



City of League City, TX

300 West Walker
League City TX 77673

Text File

File Number: 11-0281

COPY

12C.

Introduced: 6/9/2011

Current Status: New Business

Version: 1

Matter Type: Agenda Item

Title

Consider and take action to approve a Professional Services Agreement with Camp Dresser & McKee for the Phase II modifications for SH 3 Booster Pump Station Improvements (Assistant City Manager, Public Works)

Staff recommends approval.

..Background:

Camp Dresser & McKee's (CDM) scope of work (attached "Exhibit A") Phase II modifications to the SH 3 Booster Station includes high service booster pump improvements, new controls & energy saving devices such as VFD's, to meet current and future water demands and to provide for a more reliable system (expansion of storage to include an additional 3.0 million gallons in addition to the 1.0 million gallon existing); addition of a low service booster pump station/system at the SH 3 Facility for the purpose of pumping treated potable water through the transmission line to the South Shore Harbour Booster Pump Station in order to provide an additional and redundant conveyance system of potable water; the addition of a new metering station as required by the City of Houston, as well as a new water transmission line from the SH 3 Booster Pump Station to the South Shore Harbor Booster Pump Station for the purpose of providing an additional and redundant conveyance system of potable water.

Phase III as proposed in the Water Master Plan will include additional ground storage capacity in the future. CDM proposes to perform this work for the amount of \$1,600,000.

FUNDING

{ } NOT APPLICABLE

{ X } Funds are available from 2011 Revenue Bond Fund 124.

{ } Requires Budget Amendment to transfer from Account # _____ to Account # _____

APPROVED

JUN 14 2011

CITY COUNCIL

AGREEMENT

STATE OF TEXAS §
 §
COUNTY OF GALVESTON §

This agreement (this "Agreement") entered into by and between Camp Dresser & McKee, Inc. (hereinafter "Professional") and the City of League City, Texas, a Texas home-rule city (the "City").

1. Scope of Services/Professional Fees

This Agreement authorizes Professional to perform all necessary tasks to assist the City with the design of the SH 3 Booster Pump Station Improvements, (the "Work"), those tasks being further described in the attached Exhibit "A". The compensation for Professional shall be on a monthly basis with the rates as denoted in the attached Exhibit "A," with reimbursement of costs at the rates and charges as denoted in the attached Exhibit "A." An estimate of the costs and time schedules for the Work are attached as Exhibit "A." The Professional shall not exceed the estimated cost or fees for any phase of the Work as denoted in Exhibit "A" without further written authorization from the City. Each of these Exhibits "A" through "A" is incorporated into this Agreement by reference for all purposes.

2. Reimbursable Costs

Except for Professional's fees for services provided under this Agreement, reimbursable costs shall be as denoted in the attached Exhibit "A."

3. Progress Reports

Professional shall provide written progress reports to the City regarding the Work and oral reports as requested. At least one progress report shall be made at the time that approximately seventy percent (70%) of a phase as outlined in Exhibit "A" is completed. Such progress report shall identify the projected time and cost required by Professional to complete the remaining phases of the Work required under this Agreement.

4. Personnel of Professional

a. Professional's Project Manager

Professional shall designate Jeffrey S. Peters, P.E., BCEE to serve as Project Manager for the Work performed under this Agreement. Any change of Project Manager shall require thirty days' advance written approval from the City's Representative. Professional certifies that the Project Manager identified in the preceding sentence is a registered Professional Engineer in the State of Texas.

b. Licensed and Registered Engineers

Professional shall keep a full-time registered engineer licensed in the state of Texas on staff for the duration of its performance of the Work.

c. Data on Professional's Employees

Prior to commencement of the Work, Professional shall forward to the City a detailed resume of the personnel that will be assigned to the Work. Such personnel shall include, but not be limited to, engineers.

d. Rejection of Professional's Employees

The City reserves the right to approve or reject from the Work any employees of the Professional.

5. Designation and Duties of the City's Representative

- a. The City's Director of Public Works, or his designee, shall act as the City's Representative.
- b. This City's Representative shall use his best efforts to provide non-confidential City records for Professional's usage on the Work and to provide access to City's property and easements.

6. Standards of Performance

- a. The Professional shall perform all services under this Agreement in accordance with the standards of the engineering profession specializing in this type of design anticipated for the work.

b. Codes and Standards

- (1) All references to codes, standards, environmental regulations and/or material specifications shall be to the latest revision, including all effective supplements or addenda thereto, as of the date that the order for any necessary equipment is made by the City or that the construction specified is bid by the City.
- (2) If any such equipment is specially manufactured, it shall be identified to the City, and the Contractor and the Seller shall present sufficient data to the City to support the design and the suitability of the equipment.
- (3) All materials furnished on any City project shall be in accordance with ASTM specifications, or with other recognized standards. Proprietary material or other materials for which no generally recognized standards exist may be used provided there has been at least five years of proven experience in the field, and the City's Representative has approved such satisfactory documentation.
- (4) The project shall be designed and furnished in accordance with the most current codes and/or standards adopted by City, State or Federal government or in general custom and usage by the profession.
- (5) The codes and standards used in the profession set forth minimum requirements. These may be exceeded by the Contractor or the Professional if superior designs or materials are available for successful operation of equipment and/or for the construction project on which the Work is performed. Any alternative codes or regulations used shall have requirements that are equivalent or better than those in the above listed codes and regulations. The Professional shall state the alternative codes and regulations used.
- (6) Professional agrees the services it provides as an experienced and qualified professional engineer will reflect the professional standards, procedures and performances common in the industry for this project. Professional further agrees that the design, preparation of drawings, the designation or selection of materials and equipment, the selection and supervision of personnel and the performance of other services under this contract, will be pursuant to the standard of performance common in the profession.

- (7) Professional shall promptly correct any defective designs or specifications caused by Professional at no cost to City. The City's approval, acceptance, use of or payment for all or any part of Professional's services hereunder or of the Work itself shall in no way alter Professional's obligations or the City's rights under this Agreement.

7. **Schedule**

Professional shall not proceed with the Work or any stage thereof until written notice to proceed is provided by the City's Representative.

8. **Insurance**

- a. Professional shall procure and maintain insurance in the amounts listed below for protection from claims under workers' compensation, claims for damages because of bodily injury, including personal injury, sickness or disease or death of any and all employees or of any person other than such employees and from claims or damages because of injury to or destruction of property including loss of use resulting therefrom. The Professional shall provide a copy of the insurance certificate to the City.

Coverage

Limit of Liability

Workers' Compensation

Statutory for Worker's Compensation

Employer's Liability

Bodily Injury by Accident:
\$500,000 (Each Accident)

Bodily Injury by Disease:
\$500,000 (Policy Limit)
\$500,000 (Each Employee)

Commercial General:
(Including Broad Form
Coverage, Contractual
Liability, Bodily and
Personal Injury, and
Completed Operations)

Bodily Injury and Property
Damage, Combined:
Limits of \$500,000 each
Occurrence and \$1,000,000
aggregate (defense costs
excluded from face amount of
policy)

- b. Professional shall maintain professional liability (errors and omissions/malpractice) insurance in the amount of \$3,000,000 (in the aggregate). The Professional considers its insurance policies to be confidential business information ("CBI"). The Professional shall provide the City with a Certificate of Insurance evidencing the coverage required under the agreement and, upon request by the City and subject to all the confidentiality protections afforded by CBI, the Professional will provide a copy of its insurance policies.
- c. Professional shall give the City thirty days' written notice prior to any change or cancellation of these insurance policies.

9. Liability

The Professional shall be liable only for the portion of design and other services performed by the Professional and shall be responsible only for the negligent acts or omissions that the Professional has direct control over.

10. Mutual Waiver of Consequential Damages

Notwithstanding any other provision of this Agreement to the contrary, neither party including their officers, agents, servants and employees shall be liable to the other for lost profits or any special, indirect, incidental, or consequential damages in any way arising out of this Agreement however caused under a claim of any type or nature based on any theory of liability (including, but not limited to: contract, tort, or warranty) even if the possibility of such damages has been communicated.

11. Indemnification

Professional agrees to DEFEND, INDEMNIFY and HOLD HARMLESS the City, its employees, agents, officers and assigns from any and all suits, actions, claims, causes of action, damages and losses of any kind and character whatsoever, including, without limitation, reasonable attorneys' fees and expenses, brought for or on account of any injuries or damages, real or asserted, received or sustained by any person or property, on account of any negligence or any act or omission of Professional, its contractors, subcontractors, subconsultants, agents or employees arising directly or in any way connected with the work performed by Professional under this Agreement.

12. Subcontractors and Subconsultants

Professional shall receive written approval of the City's Representative prior to the use of any subcontractors or subconsultants. A copy of all proposed contracts with subconsultants and/or subcontractors shall be given to the City before execution of such contracts.

13. Termination of Professional

The City retains the right to terminate this Agreement “at will” and to pay only for the professional services and subconsultant’s and subcontractor’s costs that were provided for and/or committed to and to that the City approved of prior to the date of termination. All engineering drawings, specifications and files shall be given to the City at the time of termination. Professional shall not be responsible for the City’s misuse of completed drawings, specifications and files; nor shall Professional be responsible for any work by others used to complete partial documents.

14. Records

At the City’s request, the City will be entitled to review and receive a copy of all documents that indicate work on the project that is the subject of this Agreement.

15. Supervision of Professional

Professional shall be subject to the direction and supervision of the City’s Representative. However, it is agreed and stipulated that Professional is an independent contractor and that the City neither reserves nor possesses any right to control the details of the Work performed by Professional under the terms of this Agreement.

16. Billings

The City shall have thirty (30) days to pay Professional’s bills from the date of receipt of such bills. All bills must identify with specificity the work or services performed and the date(s) of such work or services.

17. Reputation in the Community

Professional shall retain a high reputation in the community for providing professional engineering services. Professional shall forward a copy of any current petition or complaint in any court of law, which (a) asserts a claim for \$50,000 or more for errors or omissions in providing engineering services and/or (b) seeks to deny the Professional the right to practice engineering services or to perform any other services in the state of Texas.

18. Payroll and Basic Records

- a. Professional shall maintain payrolls and basic payroll records during the course of the work performed under this Agreement and shall preserve them for a period of three years from the completion of the work called for under this Agreement for all personnel working on such work. Such records shall contain the name and address of each such employee, social security number, correct classification, hourly rates of wages paid, daily and weekly number of hours worked, deductions made and actual wages paid.

- b. Professional shall make the records required to be maintained under the preceding subsection (a) of this section available to the City for inspection, copying or transcription or its authorized representatives. Professional shall permit such representatives to interview Professional's employees during working hours on the job.

19. Default of Professional

- a. If Professional refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this Agreement (including any extension) or fails to complete the work within that time period, the City may, by written notice to Professional, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In such an event, the City reserves the right to take over the work and complete it by contract or otherwise, and may take possession of and use any records necessary for completing the work. Professional shall be liable for any damage to the City resulting from Professional's refusal or failure to complete the work within the specified time, whether or not Professional's right to proceed with the work is terminated. This liability includes any increased costs incurred by the City in completing Professional's work.
- b. Professional shall not be charged with damages under the preceding subsection if:
 - (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the professional. Examples of such causes include (i) acts of God or of the public enemy, (ii) acts of the Government in either its sovereign or contractual capacity, (iii) acts of another Contractor or Professional in the performance of a contract with the Government, and/or extended review or approvals by government agencies out of the control of the Professional, (iv) acts of fire, (v) floods, (vi) epidemics, (vii) quarantine restrictions (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of the professional; and
 - (2) Professional, within ten days from the beginning of any delay (unless extended by the City's Representative), notifies the City's Representative in writing of the causes of delay. The City's Representative shall ascertain the facts and the extent of delay. If, in the judgment of the City's Representative, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the City's Representative shall be final and conclusive on the parties, but subject to appeal to the City's Board of Construction Board of Adjustments and Appeals.

- c. The rights and remedies of the City in this section are in addition to any other rights and remedies provided by law or under this Agreement.

20. Governing Law

This Agreement has been made under and shall be governed by the laws of the state of Texas. The parties further agree that performance and all matters related thereto shall be in Galveston County, Texas.

21. Notices

Notices required under this Agreement shall be mailed to the addresses designated below or such other addresses as the either of the parties may designate in writing from time to time, and unless otherwise indicated in this Agreement, shall be deemed received when sent postage prepaid U.S. Mail to the following addresses:

For the City:
City of League City, Texas
300 West Walker Street
League City, Texas 77573
Attention: City Administrator

For the Professional:
CDM
3050 Post Oak Blvd, Suite 300
Houston, Texas 77056
Attention: Jeffrey S. Peters, P.E.

22. Waiver

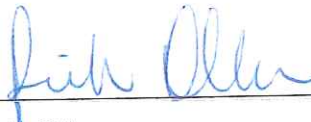
No waiver by either party to this Agreement of any term or condition of this Agreement shall be deemed or construed to be a waiver of any other term or condition or subsequent waiver of the same term or condition.

23. **Complete Agreement**

This Agreement represents the entire and integrated agreement between the City and Professional in regard to the subject matter hereof and supersedes all prior negotiations, representations or agreements, either whether written or oral, on the subject matter hereof. This Agreement may only be amended by written instrument approved and executed by both of the parties. The City and Professional accept and agree to these terms.

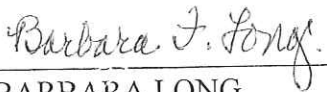
SIGNED ON THE 16th day of June, 2011.

CITY OF LEAGUE CITY, TEXAS



Rich Oller
ACM - Public Works

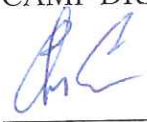
ATTEST:



BARBARA LONG,
City Secretary

SIGNED ON THE _____ day of _____, 2011.

CAMP DRESSER & MCKEE INC.

By: 

Chris Canonico, P.E.
Vice President

EXHIBIT "A"

**FURTHER DESCRIPTION OF ENGINEERING
SERVICES AND RELATED MATTERS
FOR
WATER SYSTEM IMPROVEMENTS, REDUNDANCY, AND SOURCE

DETAILED SCOPE OF SERVICES
FOR
CITY OF LEAGUE CITY (OWNER)
AND CAMP DRESSER & MCKEE, INC. (ENGINEER)**

PROJECT UNDERSTANDING

The ENGINEER understands the scope of the project to include specific improvements to improve dry/peak demand performance and the addition of needed and necessary redundancy improvements to the City of League City water supply and delivery system. Specific improvements include:

1. High service booster pump improvements and expansion of the State Highway (SH) 3 Booster Pump Station to meet current and future (Year 2020 scenario with no additional water source as described in the Water Master Plan) water demands as well as providing for a more reliable system;
2. Addition of a Low Service booster pump station/system at the SH 3 Facility for the purposes of pumping treated potable water through the transmission line described in No. 3 below to the South Shore Harbour Booster Pump Station for the purpose of providing an additional and redundant conveyance system of potable water; and
3. Metering station upgrades at the SH 3 Booster Pump Station as well as a new water transmission line from the SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station for the purpose of providing an additional and redundant conveyance system of potable water.

As such, these scopes have been divided into specific sections with additional scope detail as described below.

***I. STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS
ENGINEERING SERVICES***

The Project includes engineering design services, bid package preparation and engineering services during construction for the City of League City SH 3 Booster Pump Station Improvements. The SH 3 Booster Pump Station is a 16.5 million gallon per day (MGD) potable water booster pump station that currently delivers approximately 90% of the City's potable water. The facility will be expanded/upgraded in accordance with the Phase I improvements

(year 2020 with no additional raw water) recommended in the current water master plan as well as upgraded to meet current codes and standards. The project generally includes the following:

1. Evaluation and assessment of usability and sequencing of existing ground storage and high service booster pumps
2. Addition of 6 million gallons (MG) of ground storage through a combination of two (2) new 3 MG prestressed concrete tanks.
3. Provide a total high serve firm capacity of 17,300 gpm (24.9 MGD) at a design pressure of approximately 73 psi (as determined by the water master plan) through new horizontal split case pump(s).
4. Evaluation of the existing high service pumps, their condition, and recommendation for replacement or refurbishment.
5. New Low Sevice pump station with a total firm capacity of 5,200 gpm (7.3 MGD) at a design pressure of approximately 60 psi (as determined by the water master plan) through new horizontal split case pump(s).
6. New pump building and electrical building as necessary to house the new electrical components.
7. Diesel Generator for Backup with automatic transfer switch.
8. Replacement of the existing incoming waterline meter station based on current and expansion capability for increased flows. This point is defined as the "Point of Beginning (POB)". Any upgraded to the Meter station will conform to City of Houston design requirements.

Task I.1 - Project Management

- 1.1. Coordinate with staff and project personnel to complete project tasks and meet project objectives;
- 1.2. Develop and maintain a project schedule with detailed milestones; and
- 1.3. Provide quality control reviews and technical reviews of all evaluations and recommendations, technical memoranda, and reports.
- 1.4. Project Initiation Meeting to clarify requirements of project
- 1.5. Conduct project meetings with staff monthly and provide appropriate minutes of the meetings and necessary documentation;

All meetings are assumed to be 4 hours of the project manager and one project engineer inclusive of travel time.

Task I.2 – Preliminary Engineering

- 2.1 ENGINEER conduct site visit to review existing infrastructure.
- 2.2 ENGINEER shall evaluate current pump operations for existing and future conditions and provide a phased implementation plan to build out including the desired interim and ultimate capacity. Flow and pressure data from the water master plan will be used for the interim and ultimate capacity plans.
- 2.3 ENGINEER shall prepare a preliminary engineering report (PER) for SH 3 Booster Pump Station and shall include the following information in the PER.
 - Site Layout
 - Equipment Listings
 - One Line Diagram
 - Block Diagram
 - Process Flow Diagram
 - Facility Design Criteria
 - Schedule of Final Design/Construction
 - Control Strategies
 - Documentation necessary for TCEQ coordination.
- 2.4 ENGINEER shall contract with a geotechnical and survey firm to complete required services to support the PER. Costs for these services are listed under Additional or Special Services.
- 2.5 Ultimately, the ENGINEER will develop and provide detailed design drawings and specifications for purposes of bidding the project for construction. In the preliminary design phase the drawings will consist of general arrangement site drawings, block diagrams, process flow diagrams, electrical one-line diagrams, and process and instrumentation diagrams.
- 2.6 Coordination with the Electrical Service Utility Company will be performed for service requirements for the pump station expansion.
- 2.7 ENGINEER shall submit a preliminary estimate of probable construction cost with the preliminary engineering report.
- 2.8 ENGINEER shall provide design topographic survey and site boundary verification of existing site. ENGINEER and OWNER anticipate new facilities will be constructed within the existing site boundary and no property acquisition, easement, or right-of-way will be necessary. Costs for these services are listed under Additional or Special Services.
- 2.9 If available, OWNER shall provide copies of existing vulnerability assessment for use in security design of expansion.

- 2.10 The Engineer shall submit five (5) copies of the draft preliminary engineering report. After receipt of review comments, the Engineer shall incorporate review comments, as appropriate, and submit three (3) copies of the final preliminary engineering report.

Task I.3 – Final Design Phase Services

- 3.1 Preparation of 60% Drawings – ENGINEER will perform the following tasks to prepare the preliminary design of the Project:
- 3.1.1 Establish horizontal and vertical alignments;
 - 3.1.2 Provide Site Layout, Electrical Layouts and Loads, Structural Requirements and Mechanical Tie-ins. SCADA and Instrumentation shall be shown.
 - 3.1.3 Establish pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment.
 - 3.1.4 Establish structural and architectural designs, mechanical equipment and piping arrangements, electrical space requirements, HVAC space requirements, piping alignments, and other mechanical equipment arrangements, pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment.
 - 3.1.5 Prepare an opinion of probable construction costs based on the preliminary design definition;
 - 3.1.6 Update the Project schedule and forward to the OWNER for review;
 - 3.1.7 Meet with the OWNER to discuss progress and status of the 60% design for solicitation of feedback and comments and reach consensus on refinement and revision needs;
 - 3.1.8 Incorporate OWNER comments into the 60% design package;
 - 3.1.9 Submit three sets of 11"x17" preliminary drawings and technical specifications (60% complete) to the OWNER for revision and comment.
- 3.2 Preparation of Final Design – ENGINEER will perform the following tasks to progress the preliminary design of the Project to the final design level.
- 3.2.1 Revise the preliminary (60% complete) drawings and specifications by incorporating comments from the OWNER and City of Houston (where applicable to comply with interconnect agreement);
 - 3.2.2 Finalize the drawings for the proposed improvements;
 - 3.2.3 Incorporate standard details into the drawing set and prepare additional details as required;

- 3.2.4 Submit three sets of 11"x17" final drawings and specifications (100% complete) and associated quantity "takeoff" estimates to the OWNER for review;
- 3.2.5 Meet with the OWNER to discuss the final drawings (100% complete) and associated quantity "takeoff" estimates; and
- 3.2.6 Prepare erosion control plans to comply with the TCEQ Storm Water Management Program. Costs for these services are listed under Additional or Special Services.

Task I.4 - Bid Phase Services

- 4.1 Preparation of Opinion of Probable Construction Costs – ENGINEER will prepare a final opinion of probable construction cost using the quantities defined by the final design. Opinion of Probable costs will be based on material, equipment and labor prevailing at the time of preparation without consideration for inflation and/or raw material increases that may occur.
- 4.2 Preparation of Final Bid Documents – ENGINEER will finalize the Project's bid documents. Final bid documents will include proposal forms, construction drawings, specifications, and other contract documents (as required). ENGINEER will distribute bid documents in electronic format (pdf on CD) at non-refundable deposit from bidders at industry acceptable cost for reproduction.
- 4.3 Assistance in Bid Advertisement Process – ENGINEER will, as required, assist the OWNER in advertising for bids. Assistance does not include a requirement for the ENGINEER to pay for the advertisement. The OWNER will pay for the advertisement.
- 4.4 Addenda and Contract Interpretation. Interpret construction contract documents. Prepare and issue addenda to the construction contract documents when required. A total of three addenda are anticipated for each contract.
- 4.5 Assistance in Bid Tabulation Process – ENGINEER will assist the OWNER in opening bids and in the preparation of a bid tabulation for all bidders. ENGINEER shall prepare an engineer's letter of recommendation that includes certified bid tabulation, including ENGINEER's opinion of probable cost and review of Contractor's
 - 4.5.1 Past work history;
 - 4.5.2 Financial resources; and
 - 4.5.3 Physical resources to construct the Project.
- 4.6 Project Manual – ENGINEER shall produce and transmit to the selected Contractor five (5) sets of project manuals ready for execution and three (3) sets of plans to the Contractor after contracts are executed at Pre-Construction Meeting.

Task I.5 - Design Services During Construction

ENGINEER will perform administration services during the construction phase of the project. By performing these services, ENGINEER shall not have authority or responsibility to supervise, direct, or control the Contractor's work or the Contractor's means, methods, techniques, sequences, or procedures of construction. ENGINEER shall not have authority or responsibility for safety precautions and programs incident to the Contractor's work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Specific services to be performed by ENGINEER are as follows:

- 5.1 At a date and time selected by the OWNER and at a facility provided by OWNER, chair a preconstruction conference. ENGINEER shall prepare an agenda for the conference, and prepare and distribute minutes. The preconstruction conference will include a discussion of the Contractor's tentative schedules, procedures for transmittal and review of the Contractor's submittals, processing payment applications, critical work sequencing, change orders, record documents, and the Contractor's responsibilities for safety and first aid.
- 5.2 Review and comment on the Contractor's initial and updated construction schedule and advise OWNER as to acceptability.
- 5.3 Analyze Contractor's construction schedule, activity sequence, and construction procedures with regard to OWNER's ability to keep existing facilities in operation.
- 5.4 Make periodic visits to the construction site to observe progress of the work, and consult with OWNER, and the Contractor concerning problems and/or progress of the work. A total of 18 site visits is anticipated.
- 5.5 Perform technical and functional review of shop drawings and other data submitted by the Contractor as required by the construction contract documents. ENGINEER's review shall be for general conformity to the construction contract documents and shall not relieve the Contractor of any of his contractual responsibilities. Such reviews shall not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions and programs incident thereto. Engineer will log-in, track, and distribute submittals to the various disciplines and SUBENGINEERS.
- 5.6 Interpret construction contract documents when requested by OWNER or the Contractor.
- 5.7 Provide documentation and administer the processing of change orders, including applications for extension of construction time. Evaluate the cost and scheduling aspects of all change orders and, where necessary, negotiate with the Contractor to obtain a fair price for the work. Said negotiation shall be subject to the approval of OWNER. Work related to unusually complex or unusually numerous claims shall be considered Additional Services.
- 5.8 ENGINEER will prepare Record Documents for the Project. ENGINEER will complete this task utilizing the as-built information provided by the Construction Contractor, and the information resulting from RFIs and other Construction Contractor generated submittals.

ENGINEER will prepare one set of reproducible record drawings for the OWNER, including a copy of the construction plan sheets in electronic format on compact diskette.

- 5.9 Upon substantial completion, inspect the construction work and prepare a list of the items to be completed or corrected before final completion of the project. Submit results of the inspection to OWNER and the Contractor.
- 5.10 Upon completion or correction of the items of work on the list, conduct a final inspection to determine if the work is completed. Provide written recommendations concerning final payment to OWNER, including a list of items, if any, to be completed prior to making such payment.

II. PIPELINE ENGINEERING SERVICES

The Project includes alignment and final engineering design services, bid package preparation and engineering services during construction for the connection from the SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station. The project generally includes the following:

1. A desktop general feasibility and alignment study for the proposed water transmission main from SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station.
2. New water transmission line from the Point of Beginning (POB) to the South Shore Booster Pump Station (Point of Ending, POE) located on the north side of FM 518 near the intersection of FM 518 and Louisiana Street. The route to the Point of Ending shall roughly be:
 - a. From POB, following east along NASA bypass, crossing SH 3 and Old Galveston Road, across undeveloped property to Henderson Ave. Thence turning south along SH 270 and across Clear Creek, thence turning east southeast along the existing Centerpoint/Texas New Mexico power transmission easement to FM 2094, thence turning south southeast along an apparent pipeline easement to the South Shore Booster Pump Station located just before FM 518.
 - b. Pipeline assumes four TxDOT crossings, aerial crossing of Clear Creek along 270, parallel with Centerpoint/Texas New Mexico ROW/easement, parallel to unknown pipeline easement, and one tunnel crossing of an unknown tributary of Clear Creek in Galveston County. All other non-TXDOT roads are assumed to be bored with no casing. All TxDOT crossing assume to be bored with casing.

Task II.1 - Project Management

- 1.1. Coordinate with staff and project personnel to complete project tasks and meet project objectives;
- 1.2. Develop and maintain a project schedule with detailed milestones; and

- 1.3. Provide quality control reviews and technical reviews of all evaluations and recommendations, technical memoranda, and reports.
- 1.4. Unique Meetings
 - 1.4.1 Project Initiation Meeting to clarify requirements of project
 - 1.4.2 ENGINEER will meet with OWNER and City of Houston to review pipeline design and interconnect options.
 - 1.4.3 ENGINEER will meet with adjacent communities (City of Webster, City of Nassau Bay) as necessary for plan approval.
 - 1.4.4 Conduct project meetings with staff monthly and provide appropriate minutes of the meetings and necessary documentation;
 - 1.4.5 Pipeline Alignment Selection Meeting
 - 1.4.6 Draft Summary Report Progress Meeting

All meetings are assumed to be 4 hours of the project manager and one project engineer.

Task II.2 - Alignment Selection

- 2.1. Preliminary Investigation. ENGINEER will coordinate with the OWNER's Project Manager and private utilities to obtain as-built plans and record documents for utilities and streets, plats, right-of-way maps, existing easement information, contour maps, and other features within and pertaining to the Project.

The information and data sought by the ENGINEER will include, at minimum the following for the contemplated pipeline route:

- Existing water master plan and pipeline sizing information;
- Existing zoning, topographic and aerial photo maps;
- Existing locator maps and plans for future franchise utilities;
- Available Geographic Information Systems ("GIS") data including water, wastewater, storm sewer, property ownership, planimetrics, contours, aerial photography, floodplain, zoning, and other information applicable to the Project;
- Texas Commission on Environmental Quality ("TCEQ") rules and regulations, City of League City and Houston water/wastewater basis of design, construction specifications and addenda,
- Property lines and Right-of-Way;

- Plans for proposed improvements in the Project corridor;
 - Photographic record of Project Corridor; and
 - Existing geotechnical reports (if available).
- 2.2. ENGINEER will review the existing materials, reports, and maps provided by the OWNER that are relevant to the Project (as determined by the OWNER and the ENGINEER) and perform field investigations necessary to evaluate proposed alignments.
- 2.3. ENGINEER will download property ownership maps from the Harris County Appraisal District and Galveston County Appraisal District to serve as base maps on alternative pipeline routings.
- 2.4. Not Used.
- 2.5. Alignment Selection and Schematic Design
- 2.5.1 ENGINEER will develop working maps based on the information obtained above for use in final alignment selection.
- 2.5.2 ENGINEER will identify property owners, major constructability constraints, permits required and necessary utility relocation and coordination along the proposed alignments. ENGINEER will develop a schematic plan for each alignment to assess impacts and will prepare a matrix ranking system of economic and non-economic factors including environmental impacts, right of way, schedule impacts, permitting, public acceptance, security, and cost.
- 2.5.3 ENGINEER will meet with the OWNER to develop and select the final alignment. The meeting agenda will include the following:
- A review of alignment criteria;
 - Review of proposed alignments;
 - Identification of additional alignments for consideration;
 - A review of proposed materials for pipes, valves and appurtenances;
 - A walk or drive of the proposed alignments;
 - A review of potential Project phasing/bid packaging options to facilitate Project schedule and budget constraints;
 - Consensus on and selection of a preferred alignment;
 - Consensus on and selection of two pipe materials;

- Consensus on and selection of preferred valve types and other pipe appurtenances; and
- Consensus on and selection of preferred Project Phasing options.

2.5.4 ENGINEER will prepare a Summary Report summarizing the results of the meeting. The report will include the following:

- ***Schematic Alignment*** – ENGINEER will provide the proposed alignment selected, overlaid on working maps of the Project corridor including available GIS information and supporting documentation provided during the alignment meeting.
- ***Support Data and Exhibits*** – ENGINEER will present existing utility location maps, pictures of proposed alignment, typical sections, and other support data and exhibits applicable to this Project phase.
- ***Estimates*** – ENGINEER will prepare an opinion of probable construction cost based on the selected alignment, pipeline, valve types, and appurtenance construction materials.
- ***Materials and Construction Recommendations*** – ENGINEER will provide recommendations for materials, alignment, and construction methods.
- ***Easement Needs*** – ENGINEER will identify easement requirements. It is assumed that 20' wide easements will be required when adjacent to accessible public right of way and 30' wide easements will be required when corridor is not adjacent to public right of way.
- ***Geotechnical Needs*** –ENGINEER will identify the geotechnical needs for the Project.
- ***Utility Location Verification Needs*** –ENGINEER will identify utility relocations needs for the Project.
- ***Permitting Needs*** – ENGINEER will identify required permits (if applicable).
- ***Design Schedule*** – ENGINEER will update the design schedule for OWNER review, comment, and approval.

ENGINEER will submit three hard copies of the Summary Report with color photographs to the OWNER.

2.5.5 Base Mapping and Preparation of Base Mapping Suitable for Design:

- (1) Once alignment from Summary Report is determined, ENGINEER will generate a plan of the existing Project corridor by compiling field survey data

with information obtained during the preliminary investigation that includes the following:

- Line work and text for all known existing utilities, paving, structures, trees, and other above-ground features;
 - Line work and text for existing one foot contours;
 - Line work and text for known proposed improvements by others;
 - Line work and text for existing property lines, right-of-way, easement lines, and control points; and
 - Text for streets, addresses, and property OWNERS.
- (2) ENGINEER will walk the selected alignment to compare the base map with visually observed utilities, structures, and obstructions.
- (3) ENGINEER will submit the final draft base map to franchise utility companies and the OWNER for review, comment, and approval.
- (4) ENGINEER will conduct survey in accordance with City of League City standards to meet City of League City permit review.

Task II.3 - Design Phase Services

- 3.1 Preparation of 60% Drawings – ENGINEER will perform the following tasks to prepare the preliminary design of the Project:
- 3.1.1 Establish horizontal and vertical alignments;
 - 3.1.2 Locate utility crossings from record drawings and field surveys, including nearby utilities, and other nearby improvements;
 - 3.1.3 Establish pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment. Waterline details and embedment details will be shown on detail sheets;
 - 3.1.4 Identify areas where existing utilities may conflict and verify clearances. Subsurface Utility Engineering (SUE) methods as directed by OWNER are not a part of basis services and are considered additional services;
 - 3.1.5 Identify types of construction required along the alignment;
 - 3.1.6 Identify permanent and construction easement requirements (including widths and properties affected) and prepare a right-of-way map;

- 3.1.7 Prepare an opinion of probable construction costs based on the preliminary design definition;
- 3.1.8 Update the Project schedule and forward to the OWNER for review;
- 3.1.9 Submit Summary Report alignment to the private utility companies for review and comment;
- 3.1.10 Meet with the OWNER to discuss schematic level design comments and reach consensus on refinement and revision needs;
- 3.1.11 Distribute the drawings to private utility companies for review and comment;
- 3.1.12 Incorporate OWNER comments into the schematic level design;
- 3.1.13 Submit three sets of 11"x17" preliminary drawings (60% complete) to the OWNER and other necessary entities for revision and comment.
- 3.2 Preparation of Final Design - ENGINEER will perform the following tasks to progress the preliminary design of the Project to the final design level:
 - 3.2.1 Revise the preliminary (60% complete) drawings by incorporating comments from the OWNER and City of Houston;
 - 3.2.2 Incorporate comments from the franchise utility companies;
 - 3.2.3 Finalize the drawings for the proposed improvements;
 - 3.2.4 Incorporate standard details into the drawing set with approved revisions as necessary and prepare additional details as required;
 - 3.2.5 Submit three sets of 11"x17" final drawings (100% complete) and associated sheet by sheet quantity "takeoff" estimates to the OWNER for review;
 - 3.2.6 Meet with the OWNER to discuss the final drawings (100% complete) and associated sheet by sheet quantity "takeoff" estimates; and
 - 3.2.7 Prepare erosion control plans to comply with the TCEQ Storm Water Management Program.
 - 3.2.8 Prepare contract documents

Task II.4 - Bid Phase Services

- 4.1 Preparation of Opinion of Probable Construction Costs - ENGINEER will prepare a final opinion of probable construction cost using the quantities defined by the final design. Opinion of Probable costs will be based on material, equipment and labor prevailing at the

time of preparation without consideration for inflation and/or raw material increases that may occur.

- 4.2 Preparation of Final Bid Documents – ENGINEER will finalize the Project’s bid documents. Final bid documents will include proposal forms, construction drawings, specifications, and other contract documents (as required). ENGINEER will distribute bid documents in electronic format (pdf on CD) at non-refundable deposit from bidders at industry acceptable cost for reproduction.
- 4.3 Assistance in Bid Advertisement Process – ENGINEER will, if required, assist the OWNER in advertising for bids. Assistance does not include a requirement for the ENGINEER to pay for the advertisement. The OWNER will pay for the advertisement.
- 4.4 Pre-Bid Conference. ENGINEER shall lead pre-bid conference and prepare meeting minutes for distribution as an addenda.
- 4.5 Addenda and Contract Interpretation. Interpret construction contract documents. Prepare and issue addenda to the construction contract documents when required. A total of three addenda are anticipated for each contract
- 4.6 Assistance in Bid Tabulation Process – ENGINEER will, if requested, assist the OWNER in opening bids and will prepare a bid tabulation for all bidders. ENGINEER will prepare an engineer’s letter of recommendation that includes certified bid tabulation, including ENGINEER’s opinion of probable cost and review of Contractor’s
 - 4.5.1 Past work history;
 - 4.5.2 Financial resources; and
 - 4.5.3 Physical resources to construct the Project.
- 4.7 Project Manual – ENGINEER shall produce and transmit to the selected Contractor five (5) sets of project manuals ready for execution and three (3) sets of plans to the Contractor after contracts are executed at Pre-Construction Meeting.

Task II.5 – Design Services During Construction

ENGINEER will perform administration services during the construction phase of the project. By performing these services, ENGINEER shall not have authority or responsibility to supervise, direct, or control the Contractor’s work or the Contractor’s means, methods, techniques, sequences, or procedures of construction. ENGINEER shall not have authority or responsibility for safety precautions and programs incident to the Contractor’s work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Specific services to be performed by ENGINEER are as follows:

- 5.1 At a date and time selected by the OWNER and at a facility provided by OWNER, chair a preconstruction conference. It is assumed that OWNER's Construction Manager shall prepare an agenda for the conference, and prepare and distribute minutes. The preconstruction conference will include a discussion of the Contractor's tentative schedules, procedures for transmittal and review of the Contractor's submittals, processing payment applications, critical work sequencing, change orders, record documents, and the Contractor's responsibilities for safety and first aid.
- 5.2 If requested, review and comment on the Contractor's initial and updated construction schedule and advise OWNER as to acceptability.
- 5.3 Make periodic visits to the construction site to observe progress of the work, and consult with OWNER, Construction Manager, and the Contractor concerning problems and/or progress of the work. A total of 8 site visits, including attendance at monthly progress meetings, is anticipated.
- 5.4 Review drawings and other data submitted by the Contractor as required by the construction contract documents. ENGINEER's review shall be for general conformity to the construction contract documents and shall not relieve the Contractor of any of his contractual responsibilities. Such reviews shall not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions and programs incident thereto. A total of 40 submittals are anticipated.
- 5.5 Receive and review guarantees, bonds, and certificates of inspection, and tests and approvals which are to be assembled by the Contractor in accordance with the construction contract documents, and transmit them to OWNER.
- 5.6 Interpret construction contract documents when requested by OWNER or the Contractor. A total of 15 RFI's is anticipated
- 5.7 Review and process the Contractor's monthly payment requests, and forward to OWNER as appropriate.
- 5.8 Provide documentation and administer the processing of change orders, including applications for extension of construction time. Evaluate the cost and scheduling aspects of all change orders and, where necessary, negotiate with the Contractor to obtain a fair price for the work. Said negotiation shall be subject to the approval of OWNER. A total of five change orders are anticipated for each construction contract. Work related to unusually complex or unusually numerous claims shall be considered Additional Services.
- 5.9 ENGINEER will perform limited Construction Administration services for the Project. However, ENGINEER will prepare Record Documents for the Project. ENGINEER will complete this task utilizing information provided by the OWNER, the as-built information provided by the Construction Contractor, and the information resulting from RFIs and other Construction Contractor generated submittals. ENGINEER will prepare one set of

reproducible record drawings for the OWNER, including a copy of the construction plan sheets in electronic format on compact diskette.

- 5.10 Upon substantial completion, inspect the construction work and prepare a list of the items to be completed or corrected before final completion of the project. Submit results of the inspection to OWNER and the Contractor.
- 5.11 Upon completion or correction of the items of work on the list, conduct a final inspection to determine if the work is completed. Provide written recommendations concerning final payment to OWNER, including a list of items, if any, to be completed prior to making such payment.

III. ADDITIONAL & SPECIAL SERVICES

Additional Services shall be provided on as-needed basis described below. In several cases, the scopes will apply to both the SH 3 Booster Pump Station upgrades as well as the pipeline. Costs for each additional and special services have been provided separately for the each project.

Task III.1- Resident Engineering Services

- 1.1 ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing progress and quality of the work of Contractor.
- 1.2 Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the work of Contractor. However, ENGINEER shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures selected by Contractor, for safety precautions and programs incident to the work of Contractor, for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's performing and furnishing the work, or responsibility of construction for Contractor's failure to furnish and perform the Work in accordance with the Contract Documents.
- 1.3 The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:
 - 1.4 General
 - 1.4.1 RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and Contractor, keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and

approval of Contractor. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

1.5 Duties and Responsibilities of RPR

1.5.1 Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with ENGINEER concerning acceptability.

1.5.2 Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

1.5.3 Liaison:

1.5.3.1 Serve as ENGINEER's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of Contract Documents; and assist ENGINEER in serving as OWNER's liaison with Contractor when Contractor's operations affect OWNER's onsite operations.

1.5.3.2 Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

1.5.4 Shop Drawings and Samples:

1.5.4.1 RPR shall maintain a tracking log of Submittals, Shop Drawings and Samples.

1.5.4.2 Receive Samples which are furnished at the site by Contractor, and notify ENGINEER of availability of Samples for examination.

1.5.4.3 Advise ENGINEER and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by ENGINEER.

1.5.5 Review of Work, Rejection of Defective Work, Inspections and Tests:

1.5.5.1 Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

1.5.5.2 Report to ENGINEER whenever RPR believes that any Work will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

- 1.5.5.3 Verify that tests, equipment and systems start-up and operating and maintenance training are conducted in accordance with the Contract Documents in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and start-ups.
- 1.5.5.4 Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
- 1.5.6 Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by ENGINEER.
- 1.5.7 Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to Contractor in writing decisions as issued by ENGINEER.
- 1.5.8 Records:
 - 1.5.8.1 Maintain at the job site orderly files (using City file codes) for correspondence, reports of job conferences, Shop Drawings and Samples, reproductions of original Contract Documents including all Addenda, Change Orders, RFIs, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, Shop Drawing submittals received from and delivered to Contractor and other Project related documents.
 - 1.5.8.2 Prepare a daily report and keep a diary or log book, recording Contractor's hours on the job site, weather conditions, data relative to questions of Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
 - 1.5.8.3 Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment, provide the information to the OWNER and provide updates if such information changes.
- 1.5.9 Reports:
 - 1.5.9.1 Furnish to ENGINEER monthly reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.
 - 1.5.9.2 Consult with ENGINEER and OWNER in advance of scheduled major tests, inspections or start of important phases of the Work.

1.5.9.3 Draft proposed Change Orders and Work Change Directives, obtaining backup material from Contractor and recommend to ENGINEER Change Orders, Work Change Directives, and RFIs.

1.5.9.4 Report immediately to ENGINEER and OWNER the occurrence of any accident.

1.5.10 Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

1.5.11 Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER as required in the Contract Documents.

1.5.12 Completion:

1.5.12.1 Before ENGINEER issues a Certificate of Substantial Completion, coordinate with the Contractor to prepare a list of observed items requiring completion or correction.

1.5.12.2 Observe whether Contractor has had performed inspections required by laws, rules, regulations, ordinances, codes, or orders applicable to the work, including but not limited to those to be performed by public agencies having jurisdiction over the work.

1.5.12.3 Conduct a final inspection in the company of ENGINEER, OWNER and Contractor and prepare a final list of items to be completed or corrected.

1.5.12.4 Observe whether all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the Final Completion Certificate.

1.6. Limitations of Authority by RPR

1.6.1 Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items), unless authorized by ENGINEER and OWNER.

1.6.2 Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the Contract Documents.

- 1.6.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
- 1.6.4 Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- 1.6.5 Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
- 1.6.6 Shall not accept Shop Drawing or Sample submittals from anyone other than Contractor.
- 1.6.7 Shall not authorize OWNER to occupy the Project in whole or in part.
- 1.6.8 Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

Task III.2- Geotechnical Services

- 2.1 General Soil Analysis – ENGINEER will conduct a soils evaluation and provide a general soils analysis of the Project's construction areas including taking representative borings at spacing no more than 500 feet along pipeline corridor plus additional borings at critical areas determined by the ENGINEER, the Geotechnical Engineer, and the OWNER. Geotechnical Investigation shall flag boreholes for survey by ENGINEER's Survey Subcontractor. The evaluation and analysis will include the following information and recommendations:
 - 2.1.1 Soil characteristics;
 - 2.1.2 Location of water table; and
 - 2.1.3 Recommendations for backfill, paving repair, and construction by other than open cut method.
- 2.2 It is assumed OWNER shall provide right of entry access to each identified parcel for placement of geotechnical borings and survey.
- 2.3 Geotechnical Investigation will begin after the facility and pipeline alignments have been agreed upon by OWNER.
- 2.4 Fault Study. ENGINEER shall conduct a fault study to evaluate the presence of faults. ENGINEER shall prepare fault report and incorporate design consideration for fault crossings.

Task III.3 - Permits

- 3.1 ENGINEER will meet with OWNER and City of Houston to review collaborative options for partnering on the meter vault improvements (if necessary).
- 3.2 ENGINEER shall prepare permit applications for the following known entities (if necessary):
 - U.S. Army Corps of Engineers
 - Texas Commission of Environmental Quality 401
 - Texas Commission of Environmental Quality - Water Infrastructure
 - City of Webster
 - City of Nassau Bay
 - City of Houston
 - TXDOT
 - HCFCO
 - Texas Historical Commission

Task III.4 - Surveying

- 4.1 Surveying for Design – The ENGINEER will perform a topographic survey of the Project corridor in accordance with City of League City and other surrounding entities as necessary survey requirements. Where conflicting, ENGINEER shall use most restrictive standard. The topographic survey for the SH 3 plant site shall include a complete 50 ft grid survey of the entire site. The topographic survey for the pipeline will have a minimum 100-foot width of field including 20 feet of anticipated easement width and 80 feet of flanking corridor. ENGINEER will obtain and apply survey data in the development of pipeline construction drawings that includes the following:
 - 4.1.1 Establish Project control to City of League City published basis of design at time of Summary Report submission;
 - 4.1.2 Locate and tie existing above ground utility appurtenances, structures, bushes/landscaping, trees over six inches in diameter, curbs, pavements, and fences, etc.;
 - 4.1.3 Locate existing depths and elevations of water and wastewater pipelines (based on record information and visible appurtenances) and probing at conflict locations, when required;
 - 4.1.4 Locate existing manhole inverts and rim elevations, if the proposed pipeline will be crossing a sewer line;
 - 4.1.5 Obtain existing pavement types and thicknesses based on record information and field observations;
 - 4.1.6 Provide top of curb elevations every 50 feet where applicable;

- 4.1.7 Seek to locate rights-of-ways and property corners along the Project corridor;
- 4.1.8 ENGINEER will utilize geophysical prospecting equipment to designate the horizontal position of existing underground utilities that cross or are in close proximity of the proposed line (private markings will be tied into the Project survey);
- 4.1.9 It is assumed OWNER shall provide right of entry access to each identified parcel for survey.
- 4.1.10 Locate geotechnical borings
- 4.1.11 Coordinate and meet with third party pipeline companies to confirm location of existing piping.
- 4.2 Easement Exhibits
 - 4.2.1 Abstracting. ENGINEER will perform record research and surveying services to locate and monument up to 20 proposed permanent easements and 20 proposed construction easements.
 - 4.2.2 ENGINEER will prepare easement exhibits for 20 permanent easements and 20 construction easements. The construction easements will be parallel and contiguous to each side of the permanent easements. Easement Exhibits will include a metes and bounds description for each easement and a corresponding map for each parcel crossed.
 - 4.2.3 ENGINEER will provide electronic data easements.
- 4.3 Aerial Mapping
 - 4.3.1 ENGINEER shall provide aerial mapping at 1000 foot elevation along proposed pipeline corridor with at least 0.5 foot contour accuracy.
- 4.4 Surveying for Construction
 - 4.4.1 ENGINEER will provide field surveying to set horizontal and vertical control approximately every 500 feet to the lines and grades as shown on the drawings. Construction staking shall be performed by the Contractor setting horizontal control for construction.

Task III.5 - Storm Water Pollution Prevention Plan

ENGINEER will prepare a Storm Water Pollution Prevention Plan for the project in accordance with the conditions of the General Permit for Storm Water Discharges from Construction Activity pursuant to TCEQ TPDES Program.

Task III.6 - Phase 1 ESA

ENGINEER shall perform a Phase I Environmental Site Assessment along the proposed water transmission main alignment. The assessment will include review of records, photographs, and documents to identify possible contamination sites along the alignment. The Phase 1 ESA shall be conducted to City of League City standards. A report describing the findings of the assessment will be prepared.

Task III.7 - Corrosion Protection

ENGINEER shall prepare a report of recommendations for cathodic protection systems for the water transmission main. The recommendations will be incorporated into the design of the transmission mains.

Task III.8 - Wetland, Endangered Species, and Archeological

ENGINEER shall perform the following services for the proposed alignment:

- Wetland Determination
- Endangered Species Assessment
- Nationwide Permit Application Preparation (Corps of Engineers)

ENGINEER shall provide mapping and other technical assistance for the preparation of the environmental reports and permit applications.

Task III.9 – Transient Surge Analysis on Interconnect Piping

ENGINEER shall conduct a surge analysis on the proposed interconnect between the City of Houston (at the SH 3 Booster Pump Station) and City of League City (South Shore Harbour Booster Pump Station) to determine design provisions necessary to control unavoidable surge events.

Task III.10 - Traffic Control Plans

ENGINEER shall develop traffic control plans in accordance with TXDOT, City of Webster, City of Nassau Bay, and City of League City requirements for work in and adjacent to Right of Way of transmission and distribution piping.

IV. ITEMS NOT INCLUDED IN THE EXISTING SCOPE OF SERVICES

Additional Services not included in the existing Scope of Services – OWNER and ENGINEER agree that the following services are beyond the Basic and Special Scope of Services described in the tasks above. However, ENGINEER may be requested in writing by the OWNER, to perform additional services if needed. Any additional amounts paid to the ENGINEER resulting from any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. The Additional Services may include any one or combination of the following:

- 1.1 Relating to the Project, the parties agree that at the time of execution of the Agreement, the requirements of the Barriers Act are not applicable to the Scope of Services to be performed by ENGINEER under this Agreement.
- 1.2 Materials Testing
- 1.3 Computer modeling of water systems (unless otherwise specified above)
- 1.3 Plats
- 1.4 Environmental remediation, USACOE 404 Individual, Regional Permits or Mitigation Plans
- 1.5 Archeological excavations or analysis of any kind
- 1.6 Fees and permits and Bid Advertising services requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.7 Traffic engineering reports and/or studies requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.8 Hydraulics and Hydrology modeling for any ditch or drainage way that may be crosses by pipelines included in this scope.
- 1.9 Floodplain studies or reclamation plans (Federal Emergency Management Administration, Conditional Letter of Map Removal, and Letter of Map Removal)
- 1.10 Construction Administration Services requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.11 Trench Safety design
- 1.12 Retaining Walls
- 1.13 Quality Control and Testing services during construction beyond what is already listed in the scope.

- 1.14 On-site safety precautions, programs, and responsibility
- 1.15 Landscape and irrigation design
- 1.16 Television inspection and metering services
- 1.17 Wetlands Delineation beyond what is already listed in the scope.
- 1.18 Right-of-Way Acquisition Services
- 1.19 Services in connection with condemnation hearings
- 1.20 Any level of SUE work.
- 1.21 Vulnerability Assessments
- 1.22 Tree Mitigation Plans and/or Approvals
- 1.23 SCADA Radio Surveys
- 1.24 Application Engineering
- 1.24 Evaluation for supplemental disinfection.

V. SCHEDULE

1. A detailed schedule will be completed after authorization and a prioritization meeting with the OWNER.
2. Assumptions include:
 - ENGINEER assumes that OWNER will provide review comments within 10 calendar days of submission.
 - Permit Agencies shall provide comments and permit acceptance without undue reason within 10 days of final drawings
 - No delay in access to parcels for survey or geotechnical investigation

VI. FEE SCHEDULE

1. The costs for Basic Services, shall be on a not to exceed Lump Sum basis based on the amounts shown in **Table A-3** and will be billed on a percent complete basis in accordance with the scope of services for each milestone.
2. The costs for Additional & Special Services shall be on a not to exceed reimbursable basis based on hourly rates shown in **Table A-1**, plus all non-salary expenses at the incurred cost plus 5% charge to cover overhead, administration, and other indirect costs as listed **Table A-2**,
3. Total Fees shall not exceed \$2,414,000 as shown in **Table A-3**.
4. Services for these tasks shall be commenced immediately upon written authorization and notice to proceed from the City.

Services for all tasks shall be as authorized as the City issues notice to proceeds on each individual task. As some reimbursable tasks are allowances for future work, the ENGINEER may receive approval to transfer excess budget from one task to another with the approval of the City.

VII. PAYMENT SCHEDULE

1. Engineer shall prepare monthly invoice for work completed.
2. Payment for additional services shall be for reimbursable costs accrued at the time of each invoice.

TABLE A-1
TO AGREEMENT BETWEEN ENGINEER AND OWNER
FOR
PROFESSIONAL SERVICES
FOR
DESIGN AND CONSTRUCTION PHASE SERVICES
FOR
CITY OF LEAGUE CITY
STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS

HOURLY LABOR RATES

LABOR CATEGORY	Hourly Rate
Principal	\$200.00
Sr. Tech Specialist (QA/QC)	\$197.00
Technical Director	\$175.00
Sr. Project/Project Manager	\$165.00
Discipline Manager	\$175.00
Electrical/Instrumentation Engineer	\$165.00
Structural Engineer	\$165.00
Engineer 5	\$150.00
Engineer 3/4	\$135.00
Engineer 1/2	\$120.00
Senior Designer/Drafter	120.00
Drafter	\$90.00
Sr. GIS Technician	\$120.00
GIS Technician	\$90.00
Senior Administrative Personnel	\$100.00
Administrative Accounting	\$90.00

TABLE A-2
TO AGREEMENT BETWEEN ENGINEER AND OWNER
FOR
PROFESSIONAL SERVICES
FOR
DESIGN AND CONSTRUCTION PHASE SERVICES
FOR
CITY OF LEAGUE CITY
STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS

REIMBURSABLE COSTS

Item	Unit Cost
Photocopies (8-1/2x11 B&W single sided)	\$0.11
Photocopies (8-1/2x11 B&W double sided)	\$0.22
Photocopies (8-1/2x11 color)	\$1.10
Photocopies (11x17 B&W single sided)	\$0.17
Mylar Plots (each)	22.00
Color Plots (24x36)	22.00
Bluelines (each)	1.10
CADD Computer Allocation (per hour)	12.50
Mileage	0.50 ³
Notes: 1. All other reimbursable costs will be invoiced at actual cost plus 5%. 2. All outside professionals will be invoiced at actual cost plus 5% mark-up. 3. Subject to revision in accordance with the U.S. Federal Government General Services Administration for mileage reimbursement for automobiles.	

EXHIBIT "A"

**FURTHER DESCRIPTION OF ENGINEERING
SERVICES AND RELATED MATTERS
FOR
WATER SYSTEM IMPROVEMENTS, REDUNDANCY, AND SOURCE

DETAILED SCOPE OF SERVICES
FOR
CITY OF LEAGUE CITY (OWNER)
AND CAMP DRESSER & MCKEE, INC. (ENGINEER)**

PROJECT UNDERSTANDING

The ENGINEER understands the scope of the project to include specific improvements to improve dry/peak demand performance and the addition of needed and necessary redundancy improvements to the City of League City water supply and delivery system. Specific improvements include:

1. High service booster pump improvements and expansion of the State Highway (SH) 3 Booster Pump Station to meet current and future (Year 2020 scenario with no additional water source as described in the Water Master Plan) water demands as well as providing for a more reliable system;
2. Addition of a Low Service booster pump station/system at the SH 3 Facility for the purposes of pumping treated potable water through the transmission line described in No. 3 below to the South Shore Harbour Booster Pump Station for the purpose of providing an additional and redundant conveyance system of potable water; and
3. Metering station upgrades at the SH 3 Booster Pump Station as well as a new water transmission line from the SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station for the purpose of providing an additional and redundant conveyance system of potable water.

As such, these scopes have been divided into specific sections with additional scope detail as described below.

***I. STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS
ENGINEERING SERVICES***

The Project includes engineering design services, bid package preparation and engineering services during construction for the City of League City SH 3 Booster Pump Station Improvements. The SH 3 Booster Pump Station is a 16.5 million gallon per day (MGD) potable water booster pump station that currently delivers approximately 90% of the City's potable water. The facility will be expanded/upgraded in accordance with the Phase I improvements

(year 2020 with no additional raw water) recommended in the current water master plan as well as upgraded to meet current codes and standards. The project generally includes the following:

1. Evaluation and assessment of usability and sequencing of existing ground storage and high service booster pumps
2. Addition of 6 million gallons (MG) of ground storage through a combination of two (2) new 3 MG prestressed concrete tanks.
3. Provide a total high serve firm capacity of 17,300 gpm (24.9 MGD) at a design pressure of approximately 73 psi (as determined by the water master plan) through new horizontal split case pump(s).
4. Evaluation of the existing high service pumps, their condition, and recommendation for replacement or refurbishment.
5. New Low Sevice pump station with a total firm capacity of 5,200 gpm (7.3 MGD) at a design pressure of approximately 60 psi (as determined by the water master plan) through new horizontal split case pump(s).
6. New pre-engineered metal pump building and CMU or pre-cast concrete electrical building as necessary to house the new electrical components.
7. Diesel Generator for Backup with automatic transfer switch.
8. Replacement of the existing incoming waterline meter station based on current and expansion capability for increased flows. This point is defined as the "Point of Beginning (POB)". Any upgraded to the Meter station will conform to City of Houston design requirements.

Task I.1 - Project Management

- 1.1. Coordinate with staff and project personnel to complete project tasks and meet project objectives;
- 1.2. Develop and maintain a project schedule with detailed milestones; and
- 1.3. Provide quality control reviews and technical reviews of all evaluations and recommendations, technical memoranda, and reports.
- 1.4. Project Initiation Meeting to clarify requirements of project
- 1.5. Conduct project meetings with staff monthly and provide appropriate minutes of the meetings and necessary documentation;

All meetings are assumed to be 4 hours of the project manager and one project engineer inclusive of travel time.

Task I.2 - Preliminary Engineering

- 2.1 ENGINEER conduct site visit to review existing infrastructure.
- 2.2 ENGINEER shall evaluate current pump operations for existing and future conditions and provide a phased implementation plan to build out including the desired interim and ultimate capacity. Flow and pressure data from the water master plan will be used for the interim and ultimate capacity plans.
- 2.3 ENGINEER shall prepare a preliminary technical memorandum for SH 3 Booster Pump Station and shall include the following information:
 - Site Layout
 - Equipment Listings
 - One Line Diagram
 - Block Diagram
 - Process Flow Diagram
 - Facility Design Criteria
 - Schedule of Final Design/Construction
 - Control Strategies
 - Documentation necessary for TCEQ coordination.
- 2.4 Ultimately, the ENGINEER will develop and provide detailed design drawings and specifications for purposes of bidding the project for construction. In the preliminary design phase the drawings will consist of general arrangement site drawings, block diagrams, process flow diagrams, electrical one-line diagrams, and process and instrumentation diagrams.
- 2.6 Coordination with the Electrical Service Utility Company will be performed for service requirements for the pump station expansion.
- 2.7 ENGINEER shall submit a preliminary estimate of probable construction cost with the preliminary engineering report.
- 2.8 If available, OWNER shall provide copies of existing vulnerability assessment for use in security design of expansion.
- 2.9 The Engineer shall submit five (5) copies of the draft technical memo. After receipt of review comments, the Engineer shall incorporate review comments, as appropriate, and submit three (3) copies of the final technical memo.

Task I.3 - Final Design Phase Services

- 3.1 Preparation of 60% Drawings - ENGINEER will perform the following tasks to prepare the preliminary design of the Project:
 - 3.1.1 Establish horizontal and vertical alignments;

- 3.1.2 Provide Site Layout, Electrical Layouts and Loads, Structural Requirements and Mechanical Tie-ins. SCADA and Instrumentation shall be shown.
- 3.1.3 Establish pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment.
- 3.1.4 Establish structural and architectural designs, mechanical equipment and piping arrangements, electrical space requirements, HVAC space requirements, piping alignments, and other mechanical equipment arrangements, pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment.
- 3.1.5 Prepare an opinion of probable construction costs based on the preliminary design definition;
- 3.1.6 Update the Project schedule and forward to the OWNER for review;
- 3.1.7 Meet with the OWNER to discuss progress and status of the 60% design for solicitation of feedback and comments and reach consensus on refinement and revision needs;
- 3.1.8 Incorporate OWNER comments into the 60% design package;
- 3.1.9 Submit three sets of 11"x17" preliminary drawings and technical specifications (60% complete) to the OWNER for revision and comment.
- 3.2 Preparation of Final Design – ENGINEER will perform the following tasks to progress the preliminary design of the Project to the final design level.
 - 3.2.1 Revise the preliminary (60% complete) drawings and specifications by incorporating comments from the OWNER and City of Houston (where applicable to comply with interconnect agreement);
 - 3.2.2 Finalize the drawings for the proposed improvements;
 - 3.2.3 Incorporate standard details into the drawing set and prepare additional details as required;
 - 3.2.4 Submit three sets of 11"x17" final drawings and specifications (100% complete) and associated quantity "takeoff" estimates to the OWNER for review;
 - 3.2.5 Meet with the OWNER to discuss the final drawings (100% complete) and associated quantity "takeoff" estimates; and
 - 3.2.6 Prepare erosion control plans to comply with the TCEQ Storm Water Management Program. Costs for these services are listed under Additional or Special Services.

Task I.4 - Bid Phase Services

- 4.1 Preparation of Opinion of Probable Construction Costs – ENGINEER will prepare a final opinion of probable construction cost using the quantities defined by the final design. Opinion of Probable costs will be based on material, equipment and labor prevailing at the time of preparation without consideration for inflation and/or raw material increases that may occur.
- 4.2 Preparation of Final Bid Documents – ENGINEER will finalize the Project's bid documents. Final bid documents will include proposal forms, construction drawings, specifications, and other contract documents (as required). ENGINEER will distribute bid documents in electronic format (pdf on CD) at non-refundable deposit from bidders at industry acceptable cost for reproduction.
- 4.3 Assistance in Bid Advertisement Process – ENGINEER will, as required, assist the OWNER in advertising for bids. Assistance does not include a requirement for the ENGINEER to pay for the advertisement. The OWNER will pay for the advertisement.
- 4.4 Addenda and Contract Interpretation. Interpret construction contract documents. Prepare and issue addenda to the construction contract documents when required. A total of three addenda are anticipated for each contract.
- 4.5 Assistance in Bid Tabulation Process – ENGINEER will assist the OWNER in opening bids and in the preparation of a bid tabulation for all bidders. ENGINEER shall prepare an engineer's letter of recommendation that includes certified bid tabulation, including ENGINEER's opinion of probable cost and review of Contractor's
 - 4.5.1 Past work history;
 - 4.5.2 Financial resources; and
 - 4.5.3 Physical resources to construct the Project.
- 4.6 Project Manual – ENGINEER shall produce and transmit to the selected Contractor five (5) sets of project manuals ready for execution and three (3) sets of plans to the Contractor after contracts are executed at Pre-Construction Meeting.

II. PIPELINE ENGINEERING SERVICES

The Project includes alignment and final engineering design services, bid package preparation and engineering services during construction for the connection from the SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station. The project generally includes the following:

1. Review the alignment provided by the City of League City for the proposed water transmission main from SH 3 Booster Pump Station to the South Shore Harbour Booster Pump Station and offer comments as necessary.

2. New water transmission line from the Point of Beginning (POB) to the South Shore Booster Pump Station (Point of Ending, POE) located on the north side of FM 518 near the intersection of FM 518 and Louisiana Street. The route to the Point of Ending shall roughly be:
 - a. From POB, following east along NASA bypass, crossing SH 3 and Old Galveston Road, across undeveloped property to Henderson Ave. Thence turning south along SH 270 and across clear creek, thence turning east southeast along the existing Centerpoint/Texas New Mexico power transmission easement to FM 2094, thence turning south southeast along an apparent pipeline easement to the South Shore Booster Pump Station located just before FM 518.
 - b. Pipeline assumes four TxDOT crossings, aerial crossing of Clear Creek along 270, parallel with Centerpoint/Texas New Mexico ROW/easement, parallel to unknown pipeline easement, and one tunnel crossing of an unknown tributary of Clear Creek in Galveston County. All other non-TxDOT roads are assumed to be bored with no casing. All TxDOT crossing assume to be bored with casing.
 - c. Pipeline material is assumed to be PVC or polywrapped DI pipe. Should an alternate material be selected requiring additional corrosion protection, those services will be provided as an additional service, i.e. Cathodic protection on a welded steel pipeline.

Task II.1 - Project Management

- 1.1. Coordinate with staff and project personnel to complete project tasks and meet project objectives;
- 1.2. Develop and maintain a project schedule with detailed milestones; and
- 1.3. Provide quality control reviews and technical reviews of all evaluations and recommendations, technical memoranda, and reports.
- 1.4. Unique Meetings
 - 1.4.1 Project Initiation Meeting to clarify requirements of project
 - 1.4.2 ENGINEER will meet with OWNER and City of Houston to review pipeline design and interconnect options.
 - 1.4.3 ENGINEER will meet with adjacent communities (City of Webster, City of Nassau Bay) as necessary for plan approval.
 - 1.4.4 Conduct project meetings with staff monthly and provide appropriate minutes of the meetings and necessary documentation;
 - 1.4.5 Pipeline Alignment Selection Meeting

1.4.6 Draft Summary Report Progress Meeting

All meetings are assumed to be 4 hours of the project manager and one project engineer.

Task II.2 - Alignment Selection

CDM will review the alignment provided by the City of League City and review in accordance with the assumed alignment described in this scope. City and CDM agree to re-negotiate scope/ fee pending any significant changes to the assumed preliminary alignment described in the scope.

Task II.3 - Design Phase Services

3.1 Preparation of 60% Drawings – ENGINEER will perform the following tasks to prepare the preliminary design of the Project:

- 3.1.1 Establish horizontal and vertical alignments;
- 3.1.2 Locate utility crossings from record drawings and field surveys, including nearby utilities, and other nearby improvements;
- 3.1.3 Establish pipe profiles, flow lines, and ground profiles for the approved horizontal pipe alignment. Waterline details and embedment details will be shown on detail sheets;
- 3.1.4 Identify areas where existing utilities may conflict and verify clearances. Subsurface Utility Engineering (SUE) methods as directed by OWNER are not a part of basis services and are considered additional services;
- 3.1.5 Identify types of construction required along the alignment;
- 3.1.6 Identify permanent and construction easement requirements (including widths and properties affected) and prepare a right-of-way map;
- 3.1.7 Prepare an opinion of probable construction costs based on the preliminary design definition;
- 3.1.8 Update the Project schedule and forward to the OWNER for review;
- 3.1.9 Submit Summary Report alignment to the private utility companies for review and comment;
- 3.1.10 Meet with the OWNER to discuss schematic level design comments and reach consensus on refinement and revision needs;
- 3.1.11 Distribute the drawings to private utility companies for review and comment;
- 3.1.12 Incorporate OWNER comments into the schematic level design;

- 3.1.13 Submit three sets of 11"x17" preliminary drawings (60% complete) to the OWNER and other necessary entities for revision and comment.
- 3.2 Preparation of Final Design – ENGINEER will perform the following tasks to progress the preliminary design of the Project to the final design level:
 - 3.2.1 Revise the preliminary (60% complete) drawings by incorporating comments from the OWNER and City of Houston;
 - 3.2.2 Incorporate comments from the franchise utility companies;
 - 3.2.3 Finalize the drawings for the proposed improvements;
 - 3.2.4 Incorporate standard details into the drawing set with approved revisions as necessary and prepare additional details as required;
 - 3.2.5 Submit three sets of 11"x17" final drawings (100% complete) and associated sheet by sheet quantity "takeoff" estimates to the OWNER for review;
 - 3.2.6 Meet with the OWNER to discuss the final drawings (100% complete) and associated sheet by sheet quantity "takeoff" estimates; and
 - 3.2.7 Prepare erosion control plans to comply with the TCEQ Storm Water Management Program.
 - 3.2.8 Prepare contract documents

Task II.4 - Bid Phase Services

- 4.1 Preparation of Opinion of Probable Construction Costs – ENGINEER will prepare a final opinion of probable construction cost using the quantities defined by the final design. Opinion of Probable costs will be based on material, equipment and labor prevailing at the time of preparation without consideration for inflation and/or raw material increases that may occur.
- 4.2 Preparation of Final Bid Documents – ENGINEER will finalize the Project's bid documents. Final bid documents will include proposal forms, construction drawings, specifications, and other contract documents (as required). ENGINEER will distribute bid documents in electronic format (pdf on CD) at non-refundable deposit from bidders at industry acceptable cost for reproduction.
- 4.3 Assistance in Bid Advertisement Process – ENGINEER will, if required, assist the OWNER in advertising for bids. Assistance does not include a requirement for the ENGINEER to pay for the advertisement. The OWNER will pay for the advertisement.
- 4.4 Pre-Bid Conference. ENGINEER shall lead pre-bid conference and prepare meeting minutes for distribution as an addenda.

- 4.5 Addenda and Contract Interpretation. Interpret construction contract documents. Prepare and issue addenda to the construction contract documents when required. A total of three addenda are anticipated for each contract
- 4.6 Assistance in Bid Tabulation Process – ENGINEER will, if requested, assist the OWNER in opening bids and will prepare a bid tabulation for all bidders. ENGINEER will prepare an engineer's letter of recommendation that includes certified bid tabulation, including ENGINEER's opinion of probable cost and review of Contractor's
 - 4.5.1 Past work history;
 - 4.5.2 Financial resources; and
 - 4.5.3 Physical resources to construct the Project.
- 4.7 Project Manual – ENGINEER shall produce and transmit to the selected Contractor five (5) sets of project manuals ready for execution and three (3) sets of plans to the Contractor after contracts are executed at Pre-Construction Meeting.

III. ADDITIONAL & SPECIAL SERVICES

Additional Services shall be provided on as-needed basis described below. In several cases, the scopes will apply to both the SH 3 Booster Pump Station upgrades as well as the pipeline. Costs for each additional and special services have been provided separately for the each project.

Task III.1 - Design Services During Construction

ENGINEER will perform administration services during the construction phase of the project. By performing these services, ENGINEER shall not have authority or responsibility to supervise, direct, or control the Contractor's work or the Contractor's means, methods, techniques, sequences, or procedures of construction. ENGINEER shall not have authority or responsibility for safety precautions and programs incident to the Contractor's work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Specific services to be performed by ENGINEER are as follows:

- 1.1 At a date and time selected by the OWNER and at a facility provided by OWNER, chair a preconstruction conference. ENGINEER shall prepare an agenda for the conference, and prepare and distribute minutes. The preconstruction conference will include a discussion of the Contractor's tentative schedules, procedures for transmittal and review of the Contractor's submittals, processing payment applications, critical work sequencing, change orders, record documents, and the Contractor's responsibilities for safety and first aid.
- 1.2 Review and comment on the Contractor's initial and updated construction schedule and advise OWNER as to acceptability.
- 1.3 Analyze Contractor's construction schedule, activity sequence, and construction procedures with regard to OWNER's ability to keep existing facilities in operation.

- 1.4 Make periodic visits to the construction site to observe progress of the work, and consult with OWNER, and the Contractor concerning problems and/or progress of the work. A total of 18 site visits is anticipated.
- 1.5 Perform technical and functional review of shop drawings and other data submitted by the Contractor as required by the construction contract documents. ENGINEER's review shall be for general conformity to the construction contract documents and shall not relieve the Contractor of any of his contractual responsibilities. Such reviews shall not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions and programs incident thereto. Engineer will log-in, track, and distribute submittals to the various disciplines and SUBENGINEERS.
- 1.6 Interpret construction contract documents when requested by OWNER or the Contractor.
- 1.7 Provide documentation and administer the processing of change orders, including applications for extension of construction time. Evaluate the cost and scheduling aspects of all change orders and, where necessary, negotiate with the Contractor to obtain a fair price for the work. Said negotiation shall be subject to the approval of OWNER. Work related to unusually complex or unusually numerous claims shall be considered Additional Services.
- 1.8 ENGINEER will prepare Record Documents for the Project. ENGINEER will complete this task utilizing the as-built information provided by the Construction Contractor, and the information resulting from RFIs and other Construction Contractor generated submittals. ENGINEER will prepare one set of reproducible record drawings for the OWNER, including a copy of the construction plan sheets in electronic format on compact diskette.
- 1.9 Upon substantial completion, inspect the construction work and prepare a list of the items to be completed or corrected before final completion of the project. Submit results of the inspection to OWNER and the Contractor.
- 1.10 Upon completion or correction of the items of work on the list, conduct a final inspection to determine if the work is completed. Provide written recommendations concerning final payment to OWNER, including a list of items, if any, to be completed prior to making such payment.

Task II.1- Resident Engineering Services

- 2.1 ENGINEER shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing progress and quality of the work of Contractor.
- 2.2 Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the work of Contractor. However, ENGINEER shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work nor

shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures selected by Contractor, for safety precautions and programs incident to the work of Contractor, for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's performing and furnishing the work, or responsibility of construction for Contractor's failure to furnish and perform the Work in accordance with the Contract Documents.

2.3 The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

2.4 General

2.4.1 RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and Contractor, keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

2.5 Duties and Responsibilities of RPR

2.5.1 Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with ENGINEER concerning acceptability.

2.5.2 Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

2.5.3 Liaison:

2.5.3.1 Serve as ENGINEER's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of Contract Documents; and assist ENGINEER in serving as OWNER's liaison with Contractor when Contractor's operations affect OWNER's onsite operations.

2.5.3.2 Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

2.5.4 Shop Drawings and Samples:

2.5.4.1 RPR shall maintain a tracking log of Submittals, Shop Drawings and Samples.

2.5.4.2 Receive Samples which are furnished at the site by Contractor, and notify ENGINEER of availability of Samples for examination.

2.5.4.3 Advise ENGINEER and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by ENGINEER.

2.5.5 Review of Work, Rejection of Defective Work, Inspections and Tests:

2.5.5.1 Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

2.5.5.2 Report to ENGINEER whenever RPR believes that any Work will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

2.5.5.3 Verify that tests, equipment and systems start-up and operating and maintenance training are conducted in accordance with the Contract Documents in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and start-ups.

2.5.5.4 Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

2.5.6 Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by ENGINEER.

2.5.7 Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to Contractor in writing decisions as issued by ENGINEER.

2.5.8 Records:

2.5.8.1 Maintain at the job site orderly files (using City file codes) for correspondence, reports of job conferences, Shop Drawings and Samples, reproductions of original Contract Documents including all Addenda, Change Orders, RFIs, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, Shop

Drawing submittals received from and delivered to Contractor and other Project related documents.

2.5.8.2 Prepare a daily report and keep a diary or log book, recording Contractor's hours on the job site, weather conditions, data relative to questions of Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.

2.5.8.3 Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment, provide the information to the OWNER and provide updates if such information changes.

2.5.9 Reports:

2.5.9.1 Furnish to ENGINEER monthly reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

2.5.9.2 Consult with ENGINEER and OWNER in advance of scheduled major tests, inspections or start of important phases of the Work.

2.5.9.3 Draft proposed Change Orders and Work Change Directives, obtaining backup material from Contractor and recommend to ENGINEER Change Orders, Work Change Directives, and RFIs.

2.5.9.4 Report immediately to ENGINEER and OWNER the occurrence of any accident.

2.5.10 Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

2.5.11 Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER as required in the Contract Documents.

2.5.12 Completion:

2.5.12.1 Before ENGINEER issues a Certificate of Substantial Completion, coordinate with the Contractor to prepare a list of observed items requiring completion or correction.

- 2.5.12.2 Observe whether Contractor has had performed inspections required by laws, rules, regulations, ordinances, codes, or orders applicable to the work, including but not limited to those to be performed by public agencies having jurisdiction over the work.
- 2.5.12.3 Conduct a final inspection in the company of ENGINEER, OWNER and Contractor and prepare a final list of items to be completed or corrected.
- 2.5.12.4 Observe whether all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the Final Completion Certificate.

2.6. Limitations of Authority by RPR

- 2.6.1 Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items), unless authorized by ENGINEER and OWNER.
- 2.6.2 Shall not exceed limitations of ENGINEER's authority as set forth in the Agreement or the Contract Documents.
- 2.6.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
- 2.6.4 Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- 2.6.5 Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
- 2.6.6 Shall not accept Shop Drawing or Sample submittals from anyone other than Contractor.
- 2.6.7 Shall not authorize OWNER to occupy the Project in whole or in part.
- 2.6.8 Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

Task III.3 - Permits

- 3.1 ENGINEER will meet with OWNER and City of Houston to review collaborative options for partnering on the meter vault improvements (if necessary).
- 3.2 ENGINEER shall prepare permit applications for the following known entities (if necessary):

- U.S. Army Corps of Engineers
- Texas Commission of Environmental Quality 401
- Texas Commission of Environmental Quality - Water Infrastructure
- City of Webster
- City of Nassau Bay
- City of Houston
- TXDOT
- HCFCD
- Texas Historical Commission

Task III.4 - Storm Water Pollution Prevention Plan

ENGINEER will prepare a Storm Water Pollution Prevention Plan for the project in accordance with the conditions of the General Permit for Storm Water Discharges from Construction Activity pursuant to TCEQ TPDES Program.

Task III.5 - Phase 1 ESA

ENGINEER shall perform a Phase I Environmental Site Assessment along the proposed water transmission main alignment. The assessment will include review of records, photographs, and documents to identify possible contamination sites along the alignment. The Phase 1 ESA shall be conducted to City of League City standards. A report describing the findings of the assessment will be prepared.

Task III.6 - Wetland, Endangered Species, and Archeological

ENGINEER shall perform the following services for the proposed alignment:

- Wetland Determination
- Endangered Species Assessment
- Nationwide Permit Application Preparation (Corps of Engineers)

ENGINEER shall provide mapping and other technical assistance for the preparation of the environmental reports and permit applications.

Task III.7 - Transient Surge Analysis on Interconnect Piping

ENGINEER shall conduct a surge analysis on the proposed interconnect between the City of Houston (at the SH 3 Booster Pump Station) and City of League City (South Shore Harbour Booster Pump Station) to determine design provisions necessary to control unavoidable surge events.

IV. ITEMS NOT INCLUDED IN THE EXISTING SCOPE OF SERVICES

Additional Services not included in the existing Scope of Services – OWNER and ENGINEER agree that the following services are beyond the Basic and Special Scope of Services described in the tasks above. However, ENGINEER may be requested in writing by the OWNER, to perform additional services if needed. Any additional amounts paid to the ENGINEER resulting from any material change to the Scope of the Project shall be agreed upon in writing by both parties before the services are performed. The Additional Services may include any one or combination of the following:

- 1.1 Relating to the Project, the parties agree that at the time of execution of the Agreement, the requirements of the Barriers Act are not applicable to the Scope of Services to be performed by ENGINEER under this Agreement.
- 1.2 Materials Testing
- 1.3 Computer modeling of water systems (unless otherwise specified above)
- 1.3 Plats
- 1.4 Environmental remediation, USACOE 404 Individual, Regional Permits or Mitigation Plans
- 1.5 Archeological excavations or analysis of any kind
- 1.6 Fees and permits and Bid Advertising services requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.7 Traffic engineering reports and/or studies requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.8 Hydraulics and Hydrology modeling for any ditch or drainage way that may be crosses by pipelines included in this scope.
- 1.9 Floodplain studies or reclamation plans (Federal Emergency Management Administration, Conditional Letter of Map Removal, and Letter of Map Removal)
- 1.10 Construction Administration Services requested by the OWNER in writing that exceed the amounts specified in the Project Budget
- 1.11 Trench Safety design
- 1.12 Retaining Walls
- 1.13 Quality Control and Testing services during construction beyond what is already listed in the scope.

- 1.14 On-site safety precautions, programs, and responsibility
- 1.15 Landscape and irrigation design
- 1.16 Television inspection and metering services
- 1.17 Wetlands Delineation beyond what is already listed in the scope.
- 1.18 Right-of-Way Acquisition Services
- 1.19 Services in connection with condemnation hearings
- 1.20 Any level of SUE work.
- 1.21 Vulnerability Assessments
- 1.22 Tree Mitigation Plans and/or Approvals
- 1.23 SCADA Radio Surveys
- 1.24 Application Engineering
- 1.24 Evaluation for supplemental disinfection.
- 1.25 Geotechnical Evaluations or Reports
- 1.26 Cathodic protection design for pipelines
- 1.27 Traffic Control Plans
- 1.28 Topographic Survey

V. SCHEDULE

1. A detailed schedule will be completed after authorization and a prioritization meeting with the OWNER.
2. Assumptions include:
 - ENGINEER assumes that OWNER will provide review comments within 10 calendar days of submission.
 - Permit Agencies shall provide comments and permit acceptance without undue reason within 10 days of final drawings
 - No delay in access to parcels for survey or geotechnical investigation

VI. FEE SCHEDULE

1. The costs for Basic Services, shall be on a not to exceed Lump Sum basis based on the amounts shown in **Table A-3** and will be billed on a percent complete basis in accordance with the scope of services for each milestone.
2. The costs for Additional & Special Services shall be on a not to exceed reimbursable basis based on hourly rates shown in **Table A-1**, plus all non-salary expenses at the incurred cost plus 5% charge to cover overhead, administration, and other indirect costs as listed **Table A-2**,
3. Total Fees shall not exceed \$1,600,000 as shown in **Table A-3**.
4. Services for these tasks shall be commenced immediately upon written authorization and notice to proceed from the City.

Services for all tasks shall be as authorized as the City issues notice to proceeds on each individual task. As some reimbursable tasks are allowances for future work, the ENGINEER may receive approval to transfer excess budget from one task to another with the approval of the City.

VII. PAYMENT SCHEDULE

1. Engineer shall prepare monthly invoice for work completed.
2. Payment for additional services shall be for reimbursable costs accrued at the time of each invoice.

TABLE A-1
TO AGREEMENT BETWEEN ENGINEER AND OWNER
FOR
PROFESSIONAL SERVICES
FOR
DESIGN AND CONSTRUCTION PHASE SERVICES
FOR
CITY OF LEAGUE CITY
STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS

HOURLY LABOR RATES

LABOR CATEGORY	Hourly Rate
Principal	\$200.00
Sr. Tech Specialist (QA/QC)	\$197.00
Technical Director	\$175.00
Sr. Project/Project Manager	\$165.00
Discipline Manager	\$175.00
Electrical/Instrumentation Engineer	\$165.00
Structural Engineer	\$165.00
Engineer 5	\$150.00
Engineer 3/4	\$135.00
Engineer 1/2	\$120.00
Senior Designer/Drafter	120.00
Drafter	\$90.00
Sr. GIS Technician	\$120.00
GIS Technician	\$90.00
Senior Administrative Personnel	\$100.00
Administrative Accounting	\$90.00

TABLE A-2
TO AGREEMENT BETWEEN ENGINEER AND OWNER
FOR
PROFESSIONAL SERVICES
FOR
DESIGN AND CONSTRUCTION PHASE SERVICES
FOR
CITY OF LEAGUE CITY
STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS

REIMBURSABLE COSTS

Item	Unit Cost
Photocopies (8-1/2x11 B&W single sided)	\$0.11
Photocopies (8-1/2x11 B&W double sided)	\$0.22
Photocopies (8-1/2x11 color)	\$1.10
Photocopies (11x17 B&W single sided)	\$0.17
Mylar Plots (each)	22.00
Color Plots (24x36)	22.00
Bluelines (each)	1.10
CADD Computer Allocation (per hour)	12.50
Mileage	0.50 ³
Notes: 1. All other reimbursable costs will be invoiced at actual cost plus 5%. 2. All outside professionals will be invoiced at actual cost plus 5% mark-up. 3. Subject to revision in accordance with the U.S. Federal Government General Services Administration for mileage reimbursement for automobiles.	

TABLE A-3
TO AGREEMENT BETWEEN ENGINEER AND OWNER
FOR PROFESSIONAL SERVICES
FOR DESIGN AND CONSTRUCTION PHASE SERVICES
FOR
CITY OF LEAGUE CITY
STATE HIGHWAY 3 BOOSTER PUMP STATION IMPROVEMENTS
DESIGN FEE SCHEDULE

Task No.	Task Description	Totals \$
I.	Lump Sum - SH 3 Booster Pump Station Basic Engineering Services	
I.1	Phase I Engineering and Control Strategy	\$25,000
I.2	Final Design Phase Services	\$475,000
I.3	Bid Phase Services	\$15,000
	Subtotal	\$515,000
III.	SH 3 Booster Pump Station Max. Additional & Special Services (hourly)	
III.1	Design Phase Services During Construction	\$120,000
III.2	Resident Engineering Services (During Construction On-Site)	\$175,000
III.3	Permit/City of Houston Coordination	\$10,000
III.4	Storm Water Pollution Prevention Plan	\$10,000
III.5	Transient Surge Analysis for Existing 42-in Distribution Line	\$20,000
	Subtotal	\$335,000
	SH 3 Booster Pump Station Subtotal	\$850,000
II.	Lump Sum - Pipeline Basic Engineering Services	
II.1	Preliminary Hydraulic Model/Calculations	\$100,000
II.2	Design Phase Services	\$335,000
II.3	Bid Phase Services	\$15,000
	Subtotal	\$450,000
III.	Pipeline Special and Additional Serv's Max (hourly)	
III.1	Resident Engineering Services	\$150,000
III.2	Assistance with other Gov't Permits (TxDOT, etc...)	\$30,000
III.3	Storm Water Pollution Prevention Plan	\$10,000
III.4	Phase I ESA	\$50,000
III.5	Wetland, Endangered Species, and Archeological	\$40,000
III.6	Transient Surge Analyais - New 36-inch Transmission Piping	\$20,000
	Subtotal	\$300,000
	Pipeline Subtotal	\$750,000
	Total	\$1,600,000
	Total Lump Sum Services (SH 3 Pump Station and Pipeline)	\$965,000
	Total Special and Additional Services Max (Hourly)	\$635,000