



**Dietrich Elevated Storage Tank  
Solicitation Number: CO-00274  
Job No.: 16-6003**

**ADDENDUM 2  
August 4, 2021**

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the Addendum number and issue date on the space provided in submitted copies of the bid proposal.

<b>RESPONSES TO QUESTIONS</b>
-------------------------------

- 1. In order to observe best practices, such as social distancing and remote work related to the COVID-19 pandemic, we would like to propose the use of DocuSign to submit documents using a digital signature platform in place of physical paper and wet-ink pen signatures. With this system, all employees are required to log onto DocuSign using an individual username / email address, personal password, and a multi-factor authentication code to ensure user is authenticated. A Certificate of Completion document is generated by DocuSign and provides an audit trail for signatures. This service streamlines the process of gathering signatures allowing signatories to quickly review documents and electronically sign or initial where required. Is this acceptable?**

*Currently SAWS utilizes FTP File share to accept bid proposals and Adobe E Sign to execute contracts once the lowest bidder is selected. The current systems will remain for this project and accomplish the same authentication as mentioned above.*

- 2. In an effort to further streamline the process of executing bid documents and observing safe practices due to the COVID-19 pandemic, can the requirement for documents to be notarized by eliminated? If electronic signatures are allowed (i.e. via DocuSign), notarization of documents would not be necessary since digital signatures can be authenticated.**

*All Items that require a Notarization will remain a requirement for this project.*

- 3. Spec Section 09950, Item 1.04.G – Confirm who the third-party inspection company will be for this project.**

*Boswell & Reyes International is the third-party inspection company.*

- 4. Spec Section 09950, Item 2.02.A – There is not an interior wet Sherwin Williams coatings system specified. Please provide an approved Sherwin Williams interior wet coatings System that meets the specified 15 year extended warranty.**

*Refer to revised Section 09950 "Coatings for Water Storage Tanks" included in Addendum No. 2.*

- 5. Spec Section 09950, Item 2.02.C – There is not an exterior Tnemec System specified. Please provide an approved Tnemec exterior system.**

*Tnemec does not offer an approved exterior system that meets the project specifications or approved equal.*

6. **Spec Section 09950, Item 1.09.A.b – Our Carboline Rep has advised that the specified exterior system is only covered by their 1-year warranty. Please provide an updated exterior Carboline system that would meet the specified 10-year manufacturer warranty.**

*See changes to the Specifications revising Section 09950 “Coatings for Water Storage Tanks” which is included in this Addendum.*

7. **Per the Bid Packet Checklist, please confirm TWDB Form WRD 255 Bidder’s Certification Form is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*Yes, that is correct. Only the Bid Packet Checklist, Bid Proposal with the total bid price and unit line item prices, bid bond (or cashier’s check), Good Faith Effort Plan, Signed Proposal Certification page are due the day of the bid. All documents requested by the apparent lowest bidder will be required to be submitted within 24 hours of the Bid Opening as indicated on the Bid Packet Checklist in the Specifications.*

8. **Per the Bid Packet Checklist, please confirm TWDB Form 04599 Vendor Compliance with Reciprocity on Non-Resident Bidders Form is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

9. **Per the Bid Packet Checklist, please confirm TWDB Form SRF-404 Debarment/Suspension Certification Form is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

10. **Per the Bid Packet Checklist, please confirm TWDB Form 0216 is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

11. **Per the Bid Packet Checklist, please confirm TWDB Form 0217 is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

12. **Per the Bid Packet Checklist, please confirm TWDB Form 0373 is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

13. **Per the Bid Packet Checklist, please confirm Detailed Baseline Schedule is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

14. **Per the Bid Packet Checklist, please confirm Conflict of Interest Questionnaire – Form CIQ is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7.*

15. **Per the Bid Packet Checklist, please confirm Proof of Insurability (Letter from Insurer or Sample Certificate of Insurance) is due upon request by SAWS from the apparent low bidder within one (1) day of the bid opening.**

*See Response to Question #7. Bidders should be aware that if SAWS upon evaluating the apparent low bidder for responsibility recommends award, the Contractor will be expected to provide SAWS with project specific certificates*

*of insurance verifying coverage that meets all of the requirements in the specifications and must be 100% compliance no later than the day of Board Award.*

**16. Will work on Saturday be allowed at this location?**

*In addition to no work being permitted on Sundays or holidays, no work shall occur on Saturdays without specific, written permission of the Owner's representative forty-eight (48) hours in advance of intent to perform Work. Please see page 37 of the GC's, section 5.18 and page 47 of the GC's, section 8.3.*

**17. Will work on Sunday be allowed at this location?**

*No. Please see Page 47 of the GC's, section 8.3.*

**18. If weekend work is allowed will there be any additional costs to the Contractor?**

*If Sunday or SAWS Designated Holiday Work is permitted, the COI's average salary costs at time and one half will be charged to the Contractor. This amount shall be deducted from Contractor's monthly payment application by Owner. Please see page 47 of the GC's, section 8.3.*

**19. The bidding documents include both HEAVY/HIGHWAY and BUILDING wage rates. Which wage rates are we to use? Are we to use the higher of the 2 wage rates?**

*Both Wage Decisions are applicable and required as part of this project. Yes, that is correct.*

**20. Section 17550 – who is SAWS current Security Contractor?**

*The SAWS pre-approved security contractors is Alterman Datacomm. The contact information for the security contractor is:*

*Daniel Sepulveda  
Service Manager  
Alterman Datacomm  
Office (210) 496-6888  
Cell (210) 389-3316  
Fax (210) 496-7349  
dsepulveda@goalterman.com*

**21. Section 17550 – can SAWS provide a list of pre-approved Security Contractors?**

*See Response to Question #20.*

**22. GC page 22, Item 5.3.7. What is the cost of the COSA ROW permit? Or confirm this cost is covered under the \$50,000 permit allowance.**

*It is anticipated that the \$50,000 permit allowance will cover the permit cost.*

**23. GC page 22, Item 5.3.7. What are the costs of the COSA ROW inspection fees? Or confirm these costs are covered under the \$50,000 permit allowance.**

*It is anticipated that the \$50,000 permit allowance will cover the permit cost.*

**24. Section 13415 Item 1.07.A.1 – is a building permit required for the Elevated Tank? If required, please confirm the costs are covered under the \$50,000 permit allowance.**

*It is anticipated that the \$50,000 permit allowance will cover the permit cost.*

25. Drawing T-1 specifies the access tube extending below the tank floor down to the upper platform. This is another manufacturers standard and is used to support the upper platform. Our standard construction detail does not permit the access tube to be taken past the tank floor and we do not require the access tube to support our upper platform. Either tank manufacturers standard will provide continuous ladder access from the upper platform to the tank roof. Please confirm that individual manufacturers standard details will be acceptable.

*Extending the access tube below the tank floor to the upper platform is required.*

26. Drawing T-1 specifies a drip pan located under the access tube (typically attached to the underside the walkway) to collect any condensate dripping from the access tube. This detail has been improved and is no longer done; we suggest the following clarification, which is current industry standard. *The access tube shall incorporate a 2" x 2" channel to collect condensation that may form on the interior surface of the access tube. A flexible 3/2" PVC hose complete with backflow preventer shall drain the channel to the overflow pipe.*

*No changes. Bid as specified.*

27. Drawing G-2, SAWS General Water Note 5 – please confirm this note is not applicable.

*No AC pipe is known to be located on the site. The referenced SAWS General Water Note 5 on plan sheet G-2 is not applicable.*

28. Drawing T-1 shows an upper return at the intersection of the tank side wall and the tank roof. It is not described or dimensioned in Section 13415. Is an upper return required? If required, we suggest the industry standard dimension of 1'-6" H / 2'-6" V.

*An upper return is required as shown in design plans and shall be dimensioned per industry standards.*

29. Drawing T-1 Interior Elevation shows a 6" floor slab, Section 13415 describes an 8" floor slab. Please clarify.

*Detail 2/T-1 indicates 6" minimum floor slab, if a thicker slab is required based on the manufacturer's design, then provide a thicker slab.*

30. Can a Landscape/Tree Replacement allowance be established to replace trees damaged during the installation of the waterline that is parallel to Springfield Road.

*No allowance will be established. No trees shall be removed during construction.*

31. Drawing W-2 there are existing power poles at the location of the 15x35 bore pit. Will the utility company relocate, or temporality brace the existing poles to allow us to excavate?

*Per note 5. on sheet W-2, Contractor is responsible for protecting and supporting utilities impacted by the bore pits.*

#### CHANGES TO THE SPECIFICATIONS

1. Amend Section Technical Specifications Table of Contents
  - a. Add Section "15112 Dual-Plate Wafer Style Check Valves" to technical Table of Contents.
2. Amend Section 01010 Summary of Work as follows:
  - a. In Paragraph 1.03.C, delete and replace "20-inch" with "24-inch".
  - b. Replace sentence "Approximately 215 L.F. of 8-inch diameter sanitary sewer lateral pipe and connections;" in Paragraph 1.03.D with "4-inch diameter PVC drain line and approximately 27-feet by 70-feet chlorine analyzer discharge drain field"
3. Replace Section 09950 "Coatings for Water Storage Tanks" in its entirety.

4. Amend Section 13415 Composite Elevated Water Utility Storage Tank as follows:
  - a. Add the following sentence to the end of Paragraph 1.01.E.5.b.2:
    - “The Tank Manufacturer retained geotechnical engineer shall be other than Arias & Associates, Inc., who prepared the report used by the Engineer.
5. Add Section 15112 Dual-Plate Wafer Style Check Valves in its entirety.
6. Building Wage Decision document - Remove and replace in its entirety with the revised version (rev. 07/09/2021, General Decision Number: TX20210231) attached to this addendum. This version should be utilized by the awarded contractor for the project.
7. **INVITATION TO BIDDERS.** The last two paragraphs of the Invitation to Bidders are deleted in their entirety and replaced with the following:

**Due to the COVID-19 emergency and to protect the health of the public, SAWS is implementing new procedures for the submission of bids. Bids will be received either Electronically or through Sealed bids, until 2:00 PM (CDT), August 18, 2021. Electronic bids will be received via the secure SAWS FTP site. Sealed bids will be received by Contract Administration, 2800 U.S. Hwy 281 North, Tower II, Customer Center Building, via a drop box located on the left wall when walking through the first set of double glass doors of the main Tower II entry on the north side of the building, San Antonio, Texas 78212. See the Electronic Bid Opening Instructions attachment for additional information regarding an electronic bid submittal. Electronic bids shall be accompanied by a bid bond in an amount not less than five percent of the total bid price. (Or, if providing SAWS with a cashier's check or certified check in an amount not less than five percent of the total bid price, SAWS will request this within 24 hours from the apparent low bidder. Sealed bids must be accompanied by a cashier's check, certified check, or bid bond in an amount not less than five percent of the total bid price. Bids will then be publicly opened and read aloud by Contract Administration via WebEx.**

If Bidders intend to submit bids electronically, Bidders will need to submit a request by **August 17, 2021 by 2:00 PM (CDT)** to receive access to the File Transfer Protocol (FTP) site via email to **Lindsay.Esquivel@saws.org**. Bidder's email requesting access to the FTP site shall provide the legal name of Bidder's company and the intended recipient's email address and phone number. No requests for FTP site access will be accepted after **August 17, 2021 by 2:00 PM (CDT)**.

8. **Electronic Bid Opening Instructions.** The header and first two paragraphs are hereby modified to read as follows:

**Dietrich Elevated Storage Tank  
Solicitation Number: CO-00274-LE.**

**ELECTRONIC BID OPENING INSTRUCTIONS  
August 18, 2021 2:00 PM (CDT)**

**FTP BID PROPOSAL UPLOAD**

In order to receive electronic bids for this project, SAWS will utilize a SAWS secured File Transfer Protocol (FTP) site. Only Bidders bidding as Prime Contractors will need to submit their request prior to **August 17, 2021 2:00 PM (CDT)** to receive access to the FTP site via email to **Lindsay.Esquivel@saws.org**. Bidder's email shall provide the legal name of the Bidder's company and the intended recipient's email address and phone number. No requests for FTP site access will be accepted after **August 17, 2021 2:00 PM (CDT)**. Once a Bidder is approved for access, an email with a hyperlink to the FTP site and a unique password for the Bidder will be provided to the Bidder's email recipient.

Once access is received, Bidders may upload the required documents per the Bid Proposal checklist any time before **August 18, 2021 2:00 PM (CDT)**. Please ensure to allow sufficient time should Bidder's experience technical difficulties in uploading the required documents. No changes to the Bid nor bid price can be made once the Bid has been submitted.

**CHANGES TO THE PLANS**

1. Remove and replace plan sheet G-1 "Sheet Index" in its entirety.
2. Remove and replace plan sheet C-1 "Site Plan and Survey Control" in its entirety.
3. Remove and replace plan sheet C-1A "Horizontal Alignment Data Sheet" in its entirety.
4. Remove and replace plan sheet C-2 "Grading and Paving Plan Sheet 1 of 5" in its entirety.
5. Remove and replace plan sheet C-5 "Grading and Paving Plan Sheet 4 of 5" in its entirety.
6. Replace plan sheet C-8 "Roadway Expansion/Contraction Joint Plan" in its entirety.
7. Remove and replace plan sheet C-23 "Storm Water Pollution Prevention Plan (SW3P) Layout" in its entirety.
8. Add plan sheet C-45 "Fire Site Plan" in its entirety.
9. Remove and replace plan sheet W-2 "Water Line Plan and Profile Sta. 4+00 to End" in its entirety.
10. Remove and replace plan sheet T-1 "Elevated Storage Tank Section and Exterior Elevation" in its entirety.
11. Remove and replace plan sheet T-3 "Elevated Storage Tank Floor Plans and Details" in its entirety.
12. Remove and replace plan sheet E-4 "Electrical Tank Plan" in its entirety.
13. Remove and replace plan sheet I-7 "Security System Details" in its entirety.

**CLARIFICATIONS**

1. None

**END OF ADDENDUM No. 2**

This Addendum is sixty-one (61) page(s) in its entirety with its attachments.

Attachments:

1. Specification Section 09950 "Coatings for Water Storage Tanks" (38 Pages)
2. Specification Section 15112 "Dual-Plate Wafer Style Check Valves" (3 Pages)
3. Plan Sheet G-1 "Sheet Index" (1 Page)
4. Plan Sheet C-1 "Site Plan and Survey Control" (1 Page)
5. Plan Sheet C-1A "Horizontal Alignment Data Sheet" (1 Page)
6. Plan Sheet C-2 "Grading and Paving Plan Sheet 1 of 5" (1 Page)
7. Plan Sheet C-5 "Grading and Paving Plan Sheet 4 of 5" (1 Page)
8. Plan Sheet C-8 "Roadway Expansion/Contraction Joint Plan" (1 Page)
9. Plan Sheet C-23 "Storm Water Pollution Prevention Plan (SW3P) Layout" (1 Page)
10. Plan Sheet C-45 "Fire Site Plan" (1 Page)
11. Plan Sheet W-2 "Water Line Plan and Profile Sta. 4+00 to End" (1 Page)
12. Plan Sheet T-1 "Elevated Storage Tank Section and Exterior Elevation" (1 Page)
13. Plan Sheet T-3 "Elevated Storage Tank Floor Plans and Details" (1 Page)
14. Plan Sheet E-4 "Electrical Tank Plan" (1 Page)
15. Plan Sheet I-7 "Security System Details" (1 Page)

---

Ryan Ramsey, P.E.  
Freese and Nichols, Inc.



FREESE AND NICHOLS, INC.  
TEXAS REGISTERED  
ENGINEERING FIRM  
F-2144

## SECTION 09950

### COATINGS FOR WATER STORAGE TANKS

#### 1.00 GENERAL

#### 1.01 WORK INCLUDED

- A. Furnish labor, materials, equipment and incidentals necessary to apply protective coatings to material and equipment as specified herein, including the preparation of surfaces prior to application of coatings.
- B. Protective coatings must be applied to the following surfaces:
  - 1. Tank interior and exterior surfaces.
  - 2. Above grade ductile iron and steel piping and valves inside the pedestal, including overflow flap valve.
  - 3. Exterior electrical as determined by the Engineer during construction.
  - 4. Stainless steel piping, ladders, etc. on the interior of the tank.
- C. The following may not be coated and must be protected from drips, overspray, etc. unless indicated otherwise.
  - 1. Stainless steel piping, materials and equipment, except those on the interior of the tank.
  - 2. Galvanized steel piping, materials and equipment.
  - 3. Aluminum materials and equipment.
  - 4. Ladder Safety devices.
  - 5. Interior electrical items.
- D. Special applications for painting include the following:

Buried pipe and valves must be coated as described in the appropriate Section of the Specifications.
- E. Contain, treat, and dispose of any dust, spray, drainage, or spillage resulting from coating operations. It will be the Contractor's responsibility to determine if the materials to be disposed of are classified as Hazardous Waste. Disposal of waste, hazardous or otherwise, must be in accordance with applicable regulations. The Contractor must be aware of and understand the regulations concerning disposal of waste generated by coating operations.

#### 1.02 EXISTING CONDITIONS

- A. The Contractor must acquaint himself with the hazards of the work including, but not limited to: corroded components, high wind velocity, fire potentials caused by sparks from Contractor's torches, spark damage to property, and the proximity to overhead electrical lines, to residences, businesses, streets, etc. Failure to do so will not relieve the Contractor from all obligations described in the Contract Documents.
- B. Contractor must evaluate the tank for loads that will be added to the tank during surface preparation and coating operations, including loads for hanging scaffolding, abrasive blasting equipment on shell and roof, containment supports, rigging and all other loads. Contractor is responsible for all damages to the tank for improperly loading or overloading the tank.



### 1.03 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Products which comply with the Contract Documents and are manufactured by the following companies will be acceptable. Products from other coating manufacturers may not be submitted and will not be considered.
1. Sherwin-Williams<sup>A-1</sup>
  2. Tnemec Company, Inc.
  3. Carboline
  4. PPG
- B. Contractor's Qualifications: Contractors must be qualified in this line of work and have a minimum of 5 years of experience coating potable water storage tanks and in the application of the protective coatings of the types specified herein. Submit a list of recent projects and names of references for those projects.
- ~~C. Contractor must hold current:~~
- ~~1. SSPC QP 1 Certification for Field Application to Complex Industrial and Marine Structures or NACE International Institute Contractor Accredited Program Certification AS-1 F (NHCAP AS-1 F).~~
  - ~~2. Contractor must submit certification documents as record data.~~<sup>A-1</sup>
- D. Contractor's Superintendent/Foreman must have a minimum of 5 years of experience with coating storage tanks. Superintendent/Foreman must be on-site while the work indicated within this Section is underway. Submit a list of recent projects and names of references for those projects.
- E. The Contractor must provide workers who perform professional and quality work and who are experienced and knowledgeable in surface preparation, mixing and application of high performance coating systems.
- F. Coatings mock panels must be prepared and approved prior to surface preparation and coating work initiates. Mock-up must remain on-site for the duration of the Project. Mock panel must be stored in the same environment as the represented coating system. Panels are to be prepared with same methodologies, equipment and materials that will be applied to the tank. Panels will be used to perform chemical and adhesion testing on each coat to verify conformance with the specifications. Two panels are required:
1. Exterior Panel: Provide 2 feet by 2 feet steel panel with SSPC-SP6 surface preparation on one side, protected with a clear spray varnish. On opposite side, provide same surface preparation with approved exterior coating system showing each coat with mil thickness as specified.
  2. Interior Panel: Provide 2 feet by 2 feet steel panel with SSPC-SP10 surface preparation on one side, protected with a clear spray varnish. On opposite side, provide same surface preparation with approved interior coating system showing each coat with mil thickness as specified.
- G. The Contractor's painters that will be applying any high solids coatings for this Project must be trained and certified by the Coatings Manufacturer for the application of the high solids coatings. Certification must occur at the Site, at the location where the coatings will be used and in the presence of the Owner's representative. Applicators must be certified using a

mock structure constructed on the Site by the Contractor. Any new applicators added to the crew will need to be certified separately per this procedure.

1. Mock structure will be constructed out of wood and incorporate:
  - a. Flat vertical wall made of plywood to simulate the shell.
  - b. Roof made of plywood to simulate coating the underside of the roof and roof to shell connection.
  - c. Rafters made of wood (4 minimum) attached to underside of the roof to simulate coating roof and rafter connections.

H. Product Quality:

1. Use only the coatings specified in this Section. Use only those thinners and solvents recommended by the Manufacturer, only in the amounts necessary to produce the Manufacturer's recommended spreading rate, and in amounts not exceeding the maximum quantities stated in the Manufacturer's literature.
2. The coating material may not show excessive settling in a freshly opened full can and must be easily re-dispersed with a paddle to a smooth, homogeneous state. It may not show curdling, livering, caking, or color separation and must be free of lumps or skim surfaces.

I. Testing: Protective coatings must be applied under quality control procedures, which include inspection of surface preparation and for each coat applied. Do not proceed with the next step until the Owner's representative has approved the previous step. The Contractor will be solely responsible for testing for this specification, at no further cost to the Owner. The Owner's representative may also make such tests, if it is considered necessary. Cooperate with the Owner, providing equipment, scaffolds, and other equipment as requested by the Owner's representative.

J. Testing Equipment: Furnish the testing apparatus necessary for testing surface preparation, environmental conditions and coatings as specified.

K. Testing Equipment: Contractor must furnish and have the following testing apparatuses on-site during construction for the Owner's use:

1. One set of U.S. Department of Commerce thickness calibration plates, certified by the National Bureau of Standards, to test dry film thickness.
2. Wet-film thickness gauges. Provide two to Owner's representative. Each painter must keep one to test paint as it is applied.
3. One electronic dry-film thickness gauge capable of measuring 0-200 mils with calibration standards approved by the Bureau of Standards.
4. One Elcometer 319 Dewpoint Meter.
5. One Tinker and Razor Model M 1 Holiday Detector and recommended wetting agent and/or High Voltage Holiday Detector if required for interior coating thickness specified.
6. One set of SSPC VIS 1, 3 and 4 - Visual Standards as applicable.

L. The Contractor must schedule a construction conference prior to any field work being completed. The meeting will be on-site and will include the Owner, Contractor, painting superintendent, Engineer, Owner's representative and Coating Manufacturer's representative. At this meeting the coating plan and schedule will be reviewed in detail.

## 1.04 FIELD QUALITY CONTROL

### A. Surface Profile Testing:

1. Provide a minimum of 3 sets of profile readings for the first 1000 square feet.
2. Provide a minimum of 2 sets of profile readings for each additional 1000 square feet.

### B. Wet Film and Dry Film Thickness Testing:

1. Provide wet film tests during painting operations to ensure proper thicknesses of coating are being applied.
2. The dry-film thickness for each coat must be tested and be in conformance with SSPC-PA-2 with a Type 2 Electronic Gauge.

### C. Holiday Testing:

1. Contractor must conduct holiday testing in the presence of the Owner's representative.
2. Holiday Testing must be conducted using a wet sponge low voltage holiday detector for interior coatings with total DFT of 20 mils or less and high voltage holiday detector for coatings with a total DFT greater than 20 mils in accordance with ASTM D5162.
3. A holiday test must be performed on the entire interior wet area of the tank, including all appurtenances, following the application of the final coat and after all work is completed inside of the reservoir.
4. During the wet sponge testing, defective areas must be marked for repair and re-tested after repair work has been completed.
5. All touched up pinholes and re-coated areas must be completely cured prior to re-testing for holidays.
6. Holiday testing and re-testing must continue until the interior surfaces are found to be holiday free.

### D. Contractor must monitor and record ambient climatic conditions and interior reservoir conditions during surface preparation and coating as follows:

1. Temperature of both the sunny side and shady side of the reservoir must be recorded periodically each day. The reservoir surface temperatures, relative humidity, dry bulb, wet bulb and dew point temperatures, both interior and exterior (as appropriate), are to be recorded at least every 3 hours.
2. The dew point must be measured by use of a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables or with an electronic climate monitoring system approved by the Engineer.
3. The Contractor must use a form approved by the Owner for recording this data. The completed forms must be kept on the Site at all times from the time coating is first applied until the coating system is complete. Cloud based reporting systems may be utilized with the Engineer's approval.

### E. All work, including observations, must be recorded daily by the Contractor. A copy of each daily report/log must be placed in a file kept on the Site and submitted to the Owner at the end of each day. The reports must include the following:

1. Date.
2. Project Manager's Name.

3. Contractor and Subcontractor name (where applicable).
  4. Contractor's and or Owner's representatives name (where applicable).
  5. Project Name.
  6. Work Identification including:
    - a. Type of work performed.
    - b. Location of work performed, indicated on generalized drawings of the reservoir, drawings must include estimated ft<sup>2</sup> area blasted and/or painted and approximate percentage of total ft<sup>2</sup> area of surface being prepared and painted. Generalized drawings must include:
      - 1). Plan view of reservoir.
      - 2). Profile view of reservoir.
      - 3). Plate location.
      - 4). North arrow.
      - 5). Any other drawings that will help to indicate location of work performed.
  7. Time of day each portion of the work was started and finished.
  8. Weather conditions, including corresponding time of day, before during and after work begins including:
    - a. Temperature (air and surface).
    - b. Humidity/dew point.
    - c. Wind velocity/direction.
    - d. Remarks and results of work.
  9. QC results for completed work, including:
    - a. Compressed air blotter test performed at the start of each day and every 4 hours per ASTM D4285.
    - b. Surface preparation visual checks.
    - c. Profile checks utilizing replica tape.
    - d. Documentation of DFT's and areas tested per SSPC PA-2, Type 2 Gauge.
    - e. Locations of holidays, repairs and touchups required, including documentation of the repair completion.
  10. Contractor signature.
- F. Owner's Representative Field Quality Assurance Coordination:
1. Contractor must provide a schedule for anticipated hold-points and must notify the Owner's representative at least 7 days prior to any required inspections and confirmed 24 hours prior to inspection. Prior to scheduling an inspection, Contractor is responsible for reviewing work and verifying it is ready for a threshold inspection. Once scheduled, if the Owner's representative finds the Project not ready for inspection any additional trips for re-inspection or inspection for retesting of failed tests will be borne by the Contractor and deducted from the Contract Value by Change Order.

G. Field Quality Assurance:

1. Observations must be conducted by the Owner's representative and a third-party inspection company retained by the Engineer. Final observations must be performed in the presence of the Owner or its representative and the Contractor's superintendent. All materials and equipment used in the accomplishment of testing are subject to observation at any time by the Owner's representative. Periodic observation times will be agreed upon by the Owner's representative and Contractor, and approved by the Owner.
2. The Owner may conduct the tests and observations to verify the Coating Manufacturer's data. If the coating testing results fall below the test requirements or visual observation, the Owner reserves the right to have the Contractor change coating materials and/or Coating Manufacturers to a coating that will meet all the stated requirements in this Specification.
3. All steps of the coating system will be subject to observation prior to progression to succeeding steps. Phases of observation must include, but not limited to:
  - a. All welding repairs completed prior to painting.
  - b. Containment erection completed (as required).
  - c. Pre-cleaning (before surface preparation) survey of facilities to be primed.
  - d. Prior to and during surface preparation.
  - e. Prime coating application.
  - f. Stripe coating application.
  - g. During and immediately after each coating application.
  - h. Final coating observation.
  - i. Holiday detection on interior of tank.
  - j. Cure test of interior coating completed.
  - k. Substantial Completion / Pre-disinfection.
4. The Contractor must not move or remove scaffolding, ladders or other fixtures necessary to provide proper observation until such work has been observed and approved by the Owner's representative.
5. Any work found to be deficient, damaged, or otherwise unacceptable must be repaired in accordance with the Coating Manufacturer's latest written repair recommendations at no additional cost to the Owner.
6. Owner's representative will make every attempt to minimize damage to newly coated areas during observation activities, but any damage caused, regardless of by whom, must be repaired by the Contractor at no additional cost to the Owner.
7. Observation and/or acceptance of Contractor's work by Owner's representative(s) in no way releases Contractor from any of the terms and conditions of the Contract Agreement.
8. The following test and observations will be performed during coating operations:
  - a. Surfaces of all steel must first be cleaned and observed by the Contractor's Superintendent to ensure that all grease, oil, and other foreign materials have been removed before coating. Any area found to be improperly cleaned, must be redone to the Owner's representative's satisfaction. Final surface preparation must be as

outlined in SSPC-SP1 through SP13 and WJ-1 through WJ-4, as specified. Prior to observation of all interior and exterior surfaces by Owner's representative, Contractor's Superintendent must observe and confirm readiness for inspection.

- b. Surfaces of all ductile pipe and fittings must first be cleaned and observed by the Contractor's Superintendent to ensure that all grease, oil, and other foreign materials have been removed before coating. Any area found to be improperly cleaned, must be redone to the Owner's representative's satisfaction. Final surface preparation must be as outlined in NAPF 500, as specified. Prior to observation of all interior and exterior surfaces by Owner's representative, Contractor's Superintendent must observe and confirm readiness for inspection.
- c. The pattern depth of the abrasive blasted surface must be as specified by the Coating Manufacturer's written surface profile recommendations. The profile must be measured by a Testex Replica Tape. SSPC-VIS 1 and/or SSPC-VIS 3 must serve as guides and in arbitration to determine the degree of surface preparation. All prepared areas of the reservoir surface, interior and exterior, must be prepared as per SSPC visual standards.
- d. Prior to undertaking full-scale abrasive blasting operations, the Contractor must perform a test blast on both the exterior and the interior of the tank in the presence of the Engineer or Owner's representative and the Coating Manufacturer's representative. The test section must be a minimum of 5 feet high by 5 feet wide. The Engineer or Owner's representative and the Manufacturer's representative must verify that the surface cleanliness and profile meet the requirements of this specification before work can proceed. In the event the test section fails to comply with the requirements of this specification, the Contractor will be required to make suitable changes to the equipment and/or abrasive material and perform an additional test sections until compliance with the specification is demonstrated.
- e. Before and/or during blasting and coating operations, a field test of ventilation flow-rates must be performed by the Contractor to verify that the ventilation requirements are being provided as specified. Contractor must submit documentation of flow test results to the Engineer.
- f. Measurement of the dry film thickness must be made in accordance with SSPC-PA2 with a Type 2 Electronic Gauge. Measurements of the actual dry film thickness of the various coating layers applied must be made by the Owner's representative with assistance from the Contractor. Final film thickness measurements must be made at such locations as designated by the Owner and/or Owner's representative.
- g. Holiday testing must be conducted by the Contractor and observed by the Owner's representative.
- h. All coatings submitted must pass a 7-day chemical spot test to the following chemicals with no cracking, blistering or delamination.
  - 1). 1,1,1 Trichloroethane.
  - 2). Methyl Ethyl Keytone (MK).
  - 3). Ethanol.

9. On days when blasting and/or coating is being performed, the Owner's representative must monitor and record ambient climatic conditions, and interior reservoir conditions as follows:
  - a. Air temperature, steel surface temperature, humidity and dew point must be measured and recorded by the Contractor prior to beginning of blasting and prior to application of coating, daily.
  - b. Surface temperature must be measured using a surface thermometer.
  - c. Temperature of both the sunny side and shady side of the reservoir must be recorded periodically each day. The reservoir surface temperatures, relative humidity, dry bulb, wet bulb and dew point temperatures, both interior and exterior (as appropriate), are to be recorded at least every 3 hours.
  - d. The dew point must be measured by use of a sling psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometric Tables or by utilizing an electronic measuring device approved by the Engineer.
10. The Owner's representative must use a form approved by the Owner for recording this data. The completed forms must be kept on the Site at all times from the time surface preparation is initiated until the coating system is complete. The forms must be submitted as record data on a weekly basis until coating is complete.

#### 1.05 SUBMITTALS

- A. Submittals must be in accordance with Section 01300 "Submittal Procedures."
- B. The following Record Data is due prior to ordering coating and surface preparation materials:
  1. Products and Manufacturer's Information:
    - a. Coating Manufacturer's color selection literature for coating materials and caulk.
    - b. Sample warranty document for products.
    - c. Provide certification from the manufacturer that all coatings will not contain more than 0.06 percent by weight of lead in the cured coating for each coat applied.
    - d. Coating Manufacturer's Product Information and Safety Data Sheets (SDS) for each coating and caulk material. Product Information must include the following:
      - 1). The Manufacturer's published instructions for use in specifying and applying all proposed coatings.
      - 2). Application instructions written and published by the Coating Manufacturer.
      - 3). All limitations, precautions and requirements that may adversely affect the coating, that may cause unsatisfactory results after the application or that may cause the coating not to serve the purpose for which it was intended, must be clearly and completely stated in the instructions. Limitations and requirements must include, but are not necessarily limited to the following:
        - a). Surface preparation.
        - b). Method(s) of application.
        - c). Thickness of each coat (maximum and minimum DFT).
        - d). Drying and curing time of each coat.

- e). Time (minimum and maximum) allowed between coats.
  - f). Thinner and use of thinner.
  - g). Proper mixing of coating before application.
  - h). Weather limitations during and after application (temperature and humidity, time weighted).
  - i). Physical properties of coating, including percent solids content by volume.
  - j). Equipment settings (air cap, fluid tip, equipment pressure settings, etc.).
  - k). Pot life at various temperature and humidity conditions.
  - l). Provide documentation that interior coating system is compatible with the cathodic protection system.
- C. The following Samples are required prior to ordering the materials:  
Three samples of selected exterior finish colors for approval on 6-inch by 6-inch swatches. Label each swatch with the manufacturer's name, coating name/type, color name and number.
- D. The following Record Data is required prior to coating work:
1. Coating Plan:
    - a. Anticipated coating process schedule by date, including dates when hold-point inspections are anticipated. Schedule must indicate detailed activities on a daily basis.
    - b. Detailed procedures and schedule for all pre-cleaning, surface preparation and application of coating, including touch-up and repair procedures for all coating systems.
    - c. Recoat schedule on the submitted coating materials.
    - d. Data sheets complete with a graduated scale or curve, produced by the Coating Manufacturer, with curing characteristics and recommendations regarding complete coating curing. The data sheets and scales or curves must include specific cure times over a wide range of temperatures and humidity.
    - e. Provide a written plan documenting how spent cleaning debris and/or paint over spray or droplets will be contained/confined to the Site and tank site during the surface preparation and coating application operations. Reasonable care must be exercised by the Contractor to prevent damage, nuisance, or hazardous conditions to adjacent or nearby property Owners. Include all materials and methods to be used for protection of exterior surfaces and allow for recovery and disposal of paint scraps and blast media.
    - f. Provide written plan documenting how paint and/or abrasive damage to automobiles and property will be addressed, including a process for quick removal of the paint or abrasive, and how the work will be accomplished. This plan does not relieve the Contractor from the responsibility of settling claims for damage, but is intended to expedite and minimize said claims.
  2. Provide documentation on proposed containment system methods for blasting and coating operations.



3. Provide documentation on heating or dehumidification system (as required):
    - a. Calculations for dehumidification and ventilation requirements.
    - b. Fans and their locations.
    - c. Dimensions of equipment.
    - d. Maximum capacities of equipment.
    - e. Emission control devices.
    - f. Method of filtration of exhausted tank air.
    - g. EMD- continuous electronic monitoring device.
  4. Provide documentation on ventilation and filtration system:
    - a. Calculations for ventilation requirements.
    - b. Fans and their locations.
    - c. Dimensions of equipment.
    - d. Maximum capacities of equipment.
    - e. Emission control devices.
    - f. Method of filtration of exhausted tank air.
  5. The Contractor must submit evidence of notification of the appropriate office of the Texas Commission on Environmental Quality (TCEQ) prior to abrasive blasting as required. Submit copies of any obtained permits.
  6. Coating Manifest - Within 48 hours of coating delivery to the Site, the Contractor must record the batch number stamped on each coating container and submit a typed list to the Owner's representative. Minimum information required is listed below.
    - a. Date of delivery to the Site.
    - b. Name and signature of Superintendent recording the data.
    - c. List of batch number including corresponding coating identification, color, date of manufacture and volume of each container.
- E. The following Certified Test Report(s) are required prior to coating work:
1. SDS sheets for all abrasive to be used on the Project.
  2. Certification and laboratory test results indicating recycled metallic abrasive per SSPC-AB 2 or 4 and atomic absorption test results.
- F. Provide the following Record Data during the construction of the Project:
1. Letter from Coating Manufacturer confirming the surface preparation for both the interior and exterior surfaces prepared by the Contractor in the field are acceptable for the product(s) being applied.
  2. On a weekly basis, submit:
    - a. Contractor's Daily Reports.
    - b. Output from automatic real-time monitoring equipment from the previous week.

1.06 STANDARDS

A. The applicable provisions of the following standards will apply as if written here in their entirety. Adhere to the latest standards and codes published by the following organizations.

1. ANSI (American National Standards Institute):

ANSI/NSF Standard 61	Drinking Water Components
----------------------	---------------------------

2. ASTM (American Society for Testing and Materials):

ASTM D523	Standard Test Method for Specular Gloss
ASTM D610	Standard Test Method for Evaluating Degree of Rusted on Painted Surfaces
ASTM D2244	Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
ASTM D3359	Standard Test Methods for Rating Adhesion by Tape Test
ASTM D4214	Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
ASTM D4285	Standard Test Method of Indicating Oil and Water in Compressed Air
ASTM E337	Standard Practice Test Method for Measuring Humidity with a Psychrometer
ASTM E84-03	Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM D4541	Standard Method for Pull-Off Strength of Coatings Testing Adhesion of Applied Coating Using Portable Adhesion Tester

3. AWWA (American Water Works Association):

AWWA D100	Welded Steel Tanks for Water Storage
AWWA D102	Coating Steel Water Storage Tanks
AWWA D107	Composite Elevated Tanks for Water Storage
AWWA C210	Liquid-Epoxy Coating Systems for Interior and Exterior of Steel Water Pipelines
AWWA C222	Polyurethane Coatings for the Interior and Exterior of Steel Water Pipe and Fittings
AWWA C652	Disinfection of Water Storage Facilities

4. Consumer Product Safety Act, Part 1303.

5. NACE International (National Association of Corrosion Engineers):

NACE TPC2	Coating and Lining for Immersion Service: Chapter Safety, Chapter 2 Surface Preparation, Chapter 3 Curing, and Chapter 4 Inspection
NACE SP0178	Fabrication Details, Surface Finish Requirements, and Proper Design Considerations for Tanks and Vessels to be Lined for Immersion Service
NACE SP0188	Discontinuity (Holiday) Testing of Protective Coatings on Conductive Substrates
NACE SP0388	Impressed Current Cathodic Protection of Internal Submerged Surfaces of Carbon Steel Water Storage Tanks

NACE RP0178	Plastic Weld Comparator
NACE RP0287	Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape

6. National Association of Pipe Fabricators (NAPF):

NAPF 500-03	Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings
-------------	--

7. OSHA (Occupational Safety & Health Administration):

1915.35 Standards - 29CFR	Painting
1926.62 Standards – 29 CFR	Lead

8. SSPC (Society for Protective Coatings):

SSPC-VIS 1	Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
SSPC-VIS 3	Guide and Reference Photographs for Steel Surfaces Prepared by Power and Hand Tool Cleaning
SSPC-VIS 4	Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting
SSPC Vol. 1	Good Painting Practices
SSPC-AB1	Mineral and Slag Abrasives
SSPC-AB2	Cleanliness of Recycled Ferrous Metallic Abrasives
SSPC-AB3	Ferrous Metallic Abrasives
SSPC-AB4	Recyclable Encapsulated Abrasive Media in a Compressible Matrix
SSPC-SP1	Solvent Cleaning
SSPC-SP2	Hand Tool Cleaning
SSPC-SP3	Power Tool Cleaning
SSPC-SP11	Power Tool Cleaning to Bare Metal
SSPC-SP WJ-1	Low-Pressure Water Cleaning (LP WC) water performed at pressures less than 34-MPa (5,000 psig)
SSPC-SP WJ-2	High-Pressure Water Cleaning (HP WC) performed at pressures from 34 to 70-MPa (5,000 to 10,000 psig)
SSPC-SP WJ-3	High-Pressure Waterjetting (HP WJ) performed at pressures from 70 to 210-MPa (10,000 to 30,000 psig)
SSPC-SP WJ-4	Ultra High-Pressure Waterjetting (UHP WJ) performed at pressures greater than 210-MPa (30,000 psig)
SSPC-PA-1	Shop, Field and Maintenance Painting
SSPC-PA-2	Measurement of Dry Film Thickness with Magnetic Gages
SSPC-PA-3	Guide to Safety in Paint Application
SSPC-Guide 6 (CON)	Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations
SSPC-Guide 12	Guide for Illumination of Industrial Painting

SSPC-Guide 15	Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates
---------------	---

9. SSPC/NACE International Joint Standards:

SSPC-SP5/NACE 1	White Metal Blast Cleaning
SSPC-SP6/NACE 3	Commercial Blast Cleaning
SSPC-SP7/NACE 4	Brush - Off Blast Cleaning
SSPC-SP10/NACE 2	Near - White Metal Blast Cleaning
SSPC-SP13/NACE 6	Surface Preparation of Concrete

10. Texas Commission on Environmental Quality (TCEQ):

30 TAC Chapter 111, Subchapter A, Division 3	Abrasive Blasting of Water Storage Tanks Performed by Portable Operations
30 TAC Chapter 290 Subchapter D	Rules and Regulations for Public Water Systems

- B. In the event of a conflict between the published standards, codes, and this Section, the more stringent requirement will govern.

1.07 DELIVERY AND STORAGE

- A. Deliver coating products to the Site in original unopened containers, with the Manufacturer's label and batch number attached. Do not apply products until the Owner's field representative has approved the product for use.
- B. Use one location at each site for the storage of coating products. Protect the floor from spills and other damage. Protect the products from extreme heat or cold. Keep containers covered. Keep the storage rooms clean of trash and debris. Dispose of oily or used rags daily. Take precautions to prevent fires. The storage of flammable liquids must comply with the City, State, or other fire codes.
- C. Storage of coatings and other products must be in accordance with the Manufacturer's requirements. Coatings that have been damaged or not stored properly must not be applied and must be removed from the site.
- D. All products and coatings that are not approved for the Project must be removed from the Site and must not be stored at the Site.

1.08 ENVIRONMENTAL CONTROL CONDITIONS

- A. Do not apply coatings under conditions that are unsuitable for the production of satisfactory results. Remove trash and debris from enclosed buildings and thoroughly clean prior to application of coatings. Do not begin application of coatings in areas where other trades are working, or where construction activities result in airborne dust or other debris. Do not apply coatings in conditions which do not conform to the recommendations of the Coatings Manufacturer.

- B. Coatings may only be applied when conditions fall within the parameters listed in the Manufacturer's printed data.
- C. Do not apply any coatings when weather conditions are unfavorable. In the event that climatic conditions are not conducive for best results, postpone application of coatings until conditions conform to the Manufacturer's recommendations and the provisions of this Section.
- D. Do not apply coatings to a wet or damp surface in wet or damp weather conditions, or when there is dust in the air. Surfaces exposed to direct sunlight must be shaded by awnings or other protective devices while coatings are being applied, if recommended by Coating Manufacturer. When necessary, provide temporary heating devices of a type that produces no fumes which will discolor the paint system.
- E. Heating and Dehumidification:
  - 1. Dehumidification equipment must be used to control the environment in the reservoir wet area during surface preparation, rehabilitation, coating application and coating curing at no additional cost to the Owner, if acceptable environmental conditions cannot be met. If the Contractor cannot meet the required environmental conditions to apply the interior coating system per this Section and the Coating Manufacturer's written recommendations, Contractor will cease operations until approved dehumidification equipment has been provided and acceptable environmental conditions are achieved. If coating system is applied without dehumidification or in conditions not acceptable by this Section and by the Coating Manufacturer's written requirements, Contractor must fully remove coating system applied and replace per the Engineer's direction.
  - 2. Automatic real-time monitoring equipment must be provided. This equipment must be used when no Contractor personnel are on-site. Monitoring equipment may be removed during abrasive blasting and coating operations, but environmental conditions must be checked and logged manually.
  - 3. The Contractor must furnish all labor, materials, equipment, fabrication and quality control inspections, and all other incidentals required to control and maintain the environment of the reservoir within the parameters stated in this Section and must incorporate these and any other expenses into its Bid.
  - 4. The Owner reserves the rights, in the event the dehumidification equipment is not performing to the minimum requirements stated in this Section, to require the Contractor to modify and or add additional equipment to satisfy the conditions of this Section, at the sole cost to the Contractor.
  - 5. It is the Contractor's responsibility to provide adequate dehumidification equipment to meet this Section and Coating Manufacturer's requirements. The Coating Manufacturer's limits of surface temperature, tank inside air temperature and relative humidity requirements will govern, if more stringent than the requirements stated within this Section.
  - 6. During abrasive cleaning and coating operations inside of the tank, the relative humidity of the air inside of the tank must not exceed 55 percent. During curing of the coating on the interior of the tank, the relative humidity of the air inside of the tank must not exceed 75 percent.
- F. Force Ventilation:
  - 1. Continuous forced fresh air ventilation must be provided from beginning of the reservoir interior wet area surface preparation through final coating operations and coating curing.

2. Forced ventilation must be supplied to the interior of the tank per the recoat time required by the Coating Manufacturer and at least 48 hours after the final coat has been applied.
3. Unless dehumidification equipment is used to provide ventilation of the reservoir interior, the roof vents and hatches must be kept open and clear.
4. All reservoir, pedestal, dry riser and dry well openings susceptible to emissions during blasting, cleaning, and coating operations must be properly fitted and secured with suitable dust collection devices to reduce the release of emissions.
5. From the beginning of interior wet and/or dry coating application and until this coating is cured, the Contractor must monitor the air for the lower explosion limit (LEL) as published in the Coating Manufacturer's product MSDS.
6. During coating curing and when no coatings are being applied inside the reservoir, the equipment must be sized so that it is capable of changing the volume of air inside the entire reservoir a minimum of 1.5 to 2.0 times per hour.
7. Throughout the duration of ventilation, containment of blasting abrasives, removed coating, and applied coatings must be maintained by use of proper filtration.
8. The ventilation system must be in accordance with AWWA D102 and submitted to the Owner.
9. Contractor is responsible for supplying, installing and maintaining the forced ventilation system.
10. Ventilation during interior abrasive blasting can be reduced to one air exchange per hour.
11. The above ventilation requirements are minimum requirements. It is the responsibility of the Contractor to verify that the flow rate provided throughout the tank meets the curing requirements of the Coating Manufacturer for the coating applied. Should additional ventilation be required by the Coating Manufacturer, the Contractor must furnish additional ventilation at its own expense.

G. Containment System:

1. Contractor must provide containment methods, either full or partial, which allows for the containment of the environmentally sensitive waste, dust and paint over spray that will be generated during the abrasive blasting and painting operation.
2. Provide a minimum SSPC Guide 6 (CON) Class 3A containment system when dry abrasive blasting at the tank site.
3. Private residences and public areas exist within 500 feet of the water storage tank site. Emissions from abrasive blasting operations must be controlled as required by TAC 30, Chapter 111, Subchapter A, Division 3.
4. The ground surrounding the tank must be protected from all debris, emissions, dust, and other materials generated in the cleaning operations with a minimum of two layers of polyethylene covered with plywood or the same material used for the perimeter containment system. Provide documentation that these requirements have been adhered to.
5. Containment is not required when blasting on the interior of a completely enclosed tank (i.e. roof is in place) as long as no visible emissions are created.

6. The Contractor must ensure that no spent cleaning/blasting debris, dust, overspray, coating droplets, or emissions of any kind, escape to the atmosphere, the base of the tank, or adjacent buildings, private property, work sites, parking lots, etc.
7. The Owner reserves the right to stop work or require containment, additional containment or different containment methods if the Contractor's operations create a nuisance beyond the tank site property line in the sole opinion of the Owner, the Engineer, the Owner's representative, any regulatory agency, or neighbor. All costs of providing an adequate containment system must be included by the Contractor in the Base Bid.
8. The Contractor must be responsible for all materials that are used and for any apparatus used to contain dust emissions, debris, overspray, and coating droplets. The containment system attachments to the tank must be designed by a professional engineer, licensed in the state where the Project is located, not to impose excessive loading on the tank. The Contractor must submit the designed, stamped, and signed details of the containment system on the tank. The containment system will place additional loads on the tank that the tank was not originally designed for. The Contractor must reinforce the tank as necessary to prevent permanent deformation and to ensure that no damage occurs to the tank. Any damage to the tank as a direct or indirect result of the containment system must be repaired or sections replaced by the Contractor at no additional cost to the Owner. Neither the Owner nor the Owner's Engineer assumes any responsibility for the structural ability of the tank to support the containment system.
9. If complete containment of the tank is utilized to contain all cleaning dust, debris, emissions, paint droplets, and paint overspray, the complete containment must include a full bonnet.
10. If tarps are used as part of the containment system, the tarps must be an impervious, solid, flame-resistant material, reinforced with a fiber mesh and must allow as much light as possible to pass through the material.
11. If robotic or creeper-type cleaning devices are used, the robotic or creeper-type device must meet the same containment criteria as that of the types of containment (lack of emissions). All overspray and paint droplets must be contained on the tank site.
12. Review of the containment system for containing the spent cleaning dust, debris, emissions, overspray, and coating droplets does not warrant the structural integrity of the containment system or the structural integrity of the tank to support the containment system. Nor does review of the containment system warrant the ability of the system to contain spent cleaning dust, debris, emissions, and overspray.
13. Damage Contingency Plan: Prior to construction, the Contractor must present a written plan for review by the Owner and Engineer concerning how dust and debris damage to automobiles will be removed. Approval of this plan will not relieve the Contractor from responsibility of settling claims, but is intended as an avenue to expedite and minimize such claims.

H. Visible Emissions:

1. Contractor must control visible emissions and releases while dust producing activities are underway.
2. Visible emissions more than SSPC Guide 6, Level 1 (1 percent of the workday or 5 minutes in an 8-hour shift) are unacceptable. Sustained emissions of more than 1 minute, regardless of the total time of emissions for the day is unacceptable. If unacceptable emissions are observed, Contractor must shut down immediately and correct the situation

and clean up any debris generated from the release to the satisfaction of the Engineer before continuing work.

I. Dust Collection:

1. Contractor must provide dust collection as required to prevent any visible emissions from entering the atmosphere as a result of the abrasive blasting operation.
2. For interior tank abrasive blasting, high volume fans and dust socks at manholes and vents must be provided as a minimum requirement.
3. The dust collection must be operated on the interior of the tank during all abrasive blast cleaning and until the area is clean enough for coating application. The Contractor will be responsible for all sizing, design of ductwork, etc., based upon the Contractor's operations, number of blasters, duration of blasting, etc.
4. The Contractor must take precautions to avoid a vacuum from developing inside of the tank.

J. Working Conditions:

1. Provide adequate lighting at any location that coatings are being applied or testing is performed. Illumination must be of sufficient intensity to achieve acceptable results. Provide explosion-proof lighting when required.
2. Temporary ladders and scaffolds must conform to applicable safety requirements. Erect temporary scaffolds where needed to cover large areas. Provide ladders or scaffolding during testing procedures.

1.09 GUARANTEES

A. Coating Manufacturer's Warranty:

1. **Manufacturer's standard products warranty must be submitted and accepted by the Engineer prior to approval of the coatings submittal.**
2. **Contractor and Coating Manufacturer must coordinate warranty work requested by the Owner at any time during the warranty period. Owner is only required to contact Contractor to initiate warranty work.**<sup>A-2</sup>

2.00 PRODUCTS

2.01 GENERAL COATING REQUIREMENTS

- A. All coatings must be free of heavy metals such as arsenic, barium, chromium, selenium, silver, lead, mercury and cadmium.
- B. All interior coatings and products used on interior wet surfaces (all surfaces within the tank bowl) must be certified by the National Sanitation Foundation (NSF), standard 61, for direct contact with potable water for the application and size of tank on the Project.
- C. All coatings must be applied in strict conformance with the Coating Manufacturer's published specifications and with this Section.
- D. To insure coating compatibility, Contractor must use products of a single Coating Manufacturer for all coatings applied to the reservoir and/or its components, unless prior approvals are obtained in writing from the Owner and the Coating Manufacturer.



- E. All materials must be delivered to the Site in original sealed containers with the date of manufacture and batch number stamped thereon by the Coating Manufacturer. Materials will be subject to random observations by the Owner's representative at the Site.
- F. No coating submitted or used on this Project must have a VOC (volatile organic content) in excess of 360 grams/liter or 3.0 lb./gal.
- G. Primers factory-applied must be those specified. Notify manufacturers which shop prime coats will be required in order to be compatible with field-applied finish coats. Where equipment is purchased which has the manufacturer's standard primer or a factory finish which is other than as specified in this Section, remove the factory-applied paint system or apply passivators or other special coatings as required to make the surface compatible with the finish coat specified.
- H. No inorganic **or organic** zinc-rich primers will be permitted on the tank, **including preconstruction primers interior surfaces.**<sup>A-1</sup>

## 2.02 COATING SCHEDULES

- A. IW-02 Tank Interior Wet Coating System - 100 Percent Solids Polyurethane System:
  - 1. Interior wet surfaces include the tank roof, shell, bottom, accessories, piping and appurtenances that are exposed to the stored water or its vapor. These include items constructed of stainless steel, such as ladders and piping.
  - 2. Coating must be considered a "100 percent solids" (98 percent +/- 2 percent solids) and must cover all edges, bridge all gaps and be monolithic and holiday free. Material must be in accordance with ANSI/AWWA C222.
  - 3. Surface Preparation:
    - a. Solvent Cleaning: SSPC-SP1.
    - b. Abrasive Cleaning: NACE No. 2/SSPC-SP 10 – Near-White Metal Blast Cleaning.
  - 4. Application Method(s): Spray. All weld seams, gaps, edges, bolts and difficult areas to coat must receive an initial stripe coat.
  - 5. Full removal of preconstruction primer is required in accordance with NACE 2/SSPC-SP 10.
  - 6. Refer to Paragraph 1.03 "Quality Assurance" for training and certification required for applicators.
  - 7. Unsealed joints must be sealed with 100 percent solids lining system. Appropriately sized foam backer rod must be used as needed to fill spaces in unwelded joints. A 30-mil thick high solids lining system must be sprayed behind backer rod and over backer rod once it is in place. Sharp edges must receive a single coat, then wrapped in geotextile fabric and then receive another coat.

8. The coating system shall have a minimum adhesion of no less than 1500 psi, (average of ten tests) as tested per ASTM D 4541 when applied to SSPC - SP10 Near - White Metal Blast Cleaned steel after 17 days cure at 40°F.
9. NSF 61 certified system (including all thinners and additives) to be one of the following and of the same manufacturer of all other coating products used on this Project:

a. **Sherwin-Williams:**<sub>A-1</sub>

Coat	Product	DFT	Color
Spray Stripe Coat	Sherflex S		Beige
Single Coat	Sherflex S	30 mils min.	Beige

b. Carboline:

Coat	Product	DFT (mils)	Color
Spray Stripe Coat	Reactamine 760 HB		Light Tan
Single Coat	Reactamine 760 HB	30 mils min.	Light Tan

c. PPG:

Coat	Product	DFT (mils)	Color
Spray Stripe Coat	Amerthane 490		Off White
Single Coat	Amerthane 490	30 mils min.	Off White

d. Tnemec:

Coat	Product	DFT (mils)	Color
Spray Stripe Coat	Elasto-Shield Series 406		Off White
Single Coat	Elasto-Shield Series 406	30 mils min.	Off White

B. ID-01 Tank Interior Dry System - Epoxy/Epoxy/Epoxy:

1. System applies to all interior dry surfaces of the finished structure that are not exposed to the elemental atmosphere, the stored water, or its vapor. These areas include, but are not limited, to the interior of the access tube, interior of the steel pedestal, and the underside of a suspended bottom within the pedestal.
2. Finish coat must be satin.
3. Surface Preparation:
  - a. Solvent Cleaning: SSPC-SP 1.
  - b. Abrasive Cleaning: NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.
4. Application Method(s): Spray or Roller. Brush must only be used for touch up and stripe coating.
5. Preconstruction Priming:
  - a. Preconstruction priming must be in accordance with AWWA D102. Full removal of construction primer is not required if the primer is fully compatible with the specified paint system primer. A letter from the Paint Manufacturer certifying compatibility must be submitted with coating submittal.
  - b. Weld seams and bare steel must be cleaned to NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.

- c. Areas with inadhherent preconstruction primer or rusting must be cleaned to NACE No. 4/SSPC SP-7 – Brush-Off Blast Cleaning.
  - d. A full field coat of the specified prime coat must be applied over the spot-cleaned bare steel and remaining preconstruction primer.
6. Three-coat system to be one of the following and of the same manufacturer of all other coating products used on this Project:
- a. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Macropoxy 646*	3 - 4 mils	Light Blue
Stripe Coat	Macropoxy 646*	2 - 3 mils	Contrasting Color
Intermediate Coat	Macropoxy 646*	4 - 6 mils	Beige
Finish Coat	Macropoxy 646*	4 - 6 mils	Off-White
Minimum and Maximum DFT for System		11 - 16 mils	

\*Macropoxy 5500LT is an approved equal to the Macropoxy 646 PW. A single finish coat of 8-12 mils is acceptable in lieu of providing an Intermediate Coat.

- b. Carboline:

Coat	Product	DFT (mils)	Color
Prime Coat	Carboguard 60	3 - 4 mils	Light Blue
Stripe Coat	Carboguard 60	2 - 3 mils	Contrasting Color
Intermediate Coat	Carboguard 60	4 - 6 mils	Beige
Finish Coat	Carboguard 60	4 - 6 mils	Off-White
Minimum and Maximum DFT for System		11 - 16 mils	

- c. PPG:

Coat	Product	DFT (mils)	Color
Prime Coat	Amerlock 2/400	3 - 4 mils	Blue
Stripe Coat	Amerlock 2/400	2 - 3 mils	Contrasting Color
Intermediate Coat	Amerlock 2/400	4 - 6 mils	Beige
Finish Coat	Amerlock 2/400	4 - 6 mils	Off-White
Minimum and Maximum DFT for System		11 - 16 mils	

- d. Tnemec:

Coat	Product	DFT (mils)	Color
Prime Coat	Pota-Pox Plus Series N140	4 - 5 mils	Light Blue
Stripe Coat	Epoxoline Series 141	2 - 3 mils	Contrasting Color
Finish Coat	Epoxoline Series 141	7 - 11 mils	Off-White
Minimum and Maximum DFT for System		11 - 16 mils	

C. EN-02 Tank Exterior System – Epoxy/Epoxy/Polysiloxane System

1. System applies to all exterior surfaces of the tank roof, shell, steel pedestal, legs, accessories, piping connecting to the tank and appurtenances that are exposed to the elemental atmosphere.
2. Finish coat must be high gloss.
3. Surface Preparation:
  - a. Solvent Cleaning: SSPC SP-1.
  - b. Abrasive Cleaning: NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.
4. Application Method(s): Spray or Roller as recommended by the Paint Manufacturer. Brush must only be used for touch-up and stripe coating.
5. Preconstruction Priming:
  - a. Preconstruction priming must be in accordance with AWWA D102. Full removal of construction primer is not required if the primer is fully compatible with the specified paint system primer. A letter from the Paint Manufacturer certifying compatibility must be submitted with coating submittal.
  - b. Weld seams and bare steel must be cleaned to NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.
  - c. Areas with adherent preconstruction primer or rusting must be cleaned to NACE No. 4/SSPC SP-7 – Brush-Off Blast Cleaning.
  - d. A full field coat of the specified prime coat must be applied over the spot-cleaned bare steel and remaining preconstruction primer.
6. The coating system shall have a minimum adhesion of no less than 1,000 psi, (average of five tests) as tested per ASTM D 4541 when applied to SSPC – SP6 Commercial Blast Cleaned steel after 17 days cure at 40°F.
7. Three-coat system to be one of the following and of the same manufacturer of all other coating products used on this Project:
  - a. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Macropoxy 646	4 - 6 mils	White
Stripe Coat	Macropoxy 646	2 - 3 mils	Contrasting Color
Intermediate Coat	Sher-Loxane 800	3 - 4 mils	Beige
Finish Coat	Sher-Loxane 800	3 - 4 mils	Pantone #545C (Light Blue)
Minimum and Maximum DFT for System		10 - 14 mils	

- a. Carboline:

Coat	Product	DFT (mils)	Color
Prime Coat	Carboguard 60	4 - 6 mils	White
Stripe Coat	Carboguard 60	2 - 3 mils	Contrasting Color
Intermediate Coat	Carboxane 2000 or 2100	3 - 4 mils	Beige
Finish Coat:	Carboxane 2000 or 2100	3 - 4 mils	Pantone #545C (Light Blue)

Coat	Product	DFT (mils)	Color
			Carboline Color T124
Minimum and Maximum DFT for System		10 - 14 mils	

c. PPG:

Coat	Product	DFT (mils)	Color
Prime Coat	Amerlock 2/400	4 - 6 mils	White
Stripe Coat	Amerlock 2/400	2 - 3 mils	Contrasting Color
Intermediate Coat	PSX 800/805 Polysiloxane	3 - 4 mils	Beige
Finish Coat	PSX 800/805 Polysiloxane	3 - 4 mils	Pantone #545C (Light Blue)
Minimum and Maximum DFT for System		10 - 14 mils	

D. SS-01 Interior/Exterior Equipment, Pumps, Motors, Valves and Piping:

1. System applies to Interior/Exterior Equipment, Pumps, Motors, Valves and Piping that are bare or shop primed with epoxy, alkyd, acrylic, or unknown primer type. System is not to be used for submerged piping, piping in vaults or piping with insulation. Above grade exterior piping attached to tank is to be prepared and coated per the tank's specified exterior coating system.
2. Finish Coat Colors:
  - a. Potable water piping and valves: Pantone #284C
  - b. Valve hand wheels: Red.
  - c. Overflow drain flap valve: Gray.
3. Finish coat must be satin.
4. Surface Preparation:
  - a. Steel Pipe and Fittings – Clean per SSPC-SP 1, Solvent Cleaning and then clean per NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.
  - b. Ductile Iron Pipe and Fittings – Clean per NAPF 500-03-01, NAPF 500-03-04 and NAPF-03-05, with degree of cleanliness, Blast Clean No. 2.
  - c. Field preparation of Shop Primed Surfaces:
    - 1). Consult Engineer for surface preparation requirements for removal of asphaltic coatings.
    - 2). Slag and weld metal accumulations and splatters not removed by the fabricator must be removed in the field by chipping or grinding. Sharp edges must be peened, ground or otherwise blunted.
    - 3). Clean per SSPC-SP 1, Solvent Cleaning for steel applications. Clean per NAPF 500-03-01, Solvent Cleaning, for ductile iron applications.
    - 4). Areas adjacent to welds or any area where shop primer has been damaged must be thoroughly cleaned in accordance with SSPC SP2 - Hand Tool Cleaning and SSPC SP3 - Power Tool Cleaning preparation and re-primed for steel applications. Clean in accordance with NAPF 500-03-02, Hand Tool Cleaning

and NAPF 500-03-04, Power Tool Cleaning preparation and re-primed for ductile iron applications. All edges adjacent to damaged primer must be feathered.

- 5). If damage is too extensive or uneconomical to touch up or if the existing primer shows signs of wear or weathering, the entire item must be re-cleaned and coated in accordance with SSPC-SP7/NACE 4 - Brush Off Blasting using fine (30 to 100 mesh) abrasive for steel applications. Re-clean per NAPF 500-03-04, Abrasive Blast Cleaning for Ductile Iron Pipe and NAPF 500-03-05, Abrasive Blast Cleaning for Cast Ductile Iron Fittings, Cleanliness Level No. 2 for ductile iron applications. Welds and irregular surfaces must receive a stripe coat of the specified primer prior to the application of the first field coat.
  - 6). Provide final solvent cleaning as specified prior to coating.
  - 7). 100 to 200 grit sandpaper must be used to roughen the surface and feather edges of the existing coating system.
  - 8). Motors, electrical, equipment name plates, labels, tags, site glasses, gauges, etc. must be protected from damage during abrasive blasting.
  - 9). In lieu of field applied epoxy mastic prime coat, steel pipe and fittings may be shop primed with epoxy coating matching the approved intermediate coats indicated below. Touch up of shop applied coatings are to be made with epoxy mastic coating as specified.
5. Application Method(s): Spray or brush. Brush must be used for touch up and stripe coating.
  6. The coating system shall have a minimum adhesion of no less than 600 psi (average of five tests) as tested per ASTM D 4541 when applied to SSPC-SP6 Commercial Blast Cleaned steel after 17 days cure at 40°F.
  7. Three-coat system to be one of the following and of the same manufacturer of all other coating products used on this Project:
    - a. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Epoxy Mastic II	4 -6 mils	Aluminum
Stripe Coat	Macropoxy 646		Beige
Intermediate Coat	Macropoxy 646	5 - 10 mils	Beige
Finish Coat	Hi-Solids Polyurethane	3 - 5 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		13 - 25 mils	

b. Carboline:

Coat	Product	DFT (mils)	Color
Prime Coat	Carbomastic 15	4 - 6 mils	Aluminum
Stripe Coat	Carboguard 60		Beige
Intermediate Coat	Carboguard 60	4 - 6 mils	Beige
Finish Coat	Carbothane 134HG	2 - 4 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		10 - 16 mils	

c. PPG:

Coat	Product	DFT (mils)	Color
Prime Coat	Amerlock 2/400 AL	5 - 6 mils	Aluminum
Stripe Coat	Amerlock 2/400		Beige
Intermediate Coat	Amerlock 2/400	5 - 6 mils	Beige
Finish Coat	Amercoat 450HS	2 - 3 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		12 - 15 mils	

d. Tnemec:

Coat	Product	DFT (mils)	Color
Prime Coat	Chembuild Series 135	4 - 6 mils	Aluminum
Stripe Coat	66HS Hi-Build Epoxoline		Contrasting Color
Intermediate Coat	N69 Hi-Build Epoxoline II	4 - 6 mils	Beige
Finish Coat	73 Endura-Shield II	3 - 5 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		11 - 17 mils	

E. SS-02 Piping and Valves in Vaults and Under Insulation:

1. System applies to Equipment, Valves and Piping that are bare or shop primed with epoxy, alkyd, acrylic, or unknown primer type. System is to be used for submerged piping, piping in vaults or piping with insulation at ambient temperatures.
2. Finish Coat Colors:
  - a. Potable water piping and valves: Light blue.
  - b. Valve hand wheels: Red.
  - c. Overflow drain flap valve: Gray.
3. Finish coat must be satin.
4. Surface Preparation:
  - a. Steel Pipe and Fittings: Clean per SSPC-SP 1, Solvent Cleaning and then clean per NACE No. 3/SSPC-SP 6 – Commercial Blast Cleaning.
  - b. Ductile Iron Pipe and Fittings: Clean per NAPF 500-03-01, NAPF 500-03-04 and NAPF-03-05, with degree of cleanliness, Blast Clean No. 2.
  - c. Field Preparation of Shop Primed Surfaces:
    - 1). Consult Engineer for surface preparation requirements for removal of asphaltic coatings.

- 2). Slag and weld metal accumulations and splatters not removed by the fabricator must be removed in the field by chipping or grinding. Sharp edges must be peened, ground or otherwise blunted.
  - 3). Clean per SSPC-SP 1, Solvent Cleaning for steel applications. Clean per NAPF 500-03-01, Solvent Cleaning, for ductile iron applications.
  - 4). Areas adjacent to welds or any area where shop primer has been damaged must be thoroughly cleaned in accordance with SSPC SP2 - Hand Tool Cleaning and SSPC SP3 - Power Tool Cleaning preparation and re-primed for steel applications. Clean in accordance with NAPF 500-03-02, Hand Tool Cleaning and NAPF 500-03-04, Power Tool Cleaning preparation and re-primed for ductile iron applications. All edges adjacent to damaged primer must be feathered.
  - 5). If damage is too extensive or uneconomical to touch up or if the existing primer shows signs of wear or weathering, the entire item must be re-cleaned and coated in accordance with SSPC-SP7/NACE 4 - Brush Off Blasting using fine (30 to 100 mesh) abrasive for steel applications. Re-clean per NAPF 500-03-04, Abrasive Blast Cleaning for Ductile Iron Pipe and NAPF 500-03-05, Abrasive Blast Cleaning for Cast Ductile Iron Fittings, Cleanliness Level No. 2 for ductile iron applications. Welds and irregular surfaces must receive a stripe coat of the specified primer prior to the application of the first field coat.
  - 6). Provide final solvent cleaning as specified prior to coating.
  - 7). 100 to 200 grit sandpaper must be used to roughen the surface and feather edges of the existing coating system.
  - 8). After application of the prime coat, apply caulking to fill flanged joints to be level.
- d. In lieu of field applied epoxy mastic prime coat, steel pipe and fittings may be shop primed with epoxy coating matching the approved intermediate coats indicated below. Touch up of shop applied coatings are to be made with epoxy mastic coating as specified.
5. Application Method(s): Spray or brush. Brush must be used for touch-up and stripe coating.
  6. The coating system shall have a minimum adhesion of no less than 600 psi (average of five tests) as tested per ASTM D 4541 when applied to SSPC-SP6 Commercial Blast Cleaned steel after 17 days cure at 40°F.
  7. Three-coat system to be one of the following and of the same manufacturer of all other coating products used on this Project:
    - a. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Epoxy Mastic II	4 - 6 mils	Aluminum
Stripe Coat	Macropoxy 646		Beige
Intermediate Coat	Macropoxy 646	4 - 6 mils	Beige
Finish Coat	Macropoxy 646	4 - 6 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		12 - 18 mils	



b. Carboline:

Coat	Product	DFT (mils)	Color
Prime Coat	Carbomastic 15	4 - 6 mils	Aluminum
Stripe Coat	Carboguard 60		Beige
Intermediate Coat	Carboguard 60	4 - 6 mils	Beige
Finish Coat	Carboguard 60	4 - 6 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		12 - 18 mils	

c. PPG:

Coat	Product	DFT (mils)	Color
Prime Coat	Amerlock 2/400 AL	5 - 6 mils	Aluminum
Stripe Coat	Amerlock 2/400		Beige
Intermediate Coat	Amerlock 2/400	5 - 6 mils	Beige
Finish Coat	Amerlock 2/400	5 - 6 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		15 - 18 mils	

d. Tnemec:

Coat	Product	DFT (mils)	Color
Prime Coat	Chembuild Series 135	4 - 6 mils	Aluminum
Stripe Coat	66HS Hi-Build Epoxoline		Contrasting Color
Intermediate Coat	N69 Hi-Build Epoxoline II	4 - 6 mils	Beige
Finish Coat	N69 Hi-Build Epoxoline II	4 - 6 mils	Per 2.02.E.2
Minimum and Maximum DFT for System		12 - 18 mils	

F. SS-03 Exterior Concrete Coatings:

1. System applies to concrete to be coated for safety purposes, including, but not limited to bollards, light pole bases, etc.
2. Finish Coat Colors:
  - a. Light Pole Bases: Safety Yellow.
  - b. Other Locations: To be determined during construction.
3. Finish coat must be gloss.
4. Surface Preparation:
 

Concrete: Prepare per NACE No. 6/SSPC-SP 13 – Surface Preparation of Concrete.
5. Application Method(s): Spray or brush. Brush must be used for touch-up and stripe coating.

6. Three-coat system to be one of the following and of the same manufacturer of all other coating products used on this Project:

- a. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Macropoxy 646	4 - 6 mils	T.B.D.
Stripe Coat	Macropoxy 646		Contrasting
Intermediate Coat	Macropoxy 646	4 - 6 mils	Contrasting
Finish Coat	Hi-Solids Polyurethane	3 - 5 mils	Per 2.02.G.2
Minimum and Maximum DFT for System		11 - 17 mils	

- b. Carboline:

Coat	Product	DFT (mils)	Color
Prime Coat	Carboguard 890	5 - 6 mils	T.B.D.
Stripe Coat	Carboguard 890		Contrasting
Intermediate Coat	Carboguard 890	5 - 6 mils	Contrasting
Finish Coat	Carbothane 134 HG	2 - 3 mils	Per 2.02.G.2
Minimum and Maximum DFT for System		12 - 15 mils	

- c. PPG:

Coat	Product	DFT (mils)	Color
Prime Coat	Amerlock 2/400	5 - 6 mils	T.B.D.
Stripe Coat	Amerlock 2/400		Contrasting
Intermediate Coat	Amerlock 2/400	5 - 6 mils	Contrasting
Finish Coat	Amercoat 450HS	2 - 3 mils	Per 2.02.G.2
Minimum and Maximum DFT for System		12 - 15 mils	

- d. Tnemec:

Coat	Product	DFT (mils)	Color
Prime Coat	N69 Hi-Build Epoxoline II	4 - 6 mils	T.B.D.
Stripe Coat	N69 Hi-Build Epoxoline II		Contrasting
Intermediate Coat	N69 Hi-Build Epoxoline II	4 - 6 mils	Contrasting
Finish Coat	1074U Endura-Shield II	3 - 5 mils	Per 2.02.G.2
Minimum and Maximum DFT for System		11 - 17 mils	

### 2.03 COATING REPAIR

- A. Coating repair materials will be as recommended by the Coating Manufacturer and as approved by the Engineer.
- B. All repair materials in contact with potable water must be NSF 61 certified.

### 2.04 ANTI-GRAFFITI COATINGS

- A. Anti-graffiti coatings are to be non-sacrificial and provided specifically for the substrate to which it is being applied.

B. Coating Manufacturer must confirm the product(s) are compatible with shop coating systems, if specified.

1. Sherwin-Williams:

Coat	Product	DFT (mils)	Color
Prime Coat	Anti-Graffiti Coating - Reduced	N/A	Clear
Finish Coat	Anti-Graffiti Coating	6 - 9 mils	Clear
Minimum and Maximum DFT for System		6 - 9 mils	

2. Approved Equal

2.05 SLIP-RESISTANT ADDITIVE

A. Slip resistant additive is to be added to finish coating and be compatible with the existing coating to provide a slip resistant surface without compromising the longevity of the finish coating.

B. Coating Manufacturer must confirm the product(s) are compatible with shop coating systems, if specified.

C. Approved Manufacturers:

- a. H&C SharkGrip Slip-Resistant Additive
- b. Approved Equal

2.06 EPOXY FILLER AND SURFACER

A. Product must be a high solids epoxy filler and surface for steel. Product does not need to be NSF/ANSI Standard 61 certified if coated with NSF certified coating system.

B. Coating Manufacturer must confirm that products are compatible with coating system.

C. Approved Manufacturers/Products:

- 1. Tnemec: Series 215 Surfacing Epoxy.
- 2. Sherwin-Williams: Steel-Seam FT910.
- 3. AkzoNobel/International Paint, LLC: Ceilcote 610.
- 4. As approved by the Coatings Manufacturer and the Engineer.

2.07 GEOTEXTILE FABRIC

Fabric Material must be a non-woven, 100 percent polypropylene fabric, with a “heat-set” on one side. Material to weigh 8 to 10 oz./yd<sup>2</sup> and be approved by the Coating Supplier.

2.08 CAULK SCHEDULE

IC-01 Tank Interior/Exterior System:

- A. Sika Flex 1A or Approved Equal.
- B. Product must be NSF 61 approved for contact with potable water.
- C. Color:
  - 1. Caulking within the interior of the tank must be a contrasting color to the finish coat as approved by the Owner.

2. Exterior and exposed caulking color must be approved by the Owner.

#### 2.09 SALT AND CHLORIDE REMOVAL

The following products may be used to remove salts from surfaces. Product must not interfere with the adhesion of the protective coatings and linings. Coating Manufacturer must provide a letter indicating no adverse effects prior to use.

Approved Products:

- A. Chlor\*Rid Salt Remover.
- B. Holdtight 102.
- C. Approved Equal.

#### 2.10 COLOR SELECTION

- A. Contractor must submit drawdowns for Owner's review and approval of final color selection for all exterior coating systems.
- B. Use a multi-color system coating for any surface receiving more than one coat. Each coat must be tinted differently from the preceding coat in a manner that will allow the various coats to be easily distinguished. Colors must generally be from light to dark shades, but the Contractor may have the option to select tint shades to insure coats will receive adequate coverage without bleeding or otherwise showing through the preceding coat.
- C. Piping and equipment must be color coded in accordance with the requirements of the Texas Commission on Environmental Quality (TCEQ) or as indicated above.

#### 2.11 ABRASIVE MATERIALS

- A. Abrasive materials used must be non-carcinogenic when properly used, properly graded, be sharp, have proper angularity, and be clean and free of contaminants that would interfere with adhesion of coating, including lead, chromium, cadmium, arsenic, chlorides, dirt, oil, etc., such as steel grit or approved equal.
- B. All expendable abrasives must meet SSPC-AB 1 and all abrasives must meet the requirements of SSPC-AB 1, Class A for silica content with less than 1 percent silica by weight before blasting.
- C. New ferrous recyclable abrasive must meet SSPC AB 3 and AB 2.
- D. Ferrous and Non-Ferrous recycled abrasive must meet the requirements of SSPC-AB 2/4, for new and re-manufactured abrasives. Recycled abrasive used on this Project must be sampled before use by the Owner's representative and the Contractor. Contractor must take samples in the presence of the Owner's representative. Every barrel or container of recycled abrasive must be tested. Contractor must have the samples sent to a laboratory for testing per SSPC AB 2/4 and for atomic absorption testing for total lead, cadmium, chromium, barium and arsenic. The recycled abrasive must not be used until the results of the atomic absorption testing, testing required by SSPC-AB 3/4 and chain of custody forms are submitted and accepted by the Engineer. Test results must indicate that the total lead levels are less than 1000 ppm (<0.1 percent) to be allowed to be used on this Project. Test must be used for abrasives used in both shop and field abrasive blasting.
- E. The grade must be of such size as to achieve an acceptable anchor pattern or surface profile as required by the Coating Manufacturer.

F. Silica sand may not be used as a blast abrasive.

### **3.00 EXECUTION**

#### **3.01 GENERAL**

- A. All materials must be handled and applied in accordance with the Coating Manufacturer's recommendations.
- B. No coatings may be applied while water is in the reservoir.
- C. All coating material for the exterior topcoat must be mixed from one batch number. Batching should occur so that the shelf life extends beyond the end of the Project.
- D. All blasting and coating equipment must be in first class condition and comply with all recommendations of the Coating Manufacturer and these specifications. The Owner reserves the right to have the Contractor immediately repair, modify or remove equipment functioning poorly or creating a nuisance as determined by the Owner.
- E. Do not apply any coating to machinery, piping, or other surfaces before testing has been completed and systems approved. Any damage to coatings resulting from subsequent corrective procedures must be stripped back to bare metal and repainted with the appropriate paint system as directed by the Engineer.
- F. Surfaces which will be inaccessible after installation must be coated prior to installation or must be coated and approved in stages as the work is installed.
- G. At least 7 days must be allowed for drying of finished surfaces before any machinery can be placed into service.
- H. Do not apply coating over nameplates or other identification plaques. Mask such plates and keep protected. Remove tape and polish nameplates after painting is complete.
- I. Coating application procedures must conform to the standards of craftsmanship as discussed in the Steel Structures Painting Manual, Volume 1 "Good Painting Practice".
- J. All thinning must be as per the Coating Manufacturer's recommendations. Use only those thinners expressly approved by the Manufacturer for the coatings used on this Project. All thinners used with interior surface coatings must be those tested and approved by NSF in conjunction with the NSF approved coating materials. Do not allow thinners to be stored in unmarked containers at any time.
- K. Proper illumination equipment must be provided by the Contractor in accordance with SSPC Guide 12. Explosion-proof lights and electrical equipment must be provided. Whenever required by the Owner's representative and/or Owner, the Contractor must provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes will be determined by the Owner's representative or Owner. Project lighting must not interfere with existing residences or schools. Complaints from adjacent residential neighbors will require Contractor to modify lighting plan to address complaint. Project lighting is considered subsidiary work relating to various bid items of the Contract.
- L. The Contractor must provide covers and plugs for the intake, discharge and drain piping at the point where the pipe enters the water compartment to prevent debris, or any other foreign matter from entering the water mains. The covers and plugs must remain in place from beginning of the job until just prior to filling the reservoir for disinfection.

- M. Grating or grills must be securely attached to all openings not otherwise secured at the end of work each day until work commences again. Gratings or grills must be used on all openings until the reservoir is secured for service. Grates or grills must be of at least 1/4-inch wire mesh, with a minimum of two (2) square inch mesh openings and a maximum of six square inch openings, to allow adequate free air passage and reservoir protection.
- N. The Engineer must approve surfaces for application of coatings at each stage. Any material that is coated prior to the Engineer's approval must be stripped back to bare metal and repainted.
- O. Cleaning and coating must be scheduled such that dust and other materials from adjoining work will not contaminate wet or newly coated surfaces.
- P. Roof plates must be jacked off rafters as required to abrasive blast and coat between the rafters and roof plates. Contractor is responsible for any damages to the tank and structural members resulting from point loading or over jacking the roof. Contractor must use swivel or angle tips to allow abrasive blasting and coating between rafter and roof plates and other tight areas not accessible with straight tips.
- Q. Where inspection shows that the specified thickness is not developed, apply additional coats to produce the required dry film thickness.
- R. Stainless steel may be welded to the tank. Exterior coating system must be applied 6 inches onto any stainless steel materials welded to the tank. The stopping point on the stainless steel surfaces that are to be coated must be masked with painter's tape. The tape must be removed after the coating has dried to a soft consistency, but before it is cured.
- S. The Contractor may install painter's nipples in the roof of the tank for supporting staging on the interior of the tank. The nipples must remain a part of the tank after construction is complete. Nipples are to be constructed of 316 stainless steel and coated with the specified coating system. Contractor must submit Shop Drawings for the nipples, the location of the nipples and a narrative on how the nipples will be prepared for interior coatings.
- T. All applicable equipment must be electrically grounded as required and must have clean operating gauges, moisture traps, etc.
- U. Effective oil and water separators combined with after coolers or deliquescent dryers must be used in compressed air lines serving abrasive blasting operations to remove detrimental oil and moisture from the air. Compressors may be tested periodically by the Owner's representative for oil and water contamination of compressed air per ASTM D4285. All compressor units found to produce unacceptable amounts of oil and or water must be replaced with a compressor that is acceptable.

### 3.02 SURFACE PREPARATION

- A. Shop Surface Preparation: Clean and degrease surfaces prior to abrasive blasting to SSPC-SP 1 Solvent Cleaning. Methods described in SSPC SP-1 include solvents, detergent/water, emulsions, and steam. Proposed method must be documented in the coating plan. Contractor must contain and properly dispose of all runoff and debris from cleaning. Prepare surfaces by abrasive blasting as specified and apply shop prime coat. Shop primed steel plates must not have primer extended within 4 inches along all edges to be welded. All primer within 4 inches of an area to be welded must be removed prior to welding. Welding of painted services will not be allowed.

B. Field Surface Solvent Cleaning:

1. Clean and degrease surfaces prior to abrasive blasting to SSPC-SP 1 Solvent Cleaning. Methods described in SSPC SP-1 include solvents, detergent/water, emulsions, and steam. Proposed method must be documented in the coating plan. Contractor must contain and properly dispose of all runoff and debris from cleaning. Remove heavy deposits of grease or oil from the surface prior to any other surface preparation. Neutralize and flush chemical contamination prior to any surface preparation.
2. All weld slag, spatter, rough welds and other sharp or rough areas must be removed. All rusted, abraded and unpainted areas must be abrasive blast cleaned as specified. Touch up prime coat with primer as specified. Contractor must contain and properly dispose of all runoff and debris from cleaning.

C. If the following conditions exist or are prevalent, surface preparation and coating must be delayed or postponed until conditions are favorable. Each day's coating must be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions or changes. No surface preparation may begin or coating applied:

1. When the surface, air or material is below or above the Manufacturer's printed instructions.
2. When surfaces are wet or damp.
3. During weather conditions of rain, snow, fog or mist.
4. When the air and steel temperature is less-than or equal to 5° F above the dew point temperature.
5. If the relative humidity is above 85 percent.
6. When it is expected that the air and/or surface temperature will be below or above the Coating Manufacturer's recommended temperatures within 4 hours after applications of coating, minimum. Coating Manufacturer may require additional time between application and temperature and weather changes.

D. All pre-assembled shop primed items must be prepared in accordance with these specifications and inspected by the Owner's representative before and after priming.

E. For both immersion and non-immersion service, all sharp edges and welds must be ground smooth to a rounded contour and all weld splatter must be removed prior to abrasive blasting. Edges of metal to be coated must be rounded to a minimum of 1/16-inch radius of chamfered a minimum of 1/16 inch at an angle of 45 degrees.

F. Weld profiles must conform to NACE RP0178, Profile 'D'.

G. Abrasive Blasting:

1. Prior to extensive abrasive blasting operations, the Contractor must perform a test blast on both the exterior and interior of the tank in the presence of the Engineer or Owner's representative. Test section must be a minimum of 5 feet by 5 feet. The Engineer or Owner's representative must verify that the surface cleanliness and profile meet the requirements of the specification and meet the Coating Manufacturer's requirements for the coating to be applied. If the test section does not meet the requirements, the Contract must make changes to the abrasive materials and methods to provide suitable blast.
2. Abrasive blast only the amount of surface area which can be primed the same day or before any rust starts to form, whichever occurs first. Areas which are not painted the same day must be re-blasted on the day the prime coat is applied.

3. Blasting abrasive may be left on the tank floor while painting the interior roof and walls provided no paint is applied to the walls within 10 feet of the floor.
  4. Shrouding or recovery of all blast material will be mandatory during all exterior blasting.
    - a. The TCEQ has established, under Regulation I, Control of Air Pollution and Visible Emissions from Particulate Matter, Standard 30 TCEQ 111.131, 111.133, 111.135, 111.137, and 111.139 titled "Abrasive Blasting of Water Storage Tanks Performed by Portable Operations". All work must be performed in accordance with these regulations and are hereby made part of this Section by reference.
    - b. Contractor must provide written notification of activities to the Air Section Manager at the applicable TCEQ Regional Office and any local authorities having jurisdiction over abrasive blasting activities. Refer to 30 TAC 111.135(b).
  5. The Contractor must contain all waste and process discharge in accordance with the accepted methods for the process and materials that are in abatement.
  6. Air filtration/dust collectors must be used in conjunction with the dehumidification and/or ventilation equipment during blasting operations.
  7. Where abrasive blast cleaning will not remove or properly prepare metal surfaces, hand and/or power tool cleaning must be used to remove such conditions as weld splatter, laminations and radius-sharp edges. Hand tool or power tool must be used on areas less than 2 feet in diameter or smaller or on corners and edges of the reservoir and its internal support members.
  8. All abrasive blast equipment must be equipped with, including but not limited to the following:
    - a. Noise reducing devices.
    - b. Hose coupling safety devices.
    - c. Electrical grounding devices.
    - d. Moisture traps and filters.
    - e. Fresh air hoods for all blasters.
    - f. "Dead Man" switches on all blast hoses.
    - g. Air Dryers.
  9. Alternate Methods: Alternate removal methods must have prior written approval by the TCEQ Air Program prior to submittal to the Owner for consideration.
- H. Surface profile must be in accordance with the Manufacturer's printed requirements.
- I. The adequacy of the preparation of surfaces must be determined by comparing the surface with SSPC VIS 1, SSPC VIS 3, SSPC VIS 4 and NACE RP0178.
- J. The requirements for preparing carbon steel for painting apply to stainless steel, with the exception that the Contractor must not use metallic abrasives on stainless steel.

### 3.03 APPLICATION

- A. After abrasive blast cleaning, dust and spent abrasive must be removed from the surfaces by air blasting and brush sweeping. The prime coat must be applied as soon as possible after the blasting and surface cleaning is completed, inspected and approved by the Inspector.



- B. Blasted surfaces must be coated before rust forms on the surface. No prepared surface will be allowed to receive a coating if “rust bloom” or surface discoloration has occurred. All blasted surfaces must be coated to within 6 inches of the edge of a blasted area. No visible rust must be coated under any circumstances, including rust bloom or if discoloration has occurred, regardless of elapsed time between blasting and coating.
- C. Provide mist coat if recommended by the Coating Manufacturer.
- D. The Contractor must apply each coat at the rate and in the manner specified by the Coating Manufacturer, except as may be modified herein. If material has thickened or must be diluted for application, coating must be built up to the same dry film thickness as specified for each coat of the complete system.
- E. Maximum and minimum DFT must be per the supplied Coating Manufacturer’s printed requirements and as required by this Section. DFT will be measured per SSPC-PA 2, Level 2 with an allowable measurement of spot DFT of:
  - 1. Minimum DFT as specified, no less than the minimum specified will be accepted.
  - 2. 120 percent of maximum DFT specified.
- F. The Contractor and painting technicians will be responsible for application of coating system and must have current applicator certifications from the Coating Manufacturer. Submit certifications with coating submittal. Manufacturer must certify that coating system is compatible with the tank’s cathodic protection system.
- G. No coating may be used which has an expired shelf or pot life.
- H. Coating must be applied by skilled workmen and must be brushed out or sprayed evenly, without runs, crazing, sags, or other blemishes.
- I. Sand between coats to remove over spray and dry fall.
- J. Apply the first coat to the surface, including cutting in around edges, before the second coat is applied. The second coat and any successive coats must not be applied before notifying the Owner’s field representative and obtaining approval. Each coat must be tested before the successive coat is applied.
- K. The coating curing period must be adjusted to compensate for less than adequate weather conditions, as recommended by the Coating Manufacturer, for complete curing of the entire coating system. The full curing time recommended by the Manufacturer must be provided.
- L. Coating must be continuous and must be accomplished in an orderly manner to facilitate proper inspection control.
- M. Where a roller or brush is used to apply the coating, additional coats may be necessary to achieve the recommended dry film thickness and/or to achieve total coverage of the underlying surface. Coated surfaces must be totally free of all roller nap, roller marks, brush bristles and brush marks.
- N. When using conventional coating spray equipment for coating operations, effective oil and water separators combined with after coolers or deliquescent dryers must be used in compressed air lines to remove detrimental oil and moisture from the air. Separators must be placed as far as practical from the compressor. Compressors may be tested periodically by the Owner’s representative for oil and water contamination of compressed air. Testing must follow ASTM D4285 “Standard Test Method of Indicating Oil and Water in Compressed Air”. All compressor units found to produce unacceptable amounts of oil and or water, as

determined by results of ASTM D4285 test data and interpretation of data by the Owner's representative must be replaced with a compressor that is acceptable.

- O. To the extent possible, the interior and exterior of all piping entering through the walls of the reservoir tank must be blasted and recoated the same as their respective reservoir walls. The interior of piping entering through the reservoir floor must be blasted and recoated the same as the interior of the reservoir. Methods of recovering blast material from the inside of the pipes must be submitted and approved by the Owner.
- P. Check for compatibility when applying coatings over existing coatings. Apply a test patch of the recommended coating system, covering at least 2 to 3 square feet or as directed by the Engineer. Allow to cure 1 week before testing adhesion per ASTM D3359 in the presence of the Engineer. If adhesion does not meet the Manufacturer's published data, consult with the Engineer.

### 3.04 100 PERCENT SOLIDS INTERIOR LINING SPECIAL SURFACE PREPARATION

- A. Coatings must not be applied to flash rusted surfaces or to existing coatings.
- B. All weld seams, gaps, edges, bolts and difficult areas difficult to coat must receive an initial spray applied stripe coat of the high solids coating just before application of the liner over the entire surface.
- C. Geo-Textile Fabric:
  - 1. Contractor must apply geo-textile fabric over sharp edges, areas of pitting as determined by the Engineer, over bolted and gasketed seams and other locations determined by the Engineer.
  - 2. Contractor is to stripe coat the area to be treated. Place pre-cut length of fabric and press evenly into coating. "Heat-set" side of fabric is to be facing out, i.e. "fuzzy" side towards the steel. Fabric is to be embedded in the stripe coat and then encapsulated as the same time as the rest of the structure. Exposed fabric fibers, edges or other discontinuities are not acceptable.
- D. Backer-Rod: In unsealed joints, corners and gaps, fill gaps with backer rod. Backer rod is to be packed into gaps after stripe coat of the area and then coated with final coat.
- E. Contractor must provide primer over pitted or corroded areas per the Coating Manufacturer's recommendation and as approved by the Engineer. No separate pay.

### 3.05 STRIPE COAT

- A. Stripe coat must be applied by brush and thinned according to written Coating Manufacturer's recommendations and applied to all welds, weld seams, tack welds (new and old), edges, bolts, rivets, ladder rails and rungs, seamed corners, joints of any kind and locations where brackets, lugs and other difficult to coat surfaces exist. Stripe coat on all welds and weld seams must extend 2 inches minimum above, below and beyond all welded sections.
- B. Stripe coat must occur in coating system layering as stated in Coating Schedule.
- C. Stripe coat is accomplished by moving the brush back and forth in a scrubbing motion working primer into all crevices. Stripe coat must be performed with a high-quality bristle brush using primer that has been thinned according to the Manufacturer's instructions. Bristles left on the surface must be removed before the coating dries. If bristles are

discovered after the coating has dried, the bristle must be removed, the coating removed, and the area correctly re-coated at no additional cost to the Owner.

D. Stripe coating must be tinted such that it can be easily distinguished from the other coats.

### 3.06 FINISH

A. All primer, intermediate and finish coats must be inspected visually and must be free of all sags, runs, bubbles, drips, waves, laps, unnecessary brush marks, over spray, environmental contaminants or other physical defects, including shadows, and be uniform in color, texture and gloss. All coatings must be applied in a professional manner to achieve the specified dry film thickness (DFT) leaving a smooth and uniform coating.

B. Prior to application of the intermediate and finish coats, exterior surfaces must be thoroughly waterjet cleaned to remove any surface contamination in accordance with the Coating Manufacturer's recommendations.

C. Sand between coats to remove over spray and dry fall.

D. Finish coat must have a uniform color and texture. Any "bleed through" will not be accepted and Contractor must provide additional coatings as required to provide a uniform color at no additional cost to the Owner.

E. Apply caulk in accordance with the Manufacturer's recommendation. After application of the finish coat on the interior of the reservoir, apply caulking to seal roof laps, skip welded roof rafters, around bolts and on bolt threads and other areas not seal welded.

### 3.07 ANTI-GRAFFITI COATING

A. Provide anti-graffiti coating on tank concrete pedestal as indicated on the plans. If not indicated on the plans, coating is to extend a minimum of 1-foot below to 16-feet above finished grade.

B. Coating is to be applied per the manufacturer's written directions.

### 3.08 SLIP-RESISTANT ADDITIVE

A. Provide slip-resistant additive to finish coating for areas indicated on the plans. If not indicated on the plans, provide additive for all areas within roof guardrails, 3-feet around the center vent and provide 3-foot paths connecting appurtenances on the roof.

B. Contractor must provide mock panels on cardboard or other material to demonstrate the pattern and roughness to be provided for Engineer review prior to application.

C. Coating is to be applied per the manufacturer's written directions.

### 3.09 PROTECTION OF EXISTING STRUCTURES

A. The Contractor must take every precaution available while cleaning and coating the reservoir and pedestal to avoid dusting or spraying the reservoir property, nearby residences and vehicles with either blast debris or over-spray coating. Shrouding is mandatory for exterior abrasive blasting and for spray application of coatings. All shrouding, containment and disposal of waste will be in conformance with TCEQ Requirements. The Contractor will be responsible for properly loading, securing, transporting and disposing of all waste.

B. If, in the opinion of the Owner's representative, modifications or repairs are necessary to the shroud or ground cover apparatus to provide improved containment of blasting or coating

operations, blasting and coating operations must stop until the Owner's representative indicates to the Contractor that adequate repairs are complete.

- C. Prior to any surface preparation, the ground surrounding the reservoir and pedestal must be covered with tarps or a similar ground cover that will allow for recovery of paint scraps and blast media. Adequate protection of all areas surrounding the tank must be provided during coating application.
- D. The Contractor is responsible for complete cleanup of any and all areas contaminated by blast debris.
- E. The Contractor is responsible for any and all damages to on-site facilities, residences, vehicles and/or public health, including any fines or penalties resulting from improper containment during blasting or coating of the reservoir and pedestal.
- F. If present at the Site, all security equipment (light poles, camera poles, microwave beam poles, etc.) must be protected by construction of temporary fences or barricades around above ground devices. Four feet must remain clear of construction materials and activities around all security equipment devices.
- G. Protect adjacent materials from damage, including over spray or spillage. Provide drop cloths or other protective tarps to cover floors, equipment or other adjacent materials.

### 3.10 CLEAN AND ADJUST

- A. Promptly remove trash and debris resulting from painting operation from the Site. Remove drop cloths, masking tapes and other protective coverings. Remove paint spills, splatters, overlap of paint from adjacent material and other defects. Spot paint nicks and other defects.
- B. Remove paint containers and waste products. Thoroughly clean paint storage rooms, removing spilled paint from walls and floors.

### 3.11 ANNIVERSARY INSPECTION

- A. The Owner and Contractor must observe all surfaces of the reservoir within 11 to 23 months after the reservoir work has been accepted for Substantial Completion and placed in service to establish if remedial work is required. If the water utility is not able to remove the tank from service for the inspection or for any repair work, due to adverse weather conditions, drought or system limitations, the inspection or repair work may be delayed by the Owner for up to 16 months at no additional cost. All repair work must be conducted within a schedule approved by the Owner.
- B. If failures in any portion of the reservoir surface, exceeds 5 percent of that portion, as determined by the Owner, then for that portion, the entire coating system must be completely removed, re-coated and re-tested in accordance with the specifications herein. In the event any portion of the reservoir surface requires repair, partial or complete, a second anniversary observation must be made unless the Owner otherwise deems it not to be necessary. If subsequent anniversary observations are made, time stipulations, coating removal, repair; re-testing requirements must be the same as provided for in this Specification. Each subsequent repair will have a warranty observation to occur within 24 months after the repair is completed.
- C. The Owner will isolate the reservoir from the distribution system and drain the reservoir. The Contractor must open, clean out, high-pressure water wash and rinse the tank prior to the anniversary observation. After observation of the tank is complete and repair work accepted by Owner, the Contractor must follow disinfection procedures specified.

- D. The Contractor must provide suitable and adequate equipment including, lighting, ventilation, rigging, cable climbers, mirrors, inspection equipment, and sufficient man-power to clean, disinfect and move equipment and tools around the reservoir, etc., as may be necessary to facilitate complete observation of all interior surfaces. The Contractor must bear all costs of the anniversary observation and must incorporate such costs into its Bid.
- E. Any location, including but not limited to locations where a coating has peeled off, bubbled, blistered, chipped, or cracked, etc., or where pinholes and/or holidays are present and locations where rusting or corrosion is evident, will be considered a failure or defect of the coating system and must be repaired as required. Repairs will be made at areas or locations where coating failures are found, even though metal surfaces may be protected by a cathodic protection system.
- F. Methods of testing for coating failure which, may or may not be evident, must include, but not be limited to, adhesion tests, film thickness measurement, holiday testing, etc. Testing may be non-destructive or destructive. The Contractor, at its own expense, must repair all areas where destructive tests are performed.
- G. The anniversary repair work must be completed within an agreed time as determined by the Owner and Contractor. All repairs must be made as per the Coating Manufacturer's written repair work instructions or that which is approved and acceptable to the Owner and completed within 90 calendar days of the anniversary observation.

15112

DUAL-PLATE WAFER STYLE CHECK VALVES

1.00 GENERAL

1.01 WORK INCLUDED

Furnish labor, materials, equipment and incidentals necessary to install dual-plate wafer style check valves with flangeless bodies at the locations indicated.

1.02 QUALITY ASSURANCE

A. Approved Manufacturers:

- 1. Crane Duo Check II Style G
- 2. Gulf Wafer Check
- 3. APCO Style 9000
- 4. Approved Equal

B. Experience Requirements: The Manufacturer shall have had successful experience in manufacturing dual-plate wafer style check valves for this type of service in the sizes indicated. The Manufacturer shall have at least 10 years of experience in the manufacture of these valves.

C. Factory Testing: The valves shall be hydrostatically tested at twice their rated working pressure. A seat closure test at the valve rating shall be conducted to demonstrate zero leakage. Additional tests shall be conducted per AWWA standards. The Manufacturer shall provide certified test reports.

1.03 SUBMITTALS

Submittals shall be in accordance with Section 01300 "Submittal Procedures" and shall include:

- A. Three sets of certified drawings showing the principal dimensions, general construction, and material specification for each valve proposed.
- B. Certificate of Adequacy of Design.
- C. Operation and Maintenance Manual.
- D. Certified Test Reports.

1.04 STANDARDS

The applicable provisions of the following standards shall apply as if written here in their entirety:

ASTM A 126	Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
ANSI B16.1	Cast Iron Pipe Flanges and Fittings
AWWA C518-08	Dual-Disc Swing-Check Valves for Waterworks Service
AWWA C550	Protective Epoxy Interior Coatings for Valves and Hydrants

## 2.00 PRODUCTS

### 2.01 DUAL-PLATE WAFER STYLE CHECK VALVES

- A. The check valves used shall be ANSI Class 250, dual-plate wafer style check valves unless otherwise specified
- B. Check valve shall be compact wafer design, to fit between flanges.
- C. The check valve doors shall be spring loaded, normally closed, by means of one or more heavy duty stainless steel torsion springs, flow from the elevated storage tank shall cause the doors to open and upon pressure equalization, the torsion spring will shut the doors before reverse flow starts and at a point of zero velocity for non-slam closure. The valve spring shall be a standard torque spring specifically designed for this style valve.
- D. The valve body will be short face-to-face, dimension to ANSI standards.
- E. Seating shall be resilient and water tight; the seating element shall be BUNA-N-molded to the body casting. Seal design must allow for positive seating at both high and low pressures. Seal shall have minimal contact at low pressures with progressively increased contact at higher pressures. The disc shall fully overlap the synthetic seal, preventing pressure indentations.
- F. Valves 5-inch and larger shall be fitting with a lifting eye bolt for installation purposes.
- G. Studs and nuts shall be included. Hardware shall be 304 stainless steel with quantity two (2) 2H nuts.
- H. The approved products must be certified by a manufacturer's registered professional engineer that the product meets this specification and the referenced A.S.T.M. standards.

Body	All Accepted and Approved	Ductile Iron ASTM A536 Cast Steel ASTM A216 WCB Cast Iron ASTM A126 GR.B Ductile Iron ASTM A536
Doors	Both Accepted and Approved	Cast Steel ASTM A216 WCB A1.Bronze ASTM B148 C95200

- I. Sealing Element Buna-N
- J. Torsion Spring T316 Stainless Steel
- K. Hinge Shaft T316 Stainless Steel
- L. Stop Shaft – T316 Stainless Steel
- M. Exterior Paint – Epoxy Primer
- N. Linings and any parts of the valve shall be NSF 61 approved for potable water contact.
- O. Flange gaskets shall be in accordance with Section 15136 "Miscellaneous Valves and Appurtenances".
- P. Valve Coating: All interior and exterior ferrous surfaces of the valve, including the disc, shall be coated with fusion bonded epoxy, N.S.F. 61 certified. The fusion bonded epoxy shall have a nominal thickness of 8 mils, and shall be in accordance with AWWA C550, latest revision. Coating shall be as close to holiday free as is technologically possible.

### **3.00 EXECUTION**

#### **3.01 INSTALLATION**

- A. Installation and adjustment shall be made in accordance with instructions which shall be furnished by the Vendor or Manufacturer. Construction Contractor shall furnish flange nuts, bolts, washers, and gaskets for all valves.
- B. Carefully handle and lower the valves into position so to prevent damage to any part of the valves.

#### **3.02 FIELD QUALITY CONTROL**

Upon completion of installation of the valves an acceptance test shall be conducted to verify the satisfactory operation of the valves. The valves must perform in a manner acceptable to the Engineer before final acceptance will be made by the Owner.

**END OF SECTION**



RR	App.	Revisions	Freese And Nichols, Inc. Job No.
8-2-21	ADDENDUM #2		SWB18277
No.	Date		Freese and Nichols, Inc. Texas Registered Engineering Firm F-2144



COVER

GENERAL

- G-1 - SHEET INDEX
- G-2 - GENERAL NOTES I
- G-3 - GENERAL NOTES II
- G-4 - TEXAS COMMISSION ON ENVIRONMENTAL QUALITY GENERAL NOTES

CIVIL

- C-1 - SITE PLAN AND SURVEY CONTROL
- C-1A - HORIZONTAL ALIGNMENT DATA SHEET
- C-2 - GRADING AND PAVING PLAN (SHEET 1 OF 5)
- C-3 - GRADING AND PAVING PLAN (SHEET 2 OF 5)
- C-4 - GRADING AND PAVING PLAN (SHEET 3 OF 5)
- C-5 - GRADING AND PAVING PLAN (SHEET 4 OF 5)
- C-6 - GRADING AND PAVING PLAN (SHEET 5 OF 5)
- C-7 - TANK OVERFLOW PLAN AND PROFILE
- C-8 - ROADWAY EXPANSION/CONTRACTION JOINT PLAN
- C-9 - MISCELLANEOUS SITE DETAILS (SHEET 1 OF 2)
- C-10 - MISCELLANEOUS SITE DETAILS (SHEET 2 OF 2)
- C-11 - ELEVATED SIDEWALK AND RETARD STANDARDS
- C-12 - MISCELLANEOUS CONSTRUCTION STANDARDS I
- C-13 - OVERFLOW GRATE INLET DETAIL
- C-14 - RIPRAP HEADWALL STANDARD
- C-15 - SECURITY FENCE & DOUBLE LEAF SWING GATE DETAILS
- C-16 - HEAVY DUTY CANTILEVER SLIDE GATE DETAILS
- C-17 - CHAINLINK WIRE FENCE STANDARDS
- C-18 - CONCRETE DRIVEWAY STANDARDS
- C-19 - METAL BEAM GUARD FENCE (GF (31)-14)

EROSION CONTROL SWPPP

- C-20 - STORM WATER POLLUTION PREVENTION PLAN (SW3P) NARRATIVE (SHEET 1 OF 2)
- C-21 - STORM WATER POLLUTION PREVENTION PLAN (SW3P) NARRATIVE (SHEET 2 OF 2)
- C-22 - STORM WATER POLLUTION GENERAL NOTES
- C-23 - STORM WATER POLLUTION PREVENTION PLAN (SW3P) LAYOUT
- C-24 - TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1
- C-25 - TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

TRAFFIC CONTROL STANDARDS

- C-26 - COSA BARRICADE AND CONSTRUCTION STANDARDS (SHEET 1 OF 4)
- C-27 - COSA BARRICADE AND CONSTRUCTION STANDARDS (SHEET 2 OF 4)
- C-28 - COSA BARRICADE AND CONSTRUCTION STANDARDS (SHEET 3 OF 4)
- C-29 - COSA BARRICADE AND CONSTRUCTION STANDARDS (SHEET 4 OF 4)
- C-30 - TxDOT TRAFFIC CONTROL PLAN (MOD) TCP (1-1)-18
- C-31 - TxDOT TRAFFIC CONTROL PLAN (MOD) TCP (1-2)-18
- C-32 - TxDOT TRAFFIC CONTROL PLAN (MOD) TCP (1-4)-18
- C-33 - TxDOT BARRICADE AND CONSTRUCTION BC (1)-14 (SHEET 1 OF 12)
- C-34 - TxDOT BARRICADE AND CONSTRUCTION BC (2)-14 (SHEET 2 OF 12)
- C-35 - TxDOT BARRICADE AND CONSTRUCTION BC (3)-14 (SHEET 3 OF 12)
- C-36 - TxDOT BARRICADE AND CONSTRUCTION BC (4)-14 (SHEET 4 OF 12)
- C-37 - TxDOT BARRICADE AND CONSTRUCTION BC (5)-14 (SHEET 5 OF 12)
- C-38 - TxDOT BARRICADE AND CONSTRUCTION BC (6)-14 (SHEET 6 OF 12)
- C-39 - TxDOT BARRICADE AND CONSTRUCTION BC (7)-14 (SHEET 7 OF 12)
- C-40 - TxDOT BARRICADE AND CONSTRUCTION BC (8)-14 (SHEET 8 OF 12)
- C-41 - TxDOT BARRICADE AND CONSTRUCTION BC (9)-14 (SHEET 9 OF 12)
- C-42 - TxDOT BARRICADE AND CONSTRUCTION BC (10)-14 (SHEET 10 OF 12)
- C-43 - TxDOT BARRICADE AND CONSTRUCTION BC (11)-14 (SHEET 11 OF 12)
- C-44 - TxDOT BARRICADE AND CONSTRUCTION BC (12)-14 (SHEET 12 OF 12)
- C-45 - FIRE SITE PLAN

YARD PIPING

- W-1 - WATER LINE PLAN AND PROFILE STA. 1+00 TO STA. 4+00
- W-2 - WATER LINE PLAN AND PROFILE STA. 4+00 TO END
- W-3 - THRUST RESTRAINT DETAILS
- W-4 - THRUST RESTRAINT TABLES

TANK

- T-1 - ELEVATED STORAGE TANK SECTION AND EXTERIOR ELEVATION
- T-2 - ELEVATED STORAGE TANK ROOF PLAN AND DETAILS
- T-3 - ELEVATED STORAGE TANK FLOOR PLANS AND DETAILS
- T-4 - ELEVATED STORAGE TANK CONTROL VALVE PIPING PLAN AND ELEVATION
- T-5 - CHLORINE ANALYZER DRAIN
- T-6 - ELEVATED STORAGE TANK DETAILS I
- T-7 - ELEVATED STORAGE TANK DETAILS II
- T-8 - GENERAL DETAILS I
- T-9 - GENERAL DETAILS II
- T-10 - GENERAL DETAILS III
- T-11 - GENERAL DETAILS IV

STRUCTURAL

- S-1 - MISCELLANEOUS STRUCTURAL DETAILS

ELECTRICAL

- E-1 - ELECTRICAL SYMBOLS, ABBREVIATIONS AND LEGEND
- E-2 - ELECTRICAL ONE LINE DIAGRAM AND RACK DETAILS
- E-3 - ELECTRICAL SITE PLAN
- E-4 - ELECTRICAL TANK PLAN
- E-5 - ELECTRICAL GROUNDING SITE PLAN
- E-6 - ELEVATED STORAGE TANK ELECTRICAL ROOF PLAN
- E-7 - ELECTRICAL MISCELLANEOUS DETAILS
- E-8 - ELECTRICAL CONTROL SCHEMATICS
- E-9 - ELECTRICAL GROUNDING DETAILS
- E-10 - ELECTRICAL PANEL SCHEDULE AND MISC DETAILS

INSTRUMENTATION

- I-1 - PROCESS AND INSTRUMENTATION DIAGRAM - LEGEND
- I-2 - PROCESS AND INSTRUMENTATION DIAGRAM
- I-3 - PLC CONNECTION DIAGRAM - SCADA ANALOG INPUT AND DIGITAL OUTPUT
- I-4 - PLC CONNECTION DIAGRAM - SCADA DIGITAL INPUT
- I-5 - SCADA PANEL - MISCELLANEOUS DETAILS
- I-6 - COMMUNICATION SYSTEM CONNECTION DIAGRAM
- I-7 - SECURITY SYSTEM DETAILS
- I-8 - ANTENNA AND ANTENNA MAST DETAILS

TREE PRESERVATION

- TP-1 - TREE PRESERVATION PLAN
- TP-2 - COSA DETAILS

Date:	8/2/2021
Designed by:	RR
Drawn by:	GHC
Checked by:	CAK
Scale:	N.T.S.



SAWS JOB NO. 16-6003  
DIETRICH ELEVATED STORAGE TANK  
TANK  
SHEET INDEX

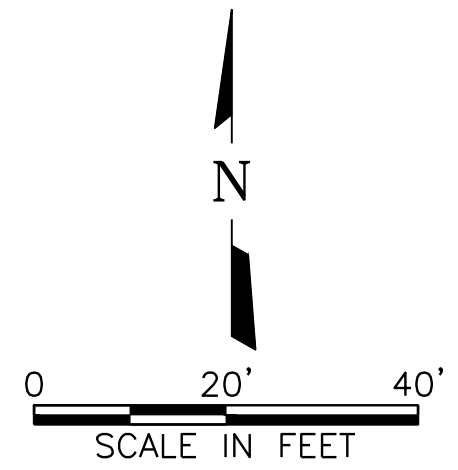
Sheet G-1

ACAD\_Ret: 24.0s (LMS Tech)  
 Filename: N:\STANDARD\WTU-SAWS-GN-COVER.dwg  
 Last Saved: 8/3/2021 8:16 AM  
 Saved By: 02389





1	8/2/21	Date
1	8/2/21	Revisions
1	8/2/21	App.
1	8/2/21	DSH

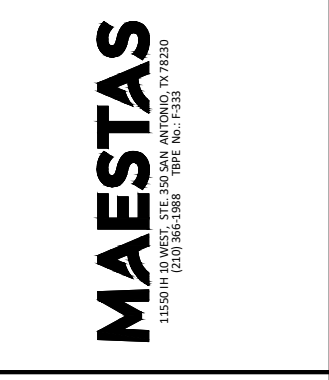


DIETRICH ELEVATED STORAGE TANK CONTROL POINTS				
POINTS ID	NORTHING	EASTING	ELEV.	DESCRIPTION
CP1	13710822.04	2158601.28	677.30	IRON ROD
CP2	13710825.46	2158827.32	677.28	IRON ROD
CP3	13710608.44	2158812.17	675.65	IRON ROD
CP4	13710608.52	2158712.12	674.62	IRON ROD
CP5	13710513.57	2158705.55	675.12	NAIL
CP6	13710513.78	2158580.05	674.85	IRON ROD
CP7	13710674.13	2158647.77	673.36	CONTROL POINT

LEGEND

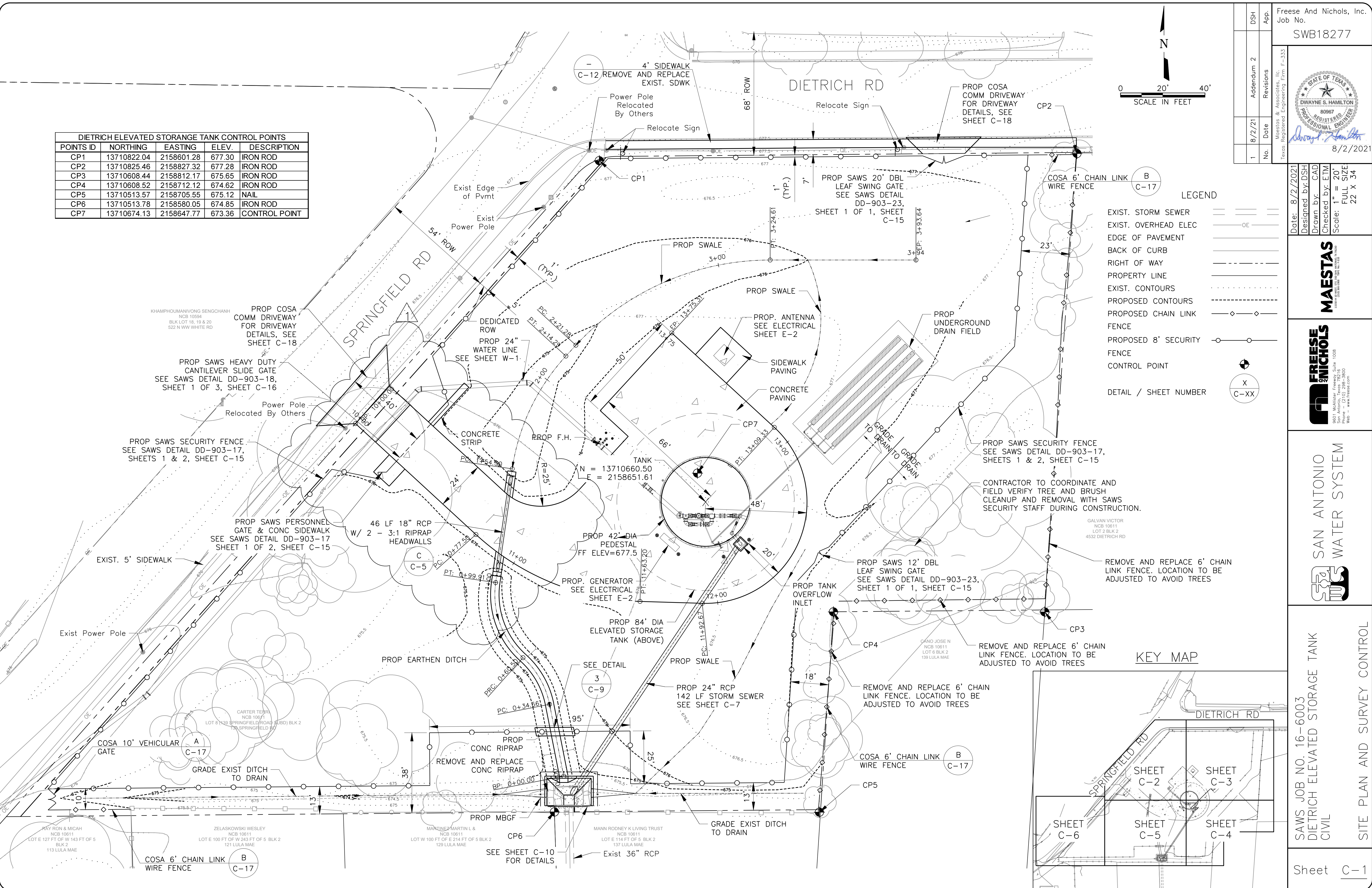
- EXIST. STORM SEWER
- EXIST. OVERHEAD ELEC
- EDGE OF PAVEMENT
- BACK OF CURB
- RIGHT OF WAY
- PROPERTY LINE
- EXIST. CONTOURS
- PROPOSED CONTOURS
- PROPOSED CHAIN LINK FENCE
- PROPOSED 8' SECURITY FENCE
- CONTROL POINT
- DETAIL / SHEET NUMBER

Date:	8/2/2021
Designed by:	DSH
Drawn by:	CAD
Checked by:	ETM
Scale:	1" = 20' FULL SIZE 22 X 34

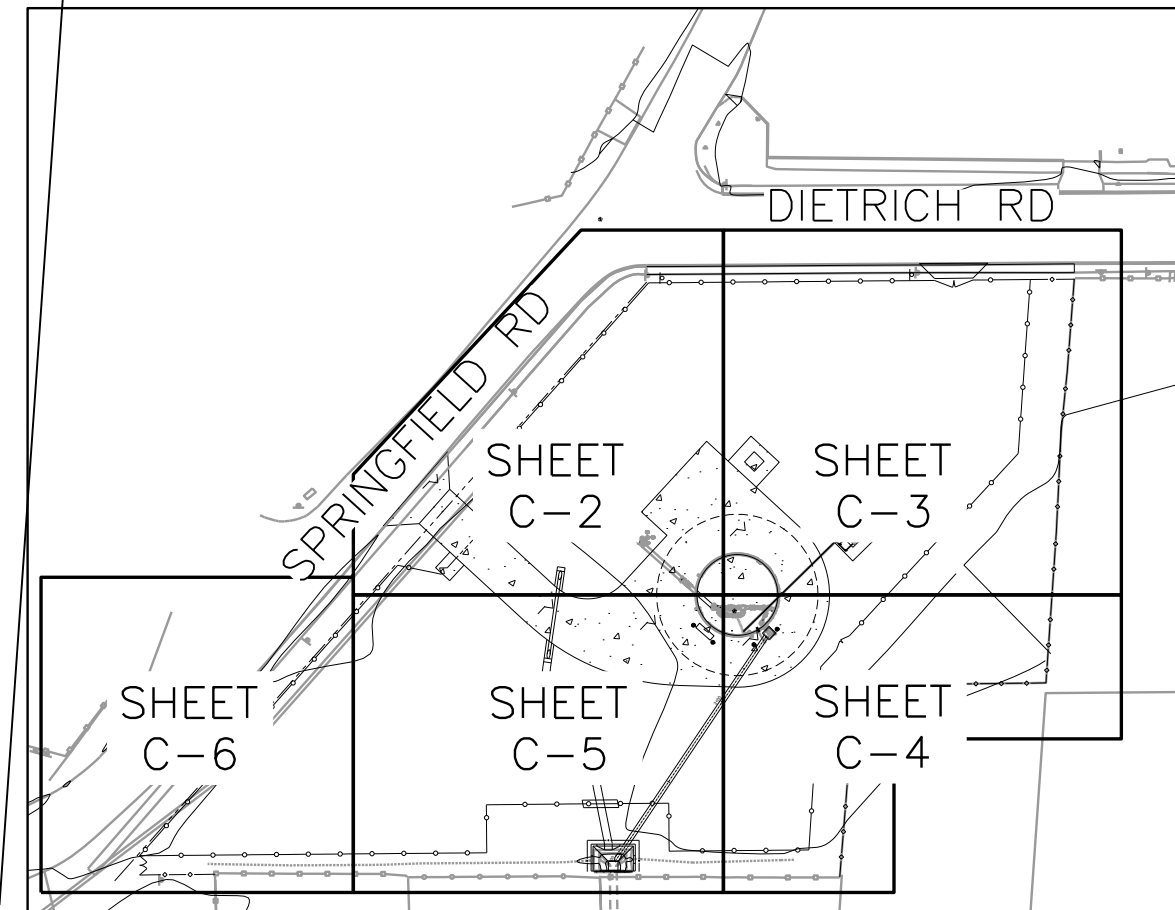


SAN ANTONIO WATER SYSTEM  
SAWS JOB NO. 16-6003  
DIETRICH ELEVATED STORAGE TANK  
CIVIL  
SITE PLAN AND SURVEY CONTROL  
Sheet C-1

ACAD Ref: 231s (LMS Tech) File: Z:\Projects\M074 Dietrich Tank\06 - CADD Files\06.75 - General Civil\M074-SITE-LAY-01.dwg Last Saved: 7/30/2021 5:12 PM Saved By: Vinisha



KEY MAP

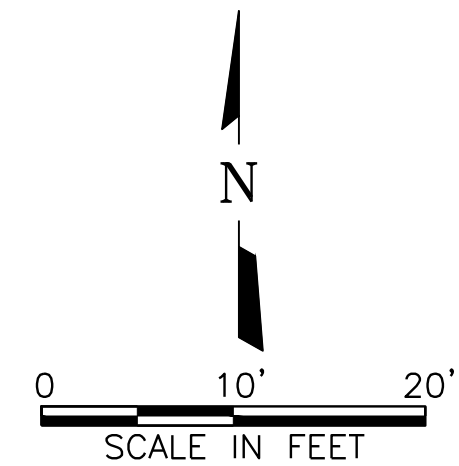
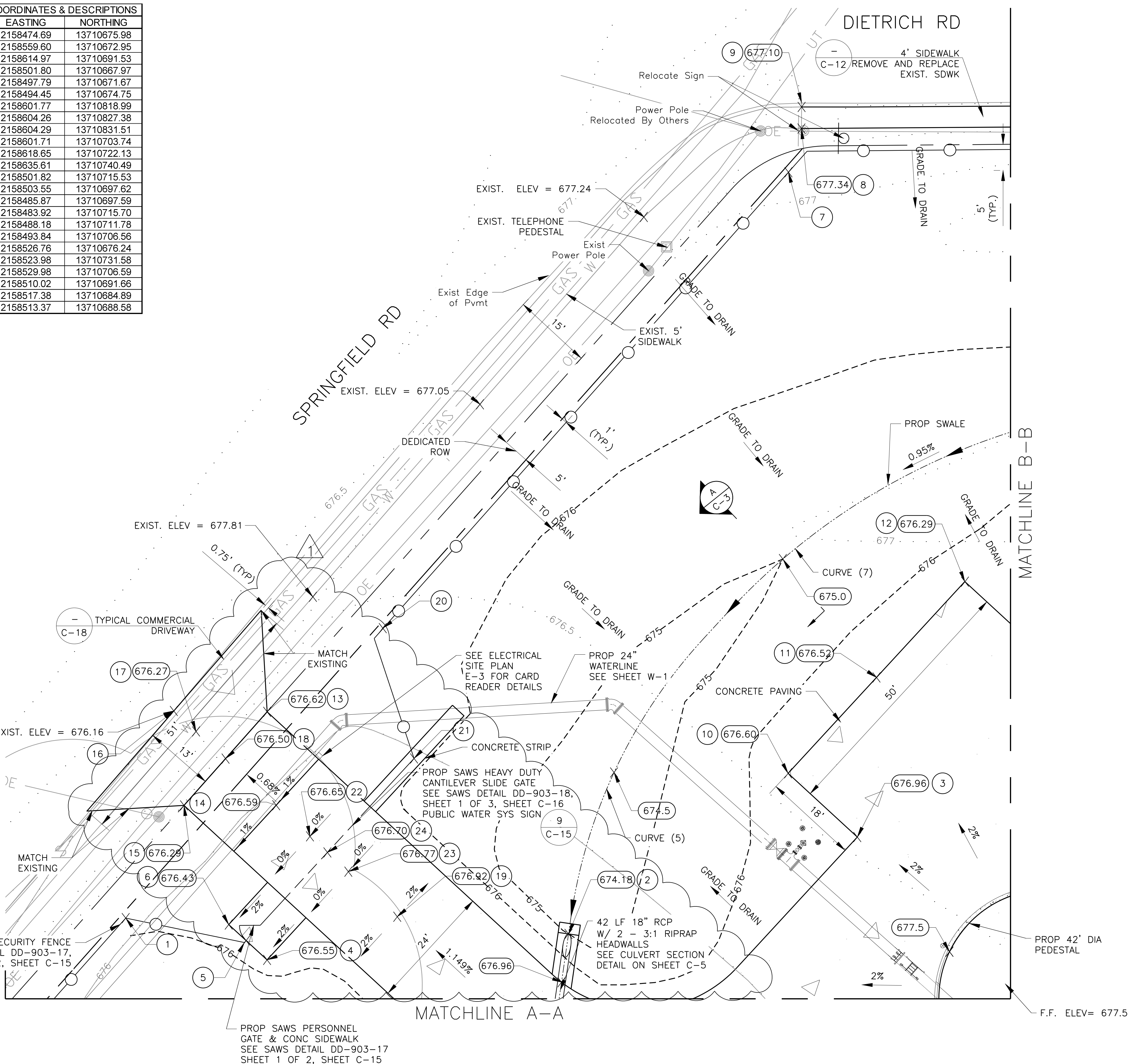






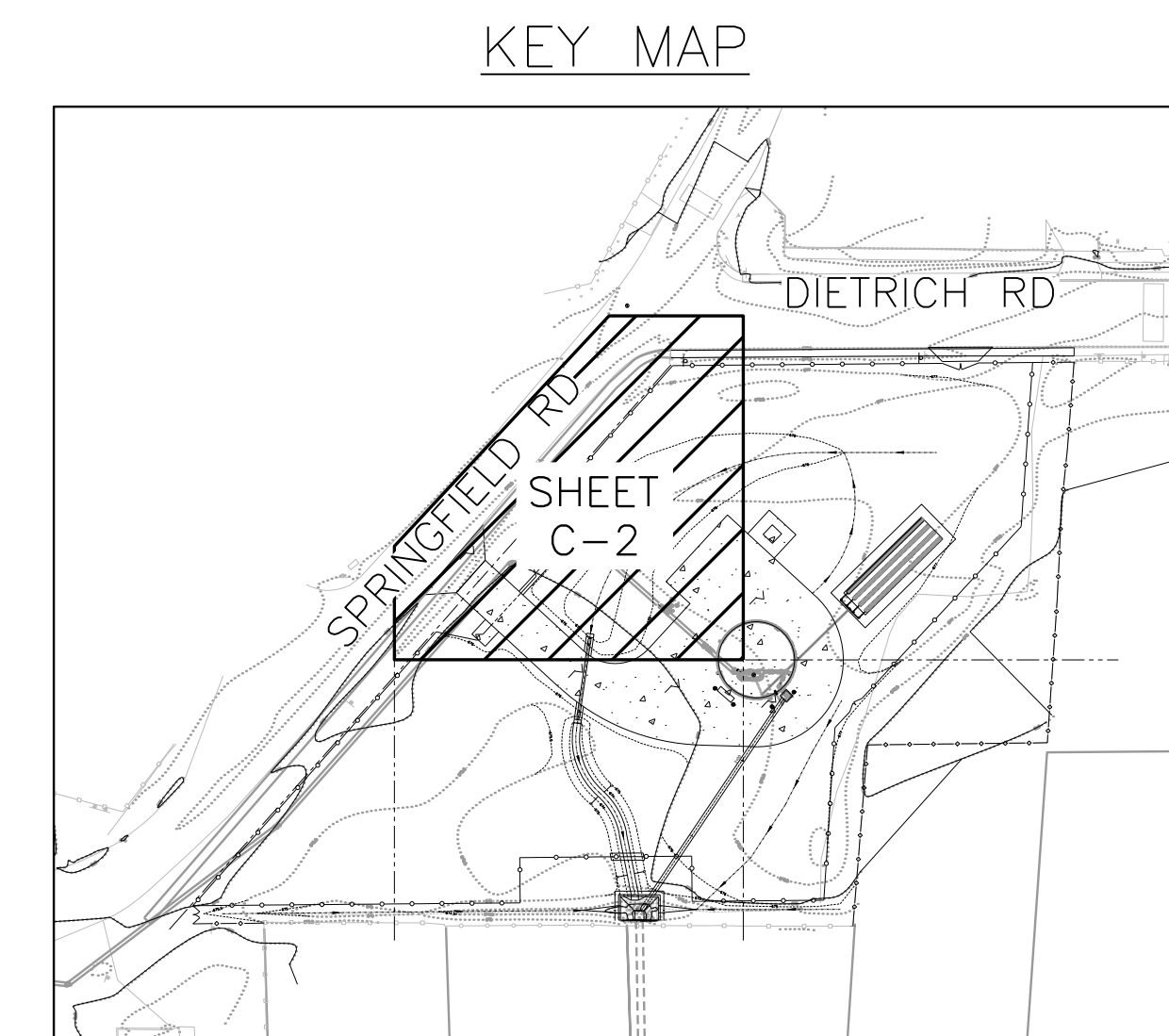


POINT No.	EASTING	NORTHING
1	2158474.69	13710675.98
2	2158559.60	13710672.95
3	2158614.97	13710691.53
4	2158501.80	13710667.97
5	2158497.79	13710671.67
6	2158494.45	13710674.75
7	2158601.77	13710818.99
8	2158604.26	13710827.38
9	2158604.29	13710831.51
10	2158601.71	13710703.74
11	2158618.65	13710722.13
12	2158635.61	13710740.49
13	2158501.82	13710715.53
14	2158503.55	13710697.62
15	2158485.87	13710697.59
16	2158483.92	13710715.70
17	2158488.18	13710711.78
18	2158493.84	13710706.56
19	2158526.76	13710676.24
20	2158523.98	13710731.58
21	2158529.98	13710706.59
22	2158510.02	13710691.66
23	2158517.38	13710684.89
24	2158513.37	13710688.58



LEGEND

EXIST. WATER	— W —
EXIST. GAS MAIN	— GAS —
EXIST. UNDRGRD TELE	— UT —
EXIST. SAN SEWER	— WW —
EXIST. OVERHEAD ELEC	— OE —
EDGE OF PAVEMENT	———
BACK OF CURB	———
RIGHT OF WAY	———
PROPERTY LINE	———
EXISTING CONTOURS	.....
PROPOSED CONTOURS	-----
PROPOSED ELEVATION	(XX.XX)
PROPOSED COORDINATE	(XXX)
PROPOSED FLOW PATH	→
PROPOSED CHAIN LINK FENCE	◇
PROPOSED 8' SECURITY FENCE	○
TREE	⊕
DETAIL / SHEET NUMBER	X C-XX



DSH	App.	Freese And Nichols, Inc.
Revisions	No.	Job No.
1	8/2/21	SWB18277

8/2/2021

Designed by: DSH  
Drawn by: CAD  
Checked by: EIM  
Scale: 1" = 10'  
FULL SIZE  
22 X 34

MAESTAS  
REGISTERED PROFESSIONAL ENGINEER  
80967  
DWAYNE S. HAMILTON  
STATE OF TEXAS  
8/2/2021

Freese & Nichols, Inc.  
1000  
San Antonio, Texas 78216  
Phone - (214) 299-3800  
Web - www.fninc.com

SAN ANTONIO  
WATER SYSTEM

SAWS JOB NO. 16-6003  
DIETRICH ELEVATED STORAGE TANK  
CIVIL  
GRADING AND PAVING PLAN  
SHEET 1 OF 5

Sheet C-2

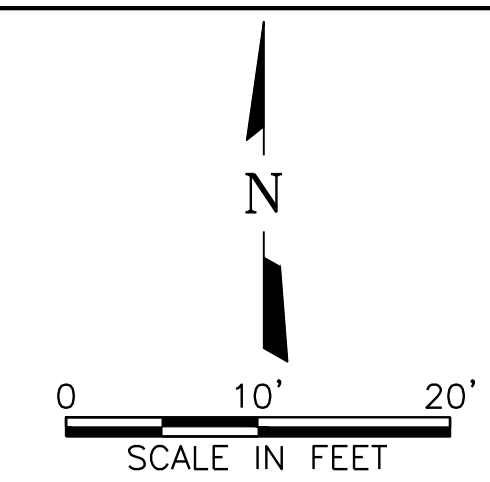
ACAD Ref: 231s (LMS Tech)  
Filename: Z:\Projects\M074 Dietrich Tank\06 - CADD Files\06.75 - General Civil\M074-SITE-GRD-PLN-01.dwg  
Last Saved: 7/30/2021 5:09 PM  
Saved By: Vinisha







ACAD\_Ret: 23.1s (LMS Tech)  
 Filename: Z:\Projects\M074\_Dietrich Tank\06 - CADD Files\06.75 - General Civil\M074-DRWY-JOINT-LAY-01.dwg  
 Last Saved: 7/30/2021 5:10 PM  
 Saved By: Vinisha



Freese And Nichols, Inc. Job No. SWB18277	
8/2/21	Revisions
1	Date
8/2/2021 Designed by: DSH Drawn by: CAD Checked by: ETM Scale: 1" = 10' FULL SIZE 22 X 34	



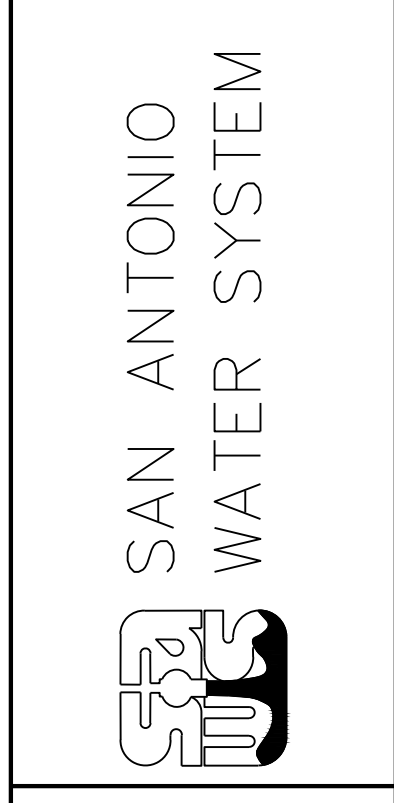
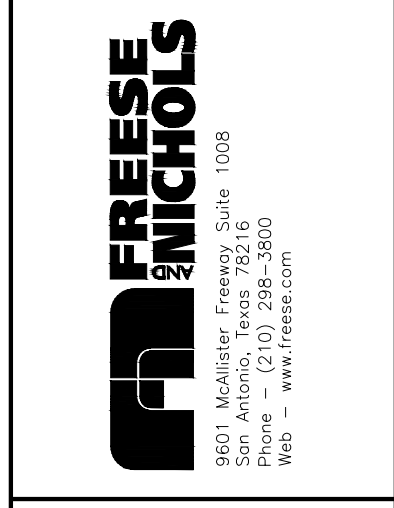
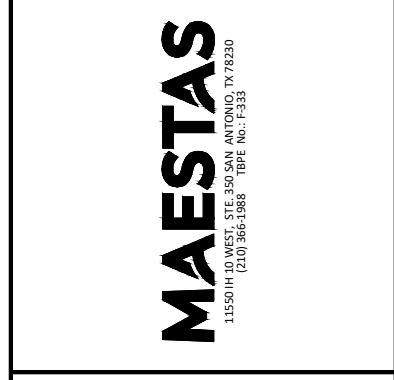
LEGEND

- EXPANSION JOINT      - - - - -
- CONTRACTION JOINT    - · - · - ·
- CONSTRUCTION JOINT    - - -

NOTES

1. TYPICALS ARE ASSUMED IF INDIVIDUAL DIMENSIONS ARE NOT SHOWN.
2. DIMENSIONS ALONG RADIUS OR ARC'S ARE MEASURED ALONG THE CHORD.

Date: 8/2/2021  
 Designed by: DSH  
 Drawn by: CAD  
 Checked by: ETM  
 Scale: 1" = 10'  
 FULL SIZE  
 22 X 34



SAWS JOB NO. 16-6003  
 DIETRICH ELEVATED STORAGE TANK  
 CIVIL  
 ROADWAY EXPANSION/  
 CONTRACTION JOINT PLAN

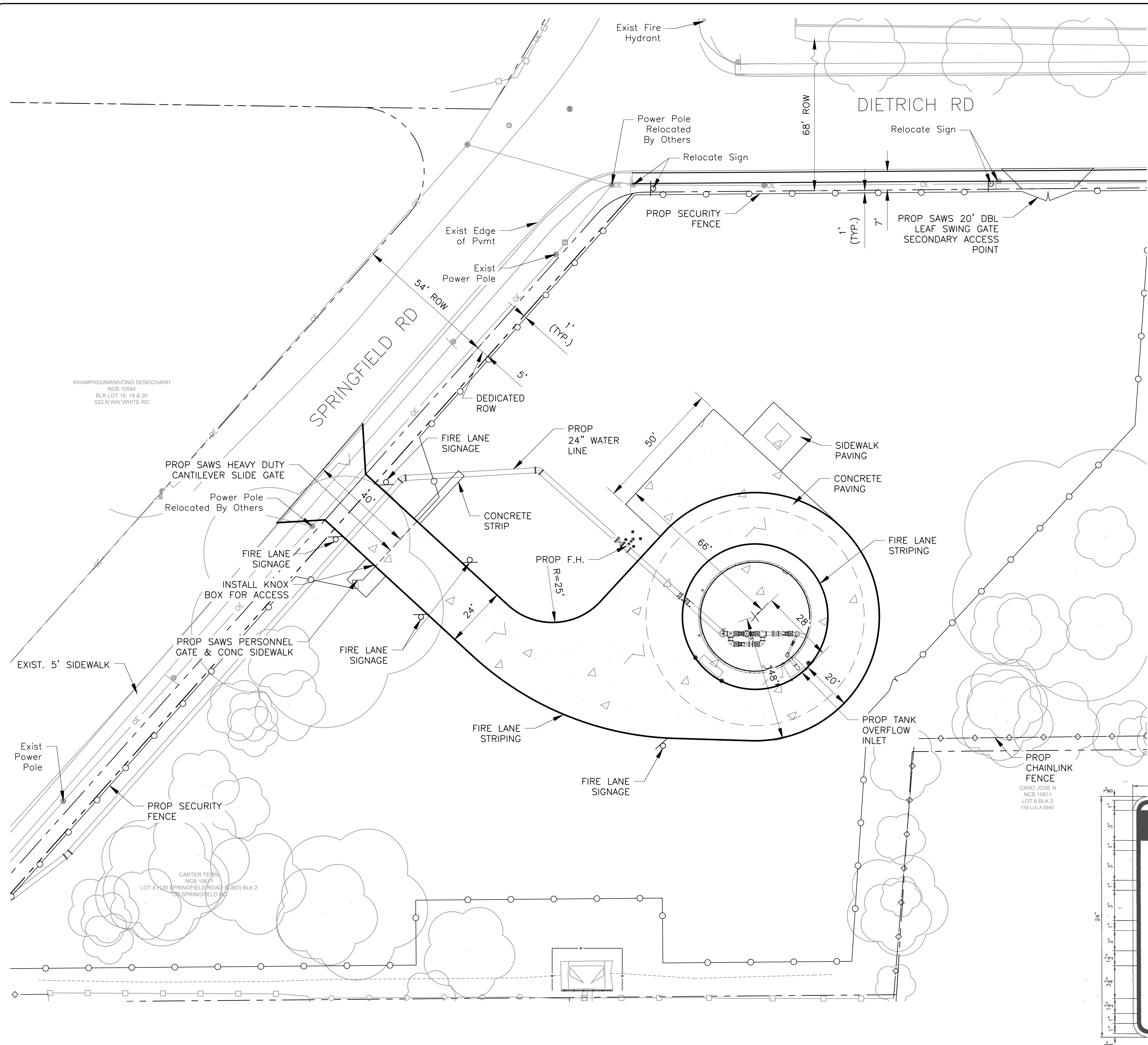
Sheet C-8







ACAD File: 23.1s (LMS Tech)  
 Filename: Z:\Projects\M074 Dietrich Tank\06 - CADD Files\06.75 - General Civil\M074-FIRE-LANE-01.dwg  
 Last Saved: 7/30/2021 5:12 PM  
 Saved By: Vinisha



**NOTES:**

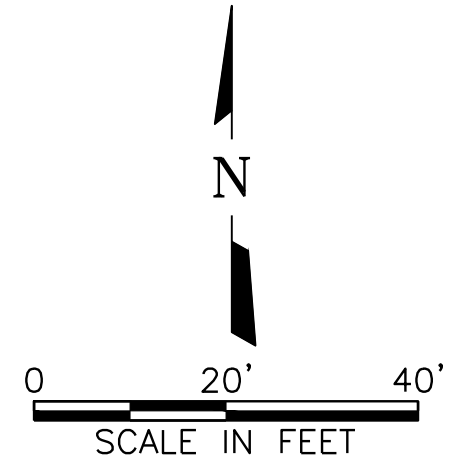
1. SIGNS TO BE POSTED AT THE EXPENSE OF THE OWNER, AT THE DESIGNATED LOCATIONS, LETTERED "FIRE LANE-NO PARKING AT ANY TIME CITY ORD. 54547". SUCH SIGNS SHALL BE OF STANDARD SIZE AND COLOR, OF STANDARD LETTERING AND MOUNTING, CONFORMING TO SPECIFICATIONS ESTABLISHED BY THE DIRECTOR OF PUBLIC WORKS. IN ADDITION TO THE SIGNS, THE OWNERS OF SUCH DESIGNATED PREMISES AT THEIR OPTION, OR, IF SO DIRECTED BY THE FIRE CHIEF OR HIS DESIGNEE, SHALL PAINT ALL FIRE LANE CURBS RED WITH WHITE-STENCILED LETTERS STATING "FIRE LANE, NO PARKING". LETTERING FOR THE CURBS SHALL USE 4-INCH LETTERING WITH A DISTANCE OF NOT MORE THAN 40 FEET BETWEEN WORDINGS.
2. FIRE INSPECTOR TO VERIFY THAT ALL REQUIRED AREAS AND ANY HIGHLIGHTED AREAS ON THE SITE PLAN HAVE BEEN PROPERLY IDENTIFIED AS FIRE DEPARTMENT ACCESS (FIRE LANES), IN ACCORDANCE WITH SECTION 503 AND COSA AMENDMENTS TO THE 2018 IFC.
3. APPROVED NUMBERS OR ADDRESSES SHALL BE PROVIDED IN SUCH A POSITION TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY, IFC SECTION 505. SEE ALSO CITY OF SAN ANTONIO AMENDMENTS TO THE 2018 IFC.
4. THE CONSTRUCTION, REMOVAL OR DEMOLITION OF A BUILDING SHALL COMPLY WITH THE 2018 IFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.
5. PORTABLE FIRE EXTINGUISHERS ARE REQUIRED PER 2018 IFC SECTION 906. SEE ALSO CITY OF SAN ANTONIO AMENDMENTS TO THE IFC AND NFPA 10.
6. A KNOX ENTRY SYSTEM IS REQUIRED. KNOX APPLICATION MAY BE OBTAINED AT THE FIRE MARSHAL'S OFFICE LOCATED AT 1901 SOUTH ALAMO STREET. REFER TO 2018 IFC SECTION 506. SEE ALSO CITY OF SAN ANTONIO AMENDMENTS TO THE 2018 IFC. KNOX KEY-BOX SHALL BE PLACED AT LOCATION TO BE COORDINATED WITH SAN ANTONIO FIRE DEPARTMENT-FIRE PREVENTION DIVISION.

**SIGN DETAILS:**

1. SIGNS SHALL BE STANDARD SIZE 18"x24" AND HAVE RED LETTERS AND BORDER ON A WHITE BACKGROUND.
2. SIGNS SHALL BE MOUNTED WITH THE BOTTOM EDGE OF THE SIGN AT LEAST SEVEN (7) FEET ABOVE GRADE AND AT LEAST TWO (2) FEET FROM CURB EDGE.
3. SIGNS SHALL BE PLACED AS FOLLOWS:
  - 3.1. LESS THAN FORTY (40) FEET: ONE (1) SIGN WITH A DOUBLE ARROW.
  - 3.2. FROM FORTY (40) TO NINETY (90) FEET: TWO (2) SIGNS WITH RIGHT AND LEFT ARROWS.
  - 3.3. FOR ONE HUNDRED (100) FEET OR MORE: THREE (3) SIGNS WITH RIGHT/LEFT AND DOUBLE ARROWS IN THE MIDDLE.



FIRE LANE SIGNAGE



Freese And Nichols, Inc. Job No. SWB18277	
8/2/21	Revisions
1	Date
1	No.



Date: 8/2/2021	Designed by: DSH
Drawn by: CAD	Checked by: ETM
Scale: 1" = 20'	FULL SIZE
	22 X 34

**MAESTAS**  
 13000 MAESTAS BLVD SUITE 1000  
 SAN ANTONIO, TEXAS 78248  
 Phone: (210) 399-3800  
 Web: www.maestas.com

**FRESE & NICHOLS**  
 1601 MacArthur Expressway, Suite 1000  
 San Antonio, Texas 78216  
 Phone: (210) 399-3800  
 Web: www.freese.com

**SAN ANTONIO WATER SYSTEM**

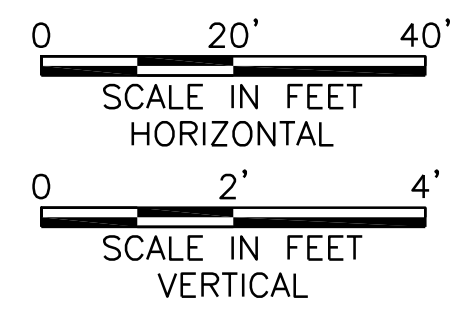
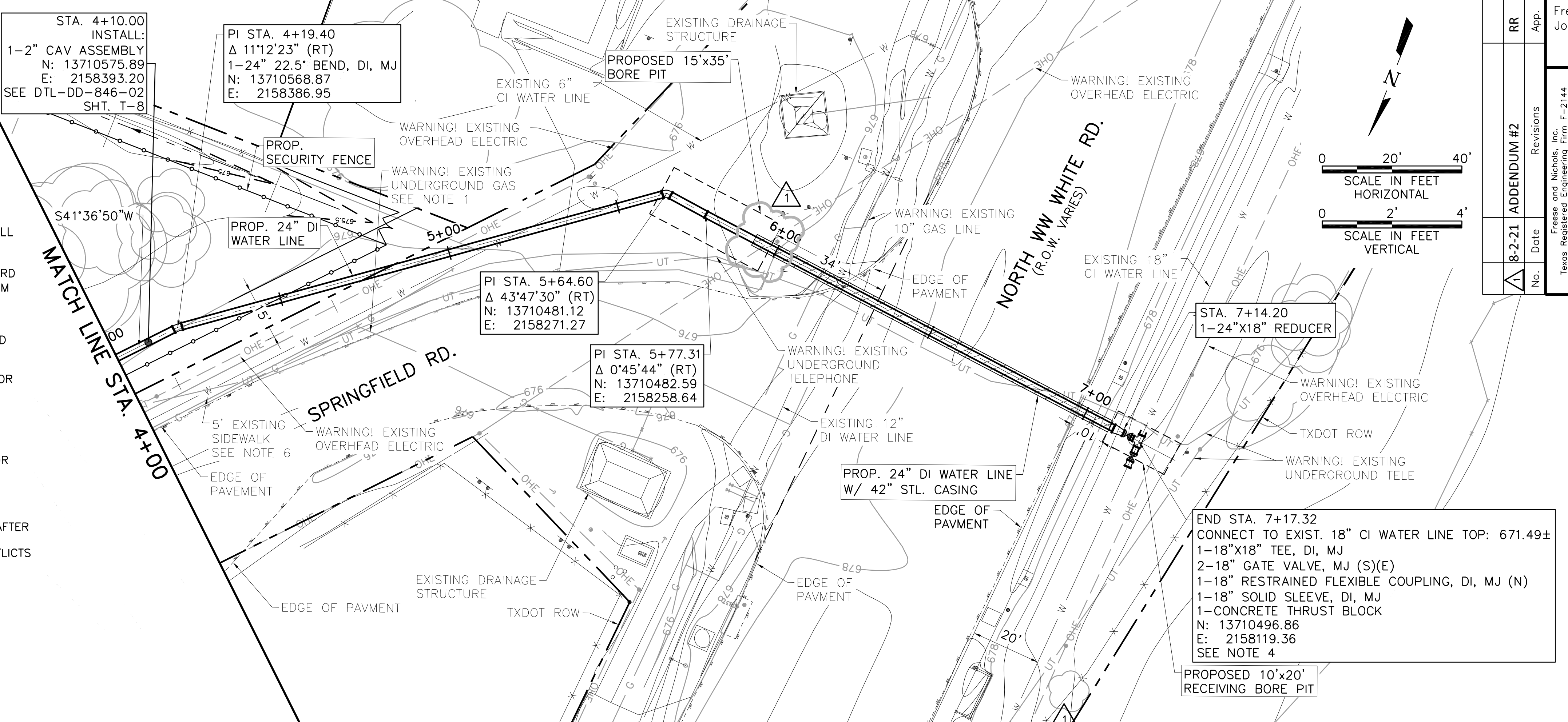
SAWS JOB NO. 16-6003  
 DIETRICH ELEVATED STORAGE TANK  
 CIVIL  
 FIRE SITE PLAN





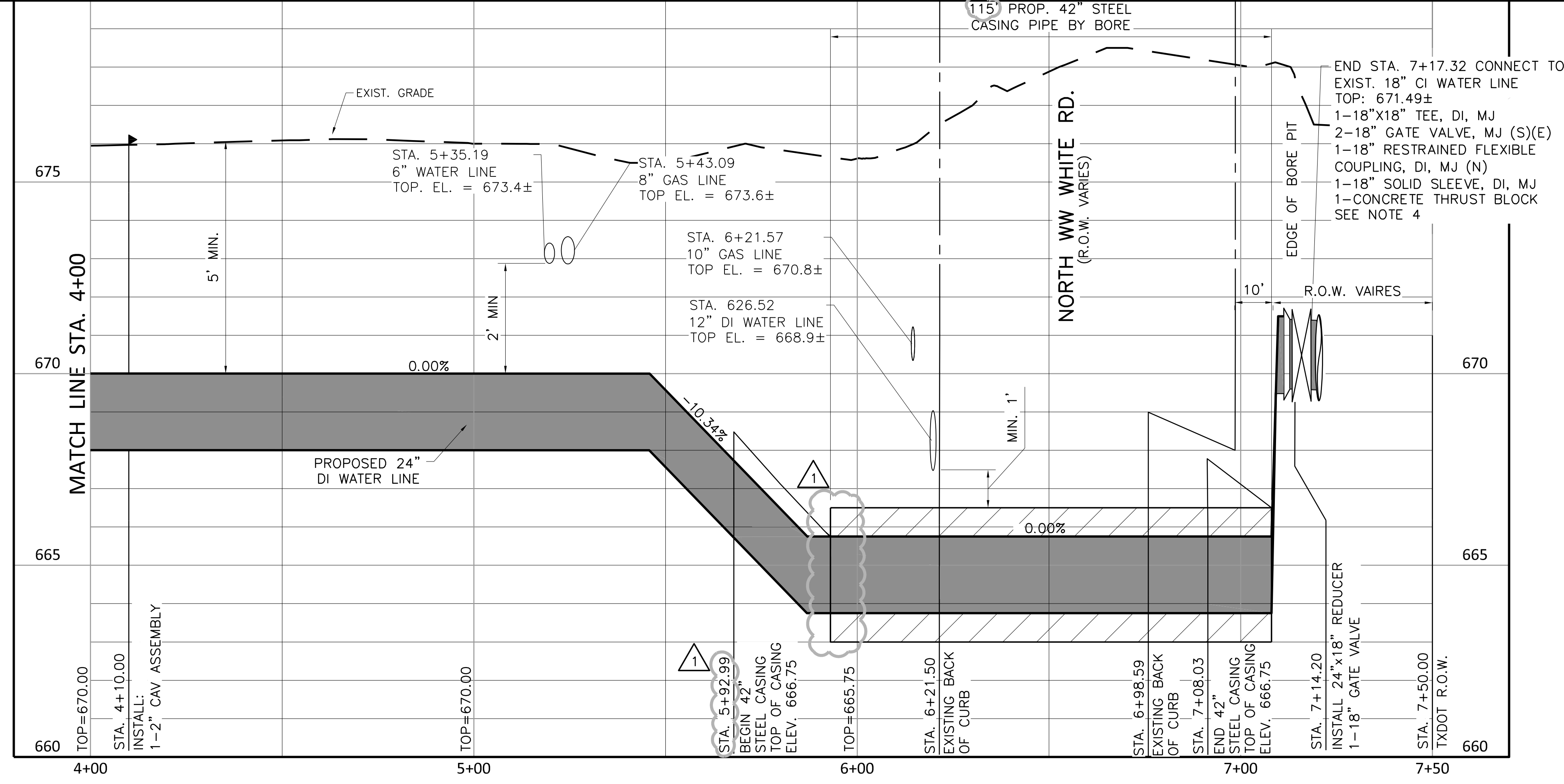
- NOTES:**
- CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION.
  - CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF RECORD WITH REGARDING ANY CONFLICTING UTILITIES AND/OR MINIMUM UTILITY CLEARANCE ISSUES.
  - CONTRACTOR IS RESPONSIBLE FOR PROTECTING AND FOR SUPPORTING ANY UTILITIES IMPACTED BY THE BORE PITS AND OTHER CONSTRUCTION ACTIVITIES.
  - CONTRACTOR SHALL COORDINATE WITH SAWS INSPECTOR PRIOR TO TIE-INS AND SEQUENCE WORK TO MINIMIZE WATER MAIN SERVICE OUTAGES DURING FINAL TIE-IN.
  - CONTRACTOR SHALL SUBMIT BORING/TUNNELING PLAN TO INSPECTOR AND ENGINEER FOR REVIEW AND APPROVAL. BORE/RECEIVING SHAFT LOCATIONS AND DIMENSIONS ARE FOR INFORMATIONAL PURPOSES ONLY.
  - THE INFORMATION AND DATA SHOWN WITH RESPECT TO THE EXISTING 5" SIDEWALK IS APPROXIMATE AND BASED ON OBSERVATIONS FROM THE FIELD. SIDEWALK WAS INSTALLED AFTER DESIGN SURVEY WAS COMPLETE IN THIS AREA. CONTRACTOR SHALL LOCATE SIDEWALK AND IDENTIFY ANY POTENTIAL CONFLICTS PRIOR TO EXCAVATION.

**CAUTION!!**  
UNDERGROUND GAS, WATER, ELECTRIC, TELEPHONE, CABLE TV AND OTHER UTILITIES MAY EXIST WITHIN THE WORK AREA. THE UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION.



**TXDOT NOTES:**

- GROUT VOID BETWEEN STEEL CASING AND NATURAL GROUND UNDER ROADWAY.
- CONTRACTOR TO REQUEST AND HOLD A FIELD MEETING WITH TXDOT INSPECTOR ON PERMIT, PRIOR TO STARTING WORK.
- CONTRACTOR TO SUBMIT TCP AND BORE PIT PROTECTION FOR REVIEW AND APPROVAL, PRIOR TO STARTING WORK.
- CONTRACTOR TO INSTALL SW3P, PRIOR TO STARTING WORK.
- BORE PIT AREAS FALL UNDER FLOWABLE FILL WITHIN TXDOT ROW.
- ALL TRAFFIC CONTROL WILL NEED TO BE APPROVED BY TXDOT A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION AND ONE (1) WEEK FOR TEMPORARY ROAD CLOSURES, BEFORE WORK MAY BEGIN.
- ANY LANE CLOSURES ARE ONLY PERMITTED AFTER TRAFFIC CONTROL PLAN IS REVIEWED BY TXDOT, PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL NOT LEAVE BORE PIT OPEN OVERNIGHT AND ANY GROUND DISTURBED SHALL BE RE-VEGETATED TO MINIMIZE EROSION AND SEDIMENTATION.
- CONTRACTOR IS REQUIRED TO KEEP A COPY OF THE TXDOT APPROVAL, THE NOTICE OF PROPOSED INSTALLATION AND ANY APPROVED AMENDMENTS AT THE JOB SITE AT ALL TIMES. ALL APPLICANTS SHALL ADHERE TO THE TEXAS ADMINISTRATIVE CODE AND TXDOT SAN ANTONIO DISTRICT SPECIAL PROVISIONS.





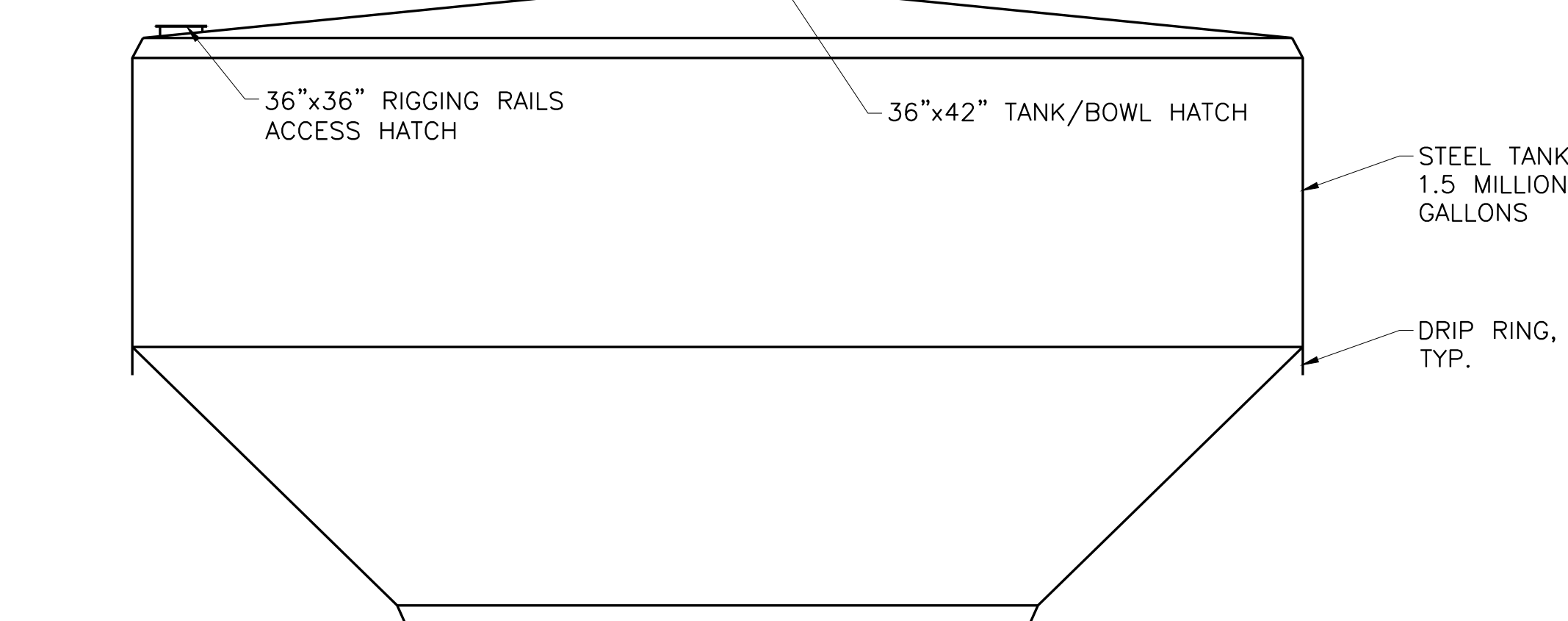
4-7.5' TALL x 1 1/2" DIA. EQUIPMENT POLE ON HANDRAIL WITH CAP, 90° SPACING (REF DTL. DD-903-16/SHT. T-6)

RED AIRCRAFT FLASHING OBSTRUCTION LIGHTING

36"x42" ACCESS TUBE HATCH WITH VENT

CENTER EXHAUST VENT (REF DTL. DD-903-13/SHT. T-5)

GUARDRAIL



36"x36" RIGGING RAILS ACCESS HATCH

36"x42" TANK/BOWL HATCH

STEEL TANK 1.5 MILLION GALLONS

DRIP RING, TYP.

2' x 3' REMOVABLE LOUVER VENT #16 SIZE MESH W/INSECT SCREEN

THE EXPOSED EXTERIOR SURFACE OF THE CONCRETE SUPPORT WALL IS DESIGNATED ARCHITECTURAL CONCRETE

UNIVERSAL SURFACE OF EXTERIOR SUPPORT WALL

LASER ENGRAVED 8" x 10" S.S. PLATE FOR P.O.E. SAMPLE POINT

14'x14' OVERHEAD ROLL UP VEHICLE DOOR WITH TYPE 2 NON-SACRIFICIAL ANTI-GRAFFITI COATING (CLEAR)

EXTERIOR LIGHTING (SEE ELECTRICAL SHEETS)

3'x7' PERSONNEL DOOR WITH MEDECO TYPE 3 LOCKS AND TYPE 3 NON-SACRIFICIAL ANTI-GRAFFITI COATING (CLEAR)

TANK OVERFLOW (REF DTL. DD-903-09 SHT. T-7)

APPLY ANTI-GRAFFITI COATING TO PEDESTAL WALL UP TO A MIN HEIGHT OF 16' OFF THE GROUND. (SEE TECHNICAL SPECS.) ANTI-GRAFFITI COATING TYPE 3

SEE SAMPLING TAP (REF DTL. DD-903-11 SHT. T-5)

CONCRETE BOLLARDS 5' HIGH YELLOW W/6" PLASTIC COVER, YELLOW W/RED REFLECTORS (REF DTL. DD-903-20 SHT. T-6)

(TANK NAME PLATE 5' ABOVE FIN. FLOOR (REF DTL. DD-903-21 SHT. T-6))

DIETRICH 1.5 MG EST EXTERIOR ELEVATION

1  
T-1 1"=10'

±83.0' MIN. TANK DIA.

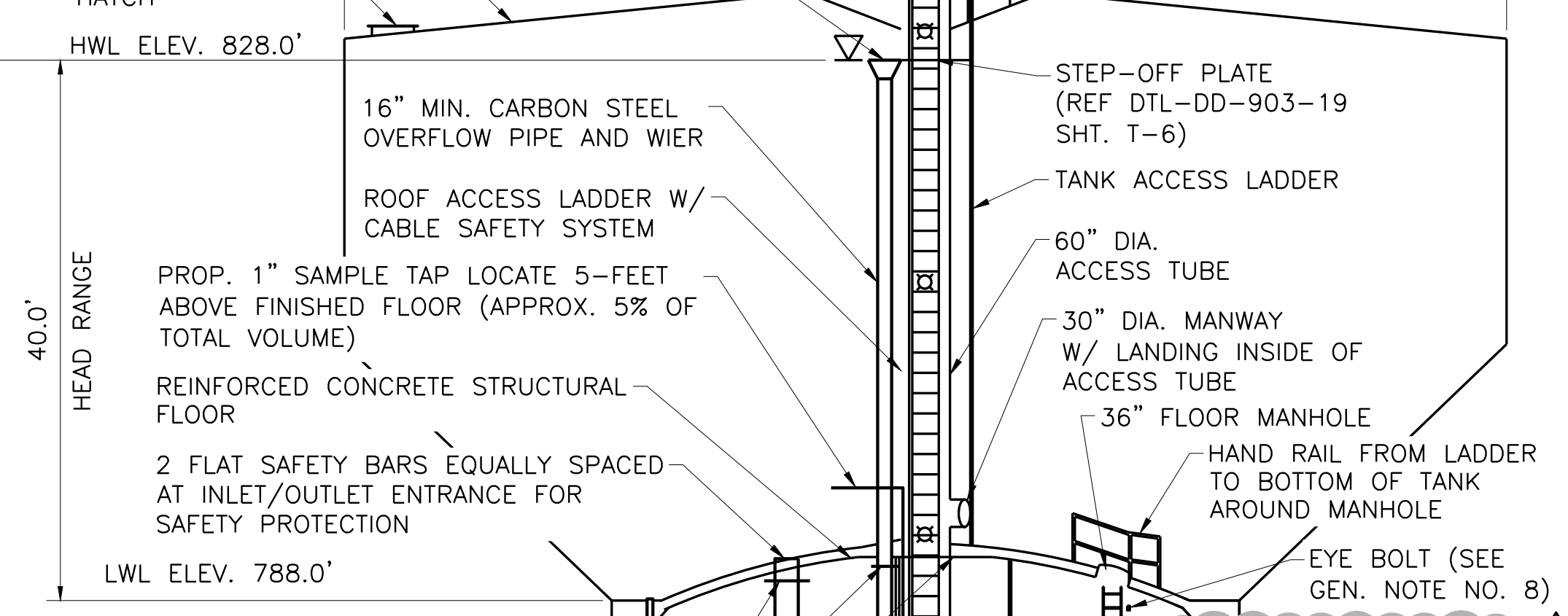
36"x42" ACCESS TUBE HATCH

36" ADJUSTABLE VENT

OVERFLOW WEIR

(2) 4" LEVEL ELECTRODE FLANGE OUTLETS

GFCI



16" MIN. CARBON STEEL OVERFLOW PIPE AND WIER

ROOF ACCESS LADDER W/ CABLE SAFETY SYSTEM

PROP. 1" SAMPLE TAP LOCATE 5- FEET ABOVE FINISHED FLOOR (APPROX. 5% OF TOTAL VOLUME)

REINFORCED CONCRETE STRUCTURAL FLOOR

2 FLAT SAFETY BARS EQUALLY SPACED AT INLET/OUTLET ENTRANCE FOR SAFETY PROTECTION

36"x36" RIGGING RAILS ACCESS HATCH

36" FLOOR MANHOLE

HAND RAIL FROM LADDER TO BOTTOM OF TANK AROUND MANHOLE

EYE BOLT (SEE GEN. NOTE NO. 8)

TANK BOWL ACCESS LADDER WITH CABLE SAFETY SYSTEM

REMOVABLE PEDESTAL PAINTER'S LOUVER W/ 316 S.S. INSECT SCREEN SHALL BE ACCESSIBLE FROM TOP PLATFORM

PROVIDE LIGHT 8' ABOVE PLATFORM TYP.

TANK APPURTENANCES ROTATED FOR CLARITY

CONDENSATION RING ACCESS W/1.5" DRAIN LINE W/CHECK VALVE TIE-IN TO OVERFLOW

ACCESS TUBE EXTENDED TO UPPER LANDING W/36"x84" PERSONNEL DOOR OPENING

DRIP PAN WITH 1 1/2" DRAIN HOSE CONNECTED TO OVERFLOW PIPE

16" 316 SS INLET/OUTLET PIPE

(1)-3/4" DIA SAMPLING TUBE ROUTED ADJACENT TO PEDESTAL LADDER EXTEND AROUND BOTTOM OF PEDESTAL TO TERMINATION POINTS PER T-3

16" MIN. 316 SS OVERFLOW PIPE

SAMPLING TAPS SEE NOTES THIS SHEET

CONTRACTOR TO DESIGN OVERFLOW PIPE (SEE TECHNICAL SPECIFICATIONS)

CONTROL VALVE ASSEMBLY

6" MIN. SLAB ON GRADE 3500 PSI

OVERFLOW DRAINAGE STRUCTURE

FOUNDATION TO BE DESIGNED BY TANK CONTRACTOR

REINFORCED CONCRETE SUPPORT WALL

UPPER LANDING W/YELLOW SELF-RETRACTING SAFETY GATE (REF DTL. DD-903-14)

LADDER WITH CABLE CLIMB SAFETY SYSTEM

LADDER PLATFORMS W/YELLOW SELF-RETRACTING SAFETY GATE LOCATED AT MAX. 40' SPACING. PROVIDE ADDITIONAL PLATFORMS AS REQUIRED.

LADDER LIGHTING LOCATED EVERY 20' VERTICALLY (SEE ELECTRICAL SHEETS)

REINFORCED CONCRETE SUPPORT WALL

UPPER LANDING W/YELLOW SELF-RETRACTING SAFETY GATE (REF DTL. DD-903-14)

LADDER WITH CABLE CLIMB SAFETY SYSTEM

LADDER PLATFORMS W/YELLOW SELF-RETRACTING SAFETY GATE LOCATED AT MAX. 40' SPACING. PROVIDE ADDITIONAL PLATFORMS AS REQUIRED.

LADDER LIGHTING LOCATED EVERY 20' VERTICALLY (SEE ELECTRICAL SHEETS)

PROCESS PIPING (REF DTL. DD-903-06)

Z-CLIPS AND UNI-STRUT CONDUIT/PIPING SUPPORT. FIELD VERIFY REQUIRED WIDTH. 10' MAX SPACING.

FF ELEV. 677.5'

FINISH GRADE SLOPE AWAY FROM TANK

42'-0" MIN. PEDESTAL DIA.

DIETRICH 1.5 MG EST INTERIOR ELEVATION

2  
T-1 1"=10'

- GENERAL NOTES:**
- SEE TECHNICAL SPECIFICATIONS FOR DESIGN CRITERIA AND DETAILS. APPLICABLE ELEVATED TANK STANDARDS ARE AWWA D107 AND ACI 318.
  - STEEL TANK FLOOR WITHIN THE PERIMETER OF THE CONCRETE SUPPORT PEDESTAL SHALL BE SUPPORTED BY A DOMED STRUCTURAL CONCRETE SLAB.
  - CONCRETE PEDESTAL EXTERIOR SHALL INCORPORATE HORIZONTAL AND VERTICAL RUSTICATION STRIPS TO CREATE A SYMMETRICAL ARCHITECTURAL PATTERN.
  - SEE TECHNICAL SPECIFICATIONS FOR STEEL TANK COATING REQUIREMENTS.
  - LADDERS SHALL BE PROVIDED WITH A CABLE SAFETY SYSTEM PER THE SPECIFICATIONS.
  - ALL PEDESTAL WALL PENETRATIONS SHALL BE DESIGNED BY CONTRACTOR AND SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS.
  - PROVIDE PROTECTIVE RAIL AROUND TANK FLOOR MANHOLE.
  - EYE BOLT MIN. 1000 LBS LOADING CAPACITY FOR HOIST ASSEMBLY. 1-10" PULLEY AND 3 STRAND POLYPROPYLENE ROPE 3/4" DIA. 300' LONG MIN.
  - ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.
  - BOTTOM CONE SHALL BE DIRECTLY PROPORTIONAL TO THE SHELL IN ORDER TO CONFORM TO THE TANK BOWL SHAPE AS SHOWN IN THE ELEVATION ON THIS SHEET. TANK MANUFACTURER SHALL SUBMIT PROPOSED TANK BOWL SHAPE AND ALL DIMENSIONS TO OWNER FOR REVIEW AND APPROVAL PRIOR TO BEGINNING MANUFACTURE. OWNER SHALL HAVE THE RIGHT TO REQUEST MODIFICATIONS, AS REQUIRED TO ACHIEVE THE BOWL SHAPE AS SHOWN IN THE ELEVATION.

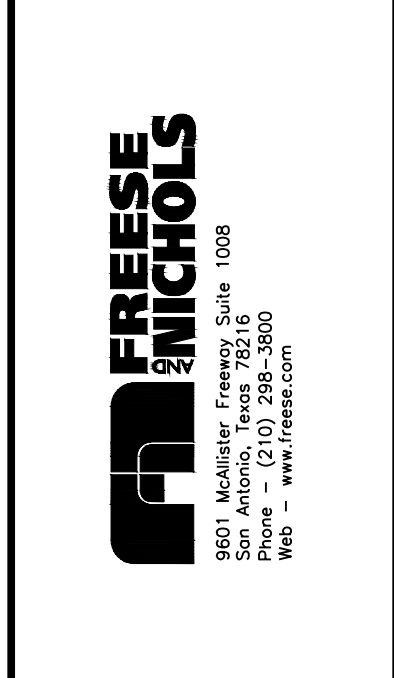
- MECHANICAL:**
- CONTROL VALVE PIPING WITHIN PEDESTAL SHALL BE CARBON STEEL.
  - ALL PIPING INSIDE STEEL TANK BOWL SHALL BE CARBON STEEL.
  - PROVIDE HANGERS, BRACKETS, AND THE THRUST RESTRAINTS, AS REQUIRED.
  - OVERFLOW SYSTEM SHALL BE DESIGNED TO ACCOMMODATE MAXIMUM FILL RATE. SEE TECHNICAL SPECIFICATIONS.
  - REMOVABLE SILT STOP SHALL BE MINIMUM 6 INCHES ABOVE TANK FLOOR.
  - INSTALL ISOLATION KITS BETWEEN ALL DISSIMILAR METALS

- FOUNDATION:**
- THE CONTRACTOR SHALL PERFORM GEOTECHNICAL ANALYSIS FOR RECOMMENDATIONS REGARDING ALLOWABLE BEARING CAPACITY (SAFETY FACTORS PER THE MOST CURRENT VERSION OF AWWA D107) SEE TECHNICAL SPECIFICATIONS.
  - DESIGN FOUNDATION SYSTEM PER CONTRACTOR PREPARED GEOTECHNICAL REPORT RECOMMENDATIONS AND MAXIMUM APPLICABLE DESIGN LOADS AND ACCORDANCE WITH AWWA D107. SEE TECHNICAL SPECIFICATIONS.
  - CONCRETE FOUNDATION DESIGN IN ACCORDANCE WITH ACI 318.
  - FOUNDATION AND TANK CONTRACTOR TO COORDINATE WITH ELECTRIC CONTRACTORS FOR REQUIRED BLOCK OUTS, CONDUITS, SLEEVES AND MOUNTING HARDWARE.

- SAMPLE TAP:**
- SAMPLE TAP TUBE SHALL BE 3/4" DIA. SCH 80 PVC PIPE ABOVE BOWL FLOOR. DRILL 1/4" DIA. HOLE(S) @ 12" CENTERS. UPPER HOLE TO BE 18" BELOW OVERFLOW LEVEL.
  - SAMPLE TAP TUBE SHALL BE 3/4" DIA. GALVANIZED STEEL BELOW THE 3000 PSI COUPLING AND BRASS VALVE.
  - SUPPORT SAMPLE TAP PIPE @ 10' SPACING WITHIN STAINLESS STEEL BRACKET.
  - SUPPORT PIPE TO RAFTER AT TOP OF PIPE.

RR	App.	Freese And Nichols, Inc. Job No.
8-2-21	ADDENDUM #2	SWB18277
No.	Date	Revisions

Date: 2/12/2021  
Designed by: RR  
Drawn by: GHC  
Checked by: CAK  
Scale: N.T.S.



SAWS JOB NO. 16-6003  
DIETRICH ELEVATED STORAGE TANK  
TANK  
ELEVATED STORAGE TANK SECTION  
AND EXTERIOR ELEVATION

Sheet T-1

ACAD File: 24.0s (LMS Tech)  
Filename: N:\WTU\Drawings\WTU-DEST-ELEV-TANK.dwg  
Last Saved: 2/11/2021 1:05 PM  
Saved By: 90198



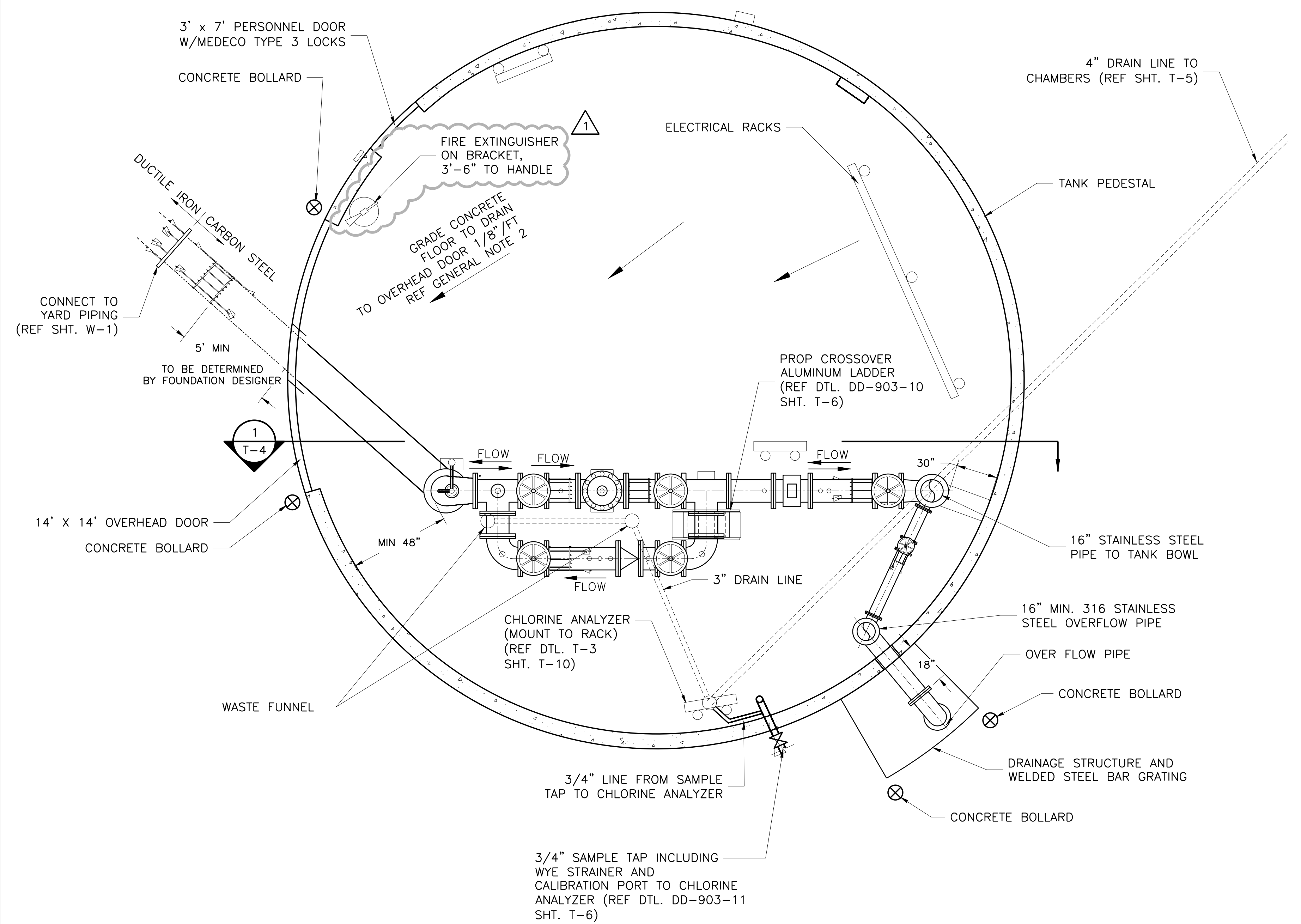


No.	Date	Revisions
8-2-21		ADDENDUM #2

Date:	8/2/2021
Designed by:	RR
Drawn by:	GHC
Checked by:	CAK
Scale:	AS SHOWN



SAWS JOB NO. 16-6003  
DIETRICH ELEVATED STORAGE TANK  
TANK  
ELEVATED STORAGE TANK FLOOR  
PLANS AND DETAILS

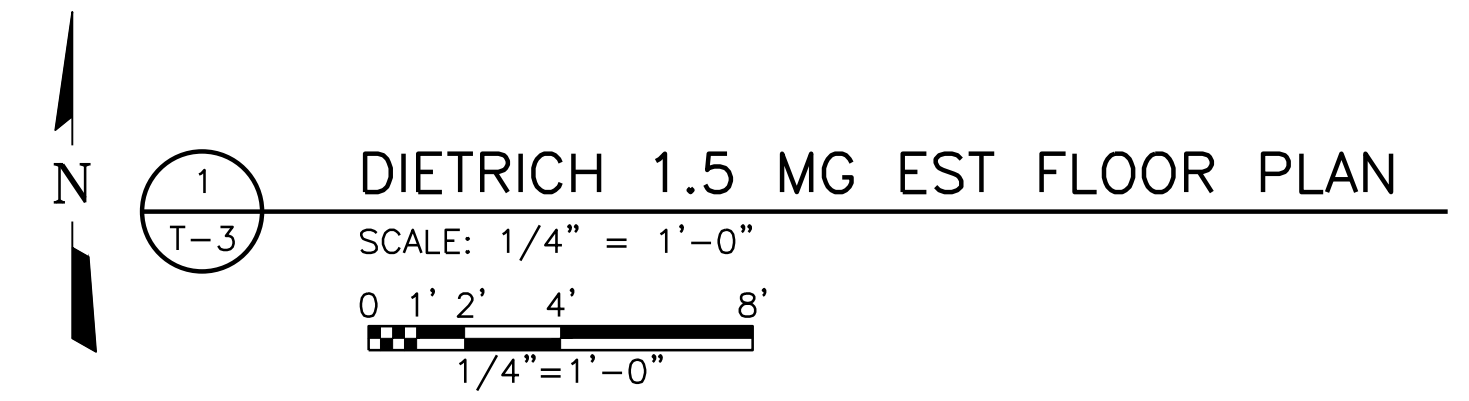


**GENERAL NOTES:**

1. PROVIDE CONCRETE ENCASUREMENT AROUND PIPING UNDER TANK AND EXTENDING A MINIMUM OF FIVE FEET PAST TANK PEDESTAL.
2. PROVIDE A TROWELED FINISH FOR SLAB ON GRADE. SLOPE THE TOP SURFACE TO FLOOR OVERHEAD DOOR.
3. PROVIDE FULL DEPTH ISOLATION JOINTS AT JUNCTIONS WITH WALLS, COLUMNS, FOUNDATIONS, AND OTHER POINTS OF RESTRAINT.
4. PROVIDE 1-1/4 IN. DEPTH CONTRACTION JOINTS AT 15-FT MAXIMUM SPACING.
5. PROVIDE SUITABLE SUBGRADE. FILL MATERIALS SHALL BE COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY (ASTM D698).
6. CONTRACTOR TO LOCATE OVERFLOW STRUCTURE PIPE AS CLOSE AS POSSIBLE TO UPPER LANDING.
7. CONTRACTOR SHALL PROVIDE A CROSS OVER LADDER PER SAWS STD. DETAIL DD-903-10.
8. PROVIDE MONOLITHIC REINFORCED CONCRETE INTERNAL BUTTRESS SECTION ON EACH SIDE OF VEHICLE DOOR. BUTTRESS TO BE MINIMUM 4'-0" WIDE AND 6" THICKER THAN NORMAL WALL DIMENSION.
9. VEHICLE DOOR TO BE 14' WIDE X 14' HIGH ROLLING STEEL DOOR WITH 22 GA. GALVANIZED SLATS AND MANUAL CHAIN OPERATOR.
10. AIR RELEASE VALVE, CONTROL VALVE AND CHLORINE ANALYZER DRAIN PIPING TO BE SUPPORTED VERTICALLY AND HORIZONTALLY WITH S.S. UNITSTRUT SUPPORTS.

**MECHANICAL:**

1. PROVIDE SS EXPANSION JOINT ON INLET AND OUTLET RISER TO ACCOMMODATE MAXIMUM POTENTIAL DIFFERENTIAL MOVEMENT.
2. INSTALL 3 PC. 3/4" TAPS WITH BRONZE GATE VALVES AND PLUGS ON INLET AND OUTLET PIPE.
3. ALL FLANGE COUPLING ADAPTERS AND MECHANICAL HARNESS COUPLINGS SHALL HAVE A 1" MIN. GAP BETWEEN PIPE ENDS.



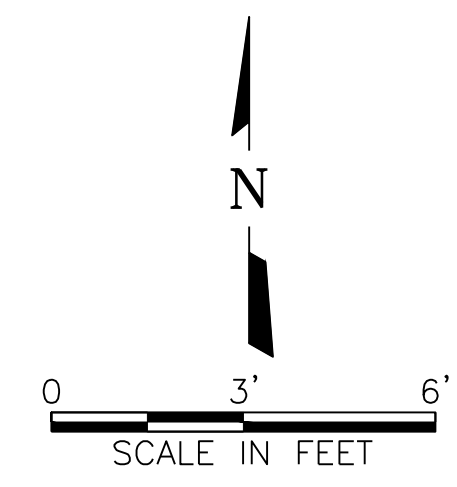
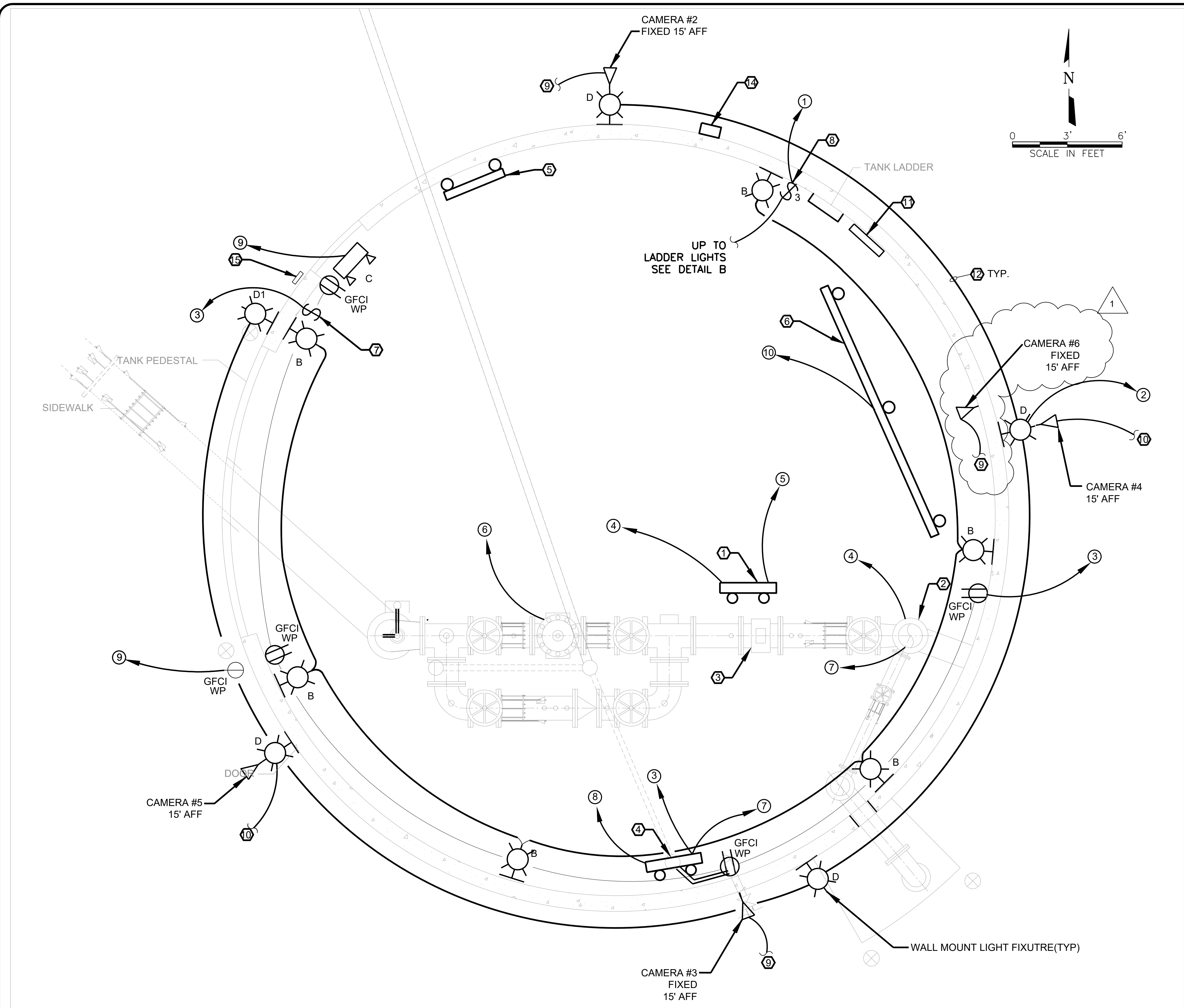
**DIETRICH 1.5 MG EST FLOOR PLAN**

SCALE: 1/4" = 1'-0"

0 1' 2' 4' 8'

1/4" = 1'-0"

ACAD File: 23.1s (LMS Tech)  
 File Name: R:\Freese & Nichols\2018 - Dietrich EST Project\100 percent design restort\Drawings\E-4 ELECTRICAL\_TANK\_PLAN\_Addendum #2\_Rev1.dwg  
 Last Saved: 8/4/2021 10:58 AM Saved By: SMOuser

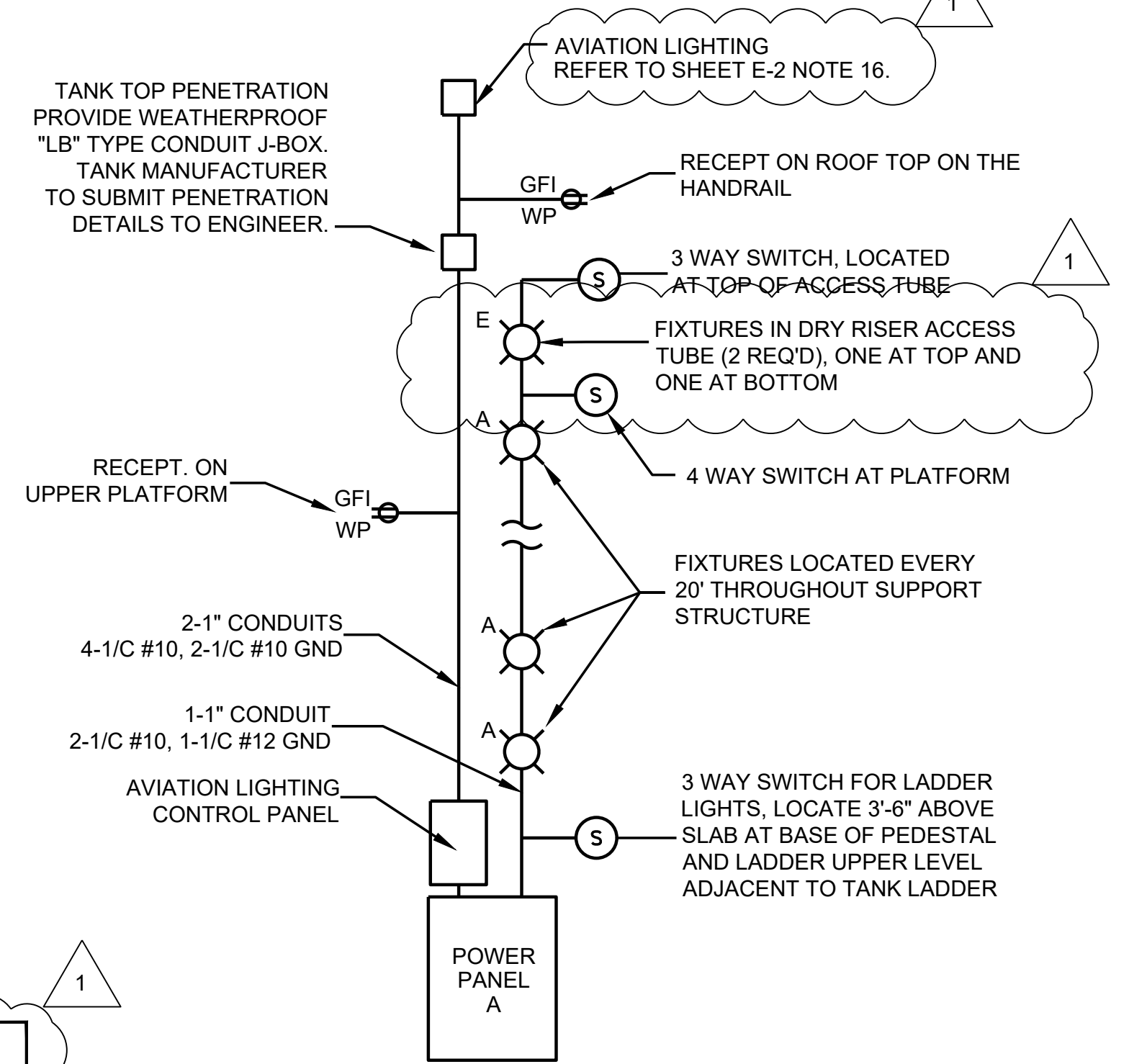


**CABLE AND CONDUIT LIST:**

- ① TO POWER PANEL:  
2-1/C #10, 1-1/C #12GND, 1"CONDUIT
- ② TO LIGHTING CONTACTOR PANEL:  
2-1/C #10, 1-1/C #12GND, 3/4"CONDUIT
- ③ TO POWER PANEL:  
2-1/C #10, 1-1/C #12GND, 3/4"CONDUIT
- ④ TO SCADA PANEL:  
2-#16 TW/SH/PR, 2-1"CONDUIT (1-SPARE)
- ⑤ TO UPS PANEL:  
2-1/C #12, 1-#12GND, 2-3/4"CONDUITS (1-SPARE)
- ⑥ TO SCADA PANEL:  
8-1/C #12, 1-#12GND, 3-1"CONDUITS (1-SPARE)
- ⑦ TO HEAT TRACE PANEL:  
2-1/C #12, 1-1/C #12GND, 3/4"CONDUIT
- ⑧ TO SCADA PANEL:  
4-#16 TW/SH/PR, 2-2"CONDUITS (1-SPARE)
- ⑨ TO POWER PANEL:  
2-1/C #12, 1-1/C #12GND, 3/4"CONDUIT
- ⑩ TO PHOTOCELL:  
2-1/C#12, 1-1/C #12GND, 3/4"CONDUIT

**KEYED NOTES:**

- ① RACK MOUNTED FLOWMETER TRANSMITTER. SEE SHEET E-7 FOR FLOWMETER RACK DETAILS.
- ② LEVEL BY PRESSURE TRANSMITTER. SEE SHEET E-10 FOR DETAILS. SHALL BE ACCESSIBLE TO OPERATORS AND INSTALLED NO MORE THAN 4 FEET ABOVE THE FLOOR.
- ③ FLOWMETER.
- ④ RACK MOUNTED CHLORINE ANALYZER. SEE SHEET E-7 FOR RACK DETAILS.
- ⑤ ATS PANEL RACK. SEE SHEET E-2 FOR RACK DETAILS.
- ⑥ ELECTRICAL & CONTROLS RACK. SEE SHEET E-2 FOR RACK DETAILS.
- ⑦ SWITCH FOR INTERIOR LIGHTS.
- ⑧ SWITCH FOR LADDER LIGHTS.
- ⑨ TO SECURITY CABINET. PROVIDE 1-1"C, 1-CAT6 CABLE.
- ⑩ TO SECURITY CABINET. PROVIDE 2-1"C, 3-CAT6 CABLE, 6-1/C #16 THWN.
- ⑪ CONDUIT CHASE UP TO TOP OF TANK. REFER TO SHEET E-7 FOR DETAILS.
- ⑫ ROUTE CONDUIT IN THE INTERIOR OF THE TANK PEDESTAL.
- ⑬ NOT USED.
- ⑭ PHOTOCELL FOR EXTERIOR LIGHTING.
- ⑮ DOOR ACCESS CARD READER AND ELECTRONIC DOOR STRIKE. 2-1" CONDUIT TO SECURITY PANEL. CABLE AS REQUIRED PER MANUFACTURER.



LIGHT FIXTURE SCHEDULE						
TYPE	LAMPS	MOUNTING	VOLTAGE	MANUFACTURER	DESCRIPTION	CATALOG NO.
A	15W	SURFACE	120V	LITHONIA	INTERIOR LADDER LIGHT	CAT. #OLVTWM
B	69W	WALL-PACK	120V	LITHONIA	INTERIOR TANK PEDESTAL LED LIGHT	CAT. #CSXWLED30C-700-40K-T3MVOLT BBW-DDBDX
C	4.3W	SURFACE	120V	LITHONIA	COMBINATION EXIT & EMERGENCY LIGHT	CAT. #LHQMLEDGHO-ELA-TWIN
D	29W	WALL-PACK	120V	LITHONIA	EXTERIOR TANK PEDESTAL LED LIGHT	CAT. #MRWLED-P2-40KSR3-MVOLTBBW-DDBXD
D1	29W	WALL-PACK	120V	LITHONIA	EXTERIOR TANK PEDESTAL LED LIGHT WITH EMERGENCY BATTERY BACKUP	CAT. #MRWLED-P2-40KSR3-DDBXDW

LIGHT FIXTURE SCHEDULE						
TYPE	LAMPS	MOUNTING	VOLTAGE	MANUFACTURER	DESCRIPTION	CATALOG NO.
E	18W	WALL	120V	LITHONIA	DRY RISER LIGHT	CAT. #DMW2-L24-2000LM-AFL-MD-MVOLT-GZ10-40K-80CRI

FOR AVIATION LIGHTING REFER TO SHEET E-2 NOTE 16.

	SM	App.		SWB18277
1	8/4/2021	Date	Revisions	
1	ADDENDUM #2	Date	Revisions	Date: 1/25/2021 Designed by: BD Drawn by: SG Checked by: SM
SAWS JOB NO. 16-6003 DIETRICH ELEVATED STORAGE TANK ELECTRICAL TANK PLAN				
				Sheet E-4



