



May 9, 2023

Mr. Steve Parker, City Manager
City of Seguin
205 N. River Street
Seguin, TX 78155

RE: River Oak Interceptor and Pecan Orchard Lift Station Expansion Project Final Engineering
Design Phase, City of Seguin, Texas

Dear Mr. Parker:

Trihydro Corporation (Trihydro) is submitting this professional engineering scope of work and fee estimate for the final design phase of the River Oak Interceptor and Pecan Orchard Lift Station Expansion Project for the City of Seguin (City). This project was identified to accommodate the increased sanitary sewer wastewater demand in the vicinity of FM 725, SH 46, and SH 123 due to rapid residential and commercial growth. Trihydro's scope of work for the final design is presented below. The preliminary engineering design phase is currently in progress via separate contract and is not included in this proposal.

SCOPE OF WORK

The final design phase includes 60% design, 90% design, final construction design, permitting, bidding, and construction administration services for the following:

- Approximately 8,700 linear feet of 24-inch sanitary sewer pipeline
- 2,400 linear feet of 21-inch sanitary sewer pipeline
- 5,800 linear feet of 18-inch sanitary sewer pipeline
- Expansion of an existing lift station to 7.2 million gallons per day (MGD)
- Approximately 4,700 linear feet of 12-inch sanitary sewer force main
- Decommissioning of two existing lift stations

Mr. David Rabago will serve as Trihydro's Project Manager (PM) and primary point of contact. Mr. Rabago will provide design oversight, management of subconsultants, quality assurance/quality control (QA/QC) reviews, client updates, and project administrative duties. Mr. Jason Vreeland will serve as the Project Director supporting David with QA/QC reviews and providing staff resources for successful contract completion.



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Our proposed scope of work is outlined below for your review.

Task A100 – Surveying and Field Investigation

Trihydro will collect supplemental survey data (as needed) including topography, visible site features, property and right-of-way (ROW) boundaries, and existing visible utilities (to the extent possible) within the estimated 60 feet-wide pipeline alignment corridor. This supplemental survey data will be incorporated into an updated survey base map drawing. Trihydro will provide the following under this task:

- Supplemental topographical, visible site features, property and ROW boundary, and existing utility surveying services (as needed).
- Updated survey base map drawing.
- Easement exhibits with metes and bounds descriptions.

Trihydro made the following assumptions:

- The proposed pipeline alignment will require 50 permanent easements and 50 temporary construction easements.
- Surveying work includes 7 days.

We anticipate supplemental survey data will be required for successful completion of the final design plans and easement documents.

Task A200 – Natural Resources and Cultural Resources

Trihydro will contract SWCA Environmental Consultants (SWCA) to conduct environmental services for the River Oak Interceptor and Pecan Orchard Lift Station Expansion Project. The services will include the following subtasks:

Subtask 1: Jurisdictional Waters Delineation

SWCA will review published information and perform a field survey to identify wetlands, ponds, stream channels and other aquatic features that may be considered jurisdictional waters by the United States Army Corps of Engineers (USACE) under the Clean Water Act. Data collection will be considered in accordance with current federal delineation methodology including the *1987 Corps of Engineers Wetland Delineation Manual* and the *2010 Regional Supplement for the Great Plains Region*. Data will be collected on vegetation, soils, and hydrology to determine if the areas along the alignment meet criteria for wetlands established by the USACE.



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Following field data collection, SWCA will prepare a jurisdictional waters report including the following information:

- A narrative description of the methods used in conducting the field investigations.
- A results section that describes (1) the vegetation communities observed, (2) the soils observed, (3) the types of wetlands encountered and (4) the water bodies observed.
- A conclusion section where SWCA provides professional opinion on which waters and/or wetlands anticipated to be considered by the USACE.
- Maps illustrating locations of jurisdictional waters in the project area. The maps will be aerial photo-based and prepared using ArcGIS.
- USACE Wetland Determination Data Forms for each sample point.
- A photographic log displaying representative photographs for each vegetative stratum and representative photographs of each aquatic feature observed.

Subtask 2: United States Army Corps of Engineers (USACE) Permitting Memorandum

SWCA will prepare a USACE permitting memorandum that will detail extent and types of stream/jurisdictional waters impacts from the project, applicable permit options, and requirements for pre-construction notification, if applicable. The memorandum will also describe other federal regulatory compliance associated with operating under a general or individual USACE permit.

Subtask 3: Cultural Resources Assessment

As a political subdivision of the state of Texas, the City is subject to the Antiquities Code of Texas (ACT) and the accompanying Rules of Practice and Procedure, which protects archaeological sites and historic buildings on public lands. Additionally, as portions of the project may require federal permitting from USACE under Section 404 of the Clean Water Act (CWA), the project may qualify as a federal undertaking and therefore require compliance with Section 106 of the National Historic Preservation Act (NHPA). The following scope of work is designed to meet requirements of ACT and Section 106 of the NHPA.

Cultural resources assessment will include the following:

- Background review, agency consultations, and antiquities permit application.
- Archaeological fieldwork.
- Reporting and curation.



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Subtask 4: Threatened and Endangered Species Evaluation

Threatened/Endangered species evaluation services include the evaluation of published literature and a site visit along the project alignment to describe the structural and compositional elements of the vegetation and other habitat features in and adjacent to the project. Following the field visit, SWCA will prepare a report that provides a description of the vegetation communities and habitat features present and assessment of the potential for the occurrence of the species as considered by the United States Fish and Wildlife (USFWS) in Guadalupe County.

Subtask 5: Natural Resources Assessment for Alternate Route

Natural resources assessment for an alternate route will be performed as needed. Based on the outcome of cultural resources evaluations, a significant resource may be encountered that results in a recommendation to evaluate a route adjustment. This task will cover field evaluation of a route adjustment or alternate route segment up to 0.5 mile in length. Alternate or adjusted route findings will be incorporated into the jurisdictional waters and threatened/endangered reports.

Subtask 6: USACE Pre-construction Notification Application and USACE Coordination

USACE pre-construction notification (PCN) will be prepared and submitted for activities authorized under a Section 404 permit submittal under the CWA Section 404 Nationwide Permit (NWP) 58 for Utility Line Activities or other applicable NWP(s).

The PCN package will also include a copy of the Jurisdictional Delineation Report, T&E Report, and Cultural Resources studies conducted for the proposed project. The completed draft PCN package will be submitted to Trihydro and to the City for review and comment. SWCA will address one round of comments. If requested by the City, SWCA will submit the package directly to the USACE Fort Worth District. If the USACE requests clarifications and/or alterations, SWCA will accommodate the requests and provide revised copies suitable for the USACE.

Trihydro/SWCA made the following assumptions:

- The scope of work may be subject to change following consultation with the Texas Historical Commission (THC) and USACE, the archaeological resources background review investigations, and field work.
- Services under cultural resources assessment task assumes fieldwork will require a total of six (6), 10-hour days for a team of two (2) SWCA archaeologists to complete the shovel test survey and deep testing. This includes the use of a backhoe operator to complete deep testing investigations.
- Services under cultural resources assessment task assumes that deeply buried cultural deposits will not be encountered during deep testing efforts.



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- Based on the known site densities in the area, SWCA assumes that the survey will result in the assessment of no more than one (1) archaeological site encountered during shovel testing, which would be more than 1.0-acre (0.4-hectares) in extent.
- Detailed archival research and review of county records to determine the age and significance of historic-age resources in the area of potential effects (APE) are not included in this cost or proposal.
- SWCA proposes a non-collection survey.
- This scope of work does not include eligibility testing or data recovery levels of effort.
- Habitat assessment and jurisdictional water delineation will be conducted concurrently during same field visit.
- SWCA's scope and cost do not include freshwater mussel surveys or aquatic species relocations. It is assumed that no dewatering will be required.
- Threatened/endangered species evaluation cost includes field evaluation only and inclusion of results in reports that have not yet been published.
- Respond to two rounds of USACE comments.

Trihydro will coordinate with SWCA to provide the above referenced environmental services.
Trihydro will also provide QA/QC review of the environmental report and recommendations.

Task A300 – Electrical Engineering

Trihydro will contract Cleary Zimmermann Engineers (Zimmermann) to conduct electrical design for the River Oak Interceptor and Pecan Orchard Lift Station Expansion Project. The project scope consists of the design for electrical power, power company coordination, instrumentation, controls, SCADA, and Communication for a new lift station. The scope of work includes the following detailed items:

- New electric service and respective coordination with utility.
- Electrical for pre-fabricated building.
- Electrical for air conditioning of pre-fabricated building.
- Controls and SCADA design.
- Emergency generator (propane) capable of running full load and ancillary facility devices meeting current International Organization for Standardization (ISO) standards and National Electric Code as required by the City.
- Two (2) Flowmeters.
- Site lighting, if required.



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The following services will be performed under this task:

- Electrical design will be provided as denoted in scope of the project description above.
- Zimmermann will assist during the bidding process by responding to contractor questions during the bidding process and evaluating bids related to electrical design components. Zimmermann will attend the pre-bid meeting and assist during the bidding process by responding to contractor questions during the bidding process and evaluating bids.
- Zimmermann will perform, during the construction phase, in-office reviews of all electrical material and equipment submittals; respond electronically to requests for information (RFI's); prepare responses and assist when necessary.
- Zimmermann will perform during the construction phase periodic site visits whereby Engineer will assess construction progress and performance as compared to the requirements in the construction documents. Observations will be documented in a written Field Report and submitted to the City. Substantial completion punch lists, final inspections, code-required inspections, meetings or visits to the Project site by Zimmermann will be considered a Construction Site Visit.

The following deliverables will be prepared for electrical engineering services:

- 60% construction drawings and specifications.
- 90% construction drawings and specifications.
- Final sealed construction drawings and specifications.
- One set of record drawings generated from contractor's red-lines.

Trihydro/Zimmermann made the following assumptions:

- One (1) preliminary site visit to verify existing conditions.
- Teleconferences will not be limited. One (1) Owner design review meeting after 90% design submittal.
- Construction site visits are limited to five (5).

Trihydro will coordinate with Zimmermann to provide the above referenced electrical engineering services.

Task A400 – Structural Engineering

Trihydro will contract with Encotech Engineering Consultants (Encotech) to conduct structural design for the River Oak Interceptor and Pecan Orchard Lift Station Expansion Project, which include the



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replacement of the existing 12-foot diameter wet well lid with a new cast-in-place concrete lid; two new precast concrete valve vaults; a foundation for a new premanufactured electrical building; and two miscellaneous equipment foundations.

Basic structural services include engineering and design services to prepare construction documents, which include:

- Perform engineering calculations and design.
- Attend periodic design coordination meetings.
- Structural design will include but not be limited to the following:
 - Perform a review of existing drawings to coordinate the proper subgrade and foundation design.
 - Design and prepare cast-in-place concrete wet well lid plan and associated details.
 - Design and prepare precast concrete valve vault plans and associated details.
 - Review premanufactured electrical building drawings and specifications to coordinate proper foundation design.
 - Design and prepare cast-in-place concrete foundation plans and associated details, and miscellaneous equipment. Reactions for the design of the building foundation will be provided by the building manufacturer.
- Make plan revisions as required by the local jurisdiction during the City's building plan review.

The following deliverables will be prepared for basic structural services:

- 60% construction drawings for coordination and pricing.
- 90% construction drawings for coordination and pricing.
- 100% construction drawings for bid, construction and permit.
- Addenda for bid and construction at bidding and negotiations phase.

Limited construction phase structural services include:

- Review of those submittals identified in the Engineer's structural specifications.
- Respond to RFI documents.
- Perform periodic site observation visits. Provide written reports to the City.
 - Reports will list items observed, which are not in compliance with the Contract Documents.



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Trihydro/Encotech made the following assumptions:

- Periodic design coordination meetings not to exceed three (3)
- Site observation visits not to exceed two (2)

Trihydro will coordinate with Encotech to provide the above referenced structural engineering services.

Task A500 – Geotechnical Engineering

Trihydro will be contract with Rock Engineering and Testing Laboratory, Inc. (RETL) to perform geotechnical engineering services for the planning of a horizontal directional drill (HDD). The services performed will include subsurface exploration and field and laboratory testing. Additionally, a geotechnical engineering letter report will be prepared for the project that includes a description of the field exploration and laboratory tests, boring location plan, boring logs, and a discussion of the engineering properties of the subsurface materials encountered.

The following deliverables will be prepared for geotechnical engineering services:

- A geotechnical engineering letter report will be prepared for the project that includes a description of the field exploration and laboratory tests, boring location plan, boring logs, and a discussion of the engineering properties of the subsurface materials encountered.

Trihydro made the following assumptions:

- There will be one (1) horizontal directional drill (HDD) in this project.
- There will be two (2) soil borings with a total depth not beyond 140 feet. Trihydro will coordinate with RETL to provide the above referenced geotechnical engineering services.
- Trihydro will also provide QA/QC review of the geotechnical report and recommendations to check for thorough investigation and reporting.

Task A600 – 60% Design Phase

Upon completion of the preliminary engineering design phase which is covered in a separated contract, Trihydro will prepare 60% plans. A 60% project meeting will be held to review and discuss the design plans and to present a construction cost estimate. Comments received during this meeting will be incorporated into the 90% design. During the 60% design phase, Trihydro will also prepare easement exhibits and metes and bounds descriptions for properties along the preferred route. The following subtasks will be performed under this task:

- Prepare 60% design plans for review by the City.
- Prepare construction cost estimate.



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- Participate in up to three progress meetings with the City of Seguin. Trihydro will prepare agendas and meeting minutes.

The following deliverables will be prepared during the 60% design task:

- 60% design plans for submission to the City for up to 3 sub-projects.
- Construction cost estimate for submission to the City.
- Easement exhibits with metes and bounds descriptions.

Trihydro made the following assumptions:

- Preliminary engineering design of River Oak Interceptor and Pecan Orchard Lift Station Expansion Project has been accepted and approved by the City.
- The scope of this project is the installation of approximately 8,700 linear feet of 24-inch-, 2,400 linear feet of 21-inch-, and 5,800 linear feet of 18-inch sanitary sewer wastewater lines, expansion of an existing lift station to 7.2 MGD, and installation of approximately 4,700 linear feet of 12-inch force main and decommissioning of two existing lift stations. Site grading design is included at the new lift station and as part of the decommissioning for the two existing lift stations.

Comments received during the 60% design phase meeting with the City will be addressed and the updated plans will be subsequently submitted for review and comment to the City, which will be addressed during the 90% design phase.

Task A700 – 90% Design Phase

Upon receipt of the City's 60% review comments, Trihydro will incorporate comments and prepare 90% plans and specifications. A 90% project meeting will be held to review and discuss the design plans, and to present a construction cost estimate. Comments received during this meeting will be incorporated into the final design. The following subtasks will be accomplished in this task:

- Trihydro will incorporate the City's comments from 60% design into the 90% design.
- Trihydro will prepare a construction cost estimate.
- Trihydro will attend a meeting with the City to review the 90% design submittal and receive comments.
- Participate in up to three progress meetings with the City. Trihydro will prepare agendas and minutes.
- Project specifications and front-end documents will be prepared specific to the City requirements.



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The following deliverables will be prepared during the 90% design task:

- 90% design plans and specifications for submission to the City for up to 3 sub-projects.
- Construction cost estimate for submission to the City.

Trihydro made the following assumptions:

- The scope of this project is the installation of approximately 8,700 linear feet of 24-inch-, 2,400 linear feet of 21-inch-, and 5,800 linear feet of 18-inch wastewater lines, expansion of an existing lift station to 7.2 MGD, and installation of approximately 4,700 linear feet of 12-inch force main, and decommissioning of two existing lift stations. Site grading design is included at the new lift station and as part of the decommissioning for the two existing lift stations.

Comments received during the 90% design phase meeting with the City will be addressed and the updated plans will be subsequently submitted for review and comment to the City, which will be addressed during the final design phase.

Task A800 – Final Design and Permitting

Upon receipt of the City's 90% review comments, Trihydro will incorporate comments and prepare final design plans and specifications. A final design project meeting will be held to review and discuss the design plans, and to present a construction cost estimate. Comments received during this meeting will be incorporated into the final design plans. The final documents will be submitted to the City, UUSACE, Texas Department of Transportation (TxDOT), and Texas Commission on Environmental Quality (TCEQ) for approval to construct. The final bidding documents will be completed after comments are received from TCEQ. The following subtasks will be accomplished in this task:

- Trihydro will incorporate the City's comments from 90% design into the final design.
- Trihydro will prepare a final construction cost estimate.
- Trihydro will attend a meeting with the City to review the final design submittal and receive comments.
- Participate in up to three progress meetings with the City. Trihydro will prepare agendas and minutes.
- Project specifications and front-end documents will be prepared specific to the City requirements.
- Trihydro will prepare final plans and permit documents for submission to TCEQ and respond to questions received from TCEQ.



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The following deliverables will be prepared during the final design and permitting task:

- Construction cost estimate
- Final design plans for submission to the City, TxDOT, USACE, and TCEQ for up to 3 sub-projects
- Specifications and permit documents for submission to TxDOT, USACE, and TCEQ

Trihydro made the following assumptions:

- The scope of this project is the installation of approximately 8,700 linear feet of 24 inch-, 2,400 linear feet of 21"-, and 5,800 linear feet of 18" wastewater lines, expansion of an existing lift station to 7.2 MGD, and installation of approximately 4,700 linear feet of 12-inch force main, and decommissioning of two existing lift stations. Site grading design is included at the new lift station and as part of the decommissioning for the two existing lift stations.

Trihydro will include final design documents with bid documents.

Task A900 – Bidding Services

Upon completion of the final design, Trihydro will assist the City in dividing the project into up to three independent sub-projects for bidding: gravity sanitary sewer, wastewater lift station, and sanitary sewer force main. The City can solicit bids for each sub-project separately or for any combination according to its needs and priorities.

Trihydro will assist the City during the bidding process. Electronic copies of the plans and specifications will be prepared for distribution to potential bidders and plan houses. Trihydro will use CIVCAST to bid the project and will also maintain a plan-holder's list throughout the bidding process. Trihydro will respond to bidder questions and prepare addenda for electronic distribution through CIVCAST. Once bids are opened, Trihydro will evaluate the bids, prepare a bid tabulation, and prepare a recommendation for award to the lowest qualified bidder.

The following deliverables will be prepared during the bidding services task:

- Issue for bid plans, contract documents, and specifications for Contractors.
- A bid tabulation indicating the bid costs from the Contractors.
- A bid recommendation letter highlighting the lowest qualified bidder for acceptance by City Council.



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Trihydro made the following assumptions regarding the bidding services task:

- Up to three sub-projects will be bid.
- City of Seguin will pay for bid advertisement.
- Trihydro will facilitate bidding using CIVCAST and maintain the plan holders' list.
- Trihydro will respond to Contractor questions and prepare addenda, as necessary.
- Trihydro will attend City Council meeting for recommendation of Award of Bid Contract.
- Cost breakdown for Task A900 is based on following subtasks:
 - Subtask 1: Bidding services for gravity wastewater line improvements – \$64,000
 - Subtask 2: Bidding services for Lift station improvements – \$32,000
 - Subtask 3: Bidding services for Force main improvements – \$32,000

The above referenced scope of work offers the City the flexibility to bid a single or multiple sub-projects concurrently.

Task A1000 – Construction Administration

The construction administration task involves contract administration with Trihydro serving as City of Seguin's representative. Our role will be to monitor contract progress and review various submittals. Under this task, we will provide office support to process paperwork including submittal reviews, field orders, work orders, change orders, contractor payment applications, and payment recommendations. The following are included in the construction administration task:

- Respond to questions during construction.
- Review payment applications, change orders, and make recommendations to the City.
- Prepare a list of items to be completed or corrected before final project acceptance.
- Review progress and recommend the issuance of the Certificate of Substantial Completion when complete.
- Prepare as-constructed documents in .pdf and AutoCAD format based on observation notes and red lines from the City Inspector/3rd Party Inspector and Contractor.
- Coordinate with TxDOT, Guadalupe County, and other utilities.
- Attend bi-weekly construction meetings with the City, 3rd Party Inspector, and the Contractor.



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Trihydro made the following assumptions regarding this task:

- As-built drawings will be provided in .pdf and AutoCAD format only.
- Construction phase duration of 18 months for gravity wastewater line improvements, 9 months for lift station improvements, and 9 months for force main improvements.
- City Staff and/or 3rd Party Inspector will confirm Contractor quantities as part of payment application process.
- Construction observation/inspection by Trihydro is not included.
- Cost breakdown for Task A1000 is based on following subtasks:
 - Subtask 1: Construction administration for gravity wastewater line improvements – \$185,000
 - Subtask 2: Construction administration for lift station improvements – \$92,500
 - Subtask 3: Construction administration for force main improvements – \$92,500

The above referenced scope of work offers the City the flexibility to construct a single or multiple sub-projects concurrently.

FEE ESTIMATE

Estimated fee for design, bid, and construction administration services is \$2,138,000. Our fee is based on the tasks outlined above, hourly rates, and expenses. Invoices will be prepared on a lump sum milestone basis with a cost not to exceed the estimated amount without written authorization. The fee by task includes:

- Task A100, Surveying and Field Investigation – \$99,000, which includes easement exhibits with metes and bounds descriptions (100 total @ \$750 Each)
- Task A200, Natural Resources and Cultural Resources – \$83,500
- Task A300, Electrical Engineering – \$69,000
- Task A400, Structural Engineering – \$65,000
- Task A500, Geotechnical Engineering – \$13,500
- Task A600, 60% Design Phase – \$595,000
- Task A700, 90% Design Phase – \$492,000
- Task A800, Final Design and Permitting – \$223,000
- Task A900, Bidding Services – \$128,000
- Task A1000, Construction Administration – \$370,000



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The services shall be governed by the terms and conditions of the Master Services Agreement between the Trihydro Corporation and City of Seguin dated June 7, 2022.

Upon your acceptance of this fee proposal, approved contract, and notice to proceed, we will schedule our team to commence work with design. Please call us at (830) 626-3588 if you have questions.

Authorized By: _____
City of Seguin

Authorized Date: _____

Sincerely,
Trihydro Corporation

David Rabago, P.E., CFM
Project Manager

Jason Vreeland, P.E.
Project Director

999-81P-008