AUGUSTA ,2)#(- / .$ #/5.49

REQUISITION

CHECK ALL THAT APPLY:

FUND#

DATE: 08/07/2025

Department: Utilities

GL#: 516043410 -5212115

JL#: 81600040 -5212115

BID ITEM # 24-132

☑ WATER ☑ ENGINEERING ☐ COMMISSION APPROVAL Date

☐ SEWER ☐ CONSTRUCTION ☐ ADMINISTRATIVE APPROVAL Date

☐ BOTH ☐ PROFESSIONAL SERVICES ☐ CHANGE ORDER Date

VENDOR: SCHNABEL ENGINEERING

ADDRESS:

PHONE #:

QUOTED BY:

SHIP TO: AUA

ITEM #	ITEM DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE
1.	ENGINEERING SERVICES			0		0		0
2.	CONTRACT FOR THE			0		0		0
3.	REPAIR OF			0		0		0
4.	EMBANKMENT SERVICES			0		0		0
5.	TO AUGUSTA CANAL	1	394000.00	394000		0		0
6.				0		0		0
7.				0		0		0
8.	SEE ATTACHED			0		0		0
9.	PROPOSAL			0		0		0
10.				0		0		0
11.				0		0		0
12.				0		0		0
13.				0		0		0
14.				0		0		0
SHIPPING CHARGES				0		0		0
	TOTAL			394000		0		0

JUSTIFICATION AND EXPLANATION FOR PURCHASE:

AUD-ENGINEERING

REQUESTED BY:

Jess Thompson

COMMISSION-TBD

APPROVED BY:

Schnabel ENGINEERING
T 770.781.8008 / F 770.781.8003
6445 Shiloh Road, Suite A / Alpharetta, GA 30005 schnabel-eng.com

July 23, 2025
Revised July 28, 2025

Chad Hendrix (Via email: CHendrix@augusta.gov)
Assistant Director
Augusta Utilities Department
452 Walker Street, Suite 200
Augusta, Georgia 30901

Subject: **Proposal for Engineering Design Services, Upstream Slope Repairs, Augusta Canal Embankment, Richmond and Columbia Counties, Georgia (Schnabel Reference 24170044.02P)**

Dear Mr. Hendrix:

SCHNABEL ENGINEERING, LLC (Schnabel) is pleased to present this proposal to the Augusta Utilities Department (AUD) for engineering design services with respect to the upstream slope of a portion of the Augusta Canal Embankment. This proposal presents the project description, outlines the scope of services and specifies Schnabel's fees for the work.

PROJECT DESCRIPTION

The Augusta Canal (canal) was constructed in 1845 as a source of power, water and transportation. It is owned and operated by the City of Augusta. The canal was built in three levels, beginning at the canal headgates located adjacent to the Savannah Rapids Pavilion at 3300 Evans to Locks Road, Martinez, Georgia. The first level of the canal extends approximately 6.9 miles, running roughly parallel to the Savannah River and terminating at the 13th Street gates near Walton Way. The Project extends along the left embankment from the canal headgates to the Eve Street Bridge crossing located approximately 5.3 miles downstream.

The second and third levels of the canal extend generally from 13th Street to the east and provide major drainage ways for stormwater for downtown Augusta. Since the project boundary does not include the second and third levels of the canal, they are not considered in this proposal. Additionally, portions of the first level of the canal downstream of Eve Street are not included in the project limits for this proposal. The Augusta Canal Historic Trail (aka towpath) is a trail that runs roughly along the top of the left embankment slope (i.e., northeast side of the canal).

The canal embankment sustained damage on September 27, 2024, as a result of wind and rain associated with Hurricane Helene. The wind from the Hurricane knocked down trees, exposing the root

balls, and creating holes/voids on the surface of the canal embankment. Schnabel understands that Augusta Utilities has coordinated efforts with a clearing company to remove fallen trees and other woody debris from the embankment.

Schnabel is familiar with the project in that our personnel have performed a series of visual evaluations of the canal to document the general condition of the embankment prior to, during, and/or after the previously described tree removal activities. After our most recent site reconnaissance, AUD requested a proposal for design services to develop plans and details to repair the upstream slope of the portion of the canal embankment between the canal headgates and the Eve Street bridge. The segment of the canal is on the order of 5-1/2 miles long.

Schnabel proposes the following scope of services at this time to prepare plans and details to address concerns with the condition of the upstream slope of the canal embankment. The following sections outline our scope of services, assumptions, exclusions, and compensation for our work.

SCOPE OF SERVICES

Based on our understanding of the project and conversations with AUD, Schnabel proposes to provide the following services associated with repairs to the canal embankment slopes:

- Final design phase services
- Bid phase services
- Construction phase services

The following sections describe the scope for each of the major tasks listed above.

Final Design Phase Services

Schnabel will prepare a set of construction drawings and supplemental specifications that can be implemented by an experienced contractor to repair and improve the condition of the slopes of the canal embankment along the segment described in the Project Description.

At this time, Schnabel proposes to utilize topographic contour data that we understand to have been derived from LiDAR sources and is made publicly available by local government sources as the basis for the repair plans and details. Based on the level of detail of the planned repairs, as well as the relatively large project footprint area, Schnabel is comfortable with using publicly-sourced LiDAR to develop the repair plans. Should AUD desire to improve the accuracy of the base topography, Schnabel can provide a scope and fee for an aerial topographic survey of the project footprint.

Schnabel proposes to develop construction drawings using a maximum plan view scale of 1 inch being equivalent to 50 feet (1” = 50’). This scale should be sufficient to depict approximately 750 feet of canal embankment per sheet, and would require approximately 40 plan sheets. Each plan sheet would include an accompanying profile view. Schnabel assumes that a single-phase erosion, sedimentation, and pollution control plan will be suitable for this project, which will be relatively dynamic in nature. We plan to

include erosion control best management practices (BMPs) on the plan sheets depicting the areas of slope repairs, with details, notes, and the GSWCC checklist on separate sheets.

Based on conversations with AUD and our observations, we understand that the following primary deficiencies are present on the upstream slope of the canal embankment:

- Damage caused by Hurricane Helene, including stumps and root systems of cleared trees impacted by the storm
- Trees and inappropriate cover vegetation
- Steep slopes or slopes with questionable stability
- Animal burrows

Damage caused by Hurricane Helene, as well as clearing and clean-up efforts, have resulted in numerous partially-fallen trees, or remaining stumps and root systems, within the upstream and downstream slopes of the canal embankment. Schnabel understands that AUD desires to clear and grub a significant number of these partially-fallen trees, stumps, and root systems during the slope repair activities. Schnabel will develop and include details in the proposed construction plans to direct a contractor on the limits of excavation and resulting hole backfill requirements.

We understand that there are several, relatively-healthy trees that AUD would like to attempt to leave in place after slope repair activities have been completed. Schnabel understands that AUD intends to include requirements for the contractor to survey the locations and identify these preferred trees, to include diameters at breast height (DBH), prior to the commencement of clearing and grubbing activities. Schnabel assumes that the contractor will provide the surveyed locations of the trees to remain to Schnabel in a CAD format that is compatible with AutoCAD Civil 3D (2022 version or later). Schnabel will include generalized notes or details that will provide instruction to the contractor in salvaging and protecting trees of this nature, including an appropriate critical root zone based on the diameter of the trees.

Based on our conversations with AUD, as well as data that has been made available to Schnabel, we understand that approximately 200 animal burrows have been identified, measured, and mapped on the canal embankment by others. The proposed construction plans will include the locations of the known animal burrows (as provided to us by AUD), as well as details to address the burrows as part of the slope repairs. At this time, we anticipate that measures to address animal burrows may include excavation and backfill of less invasive burrows, or filling the more intrusive burrows with a cementitious flowable fill.

Based on our field observations and a cursory review of available topographic data, Schnabel anticipates a series of three (3) potential improvement scenarios that may be implemented to repair the upstream slope of the canal embankment. The improvement scenarios will be generally based on the existing grades of the upstream slope, and will involve the following:

- For existing slopes flatter or equal to 2H:1V, Schnabel proposes to provide details to armor these slopes from the upstream toe of the slope to an elevation commensurate with the 100-year flood elevation with articulated concrete blocks (ACBs). ACB details would include concrete anchoring trenches, and an underdrainage system comprised of fine and coarse-

grained filtering aggregate and geogrid. We understand that AUD will provide the extents of the 100-year flood limits to Schnabel.

- For existing slopes steeper than 2H:1V, Schnabel proposes to provide details to install appropriately-sized rock riprap (likely similar to Georgia DOT Type 3 riprap) to a minimum thickness of 2 feet to produce an effective surface slope of 2H:1V. Riprap would be underlain with a non-woven, geotextile fabric.

In addition to the construction drawings, Schnabel will produce a set of construction specifications with additional requirements and standards to supplement the slope repair plans. We assume that the specifications will include details regarding the measurement and payment of items of work.

At the approximate halfway point of design document development, Schnabel will coordinate with AUD to schedule and participate in a virtual workshop with representatives of the Federal Energy Regulatory Commission (FERC). The purpose of the workshop will be to present the proposed slope repair measures and extents to FERC and to obtain preliminary feedback prior to submitting the design deliverables to FERC for their review.

Prior to the initial submittal of the design deliverables, Schnabel will perform a quantity takeoff of the repair measures to support the development of an Opinion of Probable Construction Cost (OPCC) and a bid schedule. Based on the proposed topographic data to be used for the design development (GIS topographic data), the proposed delivery schedule for design documents, and the nature and extent of the proposed repair work, the OPCC should be considered a "Class 3" Estimate, according to the categories of cost estimates defined by the Association for the Advancement of Cost Engineering (AACE) International. Additional information regarding the cost estimating categories or classes defined by the AACE is included in Table 1.

Table 1: AACE Accuracy Matrix for Cost Estimating Classes

ESTIMATE CLASS	PRIMARY CHARACTERISTICS			
	LEVEL OF PROJECT DEFINITION % of complete definition	**END USE Typical purpose of estimate**	**METHODOLOGY Typical estimating method**	**EXPECTED ACCURACY RANGE Typical variation in low and high ranges**
Class 5	0% to 2%	Concept Screening	Capacity Factored, Parametric Models, Judgment or Analogy	Low: -20% to -50% High: +30% to +100%
Class 4	1% to 15%	Study or Feasibility	Equipment Factored or Parametric Models	Low: -15% to -30% High: +20% to +50%
Class 3	10% to 40%	Budget Authorization	Semi-Detailed Unit Costs with Assembly Level Line Items	Low: -10% to -20% High: +10% to +30%
Class 2	30% to 75%	Control or Bid/ Tender	Detailed Unit Cost with Forced Detailed Take-Off	Low: -5% to -15% High: +5% to +20%
Class 1	65% to 100%	Check Estimate or Bid/Tender	Detailed Unit Cost with Detailed Take-Off	Low: -3% to -10% High: +3% to +15%

Estimated unit rate or lump sum prices will be assigned to each item of work in the OPCC to reflect economies of scale, technical and site constraints, and our experience from past similar projects. Due to the level of accuracy of the topographic data utilized for design development, as well as recent, rapid fluctuations in construction prices, we caution that actual construction costs may vary. Therefore, the cost ranges will be presented on the low and high end of the Class 3 accuracy included in the table above, -20% to +30%, respectively. These accuracy ranges account for uncertainties such as:

- Margins of error in the design-level cost and quantity estimates,
- Variations in the actual topography and uncertainties regarding the need to alter or modify slope repair measures around un-surveyed features or structures,
- Numerous smaller items not specified,
- Field changes during construction, and
- Variability of bidding climate and material availability.

Schnabel assumes that the bid schedule will be developed to support a unit rate bid approach.

Upon completion of the construction drawings and specifications, Schnabel will submit these design documents to AUD for review and distribution to reviewing agencies. Our proposed fee includes review and response to one (1) round of comments provided by AUD, one (1) round of comments provided by the Local Issuing Authority (LIA), the City of Augusta, and one (1) round of comments provided by FERC. Should additional effort be required beyond the assumed scope, Schnabel reserves the right to request additional fees for such effort and services. Schnabel understands that AUD will be responsible for making the application for a land disturbing activity permit (LDP) and paying for any applicable application fees.

Bid Phase Services

Schnabel will provide bid phase services to AUD to support the selection of a contractor to implement the canal embankment slope repairs. The following sections describe our anticipated scope for bid phase services.

Preparation of Bidding Documents

After the Construction Plans and Specifications have been completed and accepted by AUD and other reviewing agencies, Schnabel will assist AUD with the preparation of Bidding Documents. We anticipate that the Bidding Documents will include the following:

- Bidding Requirements
    - Invitation to Bid, Instructions to Bidders, Bid Form with Bid Schedule, & Bid Bond
    - NOTE: The Bid Schedule will be ordered based on the Construction Specification Institute (CSI) Master Format.

- Contract Forms
    - Agreement between Owner & Contractor, Construction Payment Bond, Construction Performance Bond, Notice of Award, Notice to Proceed

- Conditions of the Contract
    - General Conditions, Supplementary Conditions, Addenda
    - NOTE: Based on the location and nature of the proposed work, Schnabel recommends utilizing the *Standard General Conditions of the Construction Contract* as prepared by the Engineers Joint Contract Documents Committee (EJCDC). However, we recognize that AUD have a preferred set of contract General Conditions to be utilized.

- Miscellaneous Forms
    - Contractor's Application for Payment, Work Change Directive Form, Change Order Form, Field Order Form, Certificate of Substantial Completion

Project Advertisement & Bid Document Distribution

Schnabel will work with AUD to develop an advertisement that is appropriate for publication in the local news or procurement platforms. The advertisement will include information regarding the project and how to obtain the bid documents. As Contractors respond to the advertisement, Schnabel will distribute plans and specifications, and maintain a plan holders list with contact information for the interested Contractors.

Pre-Bid Meeting

Schnabel will assist AUD in scheduling and facilitating a Pre-Bid Meeting for the project. The meeting for interested Contractors will include a brief description of the project and an opportunity for Contractors to submit questions regarding the plans and specifications. Schnabel will prepare meeting minutes to document the proceedings of the meeting, including any questions received from Contractors with responses provided by AUD and Schnabel. The meeting will also include a site tour. Schnabel will coordinate the timing of the tour with AUD, so that parking near the vicinity of the project site can be adequately planned. The minutes of the Pre-Bid Meeting will be distributed as an addendum to the bid documents.

Prepare & Issue Addenda

Schnabel will assist AUD with the compilation and organization of questions received from Contractors and provide responses that may be issued in the form of addenda during the bidding phase. Addenda may also include changes to the plans and specifications, or other bid documents, based on the questions received from Contractors.

Bid Evaluation & Recommendation for Award

Schnabel will attend the project bid and participate in the opening and reporting of the bids, to the extent requested by AUD. Based on AUD's desired selection process, an apparent low bidder may be announced at the time of the bid. After the receipt and opening of bids, Schnabel will prepare and distribute a tabulation of bids and assist AUD by providing a Recommendation for Award to the preferred Contractor.

Construction Phase Services

In general, the proposed scope of services for the construction phase of this project includes limited construction observation and documentation, and no on-site materials testing, as we understand AUD plans to have material testing services performed by others. In dam construction, engineering and testing services are important for numerous reasons, to include the following:

- To observe site conditions with respect to design assumptions. If site conditions vary from those assumed during the design process, modifications to the design may be required. These modifications, if significant, would be coordinated with and approved by FERC or any other government entities that approved the plans.

- To observe construction activities with respect to the construction documents. If construction activities negatively impact design, the contractor and the owner should be notified.

- To document that the project was completed in general conformance with the project documents.

Our field engineering and construction testing services will include the following:

- Review of Contractor submittals for compliance with project specifications.

- Review of testing of drainage aggregates, riprap, and ACB components for general compliance with construction documents.

- Full-time, continuous observation of drain installation near the Rock Creek Waste Gate.

- Full-time, continuous observation of drilling and grouting near the Reed Creek Waste Gate.

- Periodic observation of geotextile fabric, riprap, and ACB placement (once per week).

- Preparation of daily reports to document construction activities. Construction observation reports will be reviewed and submitted to AUD.

- Assist in the development of record drawings based on survey to be provided by the contractor. Changes or modifications to the project should be noted on the record drawings.

- Review and response to Request for Information (RFI) and submittal documents prepared by the contractor.

- Assist in the review of contractor payment applications. We assume that AUD will be responsible for collecting material delivery tickets and providing them to Schnabel to support payment application review.

- Assist in the performance of material completion and final inspections of the project and inform the contractor of items that need attention.

We assume that the following services will be provided by a local soil and material testing firm, contracted directly by AUD, with test results provided by Schnabel for review on a weekly basis.

- Laboratory testing of earthfill and drainage aggregate for general compliance with construction documents.
- Performance of laboratory compressive strength tests on cured concrete cylinders.

If desired, Schnabel can provide these services upon request for additional fees.

The following services will not be provided by our firm:

- Laboratory testing
- Surveying for line and grade.
- Monitoring of erosion/sedimentation control devices.
- Monitoring for compliance with NPDES permit.
- Professional services not detailed herein.
- Post-construction monitoring beyond the required final inspection of the dam with DES.

Services rendered by us under this proposed agreement will consist of limited construction observation and testing, as described above, and professional opinions and recommendations made in accordance with generally accepted geotechnical, materials, and dam engineering practices. Under no circumstance is the intent for Schnabel to directly control the physical activities of the contractor or the contractor's workmen in accomplishment of their work on this project. The presence of our engineering staff and field representatives at the site during the construction phase of the project is to provide AUD with a continuing source of professional advice, opinions and recommendations based upon our representatives' observations and review of test results. We cannot be responsible for job safety except for our own personnel. Safe access to all areas requiring observations shall be provided by the contractor at no cost to us.

Our work will be highly dependent on the schedule and efficiency of the contractor, as well as other items that are beyond our control. Therefore, we will perform construction phase services on a unit rate basis in accordance with the attached Schedule of Fees. Our budget is based on a 4-month construction schedule. However, we understand that modifications to this budget will be approved, as needed, based on the contractor's actual schedule and efficiency.

Our estimated budget is based on the following assumptions:

- 4-month continuous and consistent construction schedule for the project. Delays or breaks in the schedule due to circumstances outside of our control could cause inefficiencies and multiple mobilizations that may result in additional fees.

- Weekly site visits by a project design engineer during canal embankment slope repair activities.

- One full-time field representative experienced in dam construction on-site for the entire duration of the drilling and grouting program in the vicinity of the Reed Creek Waste Gate and the Rock Creek Waste Gate drain construction. We have assumed that these components of the work can be completed in 4 weeks or less. Schnabel will endeavor to keep the same field representative involved throughout the project for continuity. However, Schnabel reserves the right to reallocate personnel as necessary.

    - 50-hour work week for the field representative during drain construction activities. The assumed hours include travel time, pre-construction conference, review of contractor submittals, construction observation time, and reports preparation time.

- Project coordination/consultation by design engineers.

- Review of construction observation reports by design engineers.

- Attendance at on-site pre-construction, progress, material completion, and final inspection meetings.

Our budget does not include reviewing more than one re-submittal for each item, numerous RFI's, or detailed quantity calculations. In addition, our budget does not account for contractor inefficiencies or schedule overruns. We strongly recommend that means be established within the contract terms with the contractor to recuperate additional costs due to contractor inefficiencies and schedule overruns. These means could include daily liquidated damages.

EXCLUSIONS

Schnabel's Scope of Work associated with this proposal does not include any of the following activities:

- Topographic and Bathymetric Survey
- Subsurface or Geophysical Exploration
- Hydrologic or Hydraulic Analyses
- Preparation of a Design Report
- Stream buffer variance application
    - Based on conversations with AUD, the City of August as the LIA will likely not require a stream buffer variance for this project. In the event that a stream buffer variance application is required, Schnabel can support the application process for additional fees.
- U.S. Army Corps of Engineers permitting coordination
    - Based on conversations with AUD, Schnabel understands that USACE permitting is not anticipated for this project
- Services not specifically described herein or excluded in other portions of this proposal.

Schnabel is capable of providing some of the excluded items above as requested for additional fees. We assume that if AUD requires additional services on Schnabel's part, AUD will request a subsequent proposal for such services.

SCHEDULE

Schnabel proposes to submit a preliminary draft of the design deliverables to AUD for distribution to FERC, as well as coordinate a virtual preliminary design workshop with FERC within 4 weeks of notice to proceed. Schnabel proposes to submit a final draft of the deliverables described herein to AUD for review and for distribution to FERC and the City of Augusta (LIA) for review within 8 weeks of notice to proceed being provided in the form of authorization of this proposal. We assume that any review comments from AUD, Augusta, and/or FERC will be provided to Schnabel within 4 weeks of our deliverable submittal. Schnabel will plan to address any review comments received within 2 to 4 weeks of receipt, based on the content and volume of comments provided.

COMPENSATION

Schnabel will perform the Scope of Services tasks for the fees described below:

- Final design services $136,000 (lump sum)
- Bid phase services $ 36,000 (lump sum)
- Construction phase services $ $222,000 (unit rate)

Our fees include periodic, virtual meetings or conference calls of a reasonable number and duration to meet with AUD staff to discuss repair plan development and progress. Work outside the specified scope requested and authorized by AUD will be performed on a unit rate basis in accordance with the attached Schedule of Fees.

Our invoices will be submitted monthly or at intervals when considerable time charges have accrued, with a final invoice submitted after completion of our services. Payment will be due upon receipt of our invoices and will be considered past due 30 days from the date of the invoice. The fees and associated rates included in this proposal are contingent upon the completion of Schnabel's services on or before December 31, 2026.

AUTHORIZATION

Schnabel understands that this work will be performed as a Purchase Order under a Consultant Services Agreement (CSA) between Augusta, Georgia and Schnabel. Schnabel anticipates that an official Notice to Proceed (NTP) authorizing the services described herein may be issued prior to the issuance of the Purchase Order. We request that the issued purchase order include copies of the CSA and this proposal as attachments.

We appreciate the opportunity to work with you on this project.

Sincerely,

SCHNABEL ENGINEERING, LLC

J. Tyler Coats, PE
Senior Associate

James R. Crowder, PE
Principal

JTC:JRC

Attachments: Schedule of Personnel Fees 17-25 Dams