

**PROFESSIONAL SERVICES AGREEMENT  
FOR  
ENGINEERING SERVICES  
RELATED TO  
ENGINEERING & PLANNING PROJECT NO. 2023-10019  
CITY OF TOMBALL  
BAKER DRIVE WATER PLANT**

**THE STATE OF TEXAS           §  
  §  
COUNTY OF HARRIS           §**

THIS AGREEMENT is made, entered into, and executed by and between the CITY OF TOMBALL, TEXAS (the "City"), a municipal corporation of the State of Texas, and Freese & Nichols, Inc. ("Engineer").

**WITNESSETH:**

WHEREAS, the City desires to construct an additional groundwater well site located on Baker Drive (the "Project"); and

WHEREAS, the services of a professional engineering firm are necessary to project planning and design, and

WHEREAS, the Engineer represents that it is fully capable and qualified to provide professional services to the City related to professional engineering;

NOW, THEREFORE, the City and Engineer, in consideration of the mutual covenants and agreements herein contained, do mutually agree as follows:

**SECTION I.  
SCOPE OF AGREEMENT**

Engineer agrees to perform certain professional services as outlined and defined in the Proposal attached hereto as Exhibit A, and made a part hereof for all purposes, hereinafter sometimes referred to as "Scope of Work," and for having rendered such services, the City agrees to pay Engineer compensation as stated in the Section VII.

**SECTION II.  
CHARACTER AND EXTENT OF SERVICES**

Engineer shall do all things necessary to render the engineering services and perform the Scope of Work in a manner consistent with the professional skill and care ordinarily provided by competent engineering practicing in the same or similar locality and under the same or similar circumstances and professional license. It is expressly understood and agreed that Engineer is an Independent Contractor in the performance of the services agreed to herein. It is further understood and agreed that Engineer shall not have the

authority to obligate or bind the City, or make representations or commitments on behalf of the City or its officers or employees without the express prior approval of the City. The City shall be under no obligation to pay for services rendered not identified in Exhibit "A" without prior written authorization from the City.

**SECTION III.  
OWNERSHIP OF WORK PRODUCT**

Engineer agrees that the City shall have the right to use all exhibits, maps, reports, analyses and other documents prepared or compiled by Engineer pursuant to this Agreement. The City shall be the absolute and unqualified owner of all studies, exhibits, maps, reports, analyses, determinations, recommendations, computer files, and other documents prepared or acquired pursuant to this Agreement with the same force and effect as if the City had prepared or acquired the same. It is further understood and agreed that ownership and usage rights associated with the above referenced documents and analyses, hereinafter referred to as instruments, are contingent upon Engineer's completion of the services which will result in the production of such instruments and Engineer's receipt of payment, in full, for said services. Additionally, City understands and agrees that the rights described and provided hereunder shall not preclude or prevent Engineer from continuing to use those processes, analyses and data.

**SECTION IV.  
TIME FOR PERFORMANCE**

The time for performance is an estimated 850 calendar day duration beginning from the execution date of this Agreement. Upon written request of the Engineer, the City may grant time extensions to the extent of any delays caused by the City or other agencies with which the work must be coordinated and over which Engineer has no control.

**SECTION V.  
COMPLIANCE AND STANDARDS**

Engineer agrees to perform the work hereunder in accordance with generally accepted standards applicable thereto and shall use that degree of care and skill commensurate with the applicable profession to comply with all applicable state, federal, and local laws, ordinances, rules, and regulations relating to the work to be performed hereunder and Engineer's performance.

**SECTION VI.  
INDEMNIFICATION**

**To the fullest extent permitted by Texas Local Government Code Section 271.904, Engineer shall and does hereby agree to indemnify, hold harmless and defend the City, its officers, agents, and employees against liability for damage caused by or resulting from an act of negligence, intentional tort, intellectual property**

**infringement, or failure to pay a subcontractor or supplier committed by the Engineer, the Engineer's agent, consultant under contract, or another entity over which the Engineer exercises control.**

**SECTION VII.  
ENGINEER'S COMPENSATION**

For and in consideration of the services rendered by Engineer pursuant to this Agreement, the City shall pay Engineer only for the actual work performed under the Scope of Work, on the basis set forth in Exhibit "A," up to an amount not to exceed \$1,849,087, including reimbursable expenses as identified in Exhibit "A".

**SECTION VIII.  
INSURANCE**

Engineer shall procure and maintain insurance in accordance with the terms and conditions set forth in Exhibit "B," for protection from workers' compensation claims, claims for damages because of bodily injury, including personal injury, sickness, disease, or death, claims or damages because of injury to or destruction of property, including loss of use resulting therefrom, and claims of errors and omissions.

**SECTION IX.  
TERMINATION**

The City may terminate this Agreement at any time by giving seven (7) days prior written notice to Engineer. Upon receipt of such notice, Engineer shall discontinue all services in connection with the performance of this Agreement and shall proceed to promptly cancel all existing orders and contracts insofar as such orders or contracts are chargeable to the Agreement. As soon as practicable after receipt of notice of termination, Engineer shall submit a statement, showing in detail the services performed under this Agreement to the date of termination. The City shall then pay Engineer that proportion of the prescribed charges which the services actually performed under this Agreement bear to the total services called for under this Agreement, less such payments on account of the charges as have been previously made. Copies of all completed or partially completed maps, studies, reports, documents and other work product prepared under this Agreement shall be delivered to the City when and if this Agreement is terminated.

**SECTION X.  
ADDRESSES, NOTICES AND COMMUNICATIONS**

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to Consultant at the following address:

Freese & Nichols, Inc.  
Attn; Richard Weatherly  
11200 Broadway Street, Suite 2320  
Pearland, Texas 77584

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to the City at the following address:

City of Tomball  
Attn: Project Manager  
501 James Street  
Tomball, Texas 77375

**SECTION XI.  
LIMIT OF APPROPRIATION**

Prior to the execution of this Agreement, Engineer has been advised by the City and Engineer clearly understands and agrees, such understanding and agreement being of the absolute essence to this Agreement, that the City shall have available only those sums as expressly provided for under this Agreement to discharge any and all liabilities which may be incurred by the City and that the total compensation that Engineer may become entitled to hereunder and the total sum that the City shall become liable to pay to Engineer hereunder shall not under any conditions, circumstances, or interpretations hereof exceed the amounts as provided for in this Agreement.

**SECTION XII.  
SUCCESSORS AND ASSIGNS**

The City and Engineer bind themselves and their successors, executors, administrators, and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement. Neither the City nor Engineer shall assign, sublet, or transfer its interest in this Agreement without the written consent of the other. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public body which may be a party hereto.

**SECTION XIII.  
DISCLOSURE OF INFORMATION**

Engineer shall under no circumstances release any material or information developed in the performance of its services hereunder without the express written permission of the City.

**SECTION XIV.  
MODIFICATIONS**

This instrument, including Exhibits A and B, contains the entire Agreement between the parties relating to the rights herein granted and the obligations herein assumed. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent modification in writing signed by both parties hereto.

**SECTION XV.  
ADDITIONAL SERVICES OF ENGINEER**

If authorized in writing by the City, Engineer shall furnish, or obtain from others, Additional Services that may be required because of significant changes in the scope, extent or character of the portions of the Project designed or specified by the Engineer, as defined in Exhibit "A". These Additional Services, plus reimbursable expenses, will be paid for by the Owner on the basis set forth in Exhibit "A," up to the amount authorized in writing by the City.

**SECTION XVI.  
CONFLICTS OF INTEREST**

Pursuant to the requirements of the Chapter 176 of the Texas Local Government Code, Consultant shall fully complete and file with the City Secretary a Conflict of Interest Questionnaire.

**SECTION XVII.  
PAYMENT TO ENGINEER FOR SERVICES AND  
REIMBURSABLE EXPENSES**

Invoices for Basic and Additional Services and reimbursable expenses will be prepared in accordance with Engineer's standard invoicing practices and will be submitted to the City by Engineer at least monthly. Invoices are due and payable thirty (30) days after receipt by the City.

**XVIII.**  
**MISCELLANEOUS PROVISIONS**

A. This Agreement is subject to the provisions of the Texas Prompt Payment Act, Chapter 2250 of the Texas Government Code. The approval or payment of any invoice shall not be considered to be evidence or performance by Engineer or of the receipt of or acceptance by the City of the work covered by such invoice.

B. Venue for any legal actions arising out of this Agreement shall lie exclusively in the federal and state courts of Harris County, Texas.

C. This Agreement is for sole benefit of the City and Engineer, and no provision of this Agreement shall be interpreted to grant or convey to any other person any benefits or rights.

D. Engineer further covenants and agrees that it does not and will not knowingly employ an undocumented worker. An "undocumented worker" shall mean an individual who, at the time of employment, is not (a) lawfully admitted for permanent residence to the United States, or (b) authorized by law to be employed in that manner in the United States.

E. In accordance with Chapter 2270, Texas Government Code, a government entity may not enter into a contract with a company for goods or services unless the Engineer covenants and agrees that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. Furthermore, the Engineer is prohibited from engaging in business with Iran, Sudan or Foreign Terrorist Organizations.

F. In accordance with Chapter 2274 of the Texas Government Code, Engineer covenants that it: (1) does not have a practice, policy, guidance or directive that discriminates against a firearm entity or firearm trade association, and (2) will not discriminate during the term of this contract against a firearm entity or firearm trade associations.

IN WITNESS WHEREOF, the City of Tomball, Texas, has lawfully caused this Agreement to be executed by its Mayor; and Engineer, acting by its duly authorized officer/representative does now sign, execute and deliver this instrument.

EXECUTED on this \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

**Company Name: Frese & Nichols, Inc.**

*Richard Weatherly*

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Name: Richard Weatherly

Title: Vice President/Project Manager

**CITY OF TOMBALL, TEXAS**

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David Esquivel, City Manager

ATTEST:

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Tracylynn Garcia, City Secretary

# EXHIBIT A

ATTACHMENT A

## SCOPE OF SERVICES

### PROJECT UNDERSTANDING

Tomball completed an update of their Water Master Plan in 2018. The master plan identified improvement needs in the City's water distribution system that that will help the City serve anticipated future water demands. These improvement recommendations include construction of a new water plant (East Water Plant) in addition to another water groundwater well site to complement the required capacity. An existing site on Baker Dr. has been identified for the water well site. The infrastructure existent at Baker Dr. has not been used for 9 years. Demolition and plugging of the existing groundwater well will be performed as part of this project. It will also include construction of a new pump station, electrical building, groundwater well, and ground storage tank.

### Assumptions

- The construction package will include work for the following facilities:
  - A new open-air 1,000 gpm pump station
  - Pre-cast concrete electrical building
  - 0.5 MG ground storage tank
  - Groundwater well.
- The project will include preliminary and final design.
- A capacity evaluation study will be prepared for the ground water well and pump station with GST tank.
- A preliminary design report (PDR) will be prepared for the pump station improvements.
- The PDR will include alternatives for the pump station layout, ground storage tank, pump types, and electrical equipment.
- Final Design will include all required environmental, drainage, civil, architectural, structural, electrical and hydraulic design.
- The site will require yard piping, landscaping screening, grading, driveway, fencing, drainage, lighting and irrigation.
- Based on previous experience from the existing well at Baked Dr, there could be water quality challenges to be addressed. FNI will present several mixing system options during the design phase and will assume selection of one of these is included in the design.
- Overflow from the ground tank will be routed to drain away from proposed development and drainage design as needed.
- A stand-by generator will be included in the design and will be diesel driven.
- The project will use a design-bid-build delivery method.
- The construction project will be bid as a single construction package.

The project tasks are broken down in **Table 1**:



**Table 1: Baker Dr Water Plant Tasks**

Task	Task Description
<b>Basic Services</b>	
A	Project Management
B	Preliminary Design
C	Final Design Phase
D	Bid Phase
E	Construction General Representation
<b>Special Services</b>	
F	Resident Project Representation
G	Topographic Survey
H	Geotechnical Investigation
I	Groundwater Consulting Services
J	Environmental Review and Permitting

**BASIC SERVICES:** FNI shall render the following professional services in connection with the development of the Project:

**TASK A: PROJECT MANAGEMENT**

Consultant shall provide project management services for the project. The following services shall be provided:

**A1. Project Kickoff Meeting (internal)**

Schedule, organize and run an Internal Kickoff meeting during the siting phase of the project. Prepare meeting minutes and submit for review one week after the meeting. All FNI specialties will participate in this meeting.

**A2. Project Kickoff Meeting**

Schedule, organize and run an External Kickoff meeting during the siting phase of the project. Prepare meeting minutes and submit for review one week after the meeting. Subcontractors, including water well, geotechnical and survey will participate in this meeting.

**A3. Monthly Progress Meetings (internal)**

Schedule, organize and run internal monthly progress meetings (up to 7) during the design phase of the project. Prepare meeting minutes and submit for review one week after the meeting.

**A4. Monthly Progress Meetings**

Schedule, organize and run client monthly progress meetings (up to 7) during the design phase of the project. Prepare meeting minutes and submit for review one week after the meeting.

**A5. City Council Presentations**

Prepare presentations and attend up to two (2) Council meetings to brief the Council on the progress of

the design.

**A6. Project Schedule**

Prepare a project schedule and update over the course of the project. Provide oversight of the schedule during the survey, land acquisition, and engineering process, to attempt to maintain the City's desired schedule. Maintain the project budget and verify that the scope is being followed.

**A7. Monthly Project One Page Reports**

Prepare Monthly Client communications. Generate One Page Reports to communicate achieved milestones, upcoming submittal and pending issues that could impact the Project

**A8. Contract Operations**

Coordinate with FNI corporate team, for operations, accounting and contracts. Verification of project percent complete and invoicing, subconsultant agreements and invoicing.

**A9. Contract Preparation**

Track hours used in the preparation of supporting documents and exhibits necessary to develop proposal, agreement and subcontractor's proposals

**A10. Project Close Out**

Project close out checklist and documentation. Final project invoice, subcontractor final payment and closeout.

**A11. Quality Management**

- a. Develop a quality management plan that includes three quality control meetings where submittals and checklist are reviewed with quality control team and project advisor. These quality control milestones are for 60%, 90% and 100% submittals. Develop quality assurance meetings between project manager and quality assurance champion. These are scheduled no later than 2 weeks after quality control checks.
- b. Meet with senior advisor with expertise in this type of projects. Senior advisor is engaged earlier in the design process and provides insight to prevent design issues and guide project in accordance with best common practices.
- c. Quality control reviews at 60%, 90% and 100% submittals. Review of design checklist and corresponding deliverables prior to submittal to the client.
- d. Quality assurance meeting post 60%, 90% and 100% submittals. Verifies that design considerations were followed and that internal processes are being followed. Provides advice on project issues and possible solutions as well as possible future issues based on schedule, constructability, and project specific needs.
- e. Constructability reviews are scheduled early on the 60% design to identify possible issues with the planned design. Two others are planned for 90% and 100% to further define the construction options and possible issues.

**TASK B: PRELIMINARY DESIGN 1,000 GPM PS:**

FNI shall provide professional services in this phase as follows:

**B1. Review of Well Evaluation Report**

Perform a review of the well evaluation report prepared by the Subcontractor AGS to include:

- a. Well Construction Parameters
- b. Pollution Hazards Study and Report
- c. Well and Pump Specification Report
- d. Well Construction and Field Services
- e. Evaluate pump station and ground storage tank site hydraulics.

**B2. Hydraulic Analysis**

Perform a hydraulic analysis of the City of Tomball existing system and future NHCRWA connection to determine needs for a pressure reducing valve, flow metering and connection requirements.

**B3. Storage Tank**

Perform an evaluation of ground storage tank material alternatives and confirm tank size.

**B4. Pump Station System Curves**

Develop system curves for the pump station with respect to the updated plans for the expansion of the water system. Design system for 1,000 gpm firm capacity.

**B5. Pump Evaluation and Selection**

Evaluate pumping equipment required for the Project. Contact various pump manufacturers to determine pumps that are available for the station. Evaluate selections by manufacturers and make recommendations to the City for inclusion in specifications.

**B6. Well Pumping Capacity**

Use recommendations from the well feasibility study to develop the required well pumping capacity and analyze water quality for required treatment or conditioning.

**B7. Preliminary Site Plans, Floor Plans, and Sections**

Prepare preliminary site plans, floor plans, and sections of the proposed facilities, including pump station, ground storage tank, electrical building, and chemical facilities.

**B8. Chemical Process Layout**

Develop Chemical Process flow for layout of injection equipment and controls based on current and future process controls for the City of Tomball.

**B9. Coordinate with Electric Utility**

Prepare preliminary load analysis and coordinate power requirements with electric utility.

**B10. Draft Preliminary Design Report**

Provide a Draft Preliminary Design Report (PDR) summarizing the recommendations for the pump station including an updated project schedule and opinion of probable construction costs.

**B11. Review Meeting with the City Staff**

Conduct (1) review meeting with City staff on the draft Preliminary Design Report to obtain their comments as well as feedback from land acquisition, process, electrical and operations specialties.

**B12. Final Preliminary Design Report**

Comments will be addressed, and the Report will be finalized updating conclusions and recommendations and opinion of probable construction costs.

**TASK C: FINAL DESIGN 1,000 GPM PS :**

FNI shall provide professional services in this phase as follows:

**C1. 60% Final Design**

- a. FNI will perform civil design including site plan, grading, drainage and utilities. Design includes using survey information to develop Pump Station Layout and yard piping layout to be included in plans and calculations. A quantity takeoff of required materials will be performed.
- b. Pump station mechanical design will be performed using required pressure and flow based on the hydraulic analysis made in the PDR. Pump curves and system curves will be developed. Pump selection will be made, and manufacturers will be contacted to establish motor sizes and pump types.
- c. Tank manufacturer will be contacted to coordinate foundation design based on geotechnical information and site survey. Pipe connections and appurtenances will be defined.
- d. The structural team will prepare foundation design for the pump station and electrical building. The electrical building is assumed to be a performance specified pre-cast concrete stand-alone building.
- e. Electrical team will develop power needs and prepare one-line diagrams and controls for motors and pumps. Emergency power generator will be selected, and location defined. Provide electrical plans, details for the pump station and ground storage tank electrical equipment, instrumentation, controls, site lighting, and related appurtenances. It is assumed the design will include a SCADA operated control valve inside of the pump station electrical room.
- f. The Water treatment team will develop the disinfection process in accordance with the water quality found on the water well.
- g. FNI's architects will develop a design that conforms with the needs and requirements for the City regarding access and functionality.
- h. The drainage team will perform a site evaluation visit to identify existing drainage patterns and possible outfall locations, which will be coordinated with the City Engineer. The discharge point will either be an existing roadside ditch, storm sewer system, or an existing drainage channel. Coordinate with the City Engineer and other local agencies as necessary to discuss storm drainage and detention requirements associated with the site development.
- i. Specifications: FNI will prepare front end documents related to contracting and obligations of the Contractor, City of Tomball and project designer. A bid document with alternates will be developed. Also, technical specifications for every discipline involved in the design of the pump station and ground storage tank will be prepared. Other contractual documents like geotechnical design report will be included as part of the project manual.

- j. 60% Quality Control and Constructability Review: Each discipline will conduct its QC review and provide feedback for its drawings and specifications. A constructability review will be conducted contractors that have worked in similar projects and with similar challenges as those encountered on this design.

**C2. 90% Final Design**

- a. FNI will continue refining the civil design including site plan, grading, drainage and utilities. Updates to the design includes using QC and constructability information to improve the Pump Station Layout and yard piping layout. Calculations will be completed, and the Project Design report will be finalized. An updated quantity takeoff of required materials will be performed.
- b. Pump station mechanical design will be refined using information based on transient analysis. Pump curves and system curves will be updated. Pump selection will be completed. Accepted manufacturers will be selected.
- c. Tank manufacturer will be contacted to complete foundation design and tank body will be developed. Pipe connections and appurtenances will be defined.
- d. The structural team will complete foundation design for pump station and electrical building.
- e. Electrical team will complete electrical drawings and finish details for the pump station and ground storage tank electrical equipment, instrumentation, controls, site lighting, and related appurtenances. SCADA operated control will be coordinated with existing City of Tomball system.
- f. The water treatment team will complete the disinfection equipment design.
- g. FNI's architects will complete the design using the feedback provided by the City of Tomball.
- h. The drainage team will complete and submit drainage improvement plans in accordance with City's Engineer Design Criteria. The drainage improvement plans will include the following: a location map showing the site in relation to the entire watershed, calculations showing the anticipated storm water flow including watershed area, runoff coefficient, time of concentrations, and basis for design of all improvements, and detailed plans for drainage structures, or any other proposed improvements.
- i. Specifications: FNI will complete front end documents related to contracting and obligations of the Contractor, City of Tomball and project designer. A bid document with alternates will be completed. Also, technical specifications for every discipline involved in the design of the pump station and ground storage tank will be finished. Other contractual documents like geotechnical design report will be updated to complete the project manual.
- j. 90% Quality Control and Constructability Review: Each discipline will conduct its final QC review and provide adjustments for its drawings and specifications. A final constructability review will be conducted contractors that have worked in similar projects.

**C3. 100% Final Design**

- a. After receiving comments from the City of Tomball the Drawings and Specifications will be updated in preparation for Agency Approval and Bid Process.
- b. FNI, will submit the contract documents (final drawings and specifications) to TCEQ for conditional

approval. We will coordinate with TCEQ in case there are any comments or revisions required. The project may be advertised and reviewed by the TCEQ concurrently, however the project cannot start construction until TCEQ approval is received.

#### **TASK D: BID PHASE**

Upon completion of the design services and approval of "Final" drawings and specifications by City, Consultant will proceed with the performance of services in this phase as follows:

##### **D1. Prepare Bid Documents**

Assist City in securing proposals this construction contract. Issue a Notice to Bidders to prospective contractors and vendors listed in Consultant's database of prospective bidders, and to selected plan rooms. Provide a copy of the notice to Bidders for City to use in notifying construction news publications and publishing appropriate legal notice. The cost for publications shall be paid by the City.

##### **D2. Distribute Bid Documents**

Print Bid Documents and distribute to selected plan rooms, and to prospective bidders that respond to the Notice to Bidders.

##### **D3. Maintain Distributed Bid Documents**

Maintain information on entities that have been issued a set of bid documents. Distribute information on plan holders to interested contractors and vendors on request.

##### **D4. Issue Addenda and Respond to Questions**

Assist City by responding to questions and interpreting bid documents. Prepare and issue addenda to the bid documents to plan holders if necessary.

##### **D5. Pre-bid Conference**

Assist the City in conducting a pre-bid conference for the construction projects and coordinate responses with City. Response to the pre-proposal conferences will be in the form of addenda issued after the conference.

##### **D6. Bid Tabulation and Award Recommendation**

At City request, Consultant will assist City in the opening, tabulating, and analyzing the proposals received. Review and identify non-compliance items in each proposal, review qualifications, develop a Bid Tabulation spreadsheet. Prepare a recommendation for award and attend the council meeting where the selected Contractor to execute the Project is on the agenda.

##### **D7. Conformed Contract Documents**

Assist City in the preparation of Construction Contract Documents for construction contracts. Provide ten (10) sets of Construction Contract Documents for each construction contract, which include information from the apparent low bidders bid documents, legal documents, and addenda bound in the documents for execution by the City and construction contractor. Distribute five (5) copies of these documents for each construction contract to the contractor with a notice of award that includes directions for the execution of these documents by the construction contractor. Provide City with the remaining five (5) copies of these documents for each construction contract for use during construction. Additional sets of documents can be

provided as an additional service.

**D8. Issue of Documents and Notice to Proceed to Contractor**

Furnish contractor copies of the drawings and specifications for construction pursuant to the General Conditions of the Construction Contract. Assist in execution of the contract and issuance of Notice to Proceed.

**TASK E: CONSTRUCTION GENERAL REPRESENTATION**

Upon completion of the procurement phase services, Consultant will proceed with the performance of construction phase services as described below. Consultant will endeavor to protect the City in providing these services. However, it is understood that Consultant does not guarantee the Contractor's performance, nor is Consultant responsible for supervision of the Contractor's operation and employees. Consultant shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by the Contractor, or any safety precautions and programs relating in any way to the condition of the premises, the work of the Contractor or any Subcontractor. Consultant shall not be responsible for the acts or omissions of any person (except its own employees or agents) at the Project site or otherwise performing any of the work of the Project.

The City agrees to include provisions in the construction contract documents that will require the construction contractors to include Consultant and their subconsultants on this project to be listed as an additional insured on contractors' insurance policies.

**E1. Pre-Construction Conference**

Assist City in conducting pre-construction conference(s) with the Contractor(s), review construction schedules prepared by the Contractor(s) pursuant to the requirements of the construction contract and prepare a proposed estimate of monthly cash requirements of the Project from information provided by the Construction Contractor.

**E2. Construction Communication Plan**

Establish communication procedures with the City, its authorized representative and contractor.

**E3. Construction Documents Review**

Establish and maintain a project documentation system consistent with the requirements of the construction contract documents. Monitor the processing of contractor's submittals and provide for filing and retrieval of project documentation. Review contractor's submittals, including, requests for information (RFI), modification requests, shop drawings, schedules, and other submittals in accordance with the requirements of the construction contract documents for the projects.

**E4. Pay Request Review**

Based on Consultant's observations as an experienced and qualified design professional and review of the Payment Requests (up to 12) and supporting documentation submitted by Contractor, determine the amount that Consultant recommends Contractor be paid on monthly and final estimates, pursuant to the General Conditions of the Construction Contract.

**E5. Monthly Site Visits**

Make two visits per month for the 1 month construction duration to the Pump Station and Ground Storage Tank site, to observe the progress and the quality of work and to attempt to determine in general if the work is proceeding in accordance with the Construction Contract Documents. In this effort Consultant will endeavor to protect the City against defects and deficiencies in the work of Contractors and will report any observed deficiencies to the City. Visits to the sites more than the specified number are an Additional Service.

**E6. Non-Conforming Work Notification**

Notify the contractor of non-conforming work observed on site visits. Review quality related documents provided by the contractor such as test reports, equipment installation reports or other documentation required by the Construction contract documents.

**E7. Construction Documents Interpretation**

Interpret the drawings and specifications for the City and Contractor(s). Investigations, analyses, and studies requested by the Contractor(s) and approved by the City, for substitutions of equipment and/or materials or deviations from the drawings and specifications is an Additional Service.

**E8. Management of Change**

Establish procedures for administering constructive changes to the construction contracts. Process contract modifications and negotiate with the contractor on behalf of the City to determine the cost and time impacts of these changes. Prepare change order documentation for approved changes for execution by the City. Documentation of field orders, where cost to City is not impacted, will also be prepared. Investigations, analyses, studies or design for substitutions of equipment or materials, corrections of defective or deficient work of the contractor or other deviations from the construction contract documents requested by the contractor and approved by the City are an additional service. Substitutions of materials or equipment or design modifications requested by the City are an Additional Service.

**E9. Management of Change**

Prepare documentation for contract modifications required to implement modifications in the design of the project. Receive and evaluate notices of contractor claims and make recommendations to the City on the merit and value of the claim on the basis of information submitted by the contractor or available in project documentation. Endeavor to negotiate a settlement value with the Contractor on behalf of the City if appropriate. Providing these services to review or evaluate construction contractor(s) claim(s), supported by causes not within the control of Consultant are an Additional Service.

**E10. Pump Station Start Up**

Assist, in conjunction with City's representative, the start-up process of the pump station and tank operation. This start-up process shall follow the recommendations of the pump manufacturer and tank manufacturer. Also, the contractor shall conform with the design concept of the Project and general requirements of water production, storage, and pumping needs. FNI will prepare a list of deficiencies to be corrected by the contractor before recommendation for equipment acceptance.

**E11. Final Walk Thru**

Conduct, in company with City's representative, a final review of the Project for conformance with the design concept of the Project and general compliance with the Construction Contract Documents. Prepare a list of deficiencies to be corrected by the contractor before recommendation of final payment. Assist the City in obtaining legal releases, permits, warranties, spare parts, and keys from the contractor. Review and



comment on the certificate of completion and the recommendation for final payment to the Contractor(s). Visiting the site to review completed work in excess of two trips are an Additional Service.

## **E12. Record Drawings**

Revise the construction drawings in accordance with the information furnished by construction Contractor(s) reflecting changes in the Project made during construction Two (2) sets of prints of "Record Drawings" shall be provided by Consultant to the City. Consultant shall also provide a DWG electronic copy of the Record Drawings to the City.

**SPECIAL SERVICES:** FNI shall render the following special services once they have been authorized by the City

## **TASK F: CONSTRUCTION MANAGEMENT AND INSPECTION**

The Consultant will have a Resident Project Representative (RPR) on the Site. The duties, responsibilities, and the limitations of authority of the RPR, and designated assistants, are as follows:

### **F1. CONSTRUCTION MANAGEMENT GENERAL ASSUMPTIONS**

RPR is the Consultant's agent at the site, will act as directed by and under the supervision of Consultant, and will confer with Consultant regarding RPR's actions. RPR's dealings in matters pertaining to the on-site Work shall in general be with Consultant and CONTRACTOR, keeping City advised as necessary. RPR's dealings with Subcontractors shall only be through or with full knowledge and approval of CONTRACTOR.

FNI will endeavor to protect the City in providing these services however, it is understood that FNI does not guarantee the Contractor's performance, nor is FNI responsible for supervision of the Contractor's operation and employees. FNI shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by the Contractor, or any safety precautions and programs relating in any way to the condition of the premises, the work of the Contractor or any Subcontractor. FNI shall not be responsible for the acts or omissions of any person (except its own employees or agents) at the Project site or otherwise performing any of the work of the Project.

### **F2. CONSTRUCTION MANAGER AND RESIDENT PROJECT REPRESENTATIVE ASSIGNMENTS**

Provide the services of an on-site Construction Inspector / RPR acceptable to the City. FNI will provide a level of service based on the duration and schedule of the project as outlined in the fee spreadsheet. The Consultant will provide one full-time inspector and a part-time construction manager. The inspector will cover the pump station project over the expected construction duration of 15 months. He is expected to work an average of 52 hours per week. The CM will average two trips to the site a week for the duration of the work, expected to be 15 months.

### **F3. DUTIES AND RESPONSIBILITIES OF THE RPR**

- a. Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedules of values prepared by CONTRACTOR and consult with Consultant concerning acceptability.
- b. 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.
- c. Liaison:
  - i. Serve as Engineering Consultant's liaison with CONTRACTOR, working principally through

- CONTRACTOR's superintendent and assist in understanding the intent of Contract Documents; and assist Consultant in serving as City's liaison with CONTRACTOR when CONTRACTOR's operations affect City's on-site operations. Provide communication link between the City, Consultant, and Contractor.
- ii. Coordinate the work of testing laboratories and others required for the testing or inspection of materials, witness tests, factory testing, etc. for quality control.
- d. PMIS:
- i. Maintain a Project documentation system consistent with the requirements of the Construction Contract Documents, including daily field inspection and construction reports and tracking corrections to defective work.
  - ii. Maintain a photographic log of construction activities.
  - iii. Advise Consultant and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by Consultant.
- e. Review of Work, Rejection of Defective Work, Inspections, and Tests:
- i. Conduct on-site observations of the Work in progress to determine if the Work is in general proceeding in accordance with the Contract Documents.
  - ii. Report to Consultant 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 Consultant of Work the RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
  - iii. Verify that tests, equipment, and systems start-up and operating and maintenance training are conducted in the presence of appropriate personnel, and the CONTRACTOR maintains adequate records thereof; and observe record and report to Consultant appropriate details relative to the test procedures and start-ups.
  - iv. Accompany visiting inspectors representing public or other agencies having authority over the Project, record the results of these inspections and report to Consultant.
  - v. Observe whether the Contractor has performed inspections required by laws or regulations, ordinances, codes, or order applicable to the work, including those to be performed by public agencies having jurisdiction over the work.
  - vi. Notify the Consultant and City of non-conforming work observed.
- f. Interpretation of Contract Documents: Report to Consultant when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by Consultant.
- g. Request for Revisions: Consider and evaluate CONTRACTOR's suggestions for revisions to Drawings or Specifications and report with RPR's recommendations to Consultant. Transmit to CONTRACTOR in writing decisions as issued by Consultant.
- h. Records: Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, reproductions of original Contract Documents, including all Work Change Directives, Addenda, Change Orders, Field Orders, Written Amendments, additional Drawings issued subsequent to the execution of the Contract, Consultant's clarifications and interpretations of the Contract Documents, progress reports, submittals and correspondence received from and delivered to CONTRACTOR and other Project related documents.
- i. Reports:
- i. Report all activities to the ENGINEER and City on a daily/weekly basis including progress reports, deficiencies noted and corrected, schedule status and changes, conflicts on the plans, attend progress meetings, quantity overruns and underruns, potential future change order request, etc.
  - ii. Consult with Consultant in advance of scheduled major tests, inspections or start of important phases of the Work.

- iii. Draft proposed Written Amendments, Change Orders, and Work Change Directives, obtaining backup material from CONTRACTOR and recommend to Consultant Written Amendments, Change Orders, Work Change Directives, and Field Orders.
- iv. When known, report immediately to Consultant and City the occurrence of any accident.
- j. Payment Requests: Review Applications for Payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to the City, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment at the Site but not incorporated in the Work.
- k. Review Contractor's record documents periodically to determine that the drawings are being maintained during the construction of the project.
- l. Certificates, Maintenance, and Operation Manuals: During 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 Consultant for review and forwarding to the City prior to final payment for the Work.
- m. Completion:
  - i. Before Consultant issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
  - ii. Observe whether CONTRACTOR has performed inspections required by laws or regulations, ordinances, codes or order applicable to the Work, including those to be performed by public agencies having jurisdiction over the Work.
  - iii. Conduct a final inspection in the company of Consultant, City and CONTRACTOR and prepare a list of deficiencies to be corrected by the Contractor before recommendation of final payment.
  - iv. Observe whether all items on final list have been completed or corrected and make recommendations to Consultant concerning acceptance.

**TASK G: TOPOGRAPHIC SURVEY**

Upon written notice to proceed, Consultant shall retain (as a subconsultant) and monitor the services of a surveying firm to perform surveying services for the project. The following survey shall be provided.

**G1. TOPOGRAPHIC SURVEY**

Perform a design topographic survey of the Baker Dr. site, proposed pump station sites and the pipeline alignments. Survey all surface features within the survey areas, including 1-foot contours, ditches, creeks, outlines of tree lines, telephone poles, fences, valves, vaults, manholes, roads, culverts, buildings, mailboxes, utility boxes, driveways, and all other such surface features. The vertical datum will be referenced to (NAVD 88) and tied to the City of Tomball Mapping Control Network benchmarks.

**G2. DIG TESS CALL**

Call Dig Tess to flag all existing underground franchise utilities and survey these utilities into the design survey. Research existing City of Tomball utility plans and include these lines in the survey.

**TASK H: GEOTECHNICAL INVESTIGATION**

Consultant will render the following geotechnical engineering professional services in connection with the project consisting of field exploration, laboratory testing, engineering analysis, and reporting.

**H1. FIELD EXPLORATION**

- a. Select appropriate locations for exploratory borings within the vicinity of the proposed improvements at each site and along the proposed pipeline alignment.
- b. The Consultant will coordinate with the City and Texas 811 regarding underground utilities within the vicinity of the planned boring locations prior to commencement of the field exploration activities.
- c. Subcontract with a drilling contractor to drill exploratory borings for the proposed improvements according to the schedule provided below.
- d. Water Plant: Three (3) borings to a depth of 40 feet and two (2) borings to a depth of 60 feet below existing grade for the pump station and electrical building.
- e. Ground Storage Tank: Five (5) borings to a depth of 60 feet below existing grade.
- f. The borings will be advanced using standard rotary drilling equipment with continuous-flight augers (solid or hollow stem) or rotary wash methods. Subsurface samples will be collected using 3-inch diameter Shelby tubes for cohesive soils and a 2-inch diameter split-spoon sampler in conjunction with the Standard Penetration Test (SPT) for intermediate and non-cohesive soils. Rock and rock-like materials will be cored using an NX core barrel and/or tested *in situ* using the Texas Cone Penetration (TCP) Test or the SPT, as appropriate for the material.
- g. Groundwater observations within the borings will be recorded at the time of drilling and at the completion of drilling and sampling.
- h. The borings will be backfilled with auger cuttings upon completion of drilling and sampling.
- i. A Consultant or Geologist experienced in logging borings will direct the drilling, log the borings, and handle and transport the samples. Visual classification of the subsurface stratigraphy shall be provided according to ASTM D2488 and the Unified Soil Classification System (USCS) during drilling and sampling.

## **H2. LABORATORY TESTING**

- a. Testing shall be performed on samples obtained from the borings to determine soil classification and pertinent engineering properties of the subsurface materials.
- b. The Consultant will select samples for laboratory testing, assign tests, and review the test results.
- c. Laboratory tests will be appropriately assigned for the specific subsurface materials encountered during exploration, but are expected to include:
  - i. Classification tests (liquid and plastic limits and percent passing the no. 200 sieve or gradation)
  - ii. Moisture content
  - iii. Unit dry weight
  - iv. Unconfined compressive strength of soil and rock
  - v. One-dimensional swell (restrained and unrestrained)
  - vi. One-dimensional consolidation

## **H3. WATER PLANT GEOTECHNICAL DESIGN REPORT**

- a. The Consultant will perform the geotechnical engineering analysis and prepare separate technical memorandums for the Pump Station and Chemical Dosing Building summarizing the geotechnical investigation relevant for this structure. The technical memorandum will include the following:
  - i. Appendix with the boring locations, boring logs, laboratory test results, and a key to the symbols used.
  - ii. Discussion of subsurface conditions and soil properties indicated by the field and laboratory work and the implications for design.
  - iii. Foundation recommendations, including bearing capacity of soils, suitable bearing material, lateral and overturning resistance, etc. applicable for the recommended foundation or foundation options.
  - iv. Subgrade treatment and preparation recommendations for new access drives.

- v. General discussion of expected construction related issues.
  - vi. Earthwork related recommendations for use during development of plans and specifications.
- b. Submittals will include an electronic PDF copy of each technical memorandum.

**H4. GROUND STORAGE TANK GEOTECHNICAL DESIGN REPORT**

- a. The Consultant will perform the geotechnical engineering analysis and prepare separate technical memorandums for the Ground Storage Tank summarizing the geotechnical investigation relevant for this structure. The technical memorandum will include the following:
  - i. Appendix with the boring locations, boring logs, laboratory test results, and a key to the symbols used.
  - ii. Discussion of subsurface conditions and soil properties indicated by the field and laboratory work and the implications for design.
  - iii. Foundation recommendations, including bearing capacity of soils, suitable bearing material, lateral and overturning resistance, etc. applicable for the recommended foundation or foundation options.
  - iv. Subgrade treatment and preparation recommendations for new access drives.
  - v. General discussion of expected construction related issues.
  - vi. Earthwork related recommendations for use during development of plans and specifications.
- b. Submittals will include an electronic PDF copy of each technical memorandum.

**TASK I: WELL CONSULTING SERVICES – Provide by AGS AND ALSAY**

The Report including the following\*

**11. WELL CONSTRUCTION PARAMETERS**

Provide estimated well construction parameters for the New Well and its permanent well pump and well motor equipment that include: the pilot hole or test hole depth and types of geophysical logs to perform; water well casing, blank liner pipe and well screen types and material diameters, depths, lengths and wall thicknesses; well pumping tests; well performance requirements; and the pumping rate, total dynamic head, pump setting, pump column sizing and motor horsepower for the permanent well pump and motor equipment.

**12. POLLUTION HAZARDS STUDY AND REPORT**

Perform a pollution hazard study for the site that is selected for the New Well construction that addresses the Texas Commission on Environmental Quality (TCEQ) rules and regulations for a public supply well in TCEQ Chapter 290, Subchapter D, 290.41, Water Sources, Groundwater sources and development, 290.41(c)(1)(A)-(E), and the TCEQ Well Pollution Hazard Survey Checklist. The AGS work will include collecting and reviewing Client information for the New Well site and environmental information regarding any pollution hazard(s) at or in the vicinity of the site. The work also will include performing a field visit to the New Well site selected for construction to check for any pollution hazard(s) at or in the vicinity of the well site.

**13. WELL AND PUMP SPECIFICATIONS REVIEW**

Review the following Client documents and provide review comments and suggested revisions to the Client: the draft technical specifications for the pilot hole or test hole, production well and well pump equipment; the draft water well schematic profile or drawing(s); and the draft bid document for the pilot hole or test hole, production well, well pump or motor equipment.

#### **14. NEW WELL CONSTRUCTION AND FIELD SERVICES**

- a. Review and evaluate the driller's log, geophysical logs and the sieve analysis for the drill cuttings collected from the pilot hole or test hole.
- b. Provide written information and recommendations regarding the collection of one or more water samples from the pilot hole or test hole and the sampling depth interval(s). If pilot hole or test hole water samples are collected by the water well contractor from one or more water sampling depths, then evaluate the field pumping data and laboratory analyses of the water samples.
- c. Review the water well contractor's well construction or completion recommendations and provide a written evaluation regarding the proposed well construction design, material diameters and depth settings, the gravel pack gradation and the screen slot size. If requested or needed, participate in a conference call(s) or meeting(s) regarding the pilot or test hole data and logs, any water sample field data or laboratory analyses and the water well contractor's proposed well construction recommendations.
- d. As requested or needed, provide limited office communication and consultation with the Client or water well contractor during the pilot or test hole and well drilling, construction, development and testing operations.
- e. Review and evaluate the water well development and pumping test field data and review or provide the proposed pumping rate, total dynamic head and depth setting for the permanent well pump and the proposed motor horsepower for the permanent well motor. Also review the laboratory analyses for the water samples collected from the water well during the 36-hour pumping test and provide written review information to the Client.

#### **15. LABORATORY SERVICES**

If any laboratory analysis of a water or gas sample(s) collected by AGS from the pilot or test hole or water well is requested or needed and approved by the Client, then AGS will be reimbursed for any water or gas sample(s) collected for which AGS is sent an invoice(s) by the laboratory that performs the lab work and analysis.

Note that the proposed laboratory cost for any water or gas sample analysis that might be billed to AGS is different than the extensive laboratory analyses of pilot or test hole and water well water samples that are specified to be completed by the water well contractor in the Client's technical specifications and contract and bid documents.

\* For more details see attached AGS Proposal

#### **16. EXISTING WELL INSPECTION AND FIELD SERVICES**

- a. Remove the well cap, run potable water from the water plant into the well for an estimated period of minimum 1 day. This is required to help improve the clarity of the stagnant water in the well that has substantial biological / bacterial organisms.
- b. Perform a color well video survey to the total depth of the well that will provide video information regarding the depths and general condition of the well casing, blank liner and well screens. The electronic file(s) of the well video survey will be provided to the City and City representatives on a jump or flash drive or other format that is acceptable to the City. In addition to this the well inspection contractor will provide a written well video camera report to the City.

- c. Install a temporary well pump, well motor equipment at a minimum pumping rate of 500 gpm. The temporary system will include also discharging piping and holding tank. The inspection contractor will perform the following work and testing with City assistance, as needed: 1) pump and flush the water well at minimum 500 to 1,000 gpm to an existing drain or drainage location for a recommended minimum pumping period of minimum 2 days; 2) furnish and inject a liquid chlorine disinfection solution (minimum 200 ppm chlorine) into the well; 3) perform field testing and static and pumping water level and pumping rate measurements for a minimum 8-hour period to provide field data regarding the current well performance; and 4) collect one water sample for analysis of chemical, metal, radionuclide and bacteriological components.

## **TASK J: ENVIRONMENTAL REVIEW**

Consultant will render the following professional environmental services in connection with the project.

### **J1. HAZARDOUS MATERIALS REVIEW**

Conduct a limited desktop review for any unknown hazardous materials sites present in the project corridor.

### **J2. PRECONSTRUCTION NOTIFICATION**

If required under the terms and conditions of the applicable nationwide permit or permits, Consultant will prepare a preconstruction notification (PCN). The draft PCN will be submitted to the City for review and comment. FNI assumes no more than one PCN would be required. After the City's comments are incorporated into the PCN, it will be submitted to the Galveston District Corps of Engineers. If a PCN is not required, Consultant will submit documentation to the City describing the permit conditions and requirements. All permit conditions and requirements will be included in the construction contract documents, and the construction contractor will be required to abide by these during construction. If an archeological survey is required, this will be considered Additional Services.

### **J3. SECTION 404 MITIGATION PLAN**

These services do not include any mitigation plan services, if required by the permit. If these are required, they will be considered additional services, and will be negotiated between Consultant and the City if requested by the City.

## **Summary of Meetings**

- Project Kickoff Meeting (Internal)
- Project Kickoff Meeting
- Up to seven (7) monthly progress meetings with City staff with topics including:
  - Pump Station Layout,
  - Technical design issues,
  - Sequencing,
  - And other project-related issues
- Up to two (2) council meetings for preliminary design and final design.
- Up to three (3) quality control review meetings (60%, 90% & 100% deliverables)
- One (1) Pre-bid conference meeting
- One (1) Bid opening meeting
- One (1) Pre-construction meeting

### **List of Deliverables**

- Draft Preliminary Design Report
- Final Preliminary Design Report
- 60% Deliverable
- 90% Deliverable
- 100% Deliverable

### **Summary of Project Schedule**

FNI agrees to complete the services as follows:

- Special Services (H and I): 60 Days after NTP
- Preliminary Design: 90 Days after City NTP
- Final Design: 120 Days after Preliminary Design
- Bid and Award Phase: 60 Days after Final Design Approval
- Construction Phase: 15 Months is anticipated for construction + 30 days for Record Drawings



**SUMMARY OF FEE FOR ENGINEERING SERVICES**

FNI proposes to perform the basic and special services outlined in the above sections for a total **lump sum fee of \$1,082,647**, and **not-to-exceed fee of \$766,440**, for a **total project cost of \$1,849,087**, as shown in **Table 2**.

**Table 2: Summary of Fee for Basic and Special Services**

<b>Basic Services Tasks</b>	
<b>Description</b>	<b>Lump Sum Fee</b>
Task A: Project Management	\$105,100
Task B: Preliminary Design	\$174,751
Task C: Final Design Phase	\$523,953
Task D: Bid Phase	\$40,091
Task E: Construction Phase General Rep.	\$238,752
<b>Basic Services Subtotal (Lump Sum)</b>	<b>\$1,082,647</b>
<b>Special Services Tasks</b>	
<b>Description</b>	<b>CPM Fee</b>
Task F: Resident Project Representation	\$602,831
Task G: Topographic Survey (Gorronдона)	\$9,693
Task H: Geotechnical Investigation (Ninyo & Moore)	\$30,239
Task I: Groundwater Consulting Services (AGS/ALSAY)	\$120,010
Task J: Environmental Review	\$3,668
<b>Special Services Subtotal (CPM)</b>	<b>\$766,440</b>
<b>Project Total (Basic + Special Services)</b>	<b>\$1,849,087</b>