



ADDENDUM No. 1

Date: AUGUST 25, 2023
Owner: SOUTHEASTERN WATER ASSOCIATION
Project: DIXIE BEND TANK REPLACEMENT

The following items are changes and/or clarifications of the plans and specifications and shall be included in the Bid. This Addendum shall supersede in the event of any conflicts. The Bidder shall acknowledge receipt of all Addenda in the appropriate space on the Bid Form. Failure to do so may result in disqualification of the Bid.

1. See attached revised Section 13200.
2. Contract time shall be increased to 365 calendar days.
3. Demolition of the existing tank shall occur three weeks prior to tank erection.
4. This project does not have prevailing wage rates.

A handwritten signature in blue ink that reads "Brendan Welch".

Brendan Welch, P.E.
Kenvirons
770 Wilkinson Blvd
Frankfort, KY 40601
(502) 695-4357

SECTION 13200

COLUMN SUPPORTED ELEVATED STORAGE TANK

1.0 SCOPE OF WORK, MATERIALS AND INSTALLATION

1.1 WORK INCLUDED

Under this item, the Contractor shall furnish all labor, tools, materials and equipment to erect a storage tank for water as specified on the Plans and Bid Documents complete with foundation and appurtenances.

Each Bidder is to submit with his proposal a preliminary design sketch showing sizes of supporting and bracing members, plate thickness and dimensions of the tank.

1.2 STANDARD WATER STORAGE TANK SPECIFICATIONS

The materials, design, fabrication and erection of the storage tank shall conform to current AWWA Standard for Welded Steel Tanks for Water Storage, "AWWA D100" of the American Water Works Association.

1.3 TANK

The tank shall be of the elevated type and of all-welded metal construction.

1.4 GENERAL INFORMATION

Information to be furnished by Purchaser for a storage tank, as outlined in Part IV of the Foreword, AWWA D100, is made a part of this specification, and is as follows:

- A. The tank shall be nominal 100,000-gallon capacity. Dimensions are shown on the plans.
- B. The tanks shall have a maximum head range of 22'-8".
- C. Earthquake Design. The tank shall be designed to withstand earthquake loading as specified in Section 3.1.5 of AWWA D100. The design percentages shall be based upon the tank's location in the appropriate earthquake zone.
- D. Location. The tanks shall be located as shown on the plans.
- E. The snow load design shall be a minimum of 25 lb./sq.ft.

F. The tanks shall be designed to withstand wind loads produced by a 100 mile per hour wind.

G. Foundation Bearing. Subsurface investigation has been done at the tank site and that report is contained in these Specifications. Boring layout and logs are contained in the Drawings.

H. Welds shall be inspected using radio-graphic methods as outlined in Section 11.4 of AWWA D100 specifications. The Contractor shall furnish a person experienced in radio-graphic inspection of welds to review and approve welds based upon the radio-graphs and who shall also submit a copy of the radio-graphs to the Engineer. The Contractor shall submit a Certification of Compliance statement to the Engineer as outlined in AWWA D100 specifications. Trepanned sections will not be allowed.

I. Pipe connections shall be as shown on the Drawings.

J. Each steel overflow pipe shall be equipped with a weir box. A 4 mesh stainless steel screen and flap valve shall be installed on the end of the overflow pipe.

K. The inlet/outlet pipe shall have a minimum of 3 feet of cover.

L. All steel surfaces shall be cleaned by blasting (see painting of tank).

M. The tank contractor shall provide the structural design of the tank and foundation and detailed drawings of the tank foundation and associated appurtenances. The design and drawings shall be stamped by a Professional Engineer registered in Kentucky.

N. All seams shall be continuous weld.

O. All primer coats and painting shall be done in the field after the required abrasive blasting. No factory shop primer will be accepted.

1.5 DRAWINGS

All tank construction shall be sufficient to meet the OSHA Standards. After the award of the contract, the Contractor shall furnish detailed plans of the structures. The shop drawings shall show the thickness of plate and other data in connection with the work, and shall be submitted to the Engineer for review, and said review must be completed before any work is commenced. Six (6) sets of the shop drawings and one (1) set of the design calculations shall be furnished. These Drawings and calculations shall be sealed by a Professional Engineer with registration in the State of Kentucky.

1.6 TANK FOUNDATION

The entire work area shall be stripped of all vegetation, roots, and boulders, and the area within which foundations are to be constructed shall be stripped of all top soil to a minimum of six inches deep and excavated until level within three inches. The entire leveled area shall be either in cut (that is original, undisturbed soil) or filled in layers not exceeding six inches in depth loose and compacted to 98% Modified Proctor. No filling to obtain grade shall be done without the Engineer's supervision.

The Contractor shall submit to the Engineer for approval the dimensions, layout, details, and recommended design of the foundation and footings for the proposed tank. A subsurface investigation has been done by American Engineers, Inc., Glasgow, KY and the indicated results of these investigations are included at the end of the Plans and Specifications. The Owner does not guarantee that materials other than those disclosed by the borings will not be encountered nor that the proportions of the various materials encountered will not vary from those indicated by the borings. The Contractor may, at his option and expense, undertake such additional subsurface explorations as he may deem necessary to insure a proper foundation design.

Concrete foundations from the top of the foundation to a depth of six inches below grade shall be formed with removable forms. From six inches below grade and downward, the foundations may be formed using the sides of the excavation.

The tops of all foundations shall be level and plane within one-quarter inch.

All areas that have been disturbed by construction or noted to be cleared on the Drawings shall be cleared of underbrush and graded in a uniform and neat manner leaving the lot in a shape as near possible to the contours as shown on the construction drawings. All graded areas shall be left smooth and shall be sown with grasses as specified in other portions of these Specifications.

Upon the completion of all construction of tank and tank foundations, the Contractor shall remove all debris and surplus construction material resulting from the work.

1.7 STEEL STORAGE TANK

The tank shall be furnished and erected in strict conformity with the current requirements of AWWA "Standard Specifications for Steel Tanks, Stand Pipes, Reservoirs and Elevated Tanks for Water Storage" latest revision. The tank shall be welded construction.

The storage tank shall be fabricated, transported and erected on the prepared foundation, as shown on the plans and as specified herein. Bottom plates, shell

plates and top plates shall be of the thickness required, but in no case shall be less than one fourth (1/4) inch in thickness.

A manufacturer's nameplate shall list the tank serial number, tank diameter and height, maximum design capacity, overflow elevation, intended storage use, and date of installation. The nameplate shall be affixed to the tank exterior sidewall at a location approximately five (5') from grade elevation in a position of unobstructed view.

1.7.1 Tower. The tanks shall be supported on a suitable tower of structural tubular columns thoroughly braced by tie rods and struts to provide for maximum wind loading.

1.8 ACCESSORIES

1.8.1 Balcony. The tank shall be equipped with a balcony not less than 24 inches wide with a handrail not less than 42 inches high. The floor of the balcony shall be designed for a minimum vertical load of 1000 pounds assumed to be applied to any point. The floor shall be perforated for drainage. The handrail shall be capable of withstanding a 300 pound load applied laterally at the top rail.

1.8.2 Ladders. The ladder shall begin 8 feet from the ground and terminate at the balcony. The configuration of the ladder and balcony handrail to be such as to allow easy access onto the balcony. A locking ladder guard shall be installed at the bottom of the ladder.

There shall be an outside ladder from the balcony to the roof hatch.

There shall be an inside ladder from the roof hatch to the inside bottom of the tank.

Each ladder shall be equipped with an OSHA approved safety climbing device. The Tank Contractor shall furnish to the Owner a full body safety harness with shock cord for use with the climbing device.

1.8.3 Roof Openings.

1.8.3.1 Roof Manhole: A roof manhole shall be 30 inches clear in dimension or diameter and shall have a rainproof cover in accordance with AWWA D100. The manhole shall be lockable.

1.8.3.2 Exhaust Manhole: An additional opening with a removable cover and stainless steel bolts having an opening dimension or diameter

of at least 20 inches shall be provided in accordance with AWWA D100.

- 1.8.3.3 Balcony Shell Manhole: An additional opening with a removable cover and stainless steel bolts having an opening dimension or diameter of at least 20 inches shall be provided in accordance with AWWA D100.
- 1.8.3.4 Roof Vent: A vent with non-corrodible screen shall be provided at the apex of the roof and shall be of adequate size to safely vent the tank during periods of maximum inflow or withdrawal without using the overflow pipe as a vent. The vent shall be designed for a flow rate of 5,500 gpm.
- 1.8.4 Overflow Pipe. An overflow pipe shall be provided which extends from the high water level to at least 2 feet away from the foundation. The diameter of the overflow pipe shall be as shown on the drawings with a 24 mesh non-corrodible screen and flap valve to prevent the ingress of foreign objects.
- 1.8.5 Inlet/Outlet Connection. The inlet connection to the bottom of the riser shall be steel pipe with appropriate transition to mechanical joint ductile iron elbow of same diameter with a concrete thrust block.
- 1.8.6 Ladder Guard Gate. The ladder attached to the tower shall be equipped with a ladder guard gate as manufactured by RB Industries of Greensboro, North Carolina, or equal.
- 1.8.7 Safety Grill. At the top of the center riser, a removable safety grill shall be installed. The grill shall be designed to hold a 150 psf load.
- 1.8.8 Hinged Riser Manhole. A hinged riser manhole shall be provided in the riser pipe and shall have a clear dimension of at least 24 inches diameter. All bolts shall be stainless steel.

1.9 TESTING & STERILIZATION

Before painting, the tank shall be filled with water furnished by the Contractor and tested according to the provisions contained in AWWA Standard D100 - latest revision. The Contractor shall furnish all materials, equipment and labor for conducting the tests.

After painting has been completed and allowed to dry in strict accordance with the paint manufacturer's recommendations, the tank shall be sterilized in accordance with the provisions specified herein.

1.10 WELDING

All welding shall be done by the electric shielded arc process, adaptable to welding in any direction on both sides of horizontal, vertical and inclined surfaces. The Contractor, before commencing work, shall submit proper witnessed certification that welding procedures for use in the structures and welding operators have been qualified in accordance with American Welding Society Standard Qualification Procedures. Surfaces to be welded shall be free from rust, grease, paint and other foreign material. No welding shall be done when the temperature of the base metal is lower than 32°F.

2.0 **CLEANING AND PAINTING**

2.1 WORK INCLUDED

Provide all labor, materials, equipment and services required to do all painting including preparation, priming and protection of finished surfaces.

All paint, materials, and methods of cleaning to be used shall conform to the latest edition of AWWA D-102 and as specified herein.

2.2 QUALITY ASSURANCE

A. All materials specified herein are manufactured by the Tnemec Co., Inc., North Kansas City, Missouri, or equal. These products are specified to establish standards of quality and are approved for use on this project.

B. Equivalent materials of other manufacturers may be substituted on approval of the Engineer. Requests for substitution shall include manufacturer's literature for each product, given the name, generic type, descriptive information, and evidence of satisfactory past performance. **SUBMITTALS SHALL INCLUDE THE PERFORMANCE DATA AS CERTIFIED BY A QUALIFIED TESTING LABORATORY.**

C. Bidders desiring to use coatings other than those specified shall submit their proposal in writing to the Engineer prior to surface preparation or application. Substitutions which decrease the film thickness, the number of coats applied, change the generic type of coating, or fail to meet the performance criteria of the specified materials will not be approved. Prime and finish coats of all surfaces shall be furnished by the same manufacturer.

2.3 EXPERIENCE

A. The Contractor shall submit a list of not less than five (5) utility or industrial installations which he has painted during the last five (5) years. This list shall

include the names of the Owners, the installations painted, responsible officials, architects or engineers of record for the project.

B. Applicators and/or manufacturers whose submissions indicate, in the judgment of the Engineer, that they have not had the experiences required to perform the work will not be acceptable.

C. Shortly after the award of the Contract, the Contractor shall submit experience records of the paint applicator and that of the paint manufacturer.

D. All painting shall be done by qualified, skilled, experienced craftsmen. In the acceptance or rejection of completed painting, no allowance will be made for lack of skills on the part of the craftsmen.

2.4 PAINT LABELS

Labels on paint containers shall include the following:

1. Manufacturer's name.
2. Generic type of paint.
3. Manufacturer's stock number.
4. Color.
5. Instructions for thinning where applicable.

2.5 FIELD QUALITY CONTROL

Paint film thickness shall be subject to measurement by the Engineer with elcometer, wet film gauge, low or high voltage meter, and/or applicable measuring instruments acceptable to the Engineer. If dry film thickness is found to be less than specified, or coverage is not uniform, the Contractor shall apply additional paint to correct thickness or appearance at no additional cost to the Owner.

2.6 COMPATIBILITY

Where thinning is necessary, only the products of the manufacturer furnishing the paint, and products for thinning purposes only, will be allowed.

2.7 THICKNESS AND SPREADING RATES

A. Minimum dry mil thickness per coat (MDMTPC) and/or spreading rates in square feet per gallon shall be governed by the manufacturer's current data sheets or literature containing recommendations or instructions regarding these values. These recommended dry mil thickness and/or spreading rate values will be considered requirements to be met same as if set out herein these Specifications and Contract Documents and must be included with material list

submittals before Engineer grants approval to use any paint materials. Do not exceed manufacturer's recommended coverage rates.

B. The number of coats to be applied are specified herein and shall govern. Where the total dry film thickness is specified, this thickness shall govern over the MDMTPC.

2.8 TECHNICAL SERVICES

The Contractor shall provide assurance that a qualified representative of the paint manufacturer makes periodic visits to the project site during painting to verify proper application procedures, quality and progress of work.

2.9 SUBMITTALS

A. Submittals shall be as specified in the General Conditions.

B. Before any materials are delivered to the job site, submit to the Engineer a complete list of all materials proposed to be furnished including quantities, types and descriptions of paint for each part of the project. Submit the following:

1. Coating manufacturer's certificate for each coating proposed for use attesting that the coatings meet the specifications in this Section and are proper for the proposed application.
2. Coating manufacturer's specifications and data sheets and application instructions for each coating proposed for use on the interior and exterior of the tank including the coating for the logo.
3. Color chart for Engineer's selection of colors.
4. Certificate of compliance to each product performance requirement.

2.10 PRODUCT DELIVERY, STORAGE AND HANDLING

A. The Contractor shall be responsible for the delivery, storage and handling of coating products.

B. Deliver all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label.

C. Provide labels on each container with the following information:

1. Name or title of material
2. Manufacturer's stock number
3. Manufacturer's name

4. Contents by volume, for major pigment and vehicle constituents.
5. Expiration date after which the material should not be used.
6. Thinning instructions
7. Application instructions
8. Batch numbers

D. Store coating products in sealed and labeled containers. Properly store coatings to prevent degradation of the coating products. Do not use coating products which have been damaged during storage, which have not been applied prior to the applicable expiration date, or which do not otherwise comply with the specifications. Promptly remove damaged coating products from the job site.

E. Restrict storage to coating materials and related equipment. Store materials in an area protected in accordance with NFPA Bulletin No. 101.

F. Storage of material shall comply with manufacturer's recommendations; however, storage shall be at a minimum temperature of 50^o degrees F.

G. Product delivery, storage and handling shall meet the requirements of safety, health and fire regulations. Remove used rags from the job site and take all necessary steps to prevent spontaneous combustion.

2.11 JOB CONDITIONS

A. The Contractor shall ascertain that job conditions are suitable for the application of coatings.

B. The Contractor shall not operate valves or controls in the existing waterworks. The Owner will operate all existing valves, hydrants, blow-offs and controls.

2.12 PROTECTION

A. Take all precautions necessary to prevent damage of adjoining properties due to coating work.

B. Protect all surfaces which could be damaged in function or appearance by paint, including surfaces not being painted concurrently and surfaces not to be painted.

C. Spray painting will not be permitted when it will cause damage to adjacent or otherwise located surfaces.

D. Contractor shall be solely liable for damages to adjacent and/or surrounding items.

2.13 ACCEPTABLE MANUFACTURERS

A. The paints listed are products of the Tnemec Co., Inc. (North Kansas City, MO) and are specified as a "standard of quality" only. Similar products and painting systems may be substituted subject to approval by the Engineer and subject to the provisions contained herein in Section 2.2 of this Specification.

2.14 PAINT SYSTEMS

A. General

1. All paints of a system shall be by one (1) manufacturer.
2. "Lift" tests may be requested by the Engineer on various surfaces to be painted to assure bonding compatibility.
3. Paints containing lead, or other "dangerous" materials, that surpass federal maximum levels shall not be allowed. Oil shall be pure boiled linseed oil.
4. All paints must be approved by AWWA for potable water service.

B. Exterior Coatings

The exterior coatings shall be as follows:

<u>COAT</u>	<u>SPECIFICATION</u>
Shop Prime	Tnemec 94-H20 Hydro-Zinc 2000 RED (DFT 2.5-3.5 mils)
Field Prime	Tnemec 91-H20 Hydro-Zinc 2000 RED (DFT 2.5-3.5 mils)
Intermediate	Tnemec N69 BEIGE (DFT 4.0-6.0 mils)
Finish	Tnemec 1094 WHITE (DFT 2.0-3.0 mils)

C. Interior Coatings

The interior coating shall be as follows:

<u>COAT</u>	<u>SPECIFICATION</u>
Holding Primer	Tnemec AK01 RED (DFT 2.5-3.5 mils)
Field Primer	Tnemec 21-1255 RED Epoxoline (DFT 5.0-7.0 mils)
Stripe Coat	Tnemec 21-1255 BEIGE Epoxoline (DFT 5.0-7.0 mils)
Finish	Tnemec 21-15 BLTank WHITE Epoxoline (DFT 5.0-7.0 mils)

Note: Holding primer to be blasted off in the field to SSPC-SP10.

D. Colors

1. Vary the color of alternate coats to provide a contrast.
2. Finish color of tank exterior shall be as selected the Owner.

2.15 ABRASIVE

Abrasive shall be a non-metallic type of a grit size to produce the surface profile specified by the paint manufacturer for the coating system being applied or a minimum of 1.5-2.0 mils. It shall be a low silica abrasive with a free silica content less than 0.010%. It shall be properly stored and shall be free from contaminants. The Contractor shall provide verification of the quantity of abrasive delivered to the site.

2.16 SEALER

Sealer shall be a polyurethane type equivalent to SIKA-FLEX.

3.0 EXECUTION

The painter shall apply each coating at the rate and in the manner specified by the manufacturer. If material has thickened or must be diluted for application by spray gun, the coating shall be built up to the same film thickness achieved with undiluted material. Deficiencies in film thickness shall be corrected by the application of an additional coat of paint. Where thinning is necessary, only the products of the manufacturer furnishing the paint, and for the particular purpose, shall be allowed. All thinning shall be done strictly in accordance with the manufacturer's instructions, as well as with the full knowledge and approval of the Engineer. No paint shall be applied when the surrounding air temperature, as measured in the shade, is below 40°F. No paint shall be applied when the temperature of the surface to be painted is below 35°F. Paint shall not be applied to wet or damp surfaces, and shall not be applied in rain, snow, fog or mist, or when the relative humidity exceeds 85%. No paint shall be applied when it is expected that the relative humidity will exceed 85% or that the air temperature will drop below 40°F within 18 hours after the application of the paint. Dew or moisture condensation should be anticipated, and if such conditions are prevalent, painting shall be delayed until mid-morning to be certain that the surfaces are dry. Further, the day's painting should be completed well in advance of the probable time of day when condensation will occur, in order to permit the film an appreciable drying time prior to the formation of moisture.

The Contractor shall submit to the Engineer, immediately upon completion of the job, certification from the manufacturer indicating that the quantity of each coating purchased was sufficient to properly coat all surfaces. Such certification shall

make reference to the square footage figures provided to the manufacturer and the Engineer by the Contractor.

3.1 EXTERIOR TANK SURFACES

All Exterior painting shall conform to the latest revision of AWWA D-102. The steel surface shall be abrasive blasted in the field in accordance with the Steel Structures Painting Council Specifications SSPC-SP6 commercial blast cleaning.

The profile of the steel prepared for painting shall not exceed 2 mils.

Within eight (8) hours after the surface preparation, apply one (1) coat of Tnemec 94-H20 Hydro-Zinc 2000 RED to a minimum dry film thickness of 2.5 to 3.5 mils. This coat shall be spray applied under constant agitation. This primer shall be as otherwise specified herein or an approved equal. Allow 12 hours for curing of the prime coat.

Prior to applying subsequent field coats make sure all surfaces are clean and dry.

Apply one intermediate coat of TNEMEC Series N69 BEIGE, or equal, to a dry film thickness of 4.0-6.0 mils.

Apply one finish coat of Tnemec Series 1094 WHITE, or equal, to a dry film thickness of 2.0-3.0 mils.

The total dry film thickness of the exterior coating system shall be between 8.0-13.0 mils.

3.2 INTERIOR TANK SURFACES

All interior painting shall conform to the latest revision of AWWA D-102. The steel surface shall be abrasive blasted in the field in accordance with the steel structures painting council specifications SSPC-SP10.

The profile of the steel prepared for painting shall not exceed 2 mils.

One (1) shop coat of holding primer of Tnemec AK01 RED to a minimum dry film thickness of 2.5 to 3.5 mils shall be applied. Once in field, holding primer shall be blasted off to SSPC-SP-10 prior to application of the field primer.

Within eight (8) hours after the surface preparation, apply one (1) field coat of Tnemec Series 21-1255 RED primer to a minimum dry film thickness of 5.0-7.0 mils. This primer shall be as otherwise specified herein or an approved equal. If more than one (1) coat is necessary to obtain the specified thickness, a second coat shall be tinted to contrast with the first coat to indicate coverage.

Apply stripe coat of Tnemec Series 21-1255 BEIGE Epoxoline, or equal, to a dry film thickness of 5.0-7.0 mils.

Prior to applying subsequent finish coat, make sure all surfaces are clean and dry.

Apply one finish coat of Tnemec 21-15 BLTank WHITE, or equal, to dry film thickness of 5.0-7.0 mils.

The total dry film thickness of the interior coating system shall be between 10-16 mils.

All weld seams shall receive an additional 5 mil roll coat.

After final coat has been applied on interior, provide continuous exhaust for 48 hours from the lowest portion of the tank, i.e., manway at bottom of riser, to provide a proper curing environment. The volume of air to be provided shall be equal to at least one exchange of air volume every two hours.

4.0 INSPECTION

The Owner reserves the right to engage an independent inspection or testing service to make mill, shop and field inspections as specified in Section 11 of American Water Works Association Standard Specifications for Steel Tanks, Standpipes, Reservoirs, and Elevated Tanks for Water Storage (D-100, latest revision).

On-site inspections will be made by the Engineer at various intervals during construction of the tank. The Contractor shall notify the Engineer a reasonable time in advance of any field sandblasting and painting so that surface preparation for painting may be inspected. After all painting has been completed, the total thickness of the paint film will be checked by the Engineer with an elcometer. If thicknesses of coatings are less than specified, additional coats of paint shall be applied as necessary to provide paint thicknesses within the limits of the specifications. The Contractor should also check paint thickness as the work progresses.

5.0 PAYMENT FOR WATER

All water used from the Association's supply shall be metered by meters supplied by the Contractor. The rates for water shall be the regular monthly rates charged by the Utility. Disposal of water shall be the responsibility of the Contractor.

6.0 DISINFECTION

All water piping and storage tanks shall be thoroughly disinfected before being placed in service, by the use of chlorine or chlorine compounds in such amounts as to produce an initial concentration of at least 50 ppm and a residual of at least 25 ppm at the end of 24 hours followed by thorough flushing. If for some reason, the initial disinfection does not achieve at least 50 ppm, the process shall be repeated until said 25 ppm is obtained after 24 hours. All disinfection shall be accomplished in accordance with AWWA C651 and C652 and in a manner satisfactory to the Engineer.

An alternative disinfection method for storage tanks involves the thorough spraying of a water solution containing 100 ppm of residual chlorine so as to cover the entire internal surface of the tank. This shall be accomplished three times over a period of 24 hours, followed by thorough flushing with potable water.

7.0 DISPOSING OF HEAVILY CHLORINATED WATER

The environment into which the chlorinated water is to be discharged shall be inspected if there is any possibility that the chlorinated discharge will cause damage to the environment, then a neutralizing chemical shall be applied to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. (See Appendix B of ANSI/AWWA C651 for neutralizing chemicals.) Federal, state, provincial, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

8.0 PAYMENT

Payment for this item shall be as shown in the Bid Proposal.

END OF SECTION 13200