ARRO Consulting, Inc.
321 North Furnace Street, Suite 200
Birdsboro, PA 17508

September 1, 2023

ADDENDUM NO. 1

CITY OF ABERDEEN
ZONE 3 ELEVATED WATER TANK
CONTRACT NO. 22-05

In accordance with the requirements of the "Instructions to Bidders," this Addendum shall be attached to and become a part of the Contract Documents for the above-referenced project.

Concerning the Project Manual

A. Section 00300 – **DELETE** and **REPLACE** in its entirety; attached to this Addendum.

B. Section 13211 – **ADD** Section 13211: Composite Elevated Potable Water Tank; attached to this Addendum.

C. Section 16505 – **DELETE** Paragraph 1.04.C in its entirety.

D. Section 16505 – **DELETE** Article 2.02 in its entirety.

E. Section 16505 **– DELETE** Paragraph 3.02.B in its entirety.

Concerning the Drawings

A. Drawing Set, Issued August 2022 – **DELETE** and **REPLACE**, Revised on August 31, 2023; Attached to this Addendum.

B. Drawing Set, Issued August 2022, Revised August 31, 2023 – **DELETE ALL** references to "Bird Deterrent" and associated work.

Miscellaneous (Clarifications, Pre-Bid Meeting Minutes etc.)

A. Prebid Meeting Minutes and Sign-in Sheet; attached to this Addendum.

B. Clarification Questions and Responses; attached to this Addendum.

BIDDERS MUST ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE SPECIFIED PLACE ON THE BID FORM. THE ABSENCE OF THIS ACKNOWLEDGMENT WILL BE CAUSE FOR REJECTION OF THE BID.

DOCUMENT 00300

BID FORM

BIDDER (Name and Address):

PROJECT IDENTIFICATION: **ZONE 3 ELEVATED WATER TANK - CONTRACT NO. 22-05**

CONTRACT IDENTIFICATION: General Construction

THIS BID IS SUBMITTED TO: **CITY OF ABERDEEN**
60 North Parke Street
P.O. Box 70
Aberdeen, MD 21001

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform and furnish all Work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time(s) and in accordance with the other terms and conditions of the Bidding Documents.

2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for a period of 60 days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. Thirty-day extensions of the date for the award may be made by the mutual written consent of the Owner and the apparent Successful Bidder. Bidder agrees, if required by Owner prior to and as a condition of Contract award, to execute and sign any documents related to financing of the Project. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Documents within the number of days stated in the Owner's Notice of Intent to Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

3.1 Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number

3.2 Bidder has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, and furnishing of the Work;

3.3 Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, performance, and furnishing of the Work.

3.4 Bidder has carefully studied any available reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Paragraph SC-4.02 of the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions. Bidder accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions. Bidder acknowledges that any such reports and drawings are not Bidding Documents or Contract Documents and may not be complete for Bidder's purposes. Bidder acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site. Bidder has obtained and carefully studied (or assumes responsibility for having done so) such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance, or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder and safety precautions and programs incident thereto. Bidder does not consider that any additional examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price, and other terms and conditions of the Bidding Documents and Contract Documents.

3.5 Bidder is aware of the general nature of Work to be performed by Owner and others at the site that relates to Work for which this Bid is submitted as indicated in the Bidding Documents and Contract Documents.

3.6 Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and Contract Documents and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents and Contract Documents.

3.7 Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents and Contract Documents and the written resolution thereof by Engineer is acceptable to Bidder, and the Bidding Documents and Contract Documents are generally sufficient to

indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

3.8 This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

4. Bidder shall complete the Work for the lump sum and/or unit price(s) shown on the attached PennBid document. Stipulated prices (including those for quantity adjustments) in the Bid Form shall be all-inclusive. They shall include furnishing all labor, superintendence, necessary equipment, utilities and facilities, furnishing and installing all Products described in the Drawings and Specifications, performing all work necessary for, or incidental to completing the Work, Contractor's overhead, profit and burden costs and performing all other obligations imposed by the Agreement. Refer to Section 01025 for description of pay items.

Item No.	Description	Bid Lump Sum Price in Figures ($)
Bid Option 1 – Steel Water Tank		
1.	Steel Water Tank: All Construction Work described in the Drawings and Specifications.	$_____
Bid Option 2 – Composite Elevated Water Tank		
2.	Composite Elevated Water Tank: All Construction Work described in the Drawings and Specifications.	$_____

Quantity Adjustments

If the quantities of items covered by the lump sum price of Item 1 above are increased or decreased by Change Order, the Contingency unit prices for Items 3, 4, and 5 above shall also apply to such increased or decreased quantities.

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price ($)	Extended Price In Figures ($)
3.	Miscellaneous Unclassified Excavation (Contingency Item).	CY	100	$_____	$_____
4.	Miscellaneous Aggregate Backfill (Contingency Item).	CY	100	$_____	$_____

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price ($)	Extended Price In Figures ($)
5.	Miscellaneous Concrete (Contingency Item).	CY	50	$_____	$_____

Total of Items 1 through 5 BID PRICE (Figures): _____

Total of Items 1 through 5 BID PRICE (Words): _____

_____

Quantities given above under "Quantity Adjustments" are not guaranteed. Final payment will be based on actual quantities. Any difference between estimated and final quantities, increases in market value of Products and services, or complexity of work will not be considered reason for increase of unit prices. Payment will be made under "Quantity Adjustments" only if the scope of Work is changed during construction by Change Order. **Extended prices for "Quantity Adjustments" will be included in the total Bid Price used to evaluate Bids, but will not be included in the initial Contract Price**. Payment will be made under "Quantity Adjustments" items by Change Order at Final Completion of the Work

5. Bidder agrees that the Work will be substantially complete on or before the dates or within the number of calendar days indicated in the Agreement.

   Bidder accepts the provisions of the Agreement as to liquidated and other damages in the event of failure to complete the Work on time.

6. The following documents are attached to and made a condition of this Bid:

   6.1 Required Bid Security in the form of_____.

   6.2 Experience Questionnaire; Document 00400.

   6.3 List of Proposed Subcontractors; Document 00450.

   6.4 Maryland Certificate of Registration may be submitted with the Bid, or prior to and as a condition of award of the Contract.

   6.5 Submit a preliminary sketch of the tank and its foundation.

7. Communications concerning this Bid will be addressed to (Bidder's Contact Person):

Phone: ( ) _____
Fax: ( ) _____
Company Email Address: _____

8. The terms used in this Bid are defined and have the meanings assigned to them in the General Conditions, as may be amended by the Supplementary Conditions, included as part of the Bidding Documents.

9. Bidder acknowledges that the Bid Price is based on Products and methods described and named in the Drawings and Specifications.

10. Bidder certifies that (s)he visited the site on_____, _____, 2023.

INTENDING TO BE LEGALLY BOUND, the undersigned submits the forgoing Bid this _____ day of _____, 2023.

(If Bidder is an Individual)

_____ Signature of Witness

_____ Signature of Individual

Trading and doing business as:

_____ Name of Business

_____ Address of Business

(If Bidder is a Limited Liability Company – All Members Must Sign)

Name of Company

Address of Company

Signature of Witness	Signature of Member
Signature of Witness	Signature of Member
Signature of Witness	Signature of Member

(If Bidder is a Partnership - All General Partners Must Sign)

Name of Partnership

Address of Partnership

Signature of Witness	Signature of Partner
Signature of Witness	Signature of Partner
Signature of Witness	Signature of Partner

(If Bidder is a Corporation)

Attest:

Name of Corporation

Signature of Secretary or
Assistant Secretary

Address of Principal Office

(Corporate Seal)

State of Incorporation

Signature of
President or Vice President

Type or print name below each signature.

State here the names and addresses of all partners, if a partnership, or of three principal officers, if a corporation.

END OF BID FORM

SECTION 13211

COMPOSITE ELEVATED POTABLE WATER TANK

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Furnish and erect an elevated composite water storage tank, including foundation, concrete support column, glass-coated, bolted-steel tank structure and tank appurtenances as shown on the contract drawings and described herein.

B. All required labor, materials and equipment shall be included.

1.02 QUALIFICATIONS OF TANK SUPPLIER

A. The Engineer's selection of factory applied glass-fused-to-steel bolt together tank construction for this facility has been predicated upon the design criteria, construction methods specified, and optimum coating for resistance to internal and external tank surface corrosion.

B. Strict adherence to the standards of design; fabrication; erection; product quality; and long-term performance, established in this Specification will be required by the Owner and Engineer.

1. Tank or Dome substitutions which cause engineering and contract changes - the tank installation as shown on the plans and specified herein, is based on the equipment furnished by one manufacturer. A tank which is offered as a substitute to the specific requirements of these Specifications and which differs in detail and arrangement from that shown may require changes in design and construction. All costs which result from such changes in design and construction are to be borne entirely and unconditionally by the Contractor; said costs to included but not be limited to structural, piping, mechanical and electrical changes and all engineering costs incurred as a result of the substitution, in the revision of Plans and Specifications, review of design changes by others, preparation of change orders, and any other costs directly resulting from said substitution.

C. Tank suppliers wishing to pre-qualify shall submit the following to the Engineer/Owner for consideration 14 days prior to bid date.

1. Typical structure and foundation drawing(s).
2. List of tank materials, appurtenances and tank coating specs.
3. The tank provider/builder shall have built at least five (5) tanks of similar type that are equal or greater in size than the specified tank, operating satisfactorily for a minimum of five (5) years and shall provide with bid the reference name, location, application and year of supply/operation of the tank. Tank manufacturer and tank provider shall each provide with bid the reference name, address and telephone number of the responsible representative, application and year of supply/operation of the above referenced liquid tanks installed in the United States. List should indicate the specific application.

4. Certification from tank manufacturer that the tank meets all of tank design standards listed in Section 2.0.

D. The Engineer reserves the right to evaluate all bids based on long-term, 30-year minimum operation, coating and maintenance costs. Values to be used in this evaluation will be at the discretion of the Engineer, as detailed in this specification and bid tabulation form. The Engineer will add such costs, dependent upon the type of tank offered, to the bidder's bid price to determine the effective low bid for purposes of making the award.

1.03 SUBMITTAL DRAWINGS AND SPECIFICATIONS

A. Construction shall be governed by the Owner's drawings and specifications showing general dimensions and construction details, after written approval by the Engineer of detailed erection drawings prepared by the tank bidder. There shall be no deviation from the drawings and specifications, except upon written order from the Engineer.

B. The bidder is required to furnish, for the approval of the Engineer and at no increase in contract price, three (3) sets of complete specifications and construction drawings for all work not shown in complete detail on the bidding drawings. A complete set of structural calculations shall be provided for the tank structure and foundation. All such submissions shall be stamped by a Registered Professional Engineer licensed in the state of project location.

C. When approved, two sets of such prints and submittal information will be returned to the bidder marked "APPROVED FOR CONSTRUCTION" and these drawings will then govern for the work detailed thereon. The approval by the Engineer of the tank supplier's drawings shall be an approval relating only to their general conformity with the bidding drawings and specifications and shall not guarantee detail dimensions and quantities, which remains the bidder's responsibility.

D. The tank manufacturer's and installing contractor's standard published warranty shall be included with submittal information.

PART 2 - PRODUCTS

2.01 DESIGN CRITERIA

A. Tank Size
1. The factory coated glass-fused-to-steel, bolt together tank shall have a nominal diameter of 112 feet, with a nominal sidewall height (to roof eave) of 40 feet.
2. The concrete support column shall be nominally 28 feet inside diameter nominal floor height 165 feet above finished grade elevation 305.00.

B. Tank Capacity
1. Tank capacity shall be 400,000 gallons (nominal, U.S. gallons); at 39 liquid depth.

2.02 TANK DESIGN STANDARDS

A. The materials, design, fabrication and erection of the bolt together tank shall conform to the AWWA Standard for "Factory Coated Bolted Steel Tanks For Water Storage" - ANSI/AWWA D103.

B. The tank coating system shall conform solely to Section 12.4 of ANSI/AWWA D103.

C. The vitreous coating on the tank, bolt head encapsulation material, and joint sealant shall have been approved for listing under ANSI/NSF Standard 61 for Indirect Additives.

D. The tank manufacturer shall be ISO-9001 certified to assure product quality.

2.03 DESIGN LOADS

1. Specific Gravity: 1
2. Wind velocity: 115 mph per AWWA D103/ACE 7-16
3. Risk Category: II
4. Allowable Soil Bearing: (refer to geotechnical report)
5. Ground Snow Load: 25 psf

B. Earthquake Seismic: IBC 2018/2021/D103-19

1. Site Class D
2. Importance factor 1.0
3. Ss 0.163
4. S1 0.045

2.04 MATERIALS

A. Plates and Sheets Note: All steel shall be smelted and produced in the U.S.A.

1. Plates and sheets used in the construction of the tank shell, tank floor (optional) or tank roof (optional), shall comply with the minimum standards of AWWA D103, Section 4.4.
2. Design requirements for mild strength steel shall be ASTM A1011 Grade 30 with a maximum allowable tensile stress of 14,566 psi per AWWA D103.
3. Design requirements for high strength steel shall be ASTM A1011 Grade 50 with a maximum allowable tensile stress of 26,000 psi per AWWA D103.
4. The annealing effect created from the glass coated firing process shall be considered in determining ultimate steel strength detailed in AWWA D103, Sections 5.3.
5. Multiple vertical bolt line sheets and plates of ASTM A1011 Grade 50 only shall be manufactured such that holes are staggered in the vertical bolt lines and that no two adjoining holes are in-line horizontally, except at the center of the sheet or plate.
   a. Bolt seam design shall generally be in accordance with the requirements of AWWA D103 section 5.5.2; bolt spacing may be adjusted in the vertical bolt lines to increase the net section and improve joint efficiency to a maximum of 85%.
   b. Double steel sheeting shall not be permitted to achieve structural requirements.

B. Rolled Structural Shapes
   1. Material shall conform to minimum standards of ASTM A36 or ASTM A992.

C. Horizontal Wind Stiffeners
   1. Design requirements for intermediate horizontal wind stiffeners shall be of the "web truss" design with extended tail to create multiple layers of stiffener, permitting wind load to transfer around tank.
   2. Web truss stiffeners shall be of steel with hot dipped galvanized coating.
   3. Rolled steel angle stiffeners are not permitted for intermediate stiffeners.

D. Bolt Fasteners
   1. Bolts used in tank lap joints shall be 1/2" - 13 UNC- 2A rolled thread, and shall meet the minimum requirements of AWWA D103, Section 4.2.

E. Bolt Material
   1. SAE J429 (1” and 1-1/4” bolt length) heat treated to:
      a. Tensile Strength - 120,000 psi Min.
      b. Proof Load - 85,000 psi Min.
      c. Allowable shear stress – 29,454 psi.
   2. SAE J429 (>1-1/4” bolt length) heat treated to:
      a. Tensile Strength - 150,000 psi Min.
      b. Proof Load - 120,000 psi Min.
      c. Allowable shear stress - 36,818 psi.

F. Bolt Finish - Zinc, mechanically deposited.
   1. 2.0 mils minimum - under bolt head, on shank and threads

G. Bolt Head Encapsulation
   1. High-impact polypropylene co-polymer encapsulation of entire bolt head up to the splines on the shank.
   2. Natural resin with UV (ultraviolet) light inhibitor. Color to be black.
   3. All tank shell bolts shall be installed such that the head portion is located inside the tank, and the washer and nut are on the exterior.
   4. All lap joint bolts shall be properly selected such that threaded portions will not be exposed in the "shear plane" between tank sheets. Dolt lengths shall be sized as to achieve a neat and uniform appearance. Excessive threads extending beyond the nut after torquing will not be permitted.
   5. All lap joint bolts shall include a minimum of four (4) splines on the underside of the bolt head at the shank in order to resist rotation during torquing.
   6. All exterior nuts, washers, and bolt threads will be covered with a sealer-filled protective plastic cover. Color to match tank shell.

H. Sealants
   1. The lap joint sealant shall be a one component, moisture cured, polyurethane compound. The sealant shall be suitable for contact with potable water and meet applicable FDA Title 21 regulations, as well as, ANSI/NSF Additives Standard 61.

2. The sealant shall be used to seal lap joints, bolt connections and sheet edges. The sealant shall cure to a rubber like consistency, have excellent adhesion to the glass coating, have low shrinkage, and be suitable for interior and exterior exposure.
3. Sealant curing rate at 73□ F and 50% RH
   a. Tack-free time: 6 to 8 hours.
   b. Final cure time: 10 to 12 days.
4. The sealant shall be ESPC Sealer No. 98.
5. Neoprene gaskets and tape type sealer shall not be used.

2.05 GLASS COATING SPECIFICATION

A. Surface Preparation
1. Following the decoiling and shearing process, sheets shall be steel grit-blasted on both sides to the equivalent of SSPC-10. Sand blasting and chemical pickling of steel sheets is not acceptable.
2. The surface anchor pattern shall be not less than 1.0 mil.
3. These sheets shall be evenly oiled on both sides to protect them from corrosion during fabrication.

B. Cleaning
1. Prior to initial preparation all four (4) exposed rectangular continuous sheet edges, including starter sheets, for each specific sheet radii shall be mechanically rounded in profile and adhere to The Porcelain Enameling Institute's Technical Manual PEI-101. All four (4) exposed sheet edges will then be coated with the same vitreous enamel as the glass coating of the sheets. Sheet edge encapsulation will have a minimum 5 mils thickness enamel coating. Rounded sheet edge encapsulation will have zero exposed uncoated steel. The process shall be equal to Edgecoat II by CST Storage.
2. After edgecoating and prior to application of the coating system, all sheets shall be thoroughly cleaned by a caustic wash and hot rinse process followed immediately by hot air drying.
3. Inspection of the sheets shall be made for traces of foreign matter or rust. Any such sheets shall be re-cleaned or grit-blasted to an acceptable level of quality.

C. Coating
1. All sheets shall receive one coat of a catalytic nickel-oxide glass precoat to both sides and then air dried.
2. Another coat of milled cobalt blue glass shall be applied to both sides of the sheets and then dried.
3. A third coat of milled titanium dioxide white glass shall be applied to all wetted surfaces which must be an 18 to 22 percent titanium dioxide reinforced mixture. The specified coating shall be by manufacturer. An acceptable alternate three-coat two-fire system must be submitted for approval prior to the bid.
4. The sheets shall then be fired at a minimum temperature of 1500˚ F in strict accordance with the manufacturer's ISO 9001 quality process control procedures, including firing time, furnace humidity, temperature control, etc.

5. The dry film interior coating thickness shall be 10.0 to 18.0 mils minimum. The finished inside color shall be white.
6. The dry film exterior coating thickness shall be 7.0 to 15.0 mils minimum. The finished exterior color shall be selected by Owner.
7. The same glass coating as applied to the sheet surfaces shall be applied to the exposed edges.

D. Factory Inspection
1. The manufacturer's quality system shall be ISO 9001 certified.
2. Chemical Resistance of Glass Coating
   a. Every batch of component frits shall be individually tested in accordance with PEI Test T-21 (Citric Acid at Room Temperature).

E. Factory Holiday Test
1. A dry volt test using a minimum of 1100 volts is required.
2. Frequency of the test shall be every sheet. Any sheet registering a discontinuity shall be rejected
3. All inside sheet surfaces shall be holiday free.

F. Measurement of Glass Thickness
1. Glass thickness shall be measured using an electronic dry film thickness gage (magnetic induction type) approved by manufacturer. The thickness gage shall have a valid calibration record.
2. Frequency of the test shall be every tenth sheet. The thickness of the glass shall be between 10.0 and 18.0 mils.

G. Measurement of Color
1. The exterior color of the sheets shall be measured using a colorimeter approved by manufacturer. The colorimeter shall have a valid calibration record.
2. Frequency of the test shall be every tenth sheet. The color must fall within the tolerance specified by manufacturer; else the panel shall be rejected.

H. Impact Adherence Test
1. The adherence of the glass coating to the steel shall be tested in accordance with ASTM B916-01. Any sheet that has poor adherence shall be rejected.
2. Frequency of this test shall be one sheet per gage lot run minimum.

I. Fishscale Test
1. The glass coating shall be tested for fishscale by placing the full size production sheets in an oven at 400º F for one hour. The sheets will then be examined for signs of fishscale. Any sheet exhibiting fishscale shall be rejected and all sheets from that gage lot will be similarly tested.
2. Frequency of this test shall be one sheet per gage lot run minimum.

2.06 PACKAGING

A. All approved sheets shall be protected from damage prior to packing for shipment.

B. Heavy paper or plastic foam sheets shall be placed between each panel to eliminate sheet-to-sheet abrasion during shipment.

C. Individual stacks of panels will be wrapped in as recommended by manufacturer.

D. Shipment from the factory to the job site will be by truck, hauling the tank components exclusively. No common carrier, drop, or transfer shipments.

2.07 CONCRETE SUPPORT COLUMN

A. The support column for the water storage tank shall be of jump-form concrete construction in accordance with ACI standards 313-91 and ACI 371R-98.

B. Concrete
   1. Compressive Strength
      a. As specified in Section 03300.
   2. Air Entrainment
      a. As specified in Section 03300.
   3. Curing
      a. As specified in Section 03300.

C. Formwork
   1. As specified in Section 03300.

D. Concrete Finish
   1. As specified in Section 03300.

E. An opening shall be made at the base of the column for a 3’ x 7’ personnel door.

F. An opening shall be made near the top of the column for a 3’ x 7’ personnel door.

G. An opening shall be made at the base of the column for a 12’ x 12’ door.

H. A 6” thick reinforced concrete floor poured over a 3” compacted layer of crushed #57 or 2A stone shall be installed inside at the base of the column.

PART 3 - EXECUTION

A. Foundation and Support Column
   1. The tank column foundation is a part of this contract.
   2. The tank column foundation shall be designed by a Registered Professional Engineer retained by the tank contractor to safely sustain the structure and its live loads.

B. Concrete Floor/ Support Column Cap
   1. The tank floor/support column cap design is of reinforced concrete with an embedded glass coated steel starter sheet per AWWA D103 section 13.4.6 and the manufacturer's design, and is an integral element of the tank assembly; therefore the tank floor slab with

embedded starter sheet shall be constructed by the tank supplier using manufacturer trained personnel regularly engaged in this type of tank construction.

2. Leveling of the starter ring shall be required and the maximum differential elevation within the ring shall not exceed one-eighth (1/8) inch, nor exceed one-sixteenth (1/16) inch within any ten (10) feet of length.
3. A leveling plate assembly shall be used to secure the starter ring, prior to encasement in concrete. Installation of the starter ring on concrete blocks or bricks, using shims for adjustment, is not permitted.
4. Two water stop seals made of a butyl rubber elastomer special for this application shall be placed on the inside surface of the starter ring below the concrete floor line. These materials shall be installed as specified by the tank manufacturer.

3.02 SIDEWALL STRUCTURE

A. Field erection of the glass-coated, bolted-steel tank shall be in strict accordance with the procedures outlined in the manufacturer's erection manual, and performed by an authorized dealer of the tank manufacturer, regularly engaged in erection of these tanks.

B. Specialized erection jacks and building equipment developed and manufactured by the tank manufacturer shall be used to erect the tanks.

C. Particular care shall be taken in handling and bolting of the tank panels and members to avoid abrasion of the coating system. Prior to liquid test, all surface areas shall be visually inspected by the Engineer.

D. An electrical leak test shall be performed during erection using a nine (9) volt leak detection device. All electrical leak points found on the inside surface shall be repaired in accordance with manufacturer's published touch up procedure.

E. The placement of sealant on each panel may be inspected prior to placement of adjacent panels. However, the Engineer's inspection shall not relieve the bidder from his responsibility for liquid tightness.

3.03 ROOF OPTIONS

A. Roofs for tanks greater than 31 ft. diameter shall be constructed of non-corrugated triangular aluminum panels forming a spherical dome structure.

1. Primary horizontal forces into the tank shell shall be contained by an integral aluminum tension ring (unless otherwise specified). The frame shall consist of aluminum structural members with the joints arrayed on the surface of a sphere. The arrangement of members shall result in a pattern of triangular spaces. These spaces shall be closed with light gauge aluminum panels. The members shall be joined by means of bolting their flanges to aluminum gusset plates.
2. All metal components of the aluminum dome structure shall be aluminum or 300 series stainless steel. No galvanized, aluminized, painted, or plated steel shall be used anywhere in the dome above the mounting bracket base plates. Dissimilar materials in

the supporting structure shall be isolated from the aluminum dome by means of a compatible elastomeric gasket.

3. The entire structure shall be designed as a watertight system under all design load and temperature conditions. The design shall include sealant to be completely encapsulated by applying it to the gusset covers' inner circumferences, beneath the gusset covers' top closure plates.
4. The aluminum closure panels shall be attached continuously along their edges to the structural members by means of batten bars, which engage the panels in an interlocking joint. Designs that incorporate raised battens, overlapping panels and/or designs that incorporate fasteners which penetrate panels and attach to structural members are expressly prohibited. The roof panels shall be fabricated from continuous 3003-H16 aluminum sheeting.
5. Connection forces shall be transferred through gusset plates connected to the top and bottom flanges of the beam struts. The connections shall be designed as moment connections; a minimum of four bolts shall be used to connect the gusset plate to each strut flange. The structural analysis shall be performed using non-linear, second order, stiffness analysis models in accordance with ADM 2010 Chapter C. Stability shall be provided for the structure as a whole and for each of its components. The available strengths of members and connections determined in accordance with Section C.3 shall equal or exceed the required strengths determined in accordance with Section C.2
6. Fasteners shall be designed with a factor of safety of 2.34 on ultimate strength and 1.65 on yield strength.
7. EXPERIENCE/QUALIFICATIONS:
    a. No equipment shall be supplied by any manufacturer not regularly engaged in the manufacturing and production of domes in the size and character herein specified. The manufacturer must have designed, manufactured and installed at least one (1) dome of the simlar size as the unit(s) specified herein.
    b. The cover manufacturer must be ISO 9001 certified.
8. Materials
    a. Bolts and Fasteners – Threaded fasteners shall be 300 series stainless steel per ASTM F593, Alloy Group 1. Lockbolts shall be 7075-T73 aluminum, 304 or 305 stainless steel. Screws shall be aluminum or 300 series stainless steel. Triangulated space truss: 6061-T6 aluminum struts and gussets.
    b. Plates and Sheets - Plate and sheet material shall be aluminum alloy 3003-H16, 3105- H154, 6061-T6, 5052-H32 or 5052-H36; mill finish AA - M10 as fabricated. Minimum thickness for gussets shall be 5/16". Sheet materials shall be 0.05" minimum thickness. Triangular closure panels: .050"t 3003-H16 aluminum sheet.
    c. Structural Shapes - Aluminum structural shapes shall be alloy 6061-T6. The aluminum structural members shall be a minimum of 6 inches deep. To improve torsional stability, the dome's structural members must incorporate a double web. The use of I-beams with only a single web is expressly prohibited.
    d. Tension Ring - Tension ring structural shapes shall be 6061-T6 aluminum. Design of the tension ring shall be based on the net cross section of the members and shall not include top flange protrusions used for panel attachment, bolt holes, or outstanding legs that are not connected through the joints.

e. Miscellaneous Shapes - Miscellaneous aluminum shapes shall be alloy 6061-T6 or 6063-T5.
f. Gaskets - All gaskets shall be ozone resistant Silicone only. The gaskets must have a 1/8” minimum thickness.
g. Sealant - All sealants shall be silicone and resistant to ozone and ultraviolet light and conform to Federal Specification TT-S-00230C.
h. Miscellaneous Penetration Seals- All other penetration seals shall be weatherproof rubber seals.
i. Support Bearings - Acceptable bearing surfaces for sliding bearing are Teflon to stainless steel only. In order to avoid damage to the Teflon and to reduce the coefficient of bearing friction, Teflon shall not bear on aluminum surfaces. Dome supports shall utilize only bolted connections. The use of aluminum structural welding at the dome supports is expressly prohibited.
j. Dormers, doors, vents and hatches: 6061-T6, 5086-H34 or 3003-H16 aluminum.

B. Roof Vent
1. A properly sized vent assembly in accordance with AWWA D103 shall be furnished and installed above the maximum water level of sufficient capacity so that at maximum possible rate of water fill or withdrawal, the resulting interior pressure or vacuum will not exceed 0.5" water column.
2. The overflow pipe shall not be considered to be a tank vent.
3. The vent shall be constructed of aluminum.
4. The vent shall be so designed in construction as to prevent the entrance of birds and/or animals by including an expanded aluminum screen (1/2 inch) opening. An insect screen of 23 to 25 mesh polyester monofilament shall be provided and designed to open should the screen become plugged by ice formation.

3.04 APPURTENANCES (PER AWWA D103, SECTION 7)

A. Pipe Connections
1. Where pipe connections are shown to pass through tank panels, they shall be field located, saw cut, (acetylene torch cutting or welding is not permitted), and utilize an interior and exterior flange assembly. Sealer shall be applied on any cut panel edges or bolt connections as recommended by manufacturer.
2. Overflow piping shall be 12 inch diameter schedule 80 PVC and/or aluminum. The piping shall be installed on the exterior of the tank (as close to the tank wall as possible), pass thru the walkway, pass into and down the inside of the column, and exit the column near the base emptying onto a stone rip-rap trench.
3. Inlet and outlet piping shall extend thru the tank floor, column floor and down the inside wall of the column with standoff brackets every 20 ft. The piping shall extend thru the floor of the column and be encased in concrete as it extends out under the tank foundation below the applicable frost level where connections will be made to valves or other yard piping

B. Inside/Outside Tank Ladder

1. An inside/outside tank ladder shall be furnished and installed as shown on the contract drawings.
2. Ladders shall be fabricated of aluminum and utilize grooved, skid-resistant rungs.
3. The ladders will be equipped w/ an OSHA approved safety rail/cable.

C. Perimeter Walkway
1. One 30" wide outside perimeter walkway shall be supplied and installed by the tank contractor as shown on the contract drawings.
2. Walkway materials
   a. Extruded shapes & bars – Alloy 6061-T6
   b. Bolts, nuts, washers – 304 Stainless Steel
   c. Concrete anchors – 304 Stainless Steel (for support arms from walkway to column wall)
   d. Grating – Aluminum serrated swage-locked grating
3. Handrail materials
   a. Posts and horizontals – 1-1/2" 6061-T6 Aluminum pipe (Posts – Sch 80; Handrail – Sch 40)
   b. Toe Plate – 4" where required
   c. All hardware – 304 stainless steel
   d. Post Base Flanges – 3/8 aluminum
   e. Post Spacing – Not to exceed 5'-6"
4. Walkway Fabrication
   a. Brackets: will bolt directly to concrete column wall using stainless steel anchors & fasteners
   b. Platform Sections
      1) Where indicated will be shop assembled in sections
5. Finish: aluminum walkway framing and treads to be mill finish
6. Standards:
   a. Complies with OSHA codes
   b. Designed to support a superimposed live load of 100 PSF
7. Handrail Fabrication
   a. Handrail shall be provided on both sides of platforms.
   b. All joints to be machine coped and continuously tig welded and buffed to a smooth finish
   c. Finish: Mill finish
   d. Standards:
      1) Complies with OSHA codes
      2) Designed for 200-pound loads or 50 pounds per square foot
8. Access Doors
   a. A 3' x 7' mandoor shall be installed at the base of the column for entry of utility personnel.
   b. A 3' x 7' mandoor shall be installed at the top of the column for entry to the exterior platform. The door shall include an 8" square (minimum) window and 6"H x 12"L louvered & screened vent.
   c. A 12' x 12' door shall be installed at the base of the column to permit entry for vehicles, equipment, and water utility supplies.

D. Tank Sidewall Access Manway
   1. One tank sidewall access manway shall be provided as shown on the contract drawings in accordance with AWWA D-103.
   2. Such manway shall meet the minimum AWWA D-103 in diameter and shall include a properly designed reinforcing frame and cover plate. A davit to hold the cover plate is required.

E. Identification Plate A manufacturer's nameplate shall list the tank serial number, tank diameter and height, and maximum design capacity. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5') feet from tank floor elevation in a position of unobstructed view.

F. Cathodic Protection
   1. The Manufacturer will provide a cathodic protection system consisting of sacrificial magnesium anodes which provide corrosion protection for the portions of the structure immersed in liquid. The anodes are equally spaced (to the nearest vertical bolt line) around the structure, attached to the floor, and bolted through existing shell sheet bolt holes. In special cases where anodes may be spaced differently, a layout plan will be provided as part of the submittal package. Lead wires and buss bars are used to ensure continuity between anodes and structure shell sheets.
   2. Electrical continuity between all tank sidewall panels shall be the responsibility of the tank manufacturer.
   3. The design life shall be calculated at 10 years. The cathodic protection system shall be designed for protection of uncoated steel surfaces in the product zone, including rebar within an uncoated concrete tank floor.

3.05 FIELD TESTING

A. Hydrostatic
   1. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling tank to its overflow elevation.
   2. Any leaks disclosed by this test shall be corrected by the erector in accordance with the manufacturer's recommendations.
   3. Water required for testing shall be furnished by the owner at the time of tank erection completion, and at no charge to the tank erector. Disposal of test water shall be the responsibility of the Contractor.
   4. Labor and equipment necessary for tank testing is to be included in the price of the tank.

3.06 DISINFECTION

A. Standards
   1. The tank structure shall be disinfected at the time of testing by chlorination in accordance with AWWA Specification C652 "Disinfection of Water Storage Facilities" as modified by the tank manufacturer.
   2. Disinfection shall not take place until tank sealant is fully cured (10 to 12 days at 73° F/50% relative humidity).

3. Acceptable forms of chlorine for disinfection shall be:
    a. Liquid chlorine as specified in AWWA C652.
    b. Sodium hypochlorite as specified in AWWA C652.
    c. Calcium hypochlorite (HTH) is not acceptable.

B. Section 4.2 is not acceptable.

END OF SECTION

City of Aberdeen
Zone 3 Elevated Water Tank Contract No. 22-05
Pre-bid Meeting Sign-in Sheet
Monday, August 28, 2023 at 10:00 AM

NAME	COMPANY	PHONE	EMAIL
Parley Hess, Project Manager	City of Aberdeen	410.297.4233	phess@aberdeenmd.gov
Shawn Brogan, Procurement Officer	City of Aberdeen	410.272.1600 x 223	sbrogan@aberdeenmd.gov
Jimmy Dennis, Project Manager	ARRO Consulting, Inc.	717.560.6014	jimmy.dennis@arroconsulting.com
Martin Workinger	Johnston Construction	7178578885	mw@jcc-ri.com
Jeff HANCHER	SHERWIN-WILLIAMS	(301) 310-2202	JEFFREY.W.HANCHER@SHERWIN.COM
Jesse Loughney	Mid Atlantic Storage	740-604-2254	jesse@midatlanticstorage.com
Don Knight	CBI	302 325 8401	DKNIGHTFAM@AOL.COM
Andy Lipinske	Lee Foundation	410-682-5335	WAL2LIPINSKE@Comcast.net

City of Aberdeen
Zone 3 Elevated Water Tank Contract No. 22-05
Monday, August 28, 2023 @ 10:00 AM

Pre-Bid Meeting Minutes

1. Project generally comprises of providing and installation of a 400,000-gallon elevated spheroid elevated water storage tank, installation of yard piping, connection to the existing distribution system, mixing system, telemetry system and restoration of the area disturbed by construction.

2. All bids must be received by the City at City Hall until 2:00 P.M., prevailing time, on Thursday, September 21, 2023 at which time they will be opened.

3. Envelopes containing the bid shall be sealed and addressed to Shawn Brogan. The envelope shall be clearly marked **"ZONE 3 ELEVATED WATER TANK – BID NO. 22-07".**

4. Questions on the bid document will be accepted until 4:00 PM prevailing time on Monday, September 11, 2023. All questions outside of this meeting must be submitted to the Office of the Engineer at: jimmy.dennis@arroconsulting.com .

5. Each bid must be accompanied by bid security in the form of a bid bond, certified check, letter of credit or bank check for 5% of the bid total.

6. Bidders shall have a minimum of (5) years, (5) projects documented experience in this type work and project must be in excess of $250,000 in order to be considered project experience.

7. Contract times; Substantial Completion – within 450 calendar days, Final Completion – within 480 calendar days. The amount of the Liquidated Damages is set at $2,000.00 a calendar day.

8. The start date of the Contract will be a mutually agreed upon date between the City, Engineer and the selected contractor.

9. The bid form is a lump sum price bid with three (3) contingency items.

10. This project is funded with City of Aberdeen funds therefore Maryland Minimum Wage Rates are NOT required.

11. Payment will not be made for equipment stored on site but not incorporated into the work.

12. A preconstruction, monthly progress, start-up and final walkthrough meetings are required throughout the construction period.

13. The selected contractor will need to submit shop drawings to the Office of the Engineer for their review and approval.

14. Working hours are 7:00 AM to 5:00 PM Monday through Friday. Any request to deviate from this will need to be made in writing to the City through the Office of the Engineer.

15. The selected contractor will need to coordinate work through the Office of the Engineer. Shutdowns of existing service will need to be scheduled a minimum of seven days prior to the scheduled shutdown.

16. The selected contractor will need to create "red-line as-constructed" drawings and submit them to them to the Office of the Engineer for review and approval prior to Final Completion.

17. Contract closeout documents, are required prior to final payment.

18. The selected contractor will need to provide to the Office of the Engineer a video or photographs of the construction area prior to the start of work.

19. The selected contractor will need to provide temporary lavatory facilities for the working crew.

20. The selected contractor will need to find a location to dispose of excavated material that cannot be utilized for the trench backfill in the lawn/field areas also trenches are to be backfilled with aggregate in paved or stoned areas.

21. The City has agreed to accept bids for a Composite Elevated Water Tank as an alternate product. ARRO is providing "Specification Section 13211 Composite Elevated Potable Water Tank" and revised Bid Form.

    All tank bid documents will require anticipated Substantial Completion Dates (based on Award of Contract no later than Monday, November 20, 2023, and Friday January 19, 2024). A documented life expectancy along with a 50-year and 100-year maintenance cost evaluation.

    These items along with the upfront cost will allow the City will evaluate based on their best interests.

Comments by the City:

Addendums will be posted on the City's website. If you received bidding documents through the City's website you will be notified when the addendum(s) is available.

Questions received through noon on 09/01/2023:

1. **Question:**
   Please confirm that the City's funding stream does not require the payment of Prevailing Wages, usage of an approved Apprenticeship Program, minimum MBE participation, and/or AIS Material Procurement provisions.

   Confirmed, this project is being funded by the City and the above items do not apply to this project.

2. **Question:**
   Which Permits must the Contractor still arrange for? Cost(s) that the Owner will charge (if fees are not waived)?

   We do not believe there will be any permitting required by the selected Contractor. However, if additional permitting is required, the City will pay the permit fee not the time or selected Contractor's cost associated with application process.

3. **Question:**
   Does the project plan on having any Third-Party Inspection performed? If so, please advise which firm and scope is planned.

   A final decision has not been made on Third-Party Inspections however, the City will typically have this service. Costs associated with this service will be the responsibility of the City.

4. **Question:**
   Please confirm that Final Payment (release of Retention etc.) will be made at the completion of physical work, vs at the end of the two-year Warranty period. (See associated RFI # 20 below also)

   Final payment will be released at the completion of physical work and the required Contract closeout documents.

5. **Question:**
   It appears that there is an operating AM Radio station within 1.4 miles of this tall tank. Have any plans been made to potentially "de-tune" the tank from future signal energization?

   No.

6. **Question:**
   Dwg TS2 appears to depict (2) Double Insulated Access Doors leaning into the tank bell, whereas TS6 only shows a traditional single opening.

   One set of Double Insulated Access Doors are required. Drawing TS2 has been revised and will become part of Addendum No.1.

7. **Question:**
   Please advise the material type of the Watermain that we will be tapping into.

   Due to the date of installation this pipe could be cast iron or ductile iron.

8. **Question:**
   While the Invitation to Bid page 2 references a Validity period of 60 days, Article 7 page 5 references 120 days. Furthermore Article 16 (page 8) infers the possibility of this 120-day price holding period also. Due to supply chain fulgurations, we would appreciate confirmation that the 60-day Award period will prevail.

   Refer to Note 21 from the Meeting Minutes.

9. **Question:**
   Regardless of what is stated herein we believe that Maryland State Sales Taxes must be included for in the bid pricing. If the City feels otherwise, please issue via Addendum a copy of their Exception Certificate for our review prior to bidding.

   If tax exemption is required, the City will provide the necessary exception certificate to the selected contractor after a Contract is executed.

10. **Question:**
    This Construction Facilities section infers the need for temporary electric, heat, lighting, etc., perhaps for a Resident Engineers office. Please advise if these services are really necessary / being used by Third Parties.

    These services are necessary.

11. **Question:**
    With such a tight site, one that is also directly adjacent to an active DOT parking lot, we would like to hear ARRO's expectations when it comes to Containment of blasting and paint overspray. Stating that it is "up to the contractor" to keep these onsite (Item 1.07.F) would appear to put the City at risk of complaints, claims, etc. Especially since Item 3.01.B states that one method of "containment", i.e., Wet Blasting, is **not** permitted

    ARRO's expectations is for the selected contractor to perform the work as described in the Contract documents. Means and methods is the selected contractor responsibility.

12. **Question:**
    The second line of Item 3.01.C (Interior Prep) mentions that "existing paint" shall be removed. Please delete that wording as per Item 3.06 (Coatings) it appears we are allowed to Shop Prime all portions of the tank as usual.

    Shop prime does not need to be removed unless it is found to be defective.

13. **Question:**
    Please confirm that the coatings referenced under Item 3.06.C (Insulated Pipe - Interior) are only being applied to the outside/exterior of the riser pipes (and not the pipes inner surfaces).

    Confirmed.

14. **Question:**
    Tank Spec Item 1.06 (Warranty) references a One Year guarantee, whereas the Paint Spec provides a detailed series of inspections over a Two Year warranty period. Please advise which applies.

    Two-year.

15. **Question:**
    Item 2.02.F refers to the tank's personnel door as the "standard" 36" wide version, whereas Dwg TS2 depicts it as a "double wide" system. We will assume TS2 will control (a single opening with two door(s)) vs this Item and/or TS6 mentioned previously) unless told otherwise.

    Refer to Question No.6

16. **Question:**
    Item 2.02.L correctly identifies the inlet/outlet riser pipe as "welded" but later requests "all connections be flanged". Delete the latter.

    There is a need for both flanged and welded riser pipe therefore neither will be deleted.

17. **Question:**
    Item 2.02.Q lists the Antenna provisions, including the roof Handrail detailed in 2.02.K. If a significant number of future antennas is anticipated (or those with large wind resistance loads) the City should consider mandating this railing be "heavy duty with lateral kickers".

    Considered, no change.

18. **Question:**
    Due to the timing of this Bid Advertisement the stated 450/480-day Schedule will be difficult to achieve. Assuming a 60-day Award process (~ Jan 1st) the tank can be constructed in 2024 but will likely encounter winter weather before it can be painted. Waiting until the following Spring, to perform coatings and testing, will therefore exceed the 450/480-day limit. Please either extend the Schedule duration, or state that the "LD clock" will be put on hold as long as the delay relates to winter weather paint restrictions, etc. Additionally, please consider reducing the LD rate from $ 2,000/day to a more typical $ 500/day rate.

    Part of the question is addressed in Meeting Minutes No.21. The Liquidated Damages will remain at $2,000.00 per calendar day.

19. **Question:**
    Item 2.3 of the Agreement should be stricken as it conflicts as to the reason that Liquidated Damages were originally conceived, i.e., to establish a known "risk value" rather than arguing later what sort of "damages" were incurred by the Owner when a delay is encountered.

    No response needed.

20. **Question:**
    Item 3.2.1 stipulates that a 5% Retention will be held from Invoices. Please consider reducing this rate to 2% (as Payment and Performance Bonds will already be protecting the City)

    5% retention will be held.

21. **Question:**
    A bird barrier electric shock track is specified in section 16505 – 2.02. We would like to bid this scope of work using an equal product. Can Bird-X Avishock be approved as an equal product and used on this project?

    The entire Bird Barrier system has been removed from the project. Disregard all mentions on the Bird Barrier.

22. **Question:**
    The existing MTA parking lot asphalt paving is showing a lot of cracks. Assuming we are allowed to use a portion of this lot for construction laydown and considering the amount of heavy construction traffic that will be on the lot, please confirm restoration requirements for the lot at the end of construction. i.e. will this area be required to be re-paved as part of this project. Based on its current condition, we anticipate it will be difficult to determine damage caused by construction and the amount of associated repair without overlaying the entire lot.

    No paving restoration will be required by the selected contractor.

23. **Question:**
    We discussed at the prebid meeting that domestic materials were not required, however section 21.02 of 00100 in the project specifications does appear to require domestic materials. Can you confirm that domestic materials are not required for this project?

    It was confirmed at the prebid meeting that domestic materials are not required.

24. **Question:**
    Similarly SC-6.09A also appears to require prevailing wage. Please confirm that is not required or provide applicable wage rates accordingly.

    Prevailing wages are not required.

25. **Question:**
So as to ensure all bidders are pricing the work on a consistant basis, please designate a target date for releasing a Notice of Intent (example, 3 weeks after bids are due). Futhermore we require confirmation whether our Bid Price has to be held Firm for 60 days, or if the Town's terms (regarding holding our offers open 120 days) mandates that if a formal Award / NTP is not released within 60 days that we still have to hold our pricing Firm until the end of that 120 day period too (hopefully not).

Refer to Item No.21 of the Meeting Minutes

26. **Question:**
Please provide a sketch showing the Work Area that all bidders should assume will be made available to us in the parking lot. I.e. the first three (3) rows, with the Bidder being only responsible for temporary fencing (and not damage to the existing asphalt surface, etc.)

A sketch of the assumed for bidding purpose "laydown" area is provided as part of Addendum No.1. Also refer to Question No.22.

27. **Question:**
Will bidders be required (or allowed) to submit a Bar Chart Schedule with their bids so as to document what the timing their pricing is based on?

It is allowed, refer to Note 21 of the Meeting Minutes.

28. **Question:**
Does the Town currently own the land where the tank is situtated, or is that also part of the "parking lot easement process" that is ongoing with the MD-DOT / County ?

No response required.

29. **Question**:
Is there a Maximum Diameter for the alternative style CET's support shaft? This would relate to the minimum set-back distances between the shaft wall and the property line(s). There is the possibility of the bolted CET's concrete shaft being 60' in diameter, nearly twice the size of the Waterspheroid style's bell dia, and thus the "new" CET style probably affects your original site layout / stormwater calculations, etc. on a tight site such as this.

No response required.

30. **Question:**
Will the bolted CET's roof require a Structural Platform on top so as to provide a working area for maintaining the THM system? And/or to support the "hanging" THM equipment loads?

No response required.

31. **Question:**
    The Waterspheroid style of tank provides an internal Access Tube for safe (and internal) climbing access to the equipment on the tank's roof during all weather conditions. How will this be handled on the alternative bolted CET?

    No response required.

32. **Question:**
    Similarly, will there need to be internal cable routing "pipe stands" inside of the bolted CET for running future cel phone antenna cables? Otherwise those cables will be exposed / hanging on the outside of the bolted tank. We assume that a Perimeter Roof Railing will be mandated too for supporting those future antennas.

    No response required.

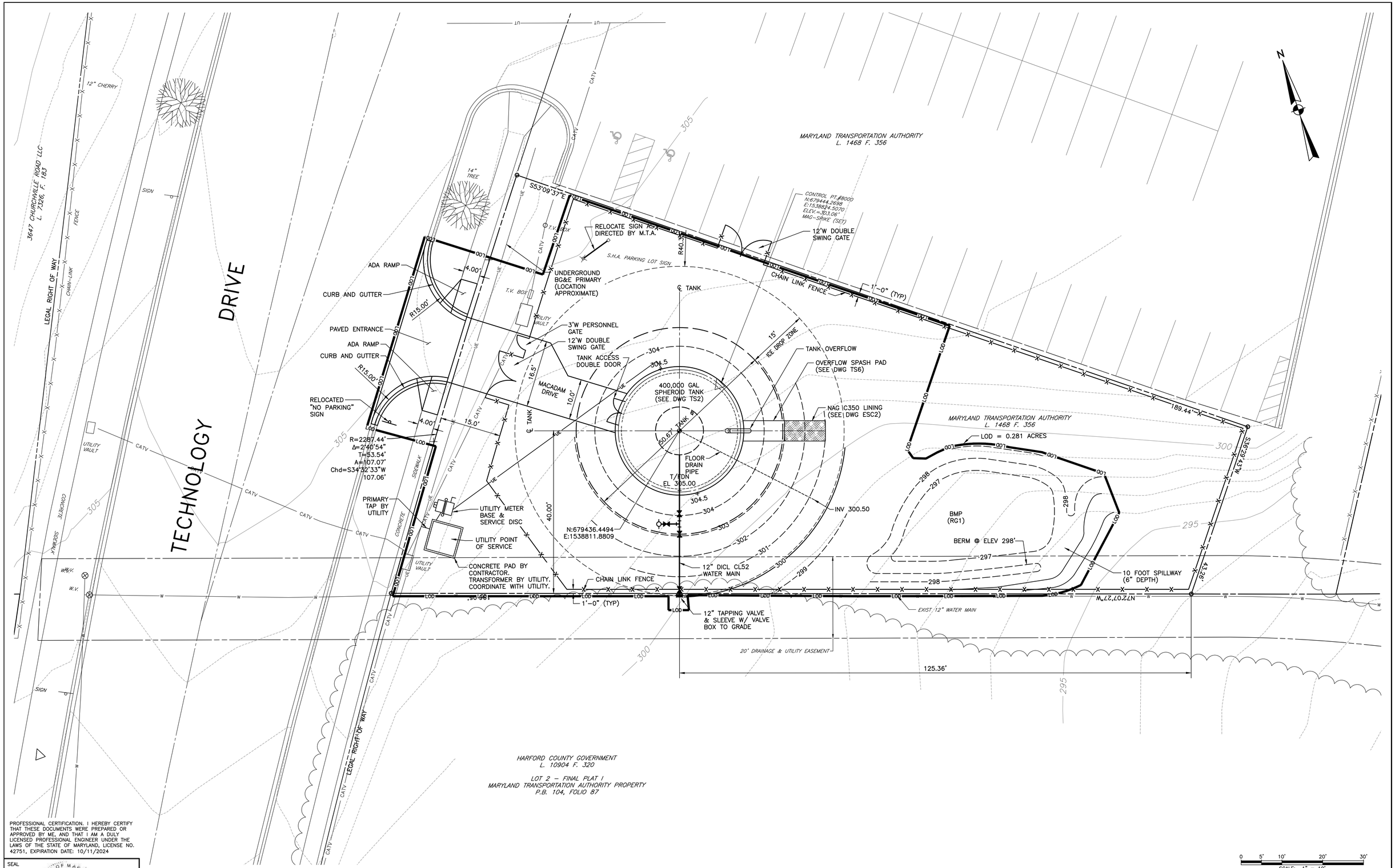
33. **Question:**
    Please confirm that the bolted CET design does not permit External Stiffener Rings on that style of tank (which are used to minimize the thickness' of the plates, at the expense of the Owner having to maintain these open structural frames (re bird nests, corrosion, etc.).

    No response required.

34. **Question:**
    On Sheet TS-3, Infiltration Rain Garden Notes, Note 1 says the plantings are per the planting schedule. I do not see a planting schedule. Table B.4 states that the plantings are per Appendix A, Table A.4. I do not see that table. please advise.

    "Plantings" should be "seeding" therefore refer to the Seeding Schedule. Also, there is no Table A.4 therefore, disregard and refer to the Seeding Schedule.
    The shredded hardwood mulch is intended for plantings, if mulch is required refer to the Seeding Schedule.


Assumed "laydown" area for bidding purpose
Technology Dr
22
22
Park and Ride
P
Certified Tech
Medical supply store
Google



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 42751, EXPIRATION DATE: 10/11/2024

SEAL

STATE OF MARYLAND — MATTHEW D. WARNER — 42751 — PROFESSIONAL ENGINEER — 7-31-23

NO	DESCRIPTION	DATE	BY	APP.
4	REVISED PER CLIENT COMMENTS	8/31/23	LML	JLD
3	100% SUBMISSION TO CLIENT	5/31/23	LML	JLD
2	95% SUBMISSION TO CLIENT	4/27/23	DHT	JLD
1	60% SUBMISSION TO CLIENT	1/3/22	BTP	JLD

REVISIONS

DESIGNED	CADD	SCALE
J. DENNIS	LML	AS SHOWN
CHECKED	APPROVED	APPROVED
MDW	MDW	

0 5' 10' 20' 30'
SCALE: 1" = 10'

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

CITY OF ABERDEEN DEPARTMENT OF PUBLIC WORKS
ABERDEEN, MARYLAND

ZONE 3
ELEVATED WATER TANK

TITLE
TANK SITE/PCSM PLAN

JOB NO.

ARRO PROJECT NO.
05233.24

DATE
AUGUST 2022

SHEET NO.
TS2
4 OF 16

S-4527

Dwg. Name: 0523324-S02 TANK AND TRANSMISSION MAIN.DWG Plotted: 8/31/2023 10:47 AM