limit fine grading to areas which can be planted soon after preparation.

9. Restore lawn areas to specified condition if eroded or otherwise disturbed after fine grading and before planting.
10. Spread limestone uniformly over designated areas at a rate of 100 LBS per 1000 SF.
11. Distribute fertilizer as specified uniformly over areas to be seeded at a rate of 12 LBS per 1000 SF.

C. Native Grass Seeding:

3.2 INSTALLATION

A. Lawn-Type and Pasture Seeding:

1. Do not use seed which is wet, moldy, or otherwise damaged.
2. Perform seeding work from April 20 to May 15 for spring planting, and August 1 to September 15 for fall planting, unless otherwise approved by Owner's Representative.
3. Employ satisfactory methods of sowing using mechanical power-driven drills or seeders, or mechanical hand seeders, or other approved equipment.
4. Distribute seed evenly over entire area at rate of application not less than 4 LBS (PLS) of seed per 1000 SF, 50 percent sown in one direction, remainder at right angles to first sowing.
5. Stop work when work extends beyond most favorable planting season for species designated, or when satisfactory results cannot be obtained because of drought, high winds excessive moisture, or other factors.
 - a. Resume work only when favorable conditions develop.
6. Lightly rake seed into soil followed by light rolling or cultipacking.
7. Immediately protect seeded areas against erosion by mulching.
 - a. Spread mulch in continuous blanket using 1-1/2 tons per acre to a depth of 4 or 5 straws.
8. Protect seeded slopes against erosion with erosion netting or other methods approved by Owner's Representative.
 - a. Protect seeded areas against traffic or other use by erecting barricades and placing warning signs.
9. Immediately following spreading mulch, anchor mulch using a rolling coultter or a wheatland land packer having wheels with V-shaped edges to force mulch into soil surface, or apply evenly distributed emulsified asphalt at rate of 10-13 GAL/1000 SF.
 - a. SS-1 emulsion in accordance with ASTM D5276 or RC-1 cutback asphalt in accordance with ASTM D2028 are acceptable.
 - b. If mulch and asphalt are applied in one treatment, use SS-1 emulsion with penetration test range between 150-200.

- c. Use appropriate shields to protect adjacent site improvements.

3.3 PLANTING TREES, SHRUBS, AND GROUND COVERS

A. Notification:

1. Notify Owner's Representative of source of plants and plant materials at least 30 days prior to planting to permit Owner's Representative inspection of source qualifications.

B. Preparation:

1. Handle plants so that roots or balls are adequately protected from breakage of balls, from sun or drying winds.
 - a. Ensure tops or roots of plants are not permitted to dry out.
2. During transportation, protect materials from wind and sun to prevent tops and roots from drying out.
3. Protect tops of plants from damage. Plants with damaged tops will be rejected.
4. For purpose of inspection and planting identification, attach durable, legible labels to bundle or container of plant material delivered at the planting site. State correct plant name and size of each plant in weather-resistant ink on labels.
5. Do not prune trees and shrubs at nursery.

C. Planting Season:

1. Plant deciduous shade trees and shrubs any time the ground is suitable between October 15 and June 1.
2. Plant evergreen material between September 1 and June 1.
3. Plant ground covers between March 15 to June 1.

D. Planting Procedure:

1. Indicate locations of plants for approval by Owner's Representative before excavating plant locations.
2. In event underground construction, utilities, obstructions, or rock are encountered in excavation of plantings, secure alternate locations from Owner's Representative
 - a. Make said changes without additional compensation.
 - b. Where tree locations fall under existing overhead wires, or crowd existing trees, adjust locations as directed by Owner's Representative.
3. Excavate pits and beds as necessary and in accordance with ANLA/ANSI Z60.1.
 - a. Loosen bottom of pits prior to planting.

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- b. Excavation is unclassified; excavate all materials without additional cost.
4. Tree and shrub pits to be circular in shape with vertical sides at least 1 FT greater in diameter than ball diameter.
 - a. Pit to be of sufficient depth to provide 6 IN of planting soil under ball when set to natural grade.
5. Shrub and ground cover beds:
 - a. Plant shrubs used in mass plantings in individual holes of required size.
 - b. Strip all sod from among mass planting.
 - c. For ground cover beds, remove sod from within limits of bed.
 - d. Add soil amendments as specified and mix or rototill with existing topsoil to a depth of 6 IN.
6. Set plants straight or plumb, in locations when indicated and at such level that after settlement they bear same relationship to finished grade as they did in their former setting.
 - a. Carefully tamp planting soil under and around base of balls to prevent voids.
 - b. Remove burlap, rope and wires from top of balls.
 - c. Do not remove burlap from sides and bottom of balls.
7. Backfill plants with planting soil.
 - a. Tamp to 1/2 depth of pit and thoroughly water and puddle before bringing backfill to proper grade.
 - b. After planting has been completed, flood pit again so that backfill is thoroughly saturated and settled.
8. After planting is complete, form a level saucer 3 IN high around each tree extending to limit of plant pit for watering purposes.
9. Mulch plant pit after saucer has been shaped.
 - a. Mulch to limits of pit and uniformly over ground cover beds to a depth of 3 IN.
 - b. In mass plantings of shrubs, mulch entire area uniformly among shrubs to a depth of 3 IN.
 - c. If mulching is delayed and soil has dried out, water plants thoroughly before spreading mulch.
10. Staking: Stake trees immediately after planting as detailed on Drawings or in accordance with Nursery Standards.
11. Wrap deciduous trees 2 IN or more in caliper by neatly overlapping wrapping material between ground line and second branch. Place ties at

top and bottom of wrapping material and not more than 12 IN apart between top and bottom ties.

12. Remove dead or damaged branches.
 - a. Thin deciduous material to about two-thirds of initial branching.
 - b. Remove only dead or damaged branches from evergreens.
13. Water plants during planting operations.
 - a. Water each plant a minimum of once each week until final acceptance.
 - b. Apply sufficient water to moisten backfill about each plant so that moisture will extend into the surrounding soil.

3.4 MAINTENANCE AND REPLACEMENT

A. General:

1. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
2. Provide and maintain temporary piping, hoses, and watering equipment as required to convey water from water sources and to keep planted areas uniformly moist as required for proper growth.
3. Protection of new materials:
 - a. Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain.
 - b. Repair and pay for all damaged items.
4. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Owner's Representative.

B. Seeded or Sodded Lawns:

1. Maintain seeded lawns: 90 days, minimum, after installation and review of entire project area to be planted.
2. Maintenance period begins at completion of planting or installation of entire area to be seeded or sodded.
3. Owner's Representative will review seeded or sodded lawn area after installation for initial acceptance.
4. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading, and replanting as required to establish a smooth, uniform lawn, free of weeds and eroded or bare areas.
5. Lay out temporary lawn watering system and arrange watering schedule to avoid walking over muddy and newly seeded areas.

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **SEEDING, SODDING AND LANDSCAPING**

- a. Use equipment and water to prevent puddling and water erosion and displacement of seed or mulch.
6. Mow lawns as soon as there is enough top growth to cut with mower set at recommended height for principal species planted.
 - a. Repeat mowing as required to maintain height.
 - b. Do not delay mowing until grass blades bend over and become matted.
 - c. Do not mow when grass is wet.
 - d. Time initial and subsequent mowings as required to maintain a height of 1-1/2 to 2 IN.
 - e. Do not mow lower than 1-1/2 IN.
7. Remulch with new mulch in areas where mulch has been disturbed by wind or maintenance operations sufficiently to nullify its purpose.
 - a. Anchor as required to prevent displacement.
8. Unacceptable plantings are those areas that do not meet the quality of the specified material, produce the specified results, or were not installed to the specified methods.
9. Replant bare areas using same materials specified.
10. Owner's Representative will review final acceptability of installed areas at end of maintenance period.
11. Maintain repaired areas until remainder of maintenance period or approved by Owner's Representative, whichever is the longer period.

3.5 OWNER TRAINING (NOT USED)

END OF SECTION

LAKE HOUSTON PUMP STATION DISCHARGE PIPING REHABILITATION
SJRA Project No. HDPR0026.1007.2C001 **SEEDING, SODDING AND LANDSCAPING**

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SECTION 32 92 13
HYDRO-MULCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Seeding, fertilizing, mulching, and maintenance of areas indicated on Drawings.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
 - 2. Division 01 – General Requirements.
 - 3. Section 32 90 00 – Seeding, Sodding, and Landscaping.
 - 4. Section 32 91 05 – Topsoiling and Finished Grading.

1.2 MEASUREMENT AND PAYMENT

- A. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.3 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 – Submittals.
- B. Submit certification from supplier that each type of seed conforms to these specifications and requirements of Texas Seed Law. Certification shall accompany seed delivery.
- C. Submit certificate stating that fertilizer complies with these specifications and requirements of Texas Fertilizer Law.

1.4 WARRANTY (NOT USED)

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: Conform to material requirements of Section 32 91 05 – Topsoiling and Finished Grading.
- B. Seed: Conform to U.S. Department of Agriculture rules and regulations of Federal Seed Act and Texas Seed Law. Seed shall be certified 90 percent pure and furnish 80 percent germination and meet following requirements:

1. Rye: Fresh, clean, Italian rye grass seed (lolium multi-florum), mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled. Deliver in original unopened containers.
2. Bermuda: Extra-fancy, treated, lawn type common bermuda (Cynodon dactylon). Deliver in original, unopened container showing weight, analysis, name of vendor, and germination test results.
3. Wet, moldy, or otherwise damaged seed will not be accepted.
4. Seed requirements, application rates, and planting dates are:

TYPE	APPLICATION RATE POUNDS/A	PLANTING DATE
Hulled Common Bermuda Grass 98/88	40	Jan 1 to Mar 31
Unhulled Common Bermuda Grass 98/88	40	
Hulled Common Bermuda Grass 98/88	40	Apr 1 to Sep 30
Hulled Common Bermuda Grass 98/88	40	Oct 1 to Dec 31
Unhulled Common Bermuda Grass 98/88	40	
Annual Rye Grass (Gulf)	30	

C. Fertilizer: Dry and free flowing, inorganic, water soluble commercial fertilizer, which is uniform in composition. Deliver in unopened containers which bear manufacturers guaranteed analysis. Caked, damaged, or otherwise unsuitable fertilizer will not be accepted. Fertilizer shall contain minimum percentages of following elements:

1. Nitrogen: 10 Percent
2. Phosphoric Acid: 20 Percent
3. Potash: 10 Percent

D. Mulch:

1. Virgin wood cellulose fibers from whole wood chips having minimum of 20 percent fibers 0.42 inches in length and 0.01 inches in diameter.
2. Cellulose fibers manufactured from recycled newspaper and meeting same fiber content and size as for cellulose fibers from wood chips.
3. Dye mulch green for coverage verification purposes.

E. Soil Stabilizer: "Terra Tack 1" or approved equal.

F. Weed control agent: Pre-emergent herbicide for grass areas, such as "Benefin," or approved equal.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Place and compact topsoil in accordance with requirements of Section 32 91 05 – Topsoiling and Finished Grading.
- B. Dispose of objectionable and waste materials in accordance with Section 01 74 19 – Construction Waste Management and Disposal.

3.2 APPLICATION

- A. Seed: Apply uniformly at rates given in Paragraph 2.1 B for type of seed and planting date.
- B. Fertilizer: Apply uniformly at rate of 500 pounds per acre.
- C. Mulch: Apply uniformly at rate of 50 pounds per 1,000 square feet.
- D. Soil Stabilizer: Apply uniformly at rate of 40 pounds per acre.
- E. Weed Control Agent: Apply at manufacturer's recommended rate prior to hydro mulching.
- F. Sod: Lay single row of sod along perimeter where top soil and pavement intersect. Apply in conformance to Section 32 90 00 – Seeding, Sodding, and Landscaping.
- G. Suspend operations under conditions of drought, excessive moisture, high winds, or extreme or prolonged cold. Obtain Owner's representative approval before resuming operations.

3.3 MAINTENANCE

- A. Maintain grassed areas minimum of 90 days, or as required to establish acceptable growth. For areas seeded in fall, continue maintenance following spring until acceptable lawn is established.
- B. Maintain grassed areas by watering, fertilizing, weeding, and trimming.
- C. Repair areas damaged by erosion by regrading, rolling, and replanting.
- D. Reseed small, sparse grass areas. When sparse areas exceed 20 percent of planted area, reseed by hydro mulch.
- E. Mow grass when height reaches 3½ inches or greater on average before final acceptance. Mow to height of 2½ inches.

3.4 OWNER TRAINING (NOT USED)

END OF SECTION

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DIVISION 33

UTILITIES

Section 33 32 00.01
DIVERSION PUMPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Diversion-pumping: Installation and operation of intake(s), piping, fuel tank(s), pumps (at least 2), valves, flow meter(s), road crossing, and outfall (including riprap and embankment stabilization) required to provide up to 30 MGD pumping capacity.

B. Related Specification Sections include, but are not necessarily limited to:

1. Division 00 – Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.
3. Division 31 - Earthwork

1.2 MEASUREMENT AND PAYMENT

A. Payment for Diversion Pumping System components will be based on the following:

1. Diversion Pumping System installation – Stipulated price (lump sum)
2. Diversion Pumping System on site in standby mode – Stipulated price (lump sum)
3. Diversion Pumping System demobilization – Stipulated price (lump sum)
4. Operation of Diversion Pumping System – Unit cost per hour. Hourly cost to include operator labor and fuel used.

1.3 SYSTEM DESCRIPTION

- A. Provides a complete temporary diversion pumping system with at least 2 pumps to deliver up to 30 MGD of water from Lake Houston to the SJRA Main Canal as shown on the Drawings. The Diversion pumping system must be on site ready to operate the entire time pumps no. 2 & 3 are taken off-line. Pumping system shall remain on standby unless required to operate by SJRA. Contractor must be able to provide operator for system within 4 hours (at any time) of request for operation by SJRA. The system shall include but is not limited to the following components:

1. Intake
 - a. Provide intake to draw raw water from Lake Houston as shown on the Drawings. Lake levels vary, provide intake to accommodate the varying water levels in the lake throughout the duration of the project. Current and historical lake levels can be found at www.houston.uslakes.info/level.asp.
 - b. Coastal Water Authority (CWA) Contractor may elect to lower lake level by 1 foot if required for Lake Houston Dam rehabilitation project, corresponding to a lake level elevation of 41.5 (normal pool is elevation 42.5).
 - c. Provide adequate screening on intake pipes to prevent trash, debris and silt from impeding pumping capacity.
2. Suction line(s)
3. Pump skid or equipment pad
 - a. Install pumping system on a mobile skid or temporary equipment pad in a location as shown on the Drawings. Any grassed area disturbed by the pumping equipment shall be restored to its original condition. Restore disturbed areas to its original line and grade. No components of the skid or equipment pad shall remain on site after project completion.
4. Pumps
 - a. Pumping system shall be designed to provide at least 2 pumps to provide a total pumping capacity of up to 30 MGD.
 - b. Pumps shall run on diesel fuel.
5. Diesel fuel storage and distribution system
 - a. Provide on-site diesel fuel storage and distribution system for pump operation. System must be installed in accordance with manufacturer's recommendations and comply with NFPA 30, International Fire Code, Uniform Fire Code, Texas Commission on Environmental Quality (TCEQ) and Environmental Protection Agency (EPA) regulations.
6. Pump discharge lines and appurtenances
 - a. Pump discharge lines may be routed above ground in grassed areas, but shall be routed under any access roads. Any grassed area disturbed by the installation discharge lines shall be restored to its original condition. Restore disturbed areas to its original line and grade.
 - b. Contractor is responsible for protecting and maintaining the lines throughout the duration of the project.

7. Raw water flow meter(s)
 - a. Contractor shall provide flow metering devices on the pump discharge lines for OWNER to record daily discharge of pumps. Meter shall provide both flow rate and total flow of the system.
 - b. Provide access for Owner to observe and record flow rate and total flow from pumps throughout the duration of the project.
 8. Access road crossing
 - a. Contractor shall protect discharge lines from traffic by providing a temporary encasement/culvert for the discharge lines to be routed under the Coastal Water Authority (CWA) access road as shown on the Drawings. Heavy construction traffic is expected to utilize the road during the project. Crossing shall be designed for H-20 traffic loading. Do not block access road at any time during the Project. During crossing installation, provide emergency access across road to CWA as needed.
 - b. Contractor to remove crossing upon the removal of the diversion pumping system and restore the road to its original condition.
 9. Discharge outfall
 - a. Outfall shall include riprap embankment armament with grout to prevent erosion of the canal channel and embankments.
 - b. Owner will provide a three (3) day shutdown of the canal and pumping for the Contractor to install riprap, grout, piping and slide gate in the canal at the outfall. Contractor to provide fourteen (14) day notice to Owner prior to canal shutdown. Contractor to provide temporary coffer dam and pumps as required to dewater the outfall area prior to placing materials.
 - c. Contractor shall install riprap to maintain existing line and grade of the canal.
- B Operation of pumps will be based on raw water customer demands along the canal. Coordinate operation of pumps with OWNER. Pumps will normally be in standby mode unless requested by SJRA. Contractor to provide an operator for the system within 4 hours of request from SJRA. When pumps are in operation, have an experienced operator on site to engage pumping system, monitor operation, monitor fuel, adjust pumps, make minor repairs to system, and report problems.

1.4 SUBMITTALS

- A. Conform to requirements of Section 01 33 00 - Submittals.
- B. Submit a Diversion Pumping Plan prior to installation. Diversion Plan shall include the following:

1. Overall site layout showing locations of system components.
2. Number, location and size of intake line(s). Include design water surface elevations (WSELs) and debris control mechanisms.
3. Location, type, number, capacity and size of pumps.
4. Number, location, size and type of hoses or rigid piping and all appurtenances.
5. Number, location, size, list of components, and materials for diesel fuel distribution system. Provide certification that system and components meet all applicable regulatory requirements. Provide details on tank re-fueling practices.
6. Number, location, type, manufacturer, flow range, accuracy, and size of flow meter(s). Include equipment cut sheets.
7. Location and details of temporary CWA access road crossing. Include materials and loading information.
8. Location of downstream discharge outfall. Include details for canal armament including riprap placement size and quantity, grouting placement and canal regrading.

1.5 SCHEDULING

- A. Diversion pumping system shall be either in operation mode or standby mode for the duration of the project. OWNER shall coordinate with Contractor if diversion pumping system will need to operate.
- B. Contractor to coordinate the three (3) day canal shutdown for outfall installation with OWNER. Contractor to provide fourteen (14) calendar day notice to OWNER prior to shutdown.
- B. Contractor coordinate operation of diversion pumping with OWNER.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Design piping, joints and accessories to comply with NSF.
- B. Pumps shall comply with the requirements of City of Houston Code of Ordinances, Chapter 30 - Noise and Sound Level Regulation.
- C. Diesel fuel distribution system shall comply with NFPA 30, International Fire Code, Uniform Fire Code, Texas Commission on Environmental Quality (TCEQ) and Environmental Protection Agency (EPA) regulations.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- A. During diversion pumping, do not allow water to leak, dump, or spill into or onto areas outside of Lake Houston or SJRA canal. Do not allow diesel fuel to leak, dump, or spill into or onto areas outside the tank and/or containment.
- B. In the event of an accidental diesel fuel spill or overflow, immediately stop discharge and take action to clean up and disinfect spill. Promptly notify Owner's representative so required reporting can be made to the Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA).

END OF SECTION

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DIVISION 40
PROCESS INTEGRATION

SECTION 40 60 05

WATER CONTROL GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sluice gates.
2. Slide (fabricated) gates.

B. Related Specification Sections include, but are not necessarily limited to:

1. Division 00 – Proposing Requirements, Contract Forms, and Conditions of the Contract.
2. Division 01 – General Requirements.
3. Specification 03 31 32 – Concrete Finishing and Repairing of Surface Defects.

1.2 MEASUREMENT AND PAYMENT

A. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.3 QUALITY ASSURANCE

A. Referenced Standards:

1. ASTM International (ASTM):
 - a. A126, Gray Iron Castings for Valves Flanges, and Pipe Fittings.
2. American Water Works Association (AWWA):
 - a. C560, Standard for Cast-Iron Slide Gates.
3. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).

1.4 DEFINITIONS (NOT USED)

1.5 SUBMITTALS (NOT USED)

1.6 WARRANTY (NOT USED)

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install Owner supplied aluminum slide gate to the pump discharge outfall concrete headwall as shown on the Drawings.
- B. Contractor to install gate during a three (3) day canal shutdown. Provide fourteen (14) calendar day notice to Owner prior to shutdown.
- C. Contractor shall be responsible to providing coffer dam and dewatering the canal in the area of the gate installation.
- D. Contractor shall be responsible for any surface preparation of the concrete headwall required prior to gate installation. Refer to Specification Section 03 31 32 – Concrete Finishing and Repairing of Surface Defects for headwall surface preparation requirements.
- E. Install gate per gate manufacturer's instructions.
- F. Provide all mounting hardware, tools, and grout required for gate installation.

3.2 FIELD QUALITY CONTROL

- A. Installation Check and Start-up:
 - 1. Within the three (3) day canal shutdown, employ and pay for services of the equipment manufacturer's field service representative(s) fully commissioned and authorized by manufacturers to do the following:
 - a. Inspect equipment covered by this Specification Section.
 - b. Supervise adjustments, calibrations and installation checks and full commissioning.
 - c. Perform basic operational checks.
 - d. Provide Owner with a written statement that manufacturer's equipment has been installed properly, lubricated, and calibrated and is ready for operation by the Owner.
- B. Field Leakage Test for Sluice Gate:
 - 1. Test gate under design seating head and adjust to maximum leakage of 0.1 gpm per foot of seating perimeter.

3.3 SCHEDULES

3.4 OWNER TRAINING (NOT USED)

END OF SECTION