

SCOPE OF WORK

CITY OF CORPUS CHRISTI GREENWOOD WASTEWATER TREATMENT PLANT FLOOD MITIGATION AND BACKUP GENERATOR CITY PROJECT NO. 18070

PROJECT DESCRIPTION:

City of Corpus Christi (City) owns and operates the Greenwood Wastewater Treatment Plant (GWWTP). GWWTP was constructed in 1957 and has an average flow capacity of 8 MGD and a peak flow capacity of 24 MGD. GWWTP services the Greenwood Service Basin composed of 18 Lift Stations. Greenwood service basin covers an area from Hunter Road at its northern most point to Chapman Ranch Road at its southern most point encompassing an area of roughly 38 square miles. In the past decade, the GWWTP has experienced at least two (2) major flooding events that have caused damage to equipment, endangered personnel, inhibited the plant's ability to disinfect and meter the wastewater and caused wastewater overflows to La Volla Creek.

The objectives of this project are to construct cost efficient flood proofing improvements and install a plant backup generator system to ensure normal operation and safety when the GWWTP is subject to heavy rainstorms and power outage. The project is funded via a combination of City funds and GLO/CDGB grant funding and per the grant requirements construction is to be finished by Nov 31st 2029.

For the generator additions, the following assumptions related to flow, included existing and planned future loads will be used to determine the sizing and fuel storage requirements.

Phase	WWTP Capacity	Load Total	Included in Design
Current Expansion/Reliability	8 MGD	ECR-1 : 2220A connected ECR-2: 2630A connected	Yes
Valero Effluent Pump Station	8 MGD + EPS (3 x 800 HP pumps)	No	No
Phase 2 Expansion	12 MGD	Will be developed in preliminary design	Planning level ONLY
Phase 3 Expansion	16 MGD	Will be developed in preliminary design	Planning level ONLY

The scope of services for this proposal includes Basic services (Preliminary Design, Detailed Design and Bid Services) plus other Additional Services, as authorized for the following improvements. Construction Phase Administration and other related services are included in the

scope and will be Invoiced under Time & Materials; the scope of service will be clarified during the construction award process.

- Addition of Generators to support plant operation at maximum average flow of 8 MGD including electrical load associated with the new Wastewater Maintenance building.
- Evaluation of natural gas and diesel generator options
- Fuel System design for emergency generators (tanks, piping, controls, level/leak detection)
- Financial analysis supporting participation in ERCOT demand response programs
- Addition of outdoor effluent pump station structure with 36 MGD capacity. The new effluent pump station will also host a new non-potable water pumping system to replace the two existing 455 GPM pumps.
- Addition of electrical building to support new 36 MGD effluent pump station
- HVAC design for the proposed electrical building. The cooling design condition shall be a maximum temperature 80°F±5°F
- Instrumentation upgrades supporting the generator, effluent pump station and stormwater pump station addition
- The following options will be evaluated along with evaluation of existing flood mitigation measures already being implemented.
 - Site flood wall located around the site
 - Individual flood walls at particular structures
 - Elevated walkways to allow access to various structures during a flood event
 - Structural upgrades supporting the generator addition, effluent pump station addition and new flood walls
 - Stormwater pump station as necessary
 - Piping of floodway improvements
 - Site grading modifications

Schedule

Activity	Task Duration	Anticipated schedule from Notice to proceed
Notice to proceed		
Project Kickoff Meeting		2 weeks
Draft ELR / 30% Design Submittal	16 weeks after final approval scope of work	18 weeks
Draft ELR / 30% Design City review	3 weeks*	21 weeks
Final ELR / 30% Design Submittal%	2 weeks	23 weeks
75% Design Submittal	16 weeks	39 weeks

75% Design Submittal City review by	3 weeks*	42 weeks
Draft 100% Design Submittal	16 weeks	58 weeks
Draft 100% City Review by	3 weeks*	61 weeks
100% Design Submittal	6 weeks	67 weeks
Final Signed and Sealed Plan and Bid Documents	2 weeks after City Comments	72 weeks
Bidding and Construction award	12 weeks/3 months after Signed and Sealed	84 weeks
Construction Completion	84 weeks /20 months after Bidding and Award	168 weeks

*City review timeline is assumed to be a maximum of 3 weeks for each deliverable to meet grand funding schedule, if comments are received earlier, the schedule will be adjusted accordingly.

BASIC SERVICES

1 Preliminary Design Phase

Prior to the preparation of detailed plans and specifications, the Consultant will develop a Preliminary Design (30% Design) for the required project elements. The purpose of the Preliminary Design phase is to develop an adequate definition of the project to enable the Detailed Design phase to proceed without significant changes. A prerequisite to the preparation of plans and specifications is the development of a specific Engineering Letter Report (ELR) that incorporates the project site conditions and constraints, summarizes the rationale for each major detailed design decision, and contains design criteria including process control criteria and process descriptions for each component and system incorporated into the project. The PER and 30% design will establish the design parameters, criteria, and concepts necessary for preparation of detailed plans and specifications.

The Consultant will provide the following services under this phase:

- 1.1 The Consultant will perform project management tasks such as managing schedule, managing deliverables on Trimble, submitting monthly invoices to City for payment during preliminary phase of the project. The Consultant will also prepare and submit monthly status reports to the City with the monthly invoice. Monthly status reports will comprise of a one-page summary of the progress to date on the project, work completed during the prior month, work anticipated to be completed during the upcoming month, and discussion of any scope, schedule, or budget issues that may need to be resolved. The level of effort is assumed to be 1-hr every week.
- 1.2 Project Kick-off Meeting
- The purpose of the Kickoff meeting is to confirm user requirements for key elements concerning design, budget and schedule. For this, the consultant will prepare a meeting agenda and distribute it to designated City staff prior to the meeting.
 - During the Project Kickoff Meeting the Consultant's team will take notes regarding the proceedings of the meeting. Consultant will transcribe and distribute the meeting notes into formal meeting minutes.
- 1.3 Perform condition assessment using visual inspection and operator interviews for the facilities related to flood mitigation. The purpose of this task would be to determine upgrades needed to these existing facilities and identify needed improvements. Up to three (3) 4-hour site visits are anticipated for this effort.

- 1.4 Evaluate plant backup power needs based on plant one-line diagrams and utility demand and usage data provided by the City. Load summaries will be developed. Existing utility data will be analyzed to determine plant operating load factors. Regulatory requirements will be reviewed and minimum loads requiring backup discussed with plant operations department.
- 1.5 Evaluate and provide recommendations on generator fueling system options. Natural gas and diesel generators will be considered in the evaluation.
- 1.6 Evaluate and provide recommendations for possible generator locations. Proximity to electrical buildings will be prioritized along with proximity to plant gas lines for natural gas generator options.
- 1.7 Develop preliminary Process Flow Diagrams (PFD's) for the recommended process equipment and preliminary process-mechanical drawings.
- 1.8 Develop preliminary Process and Instrumentation Diagrams (P&ID's).
- 1.9 Identify and provide preliminary sizing for electrical improvements required to supply power to the proposed 36 MGD effluent pump station.
- 1.10 Identify and provide preliminary sizing for electrical improvements required to supply power to the potential stormwater pump station.
- 1.11 Evaluate options for routing electrical to the proposed facilities location and prepare preliminary electrical site layouts for the proposed improvements.
- 1.12 The Consultant will develop preliminary site plan layouts showing the location of proposed improvements.
- 1.13 Develop drainage area boundaries for existing and proposed drainage areas served.
- 1.14 Conduct hydraulic analysis to evaluate the storm sewer design of the existing and proposed systems, including assessment of flood mitigation and improvement strategies. These strategies may include a combination of stormwater pumps, flood walls, storm line upsizing, and other mitigation strategies.
- 1.15 Provide assistance with grant funding documentation including no rise certificate for 100 yr floodplain.

- 1.16 Provide services during the design phase for process automation system development. SCADA network architecture and detailed design for integrating the new facilities into the existing SCADA system (assuming fiber-based communications) will be provided. Develop Control panel design drawings and Division 40 specifications covering general process control system requirements, instrumentation, control systems, SCADA integration, and network communications requirement.
- 1.17 Provide instrumentation and controls (I&C) design for the addition of new power generators, the new 36 MGD pump station and potential stormwater pump station. This work will include preparation of P&IDs, and development of control narratives that define overall sequences of operation, including permissives, interlocks, and SCADA interface requirements for generator operation, load transfer, and intentional islanding (for demand response and storm avoidance), as well as pump station control strategies for all pumps and associated instrumentation.
- 1.18 Determine preliminary structural loadings and structural element sizing.
- 1.19 Prepare Preliminary (30%) Structural backgrounds as necessary to depict process units on mechanical drawings.
- 1.20 Determine preliminary materials of construction and architectural aesthetics.
- 1.21 Prepare preliminary opinions of probable construction costs for the pertinent design scope identified.
- 1.22 Provide regular progress meetings used to coordinate ongoing issues, discuss project status and obtain input from the City. Consultant will prepare meeting minutes and will finalize and distribute after review by the City's Staff. Up to six (6) two-hour progress meetings or site visits with utility and engineering services staff are anticipated through the Preliminary Phase.
- 1.23 Coordinate the work of all subconsultants, including leading of meetings with subconsultants to coordinate completion of work and adherence to schedules. Meetings will be held every two weeks (8 meetings total; 1-hour duration) throughout the Preliminary Phase.
- 1.24 Prepare a project schedule that summarizes all of the major tasks of the project and the critical path of the project. Consultant will update the project schedule as the project progresses or changes occur throughout the preliminary phase.
- 1.25 Prepare anticipated index of drawings and specifications for the detailed design phase
- 1.26 Provide a Quality Assurance and Quality Control review of preliminary drawings and ELR.
- 1.27 Identify any necessary permits that will be needed to be obtained by the City and Contractor.

- 1.28 Prepare and submit electronic copy of the Draft ELR that documents the analyses, approach, opinions of probable construction costs, and documents the work with text, tables, schematic-level exhibits and computer models or other applicable supporting documents as necessary.
- 1.29 Upon Draft submittal, Conduct Project review workshop with City staff to review recommendations. Prepare PowerPoint presentation, handouts, exhibits and meeting notes as necessary.
- 1.30 Assimilate all City review comments on the DRAFT ELR and submit the Final ELR (electronic copy uploaded on Trimble).

2 Detailed Design Phase.

Upon completion of the preliminary phase, the Consultant will:

- 2.1 Continue to perform project management tasks such as managing schedule, managing deliverables on E-builder, submitting monthly invoices to City for payment during detailed design phase of the project. The Consultant will also prepare and submit monthly status reports to the City with the monthly invoice. Monthly status reports will comprise of a one-page summary of the progress to date on the project, work completed during the prior month, work anticipated to be completed during the upcoming month, and discussion of any scope, schedule, or budget issues that may need to be resolved. The level of effort is assumed to be 1-hr every week.
- 2.2 Coordinate the work of all subconsultants and design team, including leading of meetings with subconsultants to coordinate completion of work and adherence to schedules. Meetings will be held every two weeks (up to 20 meetings total; 1-hour duration) throughout the Detailed Design Phase.
- 2.3 Provide Quality Assurance/Quality Control (QA/QC) measures to ensure that all submittals of the interim and final complete plans and complete bid documents with specifications accurately reflect the percent completion designated and do not necessitate an excessive amount of revision and correction by City.
- 2.4 Develop a construction sequence plan to communicate sequencing requirements to the Contractor before bidding. The purpose of the plan is to provide the Contractor a sequence to perform their construction activities in such a manner that allows for continuous operation of all essential plant facilities to meet demands throughout the construction period. The Consultant will evaluate sequencing alternatives based on cost and impacts to plant operations, coordination and review of the developed alternatives with plant staff. A preferred alternative will be finalized and included in the contract documents. The goal is to ensure the continuation of operations at the plant while maintaining the plant's capability to treat water. The Consultant will include in the construction documents a separate specification for testing, training, and facility start-up as applicable (Included as T&M).

- 2.5 Coordinate with City IT Department for SCADA programming that will be provided by City IT Department. One four (4) hour workshop Webex meeting will be held for coordination. Meeting minutes will be provided. Provide regular progress meetings to coordinate ongoing issues, discuss project status and obtain input from the City. Up to nine (9) one-hour progress meetings with utility and engineering services staff are anticipated through the design phase.
- 2.6 Prepare construction plans in City standard format for the work identified in the approved ELR to a 75% level of completion.
- 2.7 Prepare construction (technical) specifications in City standard format for the work identified in the approved ELR to a 75% level of completion.
- 2.8 Construction Permits required during design will be provided by Ardurra.
- 2.9 Development of Opinion of Probable Construction Cost (OPCC) per plans and specification to a 75% level.
- 2.10 Furnish one (1) set of the interim 75% submittal (electronic uploaded on Trimble using City Standards as applicable) to the City staff for review and approval purposes with estimates of probable construction costs. City will distribute the submittal documents to the franchise utilities. Submit the required plan executive summary, project checklist & drawing checklist which will identify and summarize the project by distinguishing key elements and opinion of probable project costs.
- 2.11 Attend a 75% Review Meeting coordinated by the City. Ardurra will provide a brief presentation highlighting key decisions, items of the project.
- 2.12 Assimilate all review comments, as appropriate and, upon Notice to Proceed, update 75% plans and prepare additional sheets as necessary to complete the plans to 90%-100% level of completion.
- 2.13 Update 75% specifications and add sheets to complete the plans to Draft 100% level of completion.
- 2.14 Prepare City Standard Front-end documents and Bid Tab to a Draft 100% of completion.
- 2.15 Update the Opinion of Probable Construction Cost (OPCC) to achieve a Draft 100% level of completion.
- 2.16 Provide one (1) set of the Draft 100% plans and bid documents (electronic uploaded on Trimble using City Standards as applicable) to the City staff for review and approval purposes with revised estimates of probable costs. Plan executive summary, project checklist and plan checklist.
- 2.17 Attend a Draft 100% Review Meeting coordinated by the City. Ardurra will provide a brief presentation highlighting key decisions, items of the project.

- 2.18 Assimilate all review comments, as appropriate and, upon Notice to Proceed, update Draft 100% plans to a final level.
- 2.19 Update Draft 100% specifications to final level of completion based on City comments.
- 2.20 Update City Standard Front documents to a final level of completion. Coordinate with City's procurement department as necessary.
- 2.21 Update the Opinion of Probable Construction Cost (OPCC) based on City comments.
- 2.22 Provide final signed and sealed plans and bid documents (electronic and 1 hard copy using City Standards as applicable) to the City staff for project advertisement. Update plan executive summary and prepare project checklist and plan checklist. Said bid documents henceforth become the shared intellectual property of the City of Corpus Christi and the Consultant.

Scope Item Assumptions:

- Meetings:
 - Kick off, 30% review meeting, 75% review meeting and Draft 100% review meetings will be held at Greenwood. Rest of progress meetings will be held on WebEx.
 - CCW and Engineering Services Staff will attend progress meetings.
 - Consultant's staff working on the project will remotely dial in by phone as necessary.
- The City staff will:
 - Designate an individual to have responsibility, authority, and control for coordinating activities for the Project.
 - Provide the budget for the Project specifying the funds available for the construction contract, the project will be modified based on OPCCs and Bid Openings as required.
- City's standard specifications, standard detail sheets, standard, special provisions, and forms for required bid documents are all available on the City Website under Engineering Services. City will assist as needed if additional documents or updated information are required. Additional features such as site physical security, building physical security or building access controls are not included in the scope currently and can be added as an additional service if requested by the City.
- Power system studies (Short circuit, coordination, arc flash) using SKM or ETAP software are not included. Preliminary short circuit calculations will be performed to ensure equipment ratings are in excess of anticipated short circuit values. Complete power system studies are anticipated to be provided by the installing contractor during the construction phase of the project

3 Bid Phase

The Consultant will:

- 3.1 Perform project management tasks such as managing schedule, managing deliverables on E-builder, submitting monthly invoices to City for payment during bid phase. The Consultant will also prepare and submit monthly status reports to the City with the monthly invoice. Monthly status reports will comprise of a one-page summary of the progress to date on the project, work completed during the prior month, work anticipated to be completed during the upcoming month, and discussion of any scope, schedule, or budget issues that may need to be resolved. The level of effort is assumed to be 1-hr every week.
- 3.2 Attend pre-bid meeting and provide a brief discussion on the project scope and key project construction items.
- 3.3 Review all pre-bid questions and submissions concerning the bid documents and prepare, in the City's format, for the Engineering Services' approval, a response form for posting on CivCast.
- 3.4 Assist the City in preparing addenda and make revisions to plans and specifications as necessary.
- 3.5 Attend bid opening.
- 3.6 Assist the City in reviewing bids and bidder references for completeness, balance of bid items, and responsiveness, and prepare a tabulation of bid prices.

Scope Item Assumptions:

- The effort for bid phase is based on traditional design-bid contract award strategy typically adopted by the City. Effort for alternate bid strategy is not included in this proposal.
- The City staff will:
 - Designate an individual to have responsibility, authority and control for coordinating activities for reviewing bids and the construction contract award.
 - Provide the budget for the project specifying the funds available for the construction contract.
 - Provide the City's updated standard specifications, standard detail sheets, standard and special provisions and forms for required bid documents.
 - All coordination with bidding documents will be distributed through CivCast. A
 - Advertise the projects for bidding, maintain a list of prospective bidders, for all bid documents, issue (with assistance of Engineer) any addenda, prepare and supply bid tabulation forms, and conduct bid opening.
 - Receive the Consultant's recommendation concerning bid evaluation and recommendation and prepare agenda materials for the City Council concerning bid awards.

- Prepare, review, and provide copies of the contract for execution between the City and the Contractor.
- This Scope of Services does not include time for the Consultant to assist the City in the event of bid protests.

4 Construction Administration Phase (Time & Materials)

The Consultant will:

- 4.1 Participate in pre-construction meeting conference with City and selected Contractor Engineer will introduce project team members, establish protocol and lines of communication, review project goals and objectives, gather all available documents pertinent to the project, and review the scope of work, and schedule. Participation in pre-construction meeting is anticipated to be in person\$ and provide a recommended agenda for critical construction activities and elements impacting the project, meeting minutes will be provided.
- 4.2 Assimilate all addenda changes and issue a set of conformed contract documents to the City and Contractor.
- 4.3 Engineer will attend monthly construction progress meetings with the City and selected contractor to discuss aspects of the project tasks presently underway, review progress, project schedule and upcoming issues. These meetings will generally be about an hour in duration. The appropriate engineering team members shall attend the meetings to discuss pertinent issues. Engineer will prepare draft meeting minutes within seven business days to submit to the City for review and distribution to its participant entities. Final minutes will be issued after incorporating review comments. The overall duration of the construction is anticipated to be twenty-three (23) months to substantial completion and two (2) more months to final acceptance. Participation in monthly construction progress meetings is anticipated to be virtual (via Webex).
- 4.4 In conjunction with monthly progress meetings, Engineer will make periodic site visits to observe, as an experienced and qualified design professional, the progress and quality of the various aspects of Contractor's work. Such visits and observations by Engineer are to include spot checking, selective review, and similar methods of general observation of the work based on Engineer's exercise of professional judgment. Based on information obtained during such visits and such observations, Engineer shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and Engineer shall keep City informed of the progress of the work. Six (6) site visits during the duration of the construction are anticipated.
- 4.5 Perform project management and contract administration duties similar to those in the previous phases, throughout construction.

- 4.6 Review Contractor submittals and operation and maintenance manuals for conformance to Contract Documents.
- 4.7 When requested by the City, assist in addressing Request for Information (RFI) submitted by the Contractor. Up to 60 RFIs are included. In addition, provide interpretations and clarifications of the Contract Documents for the Contractor and authorize required changes, which do not affect the Contractor's price and are not contrary to the general interest of the City under the Contract as requested by the Owner's Authorized Representative (OAR).
- 4.8 If required, the consultant will provide assistance to the city for reviewing up to five Requests for Proposals related to changes required from RFIs and up to two change orders.
- 4.9 If requested by the City, review and interpret field and laboratory tests.
- 4.10 Attend a pre-final and final inspection with City staff, provide punch list items to the City's Construction Engineers for Contractor completion, and provide the City with a Certificate of Completion for the Project upon successful completion of the Project.
- 4.11 Review Contractor-provided construction "red-line" drawings. Prepare Project Record Drawings and provide a reproducible set and electronic file (both PDF and AutoCAD r.14 or later) within one (1) month of receiving the Contractor's red-line drawings. All drawings shall be CADD drawn using dwg format in AutoCAD, and graphics data will be in .dxf format with each layer being provided in a separate file. Attribute data will be provided in ASCII format in tabular form. All electronic data will be compatible with the City GIS system. The Record Drawings should incorporate the Contractor's red-lines and identify all changes made during construction. The Drawing Cover and each sheet should be clearly identified as the Record Drawing and should indicate the basis and date.
- 4.12 The City staff will:
 - a) Prepare applications/estimates for payments to Contractor.
 - b) Conduct the final inspection with the Engineer.

5 ADDITIONAL SERVICES

This section defines the scope of additional services that may only be included as part of this contract if authorized by the Director of Engineering Services. A/E may not begin work on any services under this section without specific written authorization by the Director of Engineering Services. Fees for Additional Services are an allowance for potential services to be provided and will be negotiated by the Director of Engineering Services as required. The A/E shall, with written authorization by the Director of Engineering Services, perform the following:

5.1 Delivery of the project in two separate design packages

The purpose of this task is to cover splitting the design into two separate design packages, one to cover the flood mitigation scope, the second to cover the generator addition scope in the

event generator lead times were found to be incompatible with the project overall schedule associated with grant funding. Two separate schedules would be anticipated for this task.

5.2 Prepurchase design package for generator equipment

Lead times for backup power generators have significantly increased over the years and with ongoing large scale datacenter projects across the nation, the major generator vendors published lead times could potentially put the project schedule at risk and jeopardize grant funding availability. Generator lead times will be assessed as part of the preliminary design phase. If lead times are found to be incompatible with the proposed project schedule, a separate generator pre-purchase package would be considered. The Consultant will provide basic services (design) under this task for providing a separate pre-purchase design package for the procurement of the generators. The schedule for this task will be accelerated to meet grant funding deadline requirements.

5.3 Topographic Survey

The Consultant will perform topographic survey. All work will be tied to and conform with the City's Global Positioning System (GPS) control network and comply with Category 6, Condition I specifications of the Texas Society of Professional Surveyors' Manual of Practice for Land Surveying in the State of Texas, Ninth Edition. The Consultant will include reference to a minimum of two (2) found boundary monuments from the project area and establish Horizontal and Vertical Control as required. Horizontal control will be based on NAD 83 State plane coordinates (South Zone), and the data will have no adjustment factor applied – i.e. – the coordinate data will remain in grid. Vertical control will be based on NAVD 88. All control work will be established using conventional (non-GPS) methods. Perform topographic surveys to gather existing condition information. The Consultant will obtain x, y, and z coordinates of all accessible existing sanitary sewer, storm sewer, water and gas lines as well as any other lines owned by third-parties and locate all visible utilities, wells and signs within the apparent ROW width along project limits. Surveying services, related to subsurface engineering (SUE) shall be provided as part of the scope of work for SUE (Additional Service 8, below). The Consultant will Generate electronic planimetric base map for use in project design. The scope assumes up to 10 days of field survey.

5.4 Windstorm Certification

If the City is seeking insurance for the structures through the Texas Windstorm Insurance Association, TDI windstorm inspections will be needed and provided as an additional service.

5.5 Geotechnical Investigation

The Consultant will identify the extent of subsurface geotechnical investigations as required to support the design of the new facilities and will coordinate this effort with the Geotechnical Engineer (subconsultant). The Consultant will attend up to two (2) two-hour site visits with the Geotechnical Engineer for geotechnical engineering work. A detailed geotechnical investigation report summarizing the discussions on test analyses, findings and recommendations shall be prepared by the Geotechnical Engineer. The Consultant will review draft report and work with the Geotechnical Engineer to finalize the geotechnical report. The Geotechnical Sunconsultant will perform the following borings:

- Effluent Pump Station: 1 boring 75ft depth
- Stormwater Pump Station: 1 boring 75ft depth

- | | | |
|---------------------------|------------|-----------------|
| • Electrical Control Room | 1 boring | 35ft depth |
| • Perimeter Wall | 28 borings | 35ft depth each |

5.6 SUE (Allowance – T&M)

The Consultant will coordinate with subconsultant to provide Level B Subsurface Utility Engineering (SUE) services for the project. Subsurface Utility Engineering services are divided into four (4) levels (Level A through Level D). Level B Services involve locating the utility by different electromagnetic or ground penetrating RADAR methods. Once the utility is located, its coordinates are noted by survey measurements.

The Consultant will provide the following services:

Subsurface Utility Engineering (Level B)

- Sub Surface Utility Location and Data Recording.
- Coordinate with Texas 811 and City to determine the approximate location of underground utilities to be exposed.
- Utilize GPR and electromagnetic methods to expose underground utilities and survey to record exact horizontal location.
- Collect and record field data.
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- Update base maps and project construction plans

Notes and Assumptions

- The scope of work assumes that during field survey and subsurface location, the City will provide the following:
- Exclusions:
 - Identifying exact point of underground utility intersection and/or elbows and turns (this service can be performed at an additional cost if requested by City)
 - Level A SUE
- Work is limited to a maximum of three (3) days and services will be billed on a T&M basis since the exact locations and extent will be finalized after preliminary design

FEE

The proposed not-to-exceed contract amount for each task is as follows:

Task	Fee	Billing Type
Task 1 – Preliminary Design	\$345,395	Lump Sum
Task 2 – Detail Design	\$721,660	Lump Sum
Task 3 – Bid Phase	\$24,770	Lump Sum
Task 4 – Construction Admin	\$293,610	Time and Materials
Subtotal for Basic Services	\$1,400,185	
Additional Services		
Task 5.1 – Preparation of two bid packages	\$48,380	Lump Sum
Task 5.2 – Prepurchase of generators	\$20,510	Lump Sum
Task 5.3 - Survey	\$29,330	Lump Sum
Task 5.4 – Windstorm Certification	\$16,190	Time and Materials
Task 5.5 Geotechnical Investigation	\$80,411	Time and Materials
Task 5.6 Level A SUE	\$24,330	Time and Materials
Subtotal Additional Services	\$219,151	
Total New Work	\$1,619,336	

Invoices will be submitted to the City on a monthly basis as a percentage complete based on project progress (for lump sum) and based on hours and expenses charged to the project (T&M). Invoices will be provided with a cover letter summarizing the actions and meetings performed during the invoice period and a project status table summarizing project billing (template to be provided by the City).

If you have any questions or if you would like to discuss in more detail, please feel free to call me at (469) 396-9373.