TASK ORDER No. 8677-02

This Task Order pertains to an Agreement by and between UNION COUNTY, North Carolina ("OWNER"), and GHD CONSULTING SERVICES, INC. ("ENGINEER"), dated JANUARY 1, 2024, ("the Agreement"). ENGINEER shall perform services on the project described below as provided herein and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties. Upon execution, this Task Order shall supplement the Agreement as it pertains to the project described below. Unless otherwise defined herein, all capitalized terms shall have the meaning set forth in the Agreement.

MPA: 8677

TASK ORDER NUMBER: 8677-02

RELATED RFQ NUMBER: 2021-021

PROJECT NAME: 30” PARALLEL EAST FORK INTERCEPTOR PER

PART 1.0 PROJECT DESCRIPTION

ENGINEER will provide Professional Engineering services related to the design for the 30-inch parallel East Fork Interceptor beginning north of New Town Road at the upstream end to south of Providence Road. Two phases are anticipated for delivery of the project. These phases are the following:

- Phase 01: Preliminary Engineering Report (Model Development, Calibration and validation of the proposed sewer)
- Phase 02: Basis of Design (Pipe Alignment and Material Investigation) Report

The overall scope of services for this Task Order are summarized as follows:

A. Data Review of all the available data (Record Drawings, Base Model, and Master Plan documents etc.) as received from the OWNER and other stakeholders and develop a data gap analysis that will be needed to inform in the development/calibration of the model.

B. Contract subconsultant services inclusive of Environmental evaluation and Survey (if Needed as indicated below)). ENGINEER will contract subconsultant services for desired services as applicable and approved by the OWNER.

C. Develop a hydraulic model, including all 8-inch + lines (all lines) connecting to the 30-inch parallel East Fork Interceptor, from the skeletonized model done with the master plan. ENGINEER will use the available GIS data and record drawings to build the model needed for future design of proposed improvements.

D. Perform model calibration and validation. The model will be calibrated by comparing simulated pressures/levels; flows and/or volumes with observed data for available flow meters and facilities for the selected calibration period/events. Develop a Preliminary Engineering Report (PER) to document current conditions and results, model calibration results and validate the size of the proposed gravity sewer.

E. Conduct a pipe material and alignment evaluation, permit identification, and provide recommendations that will be the basis of design (BOD) report. As part of this task, preliminary/high-level costs will be estimated for the recommendations. The report will also include recommendations based on alignment/routing, environmental, cost and constructability perspective.

PART 2.0 SCOPE OF BASIC SERVICES TO BE PERFORMED BY ENGINEER ON THE PROJECT

The Detailed Scope of Basic Services is as follows:

1. Project Management and Meetings

A. Project Management and Administration – Provide project management, coordination, and administration throughout the course of the task order and in accordance with the following subsections. These services shall include the following:

1. General coordination and communication with OWNER including scheduling, progress of Project activities, status, data requests, etc.

2. Prepare monthly invoices, backup, and status report for rendered services in format acceptable to OWNER.

3. Maintain a project filing ISO compliant system throughout life of project to use for storage and retrieval of project documents

4. Preparation and management of project management plan and schedule over the life of the project to establish and document standard project management requirements.

5. Maintain a project cost accounting system throughout life of project.

6. Managing and verifying deliverables provided by subconsultants, which include, but not necessarily limited to surveyor, environmental consultant, and right-of-way agents.

7. Manage deliverables and project schedule.

8. Participate in monthly virtual project update meetings (1 hour) with OWNER's Project Manager and ENGINEER Project Manager and joined by select ENGINEER staff and OWNER staff as required.

B. Meetings are assumed to be virtual unless noted as in-person. ENGINEER shall schedule and lead the following meetings and presentations with OWNER:

1. Kickoff Meeting (In-person). Kickoff meeting to introduce team members, review and endorse overall project objectives, discuss scope of work, discuss project management protocols, introduce early project activities, engage the operations team, and discuss project schedule.

2. Data Gap Analysis Workshop (Virtual). Workshop to review the data gaps with the OWNER to develop a field investigation plan. ENGINEER will prepare for and facilitate a two-hour virtual workshop. An agenda and summary of key decisions will be developed.

3. Hydraulic Model Results Workshops (Virtual). A total of two (2) workshops will be held with the OWNER to review the model at various stages of development and calibration. ENGINEER will prepare for and facilitate the two-hour virtual workshops. An agenda and summary of key decisions will be developed as part of this task.

4. Preliminary Engineering Report (PER) Review. Schedule and facilitate a PER review meeting with the OWNER.

5. Basis of Design (BOD) Report Review (In-Person). Schedule and facilitate a BOD review meeting with the OWNER.

6. Progress Meetings (Virtual). Meet with OWNER PM monthly (or more frequently if requested) to review the general status of Project. (These meetings are in addition to any project specific technical meetings)

2. Subconsultants

ENGINEER will contract subconsultant services as detailed below:

A. Environmental Review: ENGINEER and its subconsultants will provide the following environmental services:

1. Desktop review of wetlands inventory and soils from available databases and two days of field reconnaissance with ENGINEER and other important design team members. Findings will be summarized in a memorandum.

2. Threatened and Endangered Species desktop survey including review of available databases and outreach to Fish and Wildlife. Findings will be summarized in a memorandum.

3. State Historic Preservation Survey and Cultural Resource Review (SHPO Survey): desktop survey including review of available databases and outreach to State Historic Preservation Office to identify potential historic resources in the project area. Findings will be summarized in a memorandum.

4. Miscellaneous meetings, telephone conferences with regulatory agencies and design team, up to 16 hours.

B. Field Investigation & Survey: ENGINEER and its subconsultants will provide the following survey services as necessary, funded by an OWNER-held allowance as indicated below:

1. This allowance supports the data gaps analysis developed as part of Task 3, if there is data missing (i.e. inverts, pipe diameter, pipe material, manhole bottom elevations, etc.) and is required for the development of the model. Field investigation and survey services will be paid for through the Owner held allowance for this task. ENGINEER will provide recommended limits of survey scope and fee to perform the survey which will be approved by the OWNER prior to the start of this task, up to $15,000.

2. Effort above and beyond $15,000 (if required) will be conducted in accordance with Part 4 Additional Services outlined below. To develop the hydraulic model, ENGINEER shall perform the following field investigations/survey to attain missing data based on the data gap analysis identified from the previous task:

   a. Develop Field Investigation Plan that will identify the data needs, type of data that needs to be surveyed/collected and format in which the data will be delivered for the purpose of model development

   b. Develop a GIS Database with all collected data to be used for model development and analysis.

PHASE 01: Preliminary Engineering Report (PER)

3. Data Collection, Review & Data Gaps

A. The purpose of this task is to obtain, review, and conduct due diligence related to all applicable data as provided by OWNER and Stakeholders. The list of data that will be collected and reviewed at a minimum will include:

1. Existing Model Files
2. Current Master Plan
3. GIS Databases
4. As-builts/Record Drawings
5. Flow Meter Data
6. Rainfall Records/Dataset
7. Miscellaneous Files, etc.

B. Based on the review, a data gaps analysis document will be developed for potential field investigation/survey needed in the development and calibration of model.

4. Hydraulic Model Development/Calibration/Alternatives Analysis

The purpose of this task is to develop/calibrate a hydrologic and hydraulic model that includes all 8-inch + lines (all lines) connecting to the 30-inch parallel East Fork Interceptor, from the skeletonized model done with the master plan, and present the results in a preliminary engineering report (PER).

A. The model development includes incorporating information that has been collected and reviewed as part of Task 3 and information surveyed from Task 4 if applicable. The model elements will be incorporated to improve the performance and model accuracy. A List of activities that will be performed under model development includes:

1. Development of Hydrology which will include flow determination, catchment delineation and its associated parameters

2. Development of hydraulics such as incorporation of conduits geometry, manhole data, and other associated elements

B. Upon completion of the model, the next step is to simulate, calibrate and validate the latest Hydraulic Model by comparing simulated pressures/levels; flows and/or volumes with observed data for the selected calibration period/events. Review existing flow monitor date obtained by the OWNER's installed flow meters and incorporate the existing data into the calibration of the model.

C. Perform alternative analysis of the proposed improvements to validate the size of the proposed sewer and meet the design level of service criteria. No more than three (3) alternatives will be analyzed.

D. Prepare a Preliminary Engineering Report for the East Fork Interceptor. The PER shall include the following components:

1. An summary analysis of the existing background data, previous inspections, reports, etc. provided by OWNER.

2. Subconsultant field investigation/survey results of network needed for model development if applicable

3. Hydrologic/Hydraulic Modeling Results – Existing Conditions

4. Preliminary Pipeline Hydraulic Design that will include the following:

a. Hydraulic analysis of the proposed gravity sewer system

b. Evaluate options related to size/slope of the gravity sewer to meet hydraulic design criteria at the designated design flows. Optimize design based on cost and function

c. Review available OWNER standard specifications for pipe and pipeline construction. Recommend any adjustments/revisions.

PHASE 02: Basis of Design (BOD) Report

Prepare a BOD for the East Fork Interceptor. The PER shall inform the basis of design for the Project and shall include development of preliminary alignment recommendations and evaluation for the various components:

5. Preliminary Alignment Evaluation and Recommendations

The purpose of this task is to identify preliminary alignment corridors and complete evaluations that ultimately result in a preliminary alignment recommendation for the interceptor sewer. The process and evaluation will be summarized in the BOD and include figures depicting preliminary alignments in relation to environmental features, cultural resources, streams, floodways, roadways, GIS-based property lines & rights-of-way, the 100-year floodplain and other critical features and areas. The BOD will build upon modeling result recommendations developed in Phase 01 and will include a discussion of the following components:

A. Summary of background data provided by OWNER for the existing sewers, including a description of existing interceptor, connecting sewers, easements, access, and sewer system characteristics identified from record drawings, GIS data, and field investigations.

B. Project needs and recommendations from sewer modeling PER for the proposed interceptor sewer.

C. Constraints identified from desktop surveys and a field walk of the existing sewer alignment with the ENGINEER's design team, environmental subconsultant, and OWNER's representative. The objective of the field walk is to ground truth desktop reviews of wetlands, streams, and environmental features that can influence the proposed alignment of the parallel sewer. The field walk will also provide opportunity for general reconnaissance and identification of additional areas of concern.

D. Identification of major and minor stream crossings, road crossings, power transmission rights-of-way, and potential wetland impacts along the proposed preliminary alignment.

E. Summary of general design parameters for sewer interceptor: minimum slopes, maximum manhole spacing, pipe diameters, manhole diameter, pipe diameter and materials, easement widths, bury depths, etc.

F. Requirements for streams, wetland, and road crossings; including trenchless construction methods.

G. Development of alignment alternatives and comparisons that may provide significant reductions in environmental impacts, constructability concerns, construction costs, easement costs, or difficulty in access & maintenance.

H. Discussion and conceptual layout of special structures for upstream and downstream tie-ins of parallel sewer.

I. Discussion of expectations for bypass pumping.

J. Overview of easement and access requirements for construction, including an estimate of the total temporary and permanent easement areas needed for each parcel.

K. Summary of anticipated permit requirements.

L. Opinion of Probable Construction Cost (planning-level).

M. Recommended preliminary alignment.

N. Anticipated construction duration.

O. Preliminary figures and other documents illustrating the scale and relationship of proposed Project components, layouts including property lines, easements, and required staging/site access areas, sketches, and conceptual design criteria.

6. Submission of the Draft BOD and Final BOD (after addressing OWNER's comments).

PART 3.0 ASSUMPTIONS AND EXCLUSIONS

1. Assumptions:

A. Meetings are assumed to be virtual unless noted as in-person herein.

B. Primary Alignment is based around a 30,000 LF 30-inch new parallel gravity sewer

2. Exclusions:

A. Construction phase engineering, administration, and inspection services.

B. Design services.

C. Geotechnical and Survey services not listed herein.

D. Topographic information illustrated in conceptual plans and profiles to be based on OWNER GIS data and/or Google Earth.

E. SCADA and PLC programming.

F. Subsurface utility engineering (SUE).

G. City and/or planning commission or other planning authority approvals, meetings, presentation, etc. not mentioned in the scope of work.

H. No Flow Monitoring is considered as part of this Task

PART 4.0 ADDITIONAL SERVICES

ENGINEER will perform additional services as requested by OWNER. If the need for such services is identified, ENGINEER will prepare an amendment to this Task Order or prepare a new Task Order for OWNER's approval. Additional Services will be performed upon execution of the amendment or new task order.

PART 5.0 OWNER'S RESPONSIBILITIES

OWNER will be responsible for the following activities:

A. Providing existing records for the project which are in possession of OWNER that are reasonably requested by ENGINEER.
B. Providing existing flow monitoring data and base model in possession of OWNER that are reasonably requested by ENGINEER.

C. Provide input on design deliverables.

PART 6.0 PERIODS OF SERVICE

ENGINEER will commence work upon execution of this Task Order. The schedule for completion of the services included in this Task Order will be agreed upon by OWNER and ENGINEER at the time that OWNER is ready to proceed with the work. The anticipated schedule is as follows:

Activity	*Expected Completion*
Project Kickoff/Chartering Meeting	As soon as can be scheduled after NTP
Data Gap Analysis Workshop	1 Month After Kickoff/Chartering Meeting
Field Investigation & Survey (if required)	2 Months After Data Gap Analysis Workshop
Hydraulic Model Calibration Results Workshop	1.5 Months After Completion of Investigations & Survey (if required)
Hydraulic Model Results Workshop	3 Months After Completion Of Investigations & Survey (if required)
PER Draft Submittal	1 Month After Hydraulic Model Results Workshop
PER Draft Review Meeting	2 Weeks After PER Draft Submittal
PER Final Submittal	1 Month After PER Draft Review Meeting
BOD Draft Submittal	1 Month After PER Final
BOD Draft Review Meeting	2 Weeks After BOD Draft Submittal
BOD Final Submittal	1 Month After BOD Draft Review Meeting
TOTAL DURATION:	10 Months after Project Kickoff/Chartering Meeting

Note the expected total duration may be extended if surveying is required; the field investigation duration will be extended as necessary for survey completion.

PART 7.0 PAYMENTS TO ENGINEER

ENGINEER will be compensated for the work on a Per Diem basis, not to exceed $310,533.00.

Task 1	Project Management and Meetings	$38,290.00
Task 2A	Subconsultants – Environmental Review (including 10% Mark Up)	$10,496.00
Task 2B	Owner-held Contingency for Survey (as needed)	$15,000.00
Task 3	Data Collection, Review, and Data Gaps Analysis	$53,880.00
Task 4	Preliminary Engineering Report (PER) - Hydraulic Model Development/Calibration & Alternatives Analysis	$119,120.00
Task 5	Basis of Design (BOD) - Preliminary Alignment Evaluation and Recommendations	$73,020.00
	Expenses	$727.00
	TOTAL	$310,533.00

Services rendered will be billed based upon the personnel classifications and corresponding hourly rates set forth in Attachment 1 as referenced and incorporated herein. Subconsultant fees will be handled as reimbursable with a 10% mark-up.

This Task Order is executed on _____.

TASK ORDER: 2024-02 – EAST FORK INTERCEPTOR

OWNER:	ENGINEER:
UNION COUNTY, NC	GHD CONSULTING SERVICES, INC.
By:_____	By: Kevin R. Krick
Name: Brian W. Matthews	Name: Kevin R. Krick, PE
Title: County Manager	Title: Vice President
Address: 500 N Main St.,	Address: 1122 Lady Street, Suite 900C
Monroe, NC 28112	Columbia, SC 29201

Approved as to Legal Form: BTI

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

_____
Deputy Finance Officer

222 South Church Street Suite 400
Charlotte NC 28202
United States
www.ghd.com

Our ref: 12654472

3 March 2025

Union County Water
Attn: Nathaniel Grove
500 North Main Street, Suite #600
Monroe, NC 28112

Professional Engineering Services – Union County Water On Call Professional Services
Attachment 1 - Hourly Rate Schedule

Mr. Grove:

As requested, I have included our hourly rate schedule below.

Design Consultant Staff Classification	
Principal	$ 295.00
Project Director	$ 280.00
Technical Director	$ 265.00
Senior Project Manager	$ 240.00
Design/Project Manager	$ 215.00
Senior Site Engineer	$ 190.00
Senior Resident Project Engineer	$ 145.00
Resident Project Engineer	$ 120.00
Senior Professional 1	$ 210.00
Senior Professional 2	$ 195.00
Senior Professional 3	$ 185.00
Architect	$ 160.00
Professional 1	$ 170.00
Professional 2	$ 160.00
Professional 3	$ 150.00
BIM/CADD Manager	$ 160.00
Senior Design Technician	$ 125.00
Design Technician / Project Services	$ 120.00
Designer 1	$ 110.00
Intern	$ 90.00
Administrative	$ 90.00

Notes:

1. Vehicle mileage rates will be charged in accordance with government regulated standard rates
2. All Subconsultant costs will be invoiced with a markup of 10%

Regards,

Brandon Gott, PE BCEE
Water Engineering Manager

704 342 4919 / brandon.gott@ghd.com