

ADDENDUM NO. 2
US 280 ELEVATED STORAGE WATER TANK
WATER WORKS BOARD OF THE CITY OF AUBURN
AUBURN, ALABAMA

ADDITIONAL INFORMATION DOCUMENTS

The following documents:

- Questions and Responses No. 2

are being provided with this addendum for informational purposes only. The documents listed above are not, and will not, be considered as part of the Contract Documents.

SPECIFICATIONS

Delete section 00 00 10 in its entirety and replace it with the attached Section 00 00 10.

Delete section 00 09 00 in its entirety and replace it with the attached Section 00 09 00.

Delete section 01 11 00 in its entirety and replace it with the attached Section 01 11 00.

Delete section 33 16 19.13 in its entirety and replace it with the attached Section 33 16 19.13.

Add the attached Appendix A.

DRAWINGS

Delete Drawing E601 and replace it with the attached Drawing E601.

Delete Drawing CU101 and replace it with the attached Drawing CU101.

Bidder Must Acknowledge Receipt of this Addendum on Bid Form

July 27, 2026

Barge Design Solutions, Inc.
1201 Front Avenue, Suite F
Columbus, Georgia 31901
(706) 321-4590

QUESTIONS AND RESPONSES NO. 2

US 280 ELEVATED STORAGE WATER TANK

WATER WORKS BOARD OF THE CITY OF AUBURN AUBURN, ALABAMA

1.	Q:	Would the owner consider a 300,000 gallon single pedestal tower?
	R:	Yes - See Addendum No. 2.
2.	Q:	What is the retaining amount in terms of percent for payments?
	R:	Retainage will be withheld per Alabama Public Works Bid Law Section 39-2-12(c).
3.	Q:	What are the SCADA requirements for this project?
	R:	See Addendum No. 2.
4.	Q:	Who is the SCADA integrator for this project?
	R:	See Addendum No. 2.

July 27, 2026

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SPECIFICATIONS

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SPECIAL CONDITIONS

US 280 ELEVATED WATER STORAGE TANK

1. PROJECT DESCRIPTION:

The project consists of constructing a minimum¹ 250,000-gallon elevated storage water tank, including all necessary labor and materials to complete the tank and put it into service. This includes, but is not limited to, installation of the steel water tank and foundation, yard piping, grading operations, electrical and SCADA integration, and coating.

2. TIME OF COMPLETION:

The Contractor shall commence the work within **ten (10)** consecutive calendar days after the date specified in the Notice to Proceed given to him by the Water Works Board of the City of Auburn to commence work, and he shall complete the work within **three hundred and sixty five (365)** consecutive calendar days after the date specified in the Notice to Proceed. A notification shall be given to the Engineer two weeks in advance of mobilization to the site. See Instructions to Bidders for details regarding an Administration Period.

3. LIQUIDATED DAMAGES:

Liquidated damages as specified in the general conditions are hereby mutually fixed and agreed upon at the rate of **five hundred (\$500)** per calendar day of delay past the date of completion.

4. LICENSE FEE:

The successful low bidder is responsible for acquiring the appropriate business licenses and permits to conduct work with the Board. All permits and business licenses can be obtained by contacting the City of Auburn's Finance Department at 334-501-7225.

5. WORK TO BE DONE:

The Work includes furnishing all products, materials, and equipment and performing all labor to complete and put into operation the US 280 Elevated Storage Water Tank, including all work shown on the Drawings and/or specified herein.

Materials:

All materials and construction work shall be in accordance with Water Works Board of the City of Auburn standard details and specifications, and the specifications herein, as

noted. Submittals for all materials must be received and approved prior to any work beginning.

Erosion Control (If Applicable):

Erosion and sedimentation control measures must be installed prior to construction activities and/or concurrent with construction activities and shall be maintained during the life of construction as necessary. The Project Manager or Project Inspector may request additional erosion measures as deemed necessary. The contractor should take special care in maintaining the erosion and sedimentation control measures. If at any time a deficiency is noted, the contractor must perform corrective actions immediately, no later than the end of the day.

All disturbed areas shall be mulched at the end of each work day. All disturbed areas within the project limits are to be seeded and/or sodded once backfilling and compaction has been completed. In residential areas, the seeding or sodding shall match the existing lawn or landscaping. It will be the responsibility of the Contractor to ensure proper irrigation of all seeded and sodded areas. It will also be the responsibility of the contractor to ensure a stand of grass. The Contractor, at his expense, shall repair any area that is disturbed outside the construction limits. Any disturbed area not worked for thirteen (13) days must be temporary seeded.

Utilities (if applicable):

The Contractor is to coordinate other utility work with all public utility companies. The Water Works Board of the City of Auburn will supply a water meter to be installed on an adjacent hydrant. If excess water is consumed at the site, the Contractor may be charged for the excess use.

Allowable Working Days and Hours:

All work must take place between 7 am and 7 pm, local time, Monday through Friday. No work will be allowed on Saturdays and Sundays. If exceptional circumstances arise, Contractor can request special permission for work outside these hours, however, special permissions are not guaranteed. Contractor shall contact Engineer. Contractor may be required to bear additional costs for inspections outside of the established working hours.

Miscellaneous:

Contractor shall be responsible for returning the work site to its original condition at the completion of the project. Site shall be leveled if damaged by materials or equipment, and grass shall be seeded.

If during the course of the inspections, the Project Manager determines that all work has been satisfactorily completed and that a substantial stand of grass exists on all or part of the work, he may recommend acceptance if the Contractor provides a bond covering all erosion control, grassing, and other related items. The face amount of the

bond shall equal replacement costs of erosion control items and grassing determined by the Engineer. The time period to be covered by the bond will be sufficient to ensure obtaining a satisfactory stand of growth; however, it shall not exceed 12 months. It shall be understood by all that such bond is to ensure replacement of the erosion control items and the grassing, should it become necessary, and will in no way relieve the Contractor from the responsibility of damages caused by the lack of erosion control.

6. SAFETY:

In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to the normal working hours. The contractor should take all necessary precautions to ensure safety of the jobsite at all times.

END OF SECTION

Part 1 General

1.1 Section Includes

- A. Work by Contractor.
- B. Contractor Use of Site and Premises
- C. Partial Owner Occupancy
- D. Quantities

1.2 Work by Contractor

- A. The work to be performed under this Contract shall consist of furnishing all labor, materials, tools, equipment and incidentals and performing all work required to construct complete in place and ready to operate the improvements shown in the Contract Documents. These improvements include, but are not limited to, the following:

The project consists of constructing a minimum¹ 250,000-gallon elevated storage water tank, including all necessary labor and materials to complete the tank and put it into service. This includes, but is not limited to, installation of the steel water tank and foundation, yard piping, grading operations, electrical and SCADA integration, and coating.

- B. All work described above shall be performed as shown on the Drawings and as specified.
- C. Project Location

- 1. The project site address is: 7384 US-280, Auburn, AL 36801.

1.3 Contractor Use of Site and Premises

- A. See Section 01 35 00 – Unique Requirements.

1.4 Partial Owner Occupancy

- A. The Owner will occupy existing facilities on the site where these improvements are being made and will continue operation during the period of construction.

- B. There shall not be any interruption in service. The Contractor is responsible for fines assessed due to his activities.
- C. Whenever, in the opinion of the Engineer, any section or portion of the work or any structure is in suitable condition, it may be put into use upon the written order of the Engineer and such usage will not be held in any way as an acceptance of said work or structure, or any part thereof, or as a waiver of any of the provisions of these Specifications and the Contract. Pending final completion and acceptance of the Work, all necessary repairs and replacements, due to defective materials or workmanship or operations of the Contractor, for any section of the work so put into use shall be performed by the Contractor at Contractor's own expense.

1.5 Quantities

- A. The Owner reserves the right to alter the quantities of work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the Contractor shall perform the work as altered, increased or decreased. Payment for such increased or decreased quantity will be made in accordance with the Instructions to Bidders. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any conditions or provisions of the Contract and Bond.

Part 2 Products

(NOT USED)

Part 3 Execution

(NOT USED)

END OF SECTION

Part 1 General

1.1 Section Includes

- A. The work to be performed under this section consists of the furnishing of all materials, tools, equipment, labor and incidentals necessary for the design, manufacture, delivery, erection, painting, disinfection and testing of a single-pedestal elevated storage tank. The tank is to be complete with all accessories specified herein and is to be erected on foundations to be designed and constructed by the Tank Contractor. The tank shall meet all requirements of AWWA D100 Standard for Welded Carbon Steel Tanks for Water Storage.
- B. The contracting company shall own their fabrication facilities. Divided responsibilities between erection and fabrication will not be allowed.
- C. A qualified supervisor employed by the Contractor shall be on site at all times during construction activities.
- D. The Contractor shall have completed the design, construction, and commissioning of at least ten (10) elevated tanks with an equal style and design, and equal or greater hydraulic capacity, that have been completed within the last five years.

1.2 Submittals

- A. Submit the following in accordance with Section 01 33 00 - Submittal Procedures:
- B. Each bidder shall submit with their proposal a design sketch of the tank and foundation they propose to furnish. The general plan of the structure must show all major dimensions including the tank diameter, plate layout sketch, and preliminary size of the tank foundation.
- C. The successful bidder must submit shop drawings for all proposed work to include the tank foundation, concrete mix design, tank structure showing plate thicknesses, members, details of all connections, special details and member loads, piping, valves, painting and other pertinent information as required per the project plans and specifications. These drawings shall be sealed by a registered Professional Engineer in the State of Alabama.
- D. Submit performance requirements of the proposed ground improvements, including soil bearing capacity, and allowable total and differential settlements. Coordinate all requirements with subcontractors. Coordinate foundation design with proposed ground improvements.
- E. Submit certification by an independent third-party organization that all interior coating and materials that meet the potable water comply with NSF/ANSI 61.
- F. Submit a certificate signed by a registered professional engineer, providing the following information:

1. Description of the structural design loading conditions used for the design of entire tank including the foundation.
 2. Description of the structural design method and codes used in establishing the allowable stresses and safety factors applied in the design.
 3. A statement verifying that the structural design has been checked by experienced engineers specializing in hydraulic structures.
 4. A statement verifying that the detail drawings have been checked by experienced engineers specializing in elevated storage water tanks to determine that they agree with the design calculations in member sizes, dimensions, and fabricating process as prescribed by applicable ACI and AWWA standards.
 5. At the conclusion of the work, a written report covering the hydrostatic test and certifying that the work was inspected in accordance with Section 11.2.1 of AWWA D100.
- G. Submit each coating manufacturer's technical data, application instructions, Safety Data Sheets (SDS), and certificate for compliance for VOC content.
- H. Quality Assurance Plan
1. Provide a plan with procedures for exercising control of fabrication and construction as well as verification that materials, fabrication and construction conform to the design requirements.
 2. Identify required inspections, tests and procedures.
- I. Submit copies of the following test results:
1. Foundation bearing and concrete test results
 2. Results of testing required by Part 3 of this specification.

1.3 System Description

- A. Design and Construction Standards
1. The design, fabrication, and erection of the elevated tank and foundation shall be in accordance with the applicable requirements of AWWA D100 and ACI 318 except as modified herein.
 2. Seismic design shall be in accordance with AWWA D100. Submit Design Analyses and Calculations. Design seismic parameters are based on ASCE 7-16 and are as follows:
 - a. $S_s = 0.135g$

- b. $S_1 = 0.076g$
 - c. Site Class: D
 - d. $S_{DS} = 0.144g$
 - e. $S_{D1} = 0.122g$
 - f. Importance Factor, $I_e = 1.25$
- 3. No additional thickness for corrosion allowance will be required. Minimum thickness of plates in contact with water shall be $\frac{1}{4}$ inch.
 - 4. Design metal temperature shall be 25 degrees F.
 - 5. The elevated tank shall be designed for a basic wind speed of 117 mph in accordance in accordance with AWWA D100. Wind exposure shall be Exposure Category C.
 - 6. The snow load shall be calculated in accordance with AWWA D100. Ice loading shall be calculated in accordance with ASCE 7-16.
 - 7. Tank dead load shall be the estimated weight of permanent construction.
 - 8. Tank water load shall be determined based on the weight of all water when the tank is filled to the TCL.
 - 9. Minimum tank roof live load shall be 15psf (unreducible).
- B. Design Requirements
- 1. The elevated tank shall have a minimum¹ storage capacity of 250,000 gallons. The high-water level of tank shall be at elevation 965 feet AMSL with the top of column foundations at approximately elevation 780.73 feet AMSL. The range between high and low water levels shall be approximately 30 feet. The existing grade at the tank site is approximately elevation 781 feet.
- C. Sizing and Design: Sizing and design of elevated tank shall be in accordance with Section 4 of AWWA D100.

1.4 Quality Assurance

- A. Welding: Qualification of welding procedures, welders, and welding operators shall be in accordance with Section 8.2 of AWWA D100.
- B. Complete joint penetration welds for all welded shell and load bearing risers in contact with water shall be inspected by radiographic method, in accordance with Section 11.4 of AWWA D100.

1.5 Delivery, Storage, and Handling

- A. Deliver paint in unopened containers with unbroken seals and labels showing designated name, specification number, color, directions for use, manufacturer, and date of manufacture, legible and intact at time of use.
- B. Handle and store water storage tank systems, components, and parts to prevent distortions and other damage that could affect their structural, mechanical, or electrical integrity. Replace damaged items that cannot be restored to original condition. Store items subject to deterioration by exposure to elements, in a well-drained location, protected from weather, and accessible for inspection and handling.

Part 2 Products

2.1 Tank Foundations

- A. The Tank Contractor shall furnish and install all materials, labor, and equipment necessary to complete the tank foundation, complete with anchor bolts, reinforcing steel, concrete, and any required ground improvements.
- B. The Tank Contractor shall design and prepare construction plans and details for the foundations in accordance with the requirements of the specifications. The foundation construction drawings shall be sealed by a registered Professional Engineer in the State of Alabama and submitted to the Engineer for review and final approval. The Tank Contractor shall have foundation design staff under their direct employ.
- C. The Tank Contractor shall coordinate all requirements of proposed ground improvements with the ground improvement designer and installer.
- D. All testing of materials (i.e. concrete compressive strength) concerning the foundations shall be performed by an independent testing laboratory satisfactory to the Engineer and paid via the Soils and Concrete Testing Allowance. Testing of the foundation improvements shall comply with the geotechnical report and shall be conducted by the foundation subcontractor. Observation of testing of foundation improvements by the Owner's Geotechnical Engineer will be paid for via the Soils and Concrete Testing Allowance. Costs for any soils investigation required are not eligible to be paid for via the Soils and Concrete Testing Allowance. Submit documentation of all testing.¹

2.2 Tank Construction

- A. The steel pedestal and tank shall be all welded construction and shall be designed in accordance with applicable sections of AWWA D100.
- B. The design of the structure shall be such that lineal footage of weld seams both in the shop and field are minimized. Bidders shall provide a plate layout sketch with their respective bids.

- C. The steel tank shall be supported by a support structure comprised of a truncated cone at grade transitioning into a singular steel support pedestal.
- D. Provide butt-welded joints for support structure. Welds for butt-welded joints shall be complete joint penetration welds.
- E. All lap joints shall be fully seal welded on both sides. No stitch or intermittent fillet welds shall be acceptable.
- F. All portions of the tank, including the roof, shall be watertight construction.
- G. Plate Thickness:
 - 1. All members shall be designed to safely withstand the maximum stress to which they may be subjected during erection and operation.
- H. Transitions
 - 1. The transition between pedestal and tank and between pedestal and base shall be smooth continuous double curved sections. Abrupt cone to cylinder joints or discontinuous transitions through compression rings are not acceptable.

2.3 Materials

- A. All materials utilized in the construction of the storage tank and related appurtenances shall be new and shall be delivered and erected in excellent condition.
- B. Provide materials conforming to the following requirements:
 - 1. Steel: Section 2 of AWWA D100.
 - a. Shop Fabrication: Section 9 of AWWA D100.
 - 2. Ductile-Iron Pipe: Pipe for fluid conductors, except for wet riser and overflow pipes, shall be ductile-iron pipe and shall conform to Section 33 14 00 Water Utility Distribution Piping.
 - 3. Valves
 - a. Gate Valves: Gate valves shall conform to Section 33 14 00 Water Utility Distribution Piping.
 - b. Ball Valves: Ball valves, 3 inches and smaller, shall be two piece, full-port type with ASTM A276 Grade 316 or ASTM A351 Grade CF8M stainless steel body and end piece; NPT threaded ends, in accordance with ASME B1.20.1; and ASTM A276 Grade 316 ball. Valves shall have reinforced polytetrafluoroethylene (PTFE) seats, seals and packing, adjustable packing, blowout proof stainless steel stem, and stainless-steel hand lever operators. Valves shall be rated for 1000 psig WOG and shall conform to MSS SP-110. Valve shall be NSF 61 certified

- 1) Acceptable Manufacturers and Products:
 - a) Conbraco Apollo 76F-100,
 - b) Nibco T-585-S6-RR-66-LL,
 - c) Or Equal.
- c. Pressure Gauge: Pressure gauge of the direct-reading type, equipped with a shutoff cock, shall be provided, in the valve chamber, on the tank side and on the discharge side of the check or altitude valve. Gauges shall have 6-inch dials, shall be stem mounted, and shall conform to ASME B40.100. Accuracy of gauges shall be Grade A or better. Gauges shall be calibrated in psi in not more than 2 psi increments from 0 to 50 psi in excess of the normal operating pressure at the tank.

2.4 Assemblies

- A. Tank Accessories: Section 5 of AWWA D100 and as specified. Additional requirements for accessories are as follows:
- B. Access Tube (AWWA D100-11, Sec. 5.4.2.3): An access tube having a minimum diameter of 48 inches shall be provided for egress from the bottom of the tank to the roof. Consideration shall be given to the access tube diameter in relation to the cylindrical shaft diameter and the quantity and diameter of pipes that must penetrate into the bottom of the tank.
- C. Painter's Railing & Painter's Hatch: Continuous bar railing shall be provided on the exterior of the tank near the top of the cylindrical shaft and at the top of the access tube. This railing shall be permanent to facilitate future tank maintenance. A hatch with a minimum diameter of 24 inches shall be located near the top of the cylindrical shaft to provide access to the exterior railing. This hatch shall be accessible from the upper platform.
- D. Lower Platform & Condensate Ceiling w/ Drain: A steel platform shall be located near the base of the cylindrical shaft, as shown on the Drawings. Provide structural support for the platform as required. Platform to cover 50% of the open area of the tank column. The platform shall include one 30-inch diameter (minimum) opening and guardrail. A condensate ceiling shall be provided at the same elevation of the lower platform with a 1-1/2 inch diameter coupling, and braided hose as required to plumb the coupling to drain to the floor drain at the base of the tank.
- E. Intermediate Platforms: Provide steel platforms as shown on the Drawings. Provide structural support for the platforms as required. Each platform to cover 50% of the open area of the tank column. The platform shall include one 30-inch diameter (minimum) opening and guardrail.
- F. Upper Platform: An upper steel platform shall be located approximately 8 feet below the top of the cylindrical shaft to serve as access for the painter's hatch and tank ladders. Provide structural support for the platform as required. This platform shall

cover approximately 80% of the open area of the tank column and include one 30-inch diameter (minimum) opening and guardrail.

- G. Roof Hatch (AWWA D100, Sec. 5.4.3): Provide two weatherproof steel manufactured roof hatches at least 36 inches by 30 inches. Hatch to have automatic hold-open arm locks, compression spring operators, and EPDM rubber gasket. The hatches shall have a minimum 4 inch curb height and the lid shall overlap the curb 2 inches. The lid shall be watertight and lockable. One hatch shall be located on top of the access tube and provide access to the roof. The second hatch shall be located adjacent to the access tube, above HWL, and provide access to the interior of the tank.
1. Acceptable manufacturers:
 - a. Bilco Type S Roof Hatch – Ladder Access
 - b. Or approved equal.
- H. Vent (AWWA D100-11, Sec. 5.5):
1. The tank vent should be sized for needed venting capacity for maximum inflow or outflow considering a main break at the base of the tank. The overflow pipe shall not be considered a tank vent. The vent will be designed to prevent the ingress of birds, insects, or animals, and minimize condensation on the underside of the roof. Screening for vent shall conform to Section 5.5.2 of AWWA D100 which ensures fail-safe operation in the event that screen frosts over and the bottom of the screen shall be sufficiently elevated for snow consideration in the area.
 2. The vent shall be located adjacent to the access tube and designed to allow the attachment of an exhaust fan for ventilation during painting.
 3. The vent shall also function as vacuum relief for the tank. The pressure-vacuum screened vent shall be provided such that it is operational in the event that the screens frost over or become damaged.
- I. Drain Valve: A 2 inch diameter freeze-proof drain valve shall be provided in the bottom the tank. The drain valve shall be installed to permit the maximum amount of water to drain from the tank, yet be fully operational as a freeze-proof valve. The drain valve shall be located such that it can be operated from the access tube ladder.
- J. Tank Manway: An 18 inch x 24 inch elliptical manway shall be provided in the bottom of the tank. The manway shall open inward and be accessible from the access tube ladder or a ladder extending from the upper platform directly to the tank manway.
- K. Personnel Door: A 36 inch x 80 inch personnel door shall be located in the base cone of the tank. The door shall be designed for this type of structure, fabricated from steel plate, and be equipped with a handle, drip cover, and a hasp for a padlock with a fabricated padlock shroud. The door threshold shall be flush with the concrete floor inside the tank.

- L. Slab on Grade: A minimum 6-inch-thick concrete slab on grade shall be provided for the interior of the base cone. The concrete shall be reinforced with welded wire mesh and isolation material shall be provided at all junctions with walls and penetrations. The slab shall slope slightly toward the personnel door for drainage.
- M. Inlet/Outlet Piping (AWWA D100-11, Sec. 5.2): Provide a 12-inch diameter combined inlet/outlet pipe made of carbon steel (Sch. 20) that extends from the top flange of the base elbow and terminates at or below the low water line. The inlet/outlet pipe in the tank bowl shall be equipped with a protective cap to prevent entry of foreign materials dropping from above and a removable silt stop. The inlet/outlet pipe shall have an expansion joint to accommodate differential movement due to settlement or thermal cycling.
- N. Overflow (AWWA D100-11, Sec. 5.3): The carbon steel overflow pipe (Sch. 20) shall be designed for a maximum fill rate of 1,500 GPM, with a maximum water level of not more than 6 inches above the weir. The overflow shall originate at the top in a weir box, and extend down through the tank, shaft, and base cone. Overflow shall be adequately supported for its entire length. The overflow pipe shall include an expansion joint to accommodate differential movement due to settlement or thermal cycling.
- O. Ladders and Safety Devices: Ladders and safety devices shall be provided in accordance with Sections 5.4.2 of AWWA D100.
 - 1. The tank shall be provided with steel ladders at the following locations:
 - a. A ladder shall be provided in the base cone, extending from the concrete slab on grade to a point approximately 48 inches above the lower platform.
 - b. A ladder shall be provided between intermediate platforms, extending approximately 48 inches above the upper platform.
 - c. A ladder shall be provided from the upper platform extending to the top of the access tube.
 - d. A ladder shall be provided at the roof manway, extending to the bottom of the tank.
 - e. A ladder shall be provided, if necessary, from the upper platform extending to the tank manway.
 - 2. Ladders shall have side rails not less than 2 inches x 3/8 inch, with a spacing between the side rails of not less than 16 inches and rungs not less than 3/4 inch round or square, spaced 12 inches on center. Ladders shall not, in any place, have a backward slope.
 - 3. In addition, safety cage, fall protection, rest platforms, roof ladder handrails, and other safety devices shall be provided as required by federal or local laws or regulations.

4. Two climbing belts and clamp assemblies, approved by OSHA, shall be provided.
- P. A bronze tank identification plate shall be mounted above the riser manway. The identification plate shall contain the following information:
1. Tank contractor's name
 2. Year erected
 3. Tank capacity in U.S. gallons
 4. Tank head range
 5. Tank style
 6. Contractor's serial number or project number
 7. Tank contractor's erection foreman

2.5 Coating for Welded Tanks

- A. Provide coating systems conforming to Section 09 97 13 – Coating of Welded Steel Water Tanks.

2.6 Concrete Work

- A. Concrete work shall conform to Section 03 30 00 - Cast-In-Place Concrete.

Part 3 Execution

3.1 Foundations

- A. The tank foundation and related ground improvements shall be constructed in accordance with the designs provided as well as the Geotechnical Report listed in Supplementary Conditions of these Specifications.
- B. Contractor shall minimize disturbance of the soil bearing level, and, if installed, shall minimize the disturbance of the surface of the aggregate piers when the foundation is excavated. Contractor shall not backfill over-excavated foundation trenches. All soil disturbed in the excavation process shall be removed to expose undisturbed soil prior to the placement of foundation concrete.
- C. Contractor shall coordinate testing of ground improvements, soils, and foundation construction.

3.2 Excavating, Filling, And Grading

- A. Excavating, filling, and grading shall conform to the applicable requirements of

Section 31 20 00 – Earth Moving.

3.3 Tank Installation

- A. Submit detail and erection drawings, before proceeding with any fabrication.
- B. All parts forming the structure shall be built in accordance with approved drawings. Tank installation shall be in accordance with the following requirements:
 - 1. Welding procedures and general welding requirements shall be in accordance with AWWA D100, Sections 8, 9 and 10. Welding shall only be performed by ASME qualified welders. Records of these qualification tests shall be available to the Engineer. The work at all times shall be open to the Engineer or their representative.
 - 2. Erection: Section 10 of AWWA D100.
- C. Roof Lap Joints: All interior roof lap joints and roof penetrations shall be seal welded along the entire length of the joint.
- D. Inspections and Testing: Tank inspection and testing shall be in accordance with Section 11 of AWWA D100. Mill and shop inspections are not required. Perform radiographic inspections of the welded tank shell, the hydrostatic test and the vacuum box leak test of the tank bottom. Final hydrostatic and leak tests shall be performed before painting of welded tanks.
- E. Upon completion of the tank erection, the Tank Contractor will remove or dispose of all rubbish and other unsightly material caused by its operation and will leave the premises in good appearance.

3.4 Piping Installation

- A. General Guidelines: Where details of fabrication or installation are not shown on the drawings, installation shall conform to Section 1 and 3 of AWWA C600.
- B. Testing of Valves and Piping:
 - 1. After the elevated tank has been erected and the valves and piping installed, and before field painting is begun, the valves and piping shall be hydrostatically tested in accordance with Section 4 of AWWA C600.
 - 2. Replace with sound material any defective material disclosed by the pressure test; the test shall be repeated until the test results are satisfactory.
- C. Plugging Ends: Cap or plug pipe ends left for future connections as directed.

3.5 Painting and Coating of Tank

- A. All painting and coating work shall be in accordance with Section 09 97 13.

- B. Application, curing time, mixing and thinning of the coating materials must be in strict accordance with the manufacturer's instructions. The use of thinners must not alter the required minimum dry thickness or adversely affect the VOC content.

3.6 Disinfection

- A. The elevated tank and connecting lines thereto shall be disinfected in accordance with Section 33 01 10.58 before being placed in operation.

END OF SECTION

Jacobs SCADA Proposal



Scope of Work for AWWB US280 Elevated Storage Water Tank RTU

Prepared for
Julia Kullander
Barge Design Solutions

December 17, 2025

Scope of Work for the AWWB US280 Elevated Storage Water Tank RTU

Client name: Barge Design Solutions

Revision: 1

Revision date: December 17, 2025

Project/Proposal no: N/A

Project manager: James Noe

Prepared by: Jacobs Engineering Group Inc.

Approved by: Nick Freeman

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Approval

This work plan contained herein for the **Auburn Water Works Board (AWWB) US280 Elevated Storage Water Tank RTU project**, dated December 2025, is approved as of the date below. Approval of the work plan serves as notice to proceed.

For Barge Design Solutions

By: _____

Title: _____

Date: _____

For Jacobs Engineering Group Inc.

By: _____

Date: _____

Work Plan for the AWWB US280 Elevated Storage Water Tank Project

Jacobs is pleased to provide the following proposal to provide a SCADA Remote Telemetry Unit (RTU) and field instruments for the US280 Elevated Storage Water designed by Barge Design Solutions. The new SCADA RTU and instrumentation will monitor water level, detect intrusion, and prepare for future chlorine residual monitoring. The control panel will be installed inside the tank base at ground level and powered by a 120V supply provided by others. This proposal is based on the preliminary design documents listed below and will be updated upon receipt of final plans and specifications.

- 2025_11_10_Combined Plan Set_ 60% For Review
- 2025_11_10_Combined Specification Set_ 60% For Review

The proposed deliverables will include:

- Design submittals:
 - Control Panel Submittal
 - Field Instrumentation Submittal
- Equipment:
 - One (1) SCADA UL508A RTU Control Panel
 - One (1) Manual pressure gauge for local level indication
 - One (1) Pressure Transmitter to provide continuous level measurement
 - One (1) Intrusion alarm via a limit switch located on the personnel door
 - Provisions for future chlorine analyzer integration, with signal wiring and SCADA readiness
- Closeout Documents:
 - Functional Demonstration Testing Documents
 - Final PLC Programming and Configuration
 - Final Operation and Maintenance Manual (O&M) with as-built RTU control panel drawings.

Jacobs will provide engineering, procurement, and integration services to deliver a fully functional Instrumentation and Control (I&C) system for the elevated tank. The scope includes:

- Control Panel Design: A NEMA 12 painted gray mild steel enclosure mounted inside the tank base, equipped with terminal blocks, surge protection, grounding, and space for future chlorine analyzer input. The panel will communicate to the James Estes WTP via a cellular modem provided and configured by the AWWB.
- Instrumentation: Jacobs will provide the manual pressure gauge and pressure transmitter (including isolation valve and calibration port). The transducer will transmit level data to SCADA and display locally at the instrument. All installation work, including instrument mounting, process piping, conduit, and wiring between the instruments and RTU will be performed by others.
- Intrusion Detection: Jacobs will supply the magnetic limit switch for the personnel door. Installation work, including equipment mounting, conduit, and wiring between the switch and RTU will be performed by others.

- Future Chlorine Analyzer Integration: Reserved analog input and wiring provisions for analyzer signal, enabling integration when AWWB installs the analyzer.

Table 1.1 Existing Control Panels

Tag Name	Name	Description
RTU-1	SCADA / RTU Panel	Fully assembled and Tested NEMA 12 RTU w/Allen Bradley Micro820, 24VDC Power Supply, 120VAC UPS, Interposing Relays, and Terminal Blocks.

Table 1.2 Field Instrumentation

Tag Name	Name	Description
PI-1	Pressure Gauge	Ashcroft, 1279 Duragauge Pressure Gauge, 1/2" Process Connection, 160psi
LIT/PE-1	Pressure Transmitter	E+H, Cerabar PMP71B, 150psi Range, 1/2" Process Connection, w/ Wall Mount Bracket. Phoenix Contact, Surge Suppressor
IS-1	Intrusion Switch	Magnetic Contact: Surface Mount, 2"x 11/16" x 3/8"

Scope of Work

Engineering services will be delivered as outlined below.

Task 1 – Project Management

This task will begin with the development of a project work plan, which will include project objectives, project staff, defined project tasks and subtasks, schedule, and associated budget. This task also includes day-to-day management of the work, including budget, schedule, deliverables, internal and external coordination.

Task 1 Deliverables

- Project Schedule
- Project Schedule of Values
- Progress Updates via email
- Invoicing

Task 2 – US280 Elevated Storage Tank RTU and Field Instruments

2.1 Objective

Design, procure, program, integrate, commission, and document a fully functional SCADA RTU and associated field instrumentation for the US280 Elevated Storage Water Tank. The RTU will monitor tank level, detect personnel door intrusion, and include provisions for future chlorine residual integration. Communication to James Estes WTP will be via a cellular modem provided/configured by AWWB.

2.2 Scope of Work

A. Control Panel (RTU) Engineering & Fabrication

- Provide a UL508A RTU control panel in a NEMA 12 painted gray mild steel enclosure. Include terminal blocks, surge protection, grounding, and spare I/O capacity for future chlorine analyzer input.
- PLC platform: Allen-Bradley Micro820 with 24 VDC power supply, 120 VAC UPS, interposing relays, and labeled terminal blocks; panel factory assembled and tested prior to delivery.
- Provide panel drawings (schematic, layout, bill of materials, I/O list), engraved nameplates, and wire schedules consistent with AWWB standards.

B. Communications Integration

- Integrate and physically install the AWWB-provided cellular modem inside the RTU. Jacobs will configure PLC/SCADA communications and alarm/reporting per AWWB standards. (Modem provisioning and carrier configuration by AWWB.)

C. Field Instrumentation

- Local Level Indication: Provide one (1) manual pressure gauge.
 - Ashcroft 1279 Duragauge
 - ½" process connection
 - 160 psi range
- Level Transmitter: Provide one (1) pressure transmitter.
 - Endress+Hauser
 - Cerabar PMP71B,
 - 150 psi
 - ½" process connection, with wall-mount bracket
 - Phoenix Contact surge suppressor
- Intrusion Detection: Provide one (1) magnetic surface-mount contact.
 - Approx. 2" × 11/16" × 3/8" in size
- Future Chlorine Residual: Provide reserved analog input and pre-wired terminal provisions for future chlorine analyzer signal.
 - Include SCADA tag placeholders to enable rapid future integration.

Note: RTU Panel, Instrumentation, process piping, conduit, and field wiring between instruments and RTU are by others.

D. Application Software Development

- PLC Programming: Develop Micro820 ladder/structured text for instrument acquisition, alarming, data scaling, diagnostics, and communications handshakes. Include communication losses and process faults.
- SCADA Configuration: Implement tags, alarming, historian points, and display objects for level, intrusion, and modem status; configure provisions for future chlorine residual.

E. Commissioning (Jacobs-Provided Hardware)

- Perform loop checkout, I/O verification, and point-to-point testing from field to PLC and up through SCADA.

F. Testing & Demonstration

- Conduct Functional Demonstration Testing (FDT) documenting instrument ranges, scaling, alarms, and communications; provide calibration sheets and test records.

G. Documentation & Closeout

- Deliver Final PLC programming/configuration files, O&M manual, and As-built RTU control panel drawings; include spare I/O and wiring schedules for future analyzer integration.

2.3 Detailed Activities & Subtasks

1. Design Submittals

- Panel schematics, enclosure/layout drawings, I/O list, network diagram, instrument datasheets, and SCADA tag list.

2. Procurement

- Fabricate UL508A RTU panel; procure Ashcroft 1279 gauge, E+H Cerabar PMP71B transmitter, Phoenix surge suppressor, magnetic contact, UPS, and accessories.

3. Unwitnessed Factory Testing

- Unwitnessed factory test PLC I/O, power systems, UPS functionality, surge protection, and simulated instrument inputs; pre-configure PLC program and SCADA tag map.

4. Commissioning & FDT

- Instrument calibration, zero/span verification; I/O checkout; alarm verification (level high/low, intrusion); end-to-end SCADA communications to James Estes WTP. Provide signed FDT forms and calibration sheets.

5. Training & Handover

- Conduct onsite walk-through of panel, instrumentation, basic PLC/SCADA operation, alarm acknowledgement, and maintenance notes; deliver O&M and as-built package.

2.4 Deliverables

- Hardware Submittals:
 - Equipment datasheets and PDF panel drawings (schematic, layout, BOM, I/O).
- Application Software:
 - PLC program and SCADA configuration (final copies and backups).
- Equipment:
 - One (1) SCADA UL508A RTU control panel
 - One (1) Ashcroft 1279 gauge
 - One (1) E+H Cerabar PMP71B transmitter with surge suppression
 - One (1) magnetic intrusion switch; future analyzer provisions.
- Commissioning:
 - Completed FDT forms
 - Calibration sheets
 - Point-to-Point I/O verification records.
- O&M Package:
 - Final Operation & Maintenance Manual with as-built RTU drawings and instrument datasheets.

2.6 Quality Assurance & Acceptance Criteria

- Design QA: Peer review of panel drawings, I/O list, and SCADA tag map prior to submittal.
- Factory Acceptance (FAT): Pass/fail checklist for power systems, PLC I/O, protective devices, and simulated instrument signals.
- Site Acceptance (SAT/FDT):
- Documentation: Delivery of signed test sheets, calibration certificates, and updated as-built drawings.

2.7 Safety & Construction Constraints

- Follow facility lockout/tagout, confined-space rules for tank base (if applicable), and electrical safety for 120 VAC/24 VDC systems.
- Coordinate instrument installation to avoid water service impacts; schedule transmitter calibration during stable conditions.

Assumptions & Clarifications

- **Communications:** AWWB will provide and configure the cellular modem; Jacobs will install it in the RTU and complete PLC/SCADA integration during commissioning.
- **By Others:** Installation of the RTU panel, pressure gauge, pressure transmitter, intrusion switch, process piping, conduit, field wiring between instruments and the RTU, and the 120 VAC feeder to the RTU location shall be performed by others.
- **Warranty:** Hardware/software warranties are per manufacturer; Jacobs will guarantee, and support executed PLC and SCADA programming to ensure operational readiness.
- **Jacobs Provided Equipment or Software:** All hardware provided by and services performed by Jacobs shall be warranted for one (1) year from date of substantial completion. In no case shall Jacobs be liable for consequential damages or other indirect damages including, without limitation, damages for loss of use, revenue, profit or product, operating costs, plant downtime, financing and interest costs and business interruption from hardware or software problems.

Preliminary Project Schedule

The target dates for the key milestones for the project are summarized below.

PROJECT MILESTONES

Task Name	Start Date	Finish Date
Task 1: Project Management	2026	2026
Task 2: US280 Elevated Storage Tank RTU and Field Instruments	2026	2026

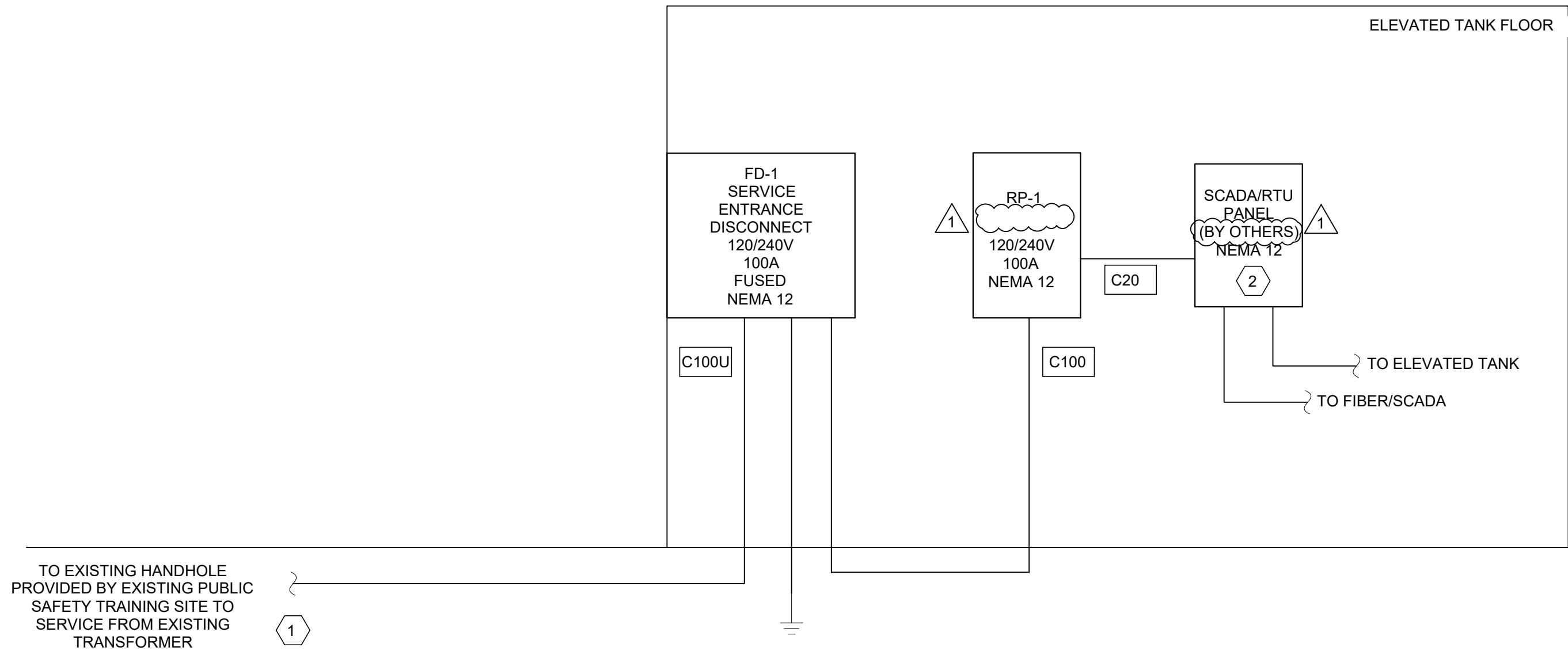
Compensation

BUDGET

Task	Budget
Lump Sum	\$49,500.00
Total	\$49,500.00

JACOBS will ensure ongoing communication regarding the progress of the project with AWWB, allowing for adjustments to the budget or work effort as needed. .

JACOBS will invoice AWWB on a monthly basis for the engineering work performed and as the equipment is procured.



GENERAL NOTES:

- LOAD INFORMATION FOR THE TANK POWER REQUIREMENTS ARE UNKNOWN.COORDINATE EXACT CONDUIT AND CABLE REQUIREMENTS WITH TANK MANUFACTURER.
- ALL UNDERGROUND CONDUIT SHALL BE PVC SCHED 40 AND TRANSITION TO RGS ABOVE GROUND. ALL EXPOSED CONDUIT SHALL BE RGS.
- CONTRACTOR TO COORDINATE WITH SCADA INTEGRATORS ON INSTALLATION REQUIREMENTS OF RTU/SCADA PANEL.
- COORDINATE EXACT STUB-UP LOCATION FOR TANK CONTROL PANEL AND TANK ELECTRICAL WITH TANK MANUFACTURER.

KEYED NOTES:

- ELECTRICAL SERVICE TO BE TIED INTO EXISTING HANDHOLE AND SPARE CONDUIT TO EXISTING PANEL ON PUBLIC SAFETY TRAINING BUILDING GROUNDS. PROVIDE 2" CONDUIT SPARE.
- SCADA/RTU AND INSTRUMENTATION PROVIDED VIA ALLOWANCE. SEE SPECIFICATIONS.

C100U (4#1 & 1#8 G) 2"C

C100 (4#1 & 1#8 G) 1 1/2"C

C20 (3#12 & 1#12 G) 3/4"C

1 ELECTRICAL RISER DIAGRAM

NTS

PANEL: RP-1					SERVICE: 120/240V LOCATION: INTERIOR TANK							
CKT NO.	DIRECTORY	POLE	CKT. BKR.	LOAD (KVA)	A	B	LOAD (KVA)	POLE	CKT. BKR.	DIRECTORY	CKT. NO.	
1	LIGHTING - INTERIOR	1	20	1.0	1.6	-	1.1	1	20	REC-LOWER	2	
3	LIGHTING - EXTERIOR	1	20	1.0		1.4	.4	1	20	REC-UPPER	4	
5	SPARE	1	20	-	1.6	-	1.6	1	20	SCADA/RTU PANEL	6	
7	SPARE	1	20	-	-	.6	.6	1	20	INSTRUMENTATION	8	
9	SPARE	1	20	-	-	-	-	1	-	SPACE	10	
11	SPARE	1	20	-	-	-	-	1	-	SPACE	12	
13	SPACE	1	-	-	-	-	-	1	-	SPACE	14	
15	SPACE	1	-	-	-	-	-	1	-	SPACE	16	
17	SPACE	1	-	-	-	-	-	1	-	SPACE	18	
19	SPACE	1	-	-	-	-	-	1	-	SPACE	20	
BUS DATA AMPERE RATING - CONT: 100A ■ MAIN LUGS ONLY ■ COPPER ■ GROUND BUS ■ NEUTRAL BUS ■ BOTTOM FEED					A		B					
					3.2		2.0			5.2	TOTAL KVA	
									21.7	TOTAL AMPS		
					NOTES: SCADA/RTU PANEL TO BE PROVIDED OTHERS; CONFIRM APPROPRIATE CIRCUIT SIZING							
1												

LIGHT FIXTURE SCHEDULE							
	CATALOG	MANUFACTURER	LUMENS	TEMP	VOLTS	MOUNTING	DESCRIPTION
A	TWX1 LED ALO 40K	ACUITY BRANDS	600-2950 lm	4000K	120V	SURFACE	WALL-PACK, WHITE FINISH, W/ PHOTOCCELL
B	OLVTWM	ACUITY BRANDS	600 lm	4000K	120V	SURFACE	VAPOR TIGHT

ELECTRICAL RISER DIAGRAM AND SCHEDULES

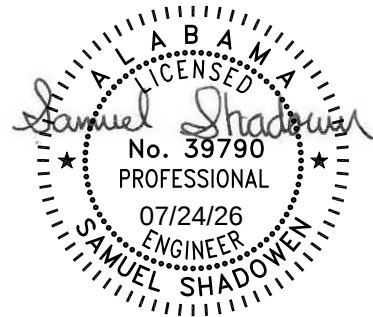
US 280 ELEVATED WATER STORAGE TANK

AUBURN WATER WORKS BOARD

REVISION INFORMATION		DATE	DESCRIPTION
REV.	CHK.	DATE	DESCRIPTION
0	SS	07/07/2026	ISSUED FOR BID
1	SS	07/24/2026	ISSUED FOR ADDENDUM NO.2

E601

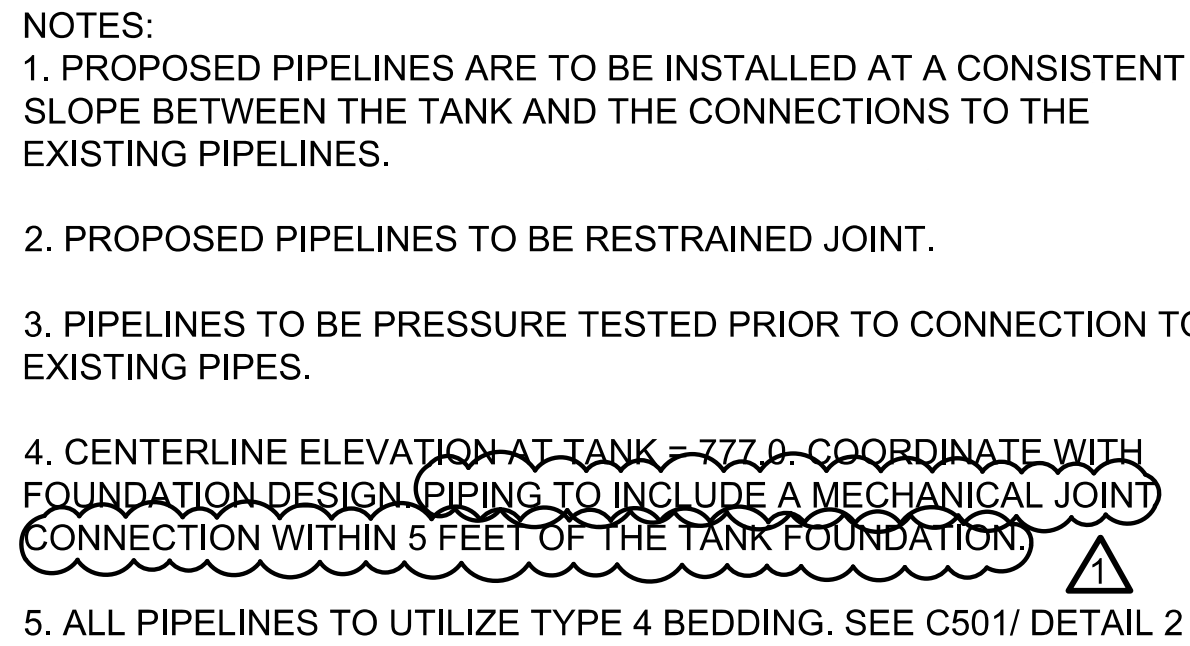
FILE NO. 35765-33



BARGE

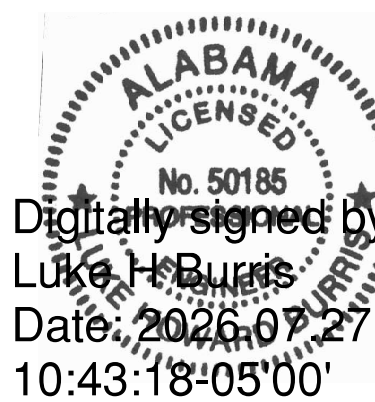
DESIGN SOLUTIONS

1201 Front Avenue / Suite F / Columbus, GA 31901
PHONE (706) 321-4590



BARGE
DESIGN SOLUTIONS

1201 Front Avenue / Suite E / Columbus, GA 31901
PHONE (706) 321-4590



CIVIL UTILITY PLAN

US 280 ELEVATED WATER STORAGE TANK

AUBURN WATER WORKS BOARD

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CU101

PROJ. NO. 3576533