

ADDENDUM NO. 01

Issue Date:	7/08/2026
School / Facility Name:	Transportation / Maintenance - Deltona
Project Name:	Replace Fuel Island and Tanks
Owner's Project No.:	2648210

Owner:	School Board of Volusia County Florida 200 N. Clara Avenue, DeLand Florida 32720
Owner's Project Manager:	James Bott
Project Manager's Location:	3750 Olson Drive, Daytona Beach Florida 32124

Engineers' Representative:	Jeremy Demboski, Kimley-Horn and Associates, Inc.
Engineers' Project No.:	145642003

The following modifications shall be incorporated to the previously distributed construction documents. Any questions regarding these modifications should be directed to the project engineer for consideration.

The Drawings and Specifications are hereby modified as follows:**SPECIFICATIONS**

Revised Section 260519, Low-Voltage Electrical Power Conductors and Cables made part of this addendum. Revisions are indicated in red font within the section.

Revised Section 260533.13, Conduits for Electrical Systems made part of this addendum. Revisions are indicated in red font within the section.

RESPONSES TO BIDDER QUESTIONS

1. Please provide drawings that clearly markup exactly which sections of the current median that need to be removed (ref C310). Please ensure your annotations specifically outline the concrete or curb area required for vehicles to safely pass after fueling, so we can verify the clearance distance.

Response: Per drawing Sheet C310; demolition of median shall occur back to demolition of asphalt noted by the darker median lines. Refer to Sheet C400 for final curb.

2. On Engineered Drawings P000, Fuel Oil General Notes, Note C references UL 1369. Please confirm if this reference will be removed from the project drawings.

Response: Sheet P000 has been revised to provide single wall piping and made part of this addendum.

3. While reviewing the drawings, we developed an alternative VE concept that could generate significant savings. Are you receptive to us submitting this alternate proposal for your consideration?

Response: Alternate proposals will not be considered. Bid the project as designed.

4. We request a two-week extension on the submission deadline. Pushing the date from July 15, 2026 to July 29, 2026 will allow our team to thoroughly address all project requirements and provide you with the best possible value.

Response: Extension not approved.

5. If the alternate scope of removing and replacing the 20,000 gallon AST is not awarded, Will the only new equipment that it installed on the existing tank be the new piping to the island and the sensors associated with the new Veeder-Root system only.

Response: Correct.

6. Will there be a Payment & Performance Bond on this project?

Response: Yes, reference the Project Manual, Division 0.

7. Will certified payroll be required from Volusia County Schools

Response: Not required.

8. Based on our experience on similar jobs, the 60 day timeframe from NTP for completion on this job seems unrealistic. A typical lead time on tank manufacturing is approximately 18 weeks, cure time on all concrete could range between 14-21 days just as some examples. Would VCS be willing to extend the allowable construction time?

Response: Should the need arise, the school district contract allows for extending the number of construction days via Change Order.

END OF ADDENDUM NO. 1

ATTACHMENTS

Specifications:

Section 260519, Low-Voltage Electrical Power Conductors and Cables

Section 260533.13, Conduits for Electrical Systems

Drawings:

Sheet P000, Fuel Oil Symbols, Abbreviations, Sheet Specs and Notes

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Copper building wire.
2. Aluminum building wire.
3. Fire-alarm wire and cable.
4. Connectors and splices.

B. Related Requirements:

1. Section 018116 "Facility Environmental Requirements" specifies basis-of-design environmental conditions and performance criteria that are applicable to product selection and installation of the Work on the Project.
2. Section 018123 "Facility Seismic and Wind Criteria" specifies basis-of-design seismic and wind criteria for nonstructural components on the Project.
3. Section 260010 "Supplemental Requirements for Electrical" specifies additional requirements applicable to coordinating, scheduling, and sequencing of the Work specified in this Section.
4. Section 260523 "Control-Voltage Electrical Power Cables" for control systems communications cables and Classes 1, 2, and 3 control cables.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Products or components under this Section shall be listed and labeled as Made in USA.

2.2 COPPER BUILDING WIRE

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Alpha Wire; brand of Belden, Inc.
 - 2. Belden Inc.
 - 3. Cerro Wire LLC
 - 4. Encore Wire Corporation
 - 5. General Cable; Prysmian Group North America
 - 6. Okonite Company (The)
 - 7. Service Wire Co.
 - 8. Southwire Company, LLC
 - 9. WESCO
- B. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- C. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.
- E. Conductor Insulation:
 - 1. Type THHN and Type THWN-2. Comply with UL 83.
 - 2. [Type THW and Type THW-2. Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
 - 3. Type XHHW-2. Comply with UL 44.

2.3 ALUMINUM BUILDING WIRE

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Alpha Wire; brand of Belden, Inc.
 - 2. Belden Inc.
 - 3. Encore Wire Corporation
 - 4. General Cable; Prysmian Group North America
 - 5. Okonite Company (The)
 - 6. Southwire Company, LLC
 - 7. WESCO
- B. Description: Flexible, insulated and uninsulated, drawn aluminum current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.

C. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

D. Conductors: Aluminum, complying with ASTM B800 and ASTM B801.

E. Conductor Insulation:

1. Type THHN and Type THWN-2. Comply with UL 83.
2. Type THW and Type THW-2. Comply with NEMA WC-70/ICEA S-95-658 and UL 83.
3. Type XHHW-2. Comply with UL 44.

2.4 FIRE-ALARM WIRE AND CABLE

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Allied Wire & Cable Inc.
2. CommScope, Inc
3. Comtran Corporation
4. Genesis; Resideo Technologies, Inc.
5. Prysmian Cables and Systems; Prysmian Group North America
6. PYROTENAX; brand of nVent Electrical plc
7. Radix Wire
8. Rockbestos-Suprenant Cable Corp.
9. Superior Essex Inc.; subsidiary of LS Corp.
10. West Penn Wire; brand of Belden, Inc.

B. General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.

1. Lead Content: Less than 300 ppm.

C. Signaling Line Circuits: Twisted, shielded pair, not less than size as recommended by system manufacturer.

1. Circuit Integrity Cable: Twisted shielded pair, NFPA 70, Article 760, Classification CI, for power-limited fire-alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a two-hour rating.

D. Non-Power-Limited Circuits: Solid-copper conductors with 600 V rated, 75 deg C, color-coded insulation, and complying with requirements in UL 2196 for a two-hour rating.

1. Low-Voltage Circuits: No. 16 AWG, minimum, in pathway.

2. Line-Voltage Circuits: No. 12 AWG, minimum, in pathway.

2.5 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
 1. 3M Electrical Products
 2. ABB, Electrification Business
 3. AFC Cable Systems; Atkore International
 4. Burndy; brand of Hubbell Electrical Solutions; Hubbell Incorporated
 5. Gardner Bender
 6. Hubbell Utility Solutions; Hubbell Incorporated
 7. Ideal Industries, Inc.
 8. ILSCO
 9. NSi Industries LLC
 10. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group
 11. Service Wire Co.
 12. TE Connectivity Ltd.
- B. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
 1. Material: Copper, Aluminum.
 2. Type: One or Two holes with standard barrels.
 3. Termination: Compression, Crimp.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders:
 1. Copper for feeders smaller than No. 2 AWG; copper or aluminum for feeders No. 2 AWG and larger. Conductors must be solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits:
 1. Copper:

- a. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- C. ASD Output Circuits Cable: Extra-flexible stranded for all sizes.
- D. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.2 CONDUCTOR INSULATION AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway and Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway and Type XHHW-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway and Type XHHW-2, single conductors in raceway.
- E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway.
- F. Branch Circuits below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway and Type XHHW-2, single conductors in raceway.
- G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless steel, wire-mesh, strain relief device at terminations to suit application.
- H. ASD Output Circuits: Type XHHW-2 in metal conduit.

3.3 INSTALLATION, GENERAL

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points in accordance with Section 260533.13 "Conduits for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

- G. Complete cable tray systems installation according to Section 260536 "Cable Trays for Electrical Systems" prior to installing conductors and cables.

3.4 INSTALLATION OF FIRE-ALARM WIRE AND CABLE

- A. Comply with NFPA 72.
- B. Wiring Method: Install wiring in metal pathway according to Section 270528.29 "Hangers and Supports for Communications Systems."
 - 1. Install plenum cable in environmental airspaces, including plenum ceilings.
 - 2. Fire-alarm circuits and equipment control wiring associated with fire-alarm system must be installed in a dedicated pathway system.
 - a. Cables and pathways used for fire-alarm circuits, and equipment control wiring associated with fire-alarm system, may not contain any other wire or cable.
 - 3. Fire-Rated Cables: Use of two-hour, fire-rated fire-alarm cables, NFPA 70, Types MI and CI, is not permitted.
 - 4. Signaling Line Circuits: Power-limited fire-alarm cables must not be installed in the same cable or pathway as signaling line circuits.
- C. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with fire-alarm system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- D. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes; cabinets; or equipment enclosures where circuit connections are made.
- E. Color-Coding: Color-code fire-alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and another for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire-alarm system junction boxes and covers red.
- F. Risers: Install at least two vertical cable risers to serve the fire-alarm system. Separate risers in close proximity to each other with a minimum one-hour-rated wall, so the loss of one riser does not prevent receipt or transmission of signals from other floors or zones.
- G. Wiring to Remote Alarm Transmitting Device: **1 inch** conduit between the fire-alarm control panel and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.5 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inch of slack.
- D. Comply with requirements in Section 284600 "Fire Detection and Alarm" for connecting, terminating, and identifying wires and cables.

3.6 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.7 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.8 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.9 FIELD QUALITY CONTROL

- A. Tests and Inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.

- b. Test bolted connections for high resistance using one of the following:
 - 1) A low-resistance ohmmeter.
 - 2) Calibrated torque wrench.
 - 3) Thermographic survey.
 - c. Inspect compression-applied connectors for correct cable match and indentation.
 - d. Inspect for correct identification.
 - e. Inspect cable jacket and condition.
 - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500 V(dc) for 300 V rated cable and 1000 V(dc) for 600 V rated cable for a one-minute duration.
 - g. Continuity test on each conductor and cable.
 - h. Uniform resistance of parallel conductors.
3. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
- a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
4. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
- B. Cables will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports to record the following:
- 1. Procedures used.
 - 2. Results that comply with requirements.
 - 3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

SECTION 260533.13 - CONDUITS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Type EMT duct raceways and elbows.
2. Type HDPE and Type EPEC duct raceways and fittings.
3. Type ERMC duct raceways, elbows, couplings, and nipples.
4. Type IMC duct raceways.
5. Type LFMC duct raceways.
6. Type LFNC duct raceways.
7. Type PVC duct raceways and fittings.
8. Fittings for conduit, tubing, and cable.
9. Solvent cements.

B. Related Requirements:

1. Section 260010 "Supplemental Requirements for Electrical" specifies additional coordination, scheduling, sequencing, submittal, and installation requirements applicable to the Work for electrical, communications, and electronic safety and security systems on the Project, including wiring methods.
2. Section 078413 "Penetration Firestopping" specifies firestopping referenced by this Section.
3. Section 260519 "Low-Voltage for Electrical Power Conductors and Cables" specifies nonmetallic underground conduit with conductors (Type NUCC).
4. Section 260529 "Hangers and Supports for Electrical Systems" specifies conduit hangers and supports referenced by this Section.
5. Section 260553 "Identification for Electrical Systems" specifies electrical equipment labels.

1.2 REFERENCES

A. Abbreviations and Acronyms for Electrical Raceway Types:

1. EMT: Electrical metallic tubing.
2. EMT-A: Aluminum electrical metallic tubing.
3. EMT-S: Steel electrical metallic tubing.
4. EMT-SS: Stainless steel electrical metallic tubing.
5. ENT: Electrical nonmetallic tubing.
6. EPEC: Electrical HDPE underground conduit (thin wall).
7. EPEC-A: Type A electrical HDPE underground conduit.
8. EPEC-B: Type B electrical HDPE underground conduit.

9. ERM: Electrical rigid metal conduit.
10. ERM-A: Aluminum electrical rigid metal conduit.
11. ERM-S: Steel electrical rigid metal conduit.
12. ERM-S-G: Galvanized-steel electrical rigid metal conduit.
13. ERM-S-PVC: PVC-coated-steel electrical rigid metal conduit.
14. ERM-SS: Stainless steel electrical rigid metal conduit.
15. FMC: Flexible metal conduit.
16. FMC-A: Aluminum flexible metal conduit.
17. FMC-S: Steel flexible metal conduit.
18. FMT: Steel flexible metallic tubing.
19. FNMC: Flexible nonmetallic conduit. See "LFNC."
20. HDPE: HDPE underground conduit (thick wall).
21. HDPE-40: Schedule 40 HDPE underground conduit.
22. HDPE-80: Schedule 80 HDPE underground conduit.
23. IMC: Steel electrical intermediate metal conduit.
24. LFMC: Liquidtight flexible metal conduit.
25. LFMC-A: Aluminum liquidtight flexible metal conduit.
26. LFMC-S: Steel liquidtight flexible metal conduit.
27. LFMC-SS: Stainless steel liquidtight flexible metal conduit.
28. LFNC: Liquidtight flexible nonmetallic conduit.
29. LFNC-A: Layered (Type A) liquidtight flexible nonmetallic conduit.
30. LFNC-B: Integral (Type B) liquidtight flexible nonmetallic conduit.
31. LFNC-C: Corrugated (Type C) liquidtight flexible nonmetallic conduit.
32. PVC: Rigid PVC conduit.
33. PVC-40: Schedule 40 rigid PVC conduit.
34. PVC-80: Schedule 80 rigid PVC Conduit.
35. PVC-A: Type A rigid PVC concrete-encased conduit.
36. PVC-EB: Type EB rigid PVC concrete-encased underground conduit.
37. RGS: See ERM-S-G.
38. RMC: See ERM.
39. RTRC: Reinforced thermosetting resin conduit.
40. RTRC-AG: Low-halogen, aboveground reinforced thermosetting resin conduit.
41. RTRC-AG-HW: Heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
42. RTRC-AG-SW: Standard wall, low-halogen, aboveground reinforced thermosetting resin conduit.
43. RTRC-AG-XW: Extra heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
44. RTRC-BG: Low-halogen, belowground reinforced thermosetting resin conduit.

B. Definitions:

1. Conduit: A structure containing one or more duct raceways.
2. Direct Buried: Installed underground without encasement in concrete or other protective material.
3. Duct Bank: An arrangement of conduit providing one or more continuous duct raceways between two points.
4. Duct Raceway: A single enclosed raceway for conductors or cable.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Products or components listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
- B. Products or components under this Section shall be listed and labeled as Made in USA.

2.2 TYPE EMT DUCT RACEWAYS AND ELBOWS

- A. UL FJMX - Steel Electrical Metal Tubing (EMT-S) and Elbows:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; Atkore International
 - b. Republic Conduit; Nucor Corporation, Nucor Tubular Products
 - c. Topaz Lighting & Electric
 - d. Western Tube; Zekelman Industries
 - e. Wheatland Tube; Zekelman Industries
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN FJMX; including UL 797.
 - 3. Standard Features:
 - a. Material: Steel.
 - b. Exterior Coating: Zinc.
 - c. Interior Coating: Zinc.
 - d. Minimum Trade Size: trade size 3/4".

2.3 TYPE HDPE DUCT RACEWAYS AND FITTINGS

- A. UL EAZX - Schedule 40 Electrical HDPE Underground Conduit (HDPE-40):
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing

laboratory in accordance with guide information and standards specified for the following UL product categories:

- a. UL CCN EAZX; including UL 651A.
 2. Standard Features:
 - a. Dimensional Specifications: Schedule 40.
 3. Other Available Features Required by the Project:
 - a. Minimum Trade Size: trade size 1".
- B. UL EAZX - Schedule 80 Electrical HDPE Underground Conduit (HDPE-80):
1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN EAZX; including UL 651A.
 2. Standard Features:
 - a. Dimensional Specifications: Schedule 80.
 3. Other Available Features Required by the Project:
 - a. Minimum Trade Size: trade size 1".
- 2.4 TYPE ERM C DUCT RACEWAYS, ELBOWS, COUPLINGS, AND NIPPLES
- A. UL DYIX - PVC-Coated-Steel Electrical Rigid Metal Conduit (ERM C-S-PVC), Elbows, Couplings, and Nipples:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bluesteel Services LLC
 - b. Calbond; Atkore International
 - c. KorKap; Robroy Industries
 - d. Plasti-Bond; Robroy Industries
 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DYIX; including UL 6.
 3. Standard Features:
 - a. Exterior Coating: PVC complying with NEMA RN 1.

- b. Interior Coating: Zinc with organic top coating.
 - c. Minimum Trade Size: trade size 3/4".
- 4. Other Available Features Required by the Project:
 - a. Colors: As indicated on the Drawings.
 - b. Conduit Fittings for Hazardous (Classified) Locations: UL 1203.
 - c. Expansion and Deflection Fittings: UL 651 with flexible bonding jumper.

2.5 TYPE IMC DUCT RACEWAYS

- A. UL DYBY - Steel Intermediate Metal Conduit (IMC):
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; Atkore International
 - b. Calconduit; Atkore International
[Republic Conduit; Nucor Corporation, Nucor Tubular Products
 - c. Rymco USA brand; manufactured and listed by subsidiary Conduit S.A. de C.V
 - d. Western Tube; Zekelman Industries
 - e. Wheatland Tube; Zekelman Industries
 - 2. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DYBY; including UL 1242.
 - 3. Standard Features:
 - a. Exterior Coating: Zinc.
 - b. Interior Coating: Zinc.
 - c. Minimum Trade Size: trade size 3/4".

2.6 TYPE LFMC DUCT RACEWAYS

- A. UL DXHR - Steel Liquidtight Flexible Metal Conduit (LFMC-S):
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DXHR; including UL 360.
 - 2. Standard Features:
 - a. Material: Steel.
 - b. Minimum Trade Size: trade size 3/4"

2.7 TYPE LFNC DUCT RACEWAYS

- A. UL DXOQ - Layered (Type A) Liquidtight Flexible Nonmetallic Conduit (LFNC-A):
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DXOQ; including UL 1660.
 - 2. Standard Features:
 - a. Type A conduit with smooth seamless inner core and cover bonded together with one or more reinforcement layers between core and cover.
 - b. Minimum Trade Size: 3/4"

2.8 TYPE PVC DUCT RACEWAYS AND FITTINGS

- A. UL DZYR - Schedule 40 Rigid PVC Conduit (PVC-40) and Fittings:
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DZYR; including UL 651.
 - 2. Standard Features:
 - a. Dimensional Specifications: Schedule 40.
 - b. Minimum Trade Size: trade size 3/4".

2.9 FITTINGS FOR CONDUIT, TUBING, AND CABLE

- A. UL DWTT - Fittings for Type ERM, Type IMC, Type PVC, Type HDPE, Type EPEC, and Type RTRC Duct Raceways:
 - 1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DWTT; including UL 514B.
 - 2. Standard Features:
 - a. Material: Steel.
 - b. Coupling Method: Compression coupling, Raintight compression coupling with distinctive color gland nut, Setscrew couplings with only single screw per conduit are unacceptable.
 - c. Expansion and Deflection Fittings: UL 651 with flexible bonding jumper.

B. UL FKA V - Fittings for Type EMT Duct Raceways:

1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN FKA V; including UL 514B.
2. Standard Features:
 - a. Material: Steel.
 - b. Coupling Method: Compression coupling, Raintight compression coupling with distinctive color gland nut, Setscrew couplings with only single screw per conduit are unacceptable.
 - c. Expansion and Deflection Fittings: UL 651 with flexible bonding jumper.

C. UL ILNR - Fittings for Type FMC Duct Raceways:

1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN ILNR; including UL 514B.

D. UL DXAS - Fittings for Type LFMC Duct Raceways:

1. Listing Criteria: Investigated, labeled, and marked by qualified electrical testing laboratory in accordance with guide information and standards specified for the following UL product categories:
 - a. UL CCN DXAS; including UL 514B.

PART 3 - EXECUTION

3.1 SELECTION OF CONDUITS FOR ELECTRICAL SYSTEMS

- A. Unless more stringent requirements are specified in the Contract Documents or manufacturer's published instructions, comply with NFPA 70 for selection of duct raceways. Consult Architect for resolution of conflicting requirements.
- B. Special Instructions Regarding HDPE Conduits: Although Article 353 of NFPA 70 permits use of HDPE conduits where encased in concrete aboveground, UL CCN EAZX listing requirements state that HDPE conduits are intended only for use where direct buried with or without being encased in concrete. Specified Type HDPE underground conduits are not permitted to be used aboveground on the Project.
- C. Outdoors:
 1. Exposed and Subject to Severe Physical Damage: ERM C or IM C.
 2. Exposed and Subject to Physical Damage: ERM C or IM C.

3. Exposed and Not Subject to Physical Damage: ERM, IMC, or PVC-80.
4. Concealed Aboveground: ERM, IMC, EMT, PVC-80, or PVC-40.
5. Direct Buried: PVC-40 or RTRC-BG.
6. Concrete Encased Not in Trench: PVC-80 or RTRC-BG.
7. Concrete Encased in Trench: PVC-80 or RTRC-BG.
8. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

D. Indoors:

1. Hazardous Classified Locations: ERM.
2. Exposed and Subject to Severe Physical Damage: ERM or IMC.
3. Exposed and Subject to Physical Damage: ERM or IMC.
4. Exposed and Not Subject to Physical Damage: EMT.
5. Concealed in Ceilings and Interior Walls and Partitions: EMT.
6. Damp or Wet Locations: ERM or IMC.
7. Retain first or second option in first subparagraph below if duct raceway may be exposed to physical damage. See "Liquidtight Flexible Metal Conduit (LFMC)" and "Liquidtight Flexible Nonmetallic Conduit (LFNC)" articles in the Evaluations for distinction between types.
8. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.

E. Duct Fittings: Select fittings in accordance with NEMA FB 2.10 guidelines.

1. ERM and IMC: Provide threaded-type fittings unless otherwise indicated.

3.2 INSTALLATION OF CONDUITS FOR ELECTRICAL SYSTEMS

A. Comply with manufacturer's published instructions.

B. Reference Standards for Installation: Unless more stringent installation requirements are specified in the Contract Documents or manufacturer's published instructions, comply with the following:

1. Electrical Construction: ICC IBC, ICC IF, NFPA 1, NFPA 70, and NECA NEIS 1.
2. Electrical Safety: NFPA 70E.
3. Commissioning of Active and Passive Fire Protection Features: NFPA 3 and NFPA 4.
4. Grounding and Bonding: NECA NEIS 331 and Article 250 of NFPA 70.
5. Communications Work: BICSI N1.
6. Life Safety and Means of Egress Work: NFPA 101.
7. Emergency and Standby Power Work: NFPA 110, NFPA 111, and NECA NEIS 416.
8. Work in Confined Spaces: NFPA 350.
9. Work in Basements and Other Developed Subterranean Spaces: NFPA 520.
10. Type EMT-A: Article 358 of NFPA 70 and NECA NEIS 102.
11. Type EMT-SS: Article 358 of NFPA 70 and NECA NEIS 101.

12. Type EMT-S: Article 358 of NFPA 70 and NECA NEIS 101.
13. Type ENT: Article 362 of NFPA 70 and NECA NEIS 102.
14. Type HDPE and Type EPEC: Article 353 of NFPA 70 and NECA NEIS 111.
15. Type ERMC-A: Article 344 of NFPA 70 and NECA NEIS 102.
16. Type ERMC-SS: Article 344 of NFPA 70 and NECA NEIS 101.
17. Type ERMC-S: Article 344 of NFPA 70 and NECA NEIS 101.
18. Type FMC-S: Article 348 of NFPA 70 and NECA NEIS 101.
19. Type FMC-A: Article 348 of NFPA 70 and NECA NEIS 102.
20. Type FMT: Article 360 of NFPA 70 and NECA NEIS 101.
21. Type IMC: Article 342 of NFPA 70 and NECA NEIS 101.
22. Type LFMC: Article 350 of NFPA 70 and NECA NEIS 101.
23. Type PVC: Article 356 of NFPA 70 and NECA NEIS 111.
24. Type RTRC: Article 355 of NFPA 70 and NECA NEIS 111.
25. Expansion Fittings: NEMA FB 2.40.

C. Special Installation Techniques:

1. General Requirements for Installation of Duct Raceways:
 - a. Complete duct raceway installation before starting conductor installation.
 - b. Provide stub-ups through floors with coupling threaded inside for plugs, set flush with finished floor. Plug coupling until conduit is extended above floor to final destination or a minimum of 2 ft above finished floor.
 - c. Install no more than equivalent of three 90-degree bends in conduit run. Support within 12 inch of changes in direction.
 - d. Make bends in duct raceway using large-radius preformed ells except for parallel bends. Field bending must be in accordance with NFPA 70 minimum radii requirements. Provide only equipment specifically designed for material and size involved.
 - e. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
 - f. Support conduit within 12 inch of enclosures to which attached.
 - g. Install duct sealing fittings at accessible locations in accordance with NFPA 70 and fill them with listed sealing compound. For concealed duct raceways, install fitting in flush steel box with blank cover plate having finish similar to that of adjacent plates or surfaces. Install duct sealing fittings in accordance with NFPA 70.
 - h. Install devices to seal duct raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal interior of duct raceways at the following points:
 - 1) Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2) Where an underground service duct raceway enters a building or structure.
 - 3) Conduit extending from interior to exterior of building.
 - 4) Conduit extending into pressurized duct raceway and equipment.

- 5) Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
 - 6) Where otherwise required by NFPA 70.
- i. Do not install duct raceways or electrical items on "explosion-relief" walls or rotating equipment.
 - j. Do not install conduits within 2 inch of the bottom side of a metal deck roof.
 - k. Keep duct raceways at least 6 inch away from parallel runs of flues and steam or hot-water pipes. Install horizontal duct raceway runs above water and steam piping.
 - l. Cut conduit perpendicular to the length. For conduits metric designator 53 (trade size 2) and larger, use roll cutter or a guide to make cut straight and perpendicular to the length. Ream inside of conduit to remove burrs.
 - m. Install pull wires in empty duct raceways. Provide polypropylene or monofilament plastic line with not less than 200 lb tensile strength. Leave at least 12 inch of slack at both ends of pull wire. Cap underground duct raceways designated as spare above grade alongside duct raceways in use.
 - n. Install duct raceways square to the enclosure and terminate at enclosures without hubs with locknuts on both sides of enclosure wall. Install locknuts hand tight, plus one-quarter turn more.
- 1) Termination fittings with shoulders do not require two locknuts.
- o. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to metric designator 35 (trade size 1-1/4) and insulated throat metal bushings on metric designator 41 (trade size 1-1/2) and larger conduits terminated with locknuts.
- 2. Types EMT-A, ERM-C-A, and FMC-A: Do not install aluminum duct raceways or fittings in contact with concrete or earth.
 - 3. Types ERM-C and IMC:
 - a. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound that maintains electrical conductivity to threads of duct raceway and fittings before making up joints. Follow compound manufacturer's published instructions.
 - 4. Type ERM-C-S-PVC:
 - a. Follow manufacturer's installation instructions for clamping, cutting, threading, bending, and assembly.
 - b. Provide PVC-coated sealing locknut for exposed male threads transitioning into female NPT threads that do not have sealing sleeves, including transitions from PVC couplings/female adapters to Type ERM-C-S-PVC elbows in direct-burial applications. PVC-coated sealing locknuts must not be used in place of conduit hub. PVC-coated sealing locknut must cover exposed threads on Type ERM-C-S-PVC duct raceway.
 - c. Coat field-cut threads on PVC-coated duct raceway with manufacturer-approved corrosion-preventing conductive compound prior to assembly.

5. Types FMC and LFMC:
 - a. Provide a maximum of 72 inch of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
6. Types PVC, HDPE, and EPEC:
 - a. Do not install Type PVC, Type HDPE, or Type EPEC conduit where ambient temperature exceeds 122 deg F . Conductor ratings must be limited to 75 deg C except where installed in a trench outside buildings with concrete encasement, where 90 deg C conductors are permitted.
 - b. Comply with manufacturer's published instructions for solvent welding and fittings.
 - c. Join joints with solvent cement in accordance with manufacturer's published instructions and allowed to cure before handling. Joints to be bent, pushed, or pulled must set for minimum 24 h after joining.
7. Type RTRC: Do not install Type RTRC conduit where ambient temperature exceeds 230 deg F .
8. Duct Raceways Embedded in Slabs:
 - a. Run duct raceways larger than metric designator 27 (trade size 1) below concrete slab.
 - b. Arrange duct raceways to cross building expansion joints with expansion fittings at right angles to the joint.
 - c. Arrange duct raceways to ensure that each is surrounded by minimum of 1 inch of concrete without voids.
 - d. Do not embed threadless fittings in concrete unless locations have been specifically approved by Architect.
 - e. Change from ENT to ERM or IMC before rising above floor.
9. Stub-ups to Above Recessed Ceilings:
 - a. Provide EMT, IMC, or ERM for duct raceways.
 - b. Provide a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
10. Duct Raceway Terminations at Locations Subject to Moisture or Vibration:
 - a. Provide insulating bushings to protect conductors, including conductors smaller than 4 AWG.
11. Duct Fittings: Install fittings in accordance with NEMA FB 2.10 guidelines.
 - a. ERM-S-PVC: Provide only fittings listed for use with this type of conduit. Patch and seal joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Provide sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by

manufacturer.

- b. EMT: Provide setscrew, steel fittings. Comply with NEMA FB 2.10.
- c. Flexible Conduit: Provide only fittings listed for use with flexible conduit type. Comply with NEMA FB 2.20.

12. Expansion-Joint Fittings:

- a. Install in runs of aboveground PVC that are located where environmental temperature change may exceed 30 deg F and that have straight-run length that exceeds 25 ft. Install in runs of aboveground ERM conduit that are located where environmental temperature change may exceed 100 deg F and that have straight-run length that exceeds 100 ft.
- b. Install type and quantity of fittings that accommodate temperature change listed for the following locations:
 - 1) Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - 2) Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - 3) Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 - 4) Attics: 135 deg F temperature change.
- c. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
- d. Install expansion fittings at locations where conduits cross building or structure expansion joints.
- e. Install expansion-joint fitting with position, mounting, and piston setting selected in accordance with manufacturer's published instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

13. Duct Raceways Penetrating Rooms or Walls with Acoustical Requirements: Seal duct raceway openings on both sides of rooms or walls with acoustically rated putty or firestopping.

14. Identification: Provide labels for conduit assemblies, duct raceways, and associated electrical equipment.

- a. Provide warning signs.

D. Interfaces with Other Work:

- 1. Firestop penetrations of fire-rated floor and wall assemblies.
- 2. Provide conduit hangers and supports.

E. Tests and Inspections:

1. Perform manufacturer's recommended tests and inspections.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide minimum 12 inch long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.
3. Conduit Placement:
 - a. Verify that center-line location and offsets are in accordance with the Drawings.
 - b. Verify that hangers and supports for conduits are attached to structure as directed by qualified structural engineer.
 - c. Verify that nuts on bolts or hanger rods are secure.
 - d. Verify that space between raceways and cored holes are filled with non-shrinking grout or other approved material indicated on the Drawings and the Specifications.
 - e. Verify that expansion devices are installed at locations indicated on the Drawings and the Specifications.
 - f. Verify that ends are cut square to provide flush-butting surfaces when spliced and inside edges are free of burrs that could impede installation of cables.
 - g. Verify minimum separation of utilities, or that approved mechanical protection has been provided to surrounding conduit(s) where minimum separation cannot be achieved.
4. Document all changes on Record Drawings.

F. Nonconforming Work:

1. Conduit will be considered defective if it does not pass tests and inspections.
2. Remove and replace defective units and retest.

3.3 CLEANING

- A. Verify that bentonite or other drilling fluids are contained and removed, and site is restored to its original or improved condition.

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533.13

PLUMBING SYMBOLS AND LEGEND		
SYMBOL	ABBREVIATION	DESCRIPTION
	BV	BALL VALVE
	CS	CIRCUIT SETTER OR FLOW CONTROL VALVE
	BFV	BUTTERFLY VALVE
	GV	GATE VALVE
	CHV	CHECK VALVE
	GLV	GLOBE VALVE
	ANV	ANGLE VALVE
	TDV	TRIPLE DUTY VALVE
	HB	HOSE BIB
	HV	3/4" HOSE END DRAIN VALVE
	BP	BACKFLOW PREVENTOR
	GPR	GAS PRESSURE REGULATOR
	STR	STRAINER
	STR	STRAINER WITH 3/4" HOSE END DRAIN VALVE
	PTR	PRESSURE - TEMPERATURE RELIEF VALVE
	RV	PRESSURE RELIEF VALVE
		2-WAY CONTROL VALVE
		3-WAY CONTROL VALVE
		UNION
		REDUCER
	WHA	WATER HAMMER ARRESTOR
	PG	PRESSURE GAGE WITH GAUGE COCK
	TH	THERMOMETER
	FCO/GCO	FLOOR OR GRADE CLEANOUT
	WCO	WALL CLEANOUT
	PD	PIPING TEE DOWN
	PU	PIPING TEE UP
	PU	PIPING ELBOW UP
	PD	PIPING ELBOW DOWN
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
	COP	CAP ON END OF PIPE
		ARROW INDICATES DIRECTION OF EACH FLOW
	FLS	FLOOR SINK
	FD	FLOOR DRAIN
	VTR	PLUMBING VENT THRU ROOF

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION APPROVED STORAGE TANK SYSTEM EQUIPMENT	
EQ-352	MODERN WELDING, FIREGUARD DOUBLE-WALL ABOVEGROUND TANK
EQ-527	MORRISON 918 AST CLOCK GAUGE WITH AN ALARM SYSTEM
EQ-356	MORRISON 9095A OVERFILL PROTECTION VALVE
EQ-535	MORRISON 515 REMOTE FILL SPILL CONTAINMENT
EQ-628	VEEDER-ROOT MAG SENSOR HYDROSTATIC TEST AND SECONDARY CONTAINMENT VACUUM SENSING SYSTEM
EQ-876	VEEDER-ROOT TLS4 CONSOLE
NOTE: THE STORAGE TANK SYSTEM INSTALLATION PLAN MEETS THE REQUIREMENTS OF CHAPTER 62-762 FLORIDA ADMINISTRATIVE CODE AND ALL THE APPLICABLE REFERENCE GUIDELINES.	

FUEL OIL SHEET LIST	
SHEET #	SHEET NAME

PLUMBING PIPING LEGEND		
SYMBOL	ABBREVIATION	DESCRIPTION
-----	CW	COLD WATER
-----	HWS	HOT WATER SUPPLY
-----	HWR	HOT WATER RETURN
-----	W	SANITARY WASTE
-----	W	SANITARY WASTE (ABOVE GRADE)
-----	GLW	GREASE LADEN WASTE
-----	V	VENT PIPING
--- ST ---	ST	STORM OR ROOF DRAIN PIPING
--- ST ---	ST	STORM OR ROOF DRAIN PIPING (ABOVE GRADE)
--- ODL ---	ODL	OVERFLOW ROOF DRAIN PIPING
--- ODL ---	ODL	OVERFLOW ROOF DRAIN PIPING (ABOVE GRADE)
--- CD ---	CD	CONDENSATE DRAIN PIPING
--- TW ---	TW	TEMPERED WATER (105° F)
--- TP ---	TP	TRAP PRIMER WATER PIPING
--- G ---	G	GAS - LOW PRESSURE (7"-14" WC)
--- MPG ---	MPG	GAS - MEDIUM PRESSURE (2-3 PSI)
--- HPG ---	HPG	GAS - HIGH PRESSURE (5 PSI AND ABOVE)
--- LPG ---	LPG	GAS - LIQUIFIED PETROLEUM
--- CA ---	CA	COMPRESSED AIR PIPING

PLUMBING ANNOTATIONS		
SYMBOL	ABBREVIATION	DESCRIPTION
		MECHANICAL EQUIPMENT - (SEE MECHANICAL SCHEDULE)
		DETAIL REFERENCE CALLOUT, DETAIL NUMBER AND SHEET
		SECTION VIEW CALLOUT, DETAIL NUMBER AND SHEET
	POC	POINT OF CONNECTION - NEW ITEMS TO EXISTING ITEMS
	L-1	PLUMBING FIXTURE SCHEDULE - (SEE SCHEDULE)
	?	SHEET KEYNOTES
	AP	ACCESS PANEL

APPLICABLE CODES	
1.	2023 FLORIDA BUILDING CODE 2023 FLORIDA BUILDING CODE, PLUMBING 2023 FLORIDA BUILDING CODE, MECHANICAL 2023 FLORIDA BUILDING CODE, FUEL GAS 2023 FLORIDA BUILDING CODE, ENERGY CONSERVATION
2.	FLORIDA DEPARTMENT OF ENVIRONMENTAL QUALITY 62-762 F.A.C. ABOVEGROUND FUEL TANK INSTALLATIONS.
3.	NATIONAL FIRE PROTECTION ASSOCIATION: 30: FLAMMABLE AND COMBUSTIBLE LIQUID CODE 30A: AUTOMOTIVE SERVICE STATION CODE 70: NATIONAL ELECTRIC CODE
4.	AMERICAN PETROLEUM INSTITUTE 1604: CLOSURE OF UNDERGROUND PETROLEUM STORAGE TANKS 334: GUIDE TO LEAK DETECTION FOR ABOVEGROUND STORAGE TANKS 340: LIQUID RELEASE PREVENTION AND DETECTION MEASURES FOR ABOVEGROUND STORAGE FACILITIES
5.	PETROLEUM EQUIPMENT INSTITUTE: - RP 200 INSTALLATION OF ABOVEGROUND STORAGE SYSTEMS - RP 500 INSPECTION & MAINTENANCE OF MOTOR FUEL DISPENSING EQUIPMENT - RP 600 OVERFILL PREVENTION FOR ASTS
6.	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: CONSTRUCTION SAFETY AND HEALTH REGULATIONS SUBPART P, 1902.50 THRU 1926.653
7.	MANUFACTURER'S STANDARDIZATION SOCIETY MSS SP-58: PIPE HANGERS AND SUPPORTS

FUEL DISPENSER REGULATIONS AND LABELING	
1.	DISPENSERS MUST BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS
2.	THE FOLLOWING REGULATION IS APPLICABLE TO THE UNLEADED FUEL DISPENSING SYSTEM AND MUST TAKE PRECEDENCE OVER ALL INDICATED DATA ON THIS DRAWING: A. 16 CFR PART 306 - AUTOMOTIVE FUEL RATINGS, CERTIFICATION, AND POSTING.
3.	ALL LABELS MUST BE RESISTANT TO FUEL, GREASE, OIL, SOLVENTS, AND DETERGENTS AND MUST BE ABLE TO WITHSTAND EXTREME WEATHER CONDITIONS FOR AT LEAST ONE YEAR.
4.	ACCEPTABLE LABELS INCLUDE LABELS APPROVED BY THE CONTRACTING OFFICER AND STANDARD TO THE INDUSTRY

PLUMBING ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
@	AT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
API	AMERICAN PETROLEUM INSTITUTE
APPROX.	APPROXIMATELY
AST	ABOVEGROUND STORAGE TANK
ATG	AUTOMATIC TANK GAUGE
AUX.	AUXILIARY
AV	ACID VENT
AW	ACID WASTE
BHP	BRAKE HORSE POWER
BOP	BOTTOM OF PIPE
BTU/H	BRITISH THERMAL UNIT PER HOUR
COMB.	COMBINATION
CONN.	CONNECTION
CS	CARBON STEEL
CSDL	CONTINUOUS STATISTICAL LEAK DETECTION
DBL	DOUBLE
D.C.	DIRECT CURRENT
DIA	DIAMETER
DIM	DIMENSION
DSL	DIESEL FUEL
(E)	EXISTING
EFF	EFFICIENCY
ELECT.	ELECTRICAL
ELD	ENHANCED LEAK DETECTION
ELL	ELBOW
EMT	ELECTRICAL METALLIC TUBING
E.S.O.	EMERGENCY SHUT OFF
F	FILL
F-24	JET FUEL
F.G.	FIBERGLASS
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FNPT	FEMALE NATIONAL PIPE THREAD
FO-D	FUEL OIL - DIESEL
FO-UL	FUEL OIL - UNLEADED
FBM	FEET PER MINUTE
FRP	FIBERGLASS REINFORCED PLASTIC
FSP	FUEL SAMPLE POINT
GA	GAGE OR GAUGE
GAL	GALLON
GP	GALLONS PER MINUTE
HD	HEAD PRESSURE
H.P.	HORSEPOWER
I.D.	INSIDE DIAMETER
KW	KILOWATT
LBS.	POUNDS
MBH	ONE THOUSAND BTUH
MAX.	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MFRS	MANUFACTURER'S
MGS	MOGAS FUEL
MIN.	MINIMUM
MNPT	MALE NATIONAL PIPE THREAD
MOC	MAXIMUM OVER CURRENT PROTECTION
MW	MONITOR WELL
(N)	NEW
N/A	NOT APPLICABLE
N/C	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NPT	NATIONAL PIPE THREAD
N/O	NORMALLY OPEN
NO.	NUMBER
N.T.S.	NOT TO SCALE
O.D.	OUTSIDE DIAMETER
OF	OWNER FURNISHED, CONTRACTOR INSTALLED
OF	OWNER FURNISHED, CONTRACTOR INSTALLED
P	PRODUCT LINE
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
Q	QUANTITY
RD	ROOF DRAIN
REF.	REFERENCE
REQD.	REQUIRED
RFM	REVOLUTIONS PER MINUTE
RSG.	RIGID STEEL GALVANIZED
SEC.	SECTION
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
S.T.P.	SUBMERGED TURBINE PUMP
T.L.M.	TANK LEVEL MONITOR
TYP.	TYPICAL
U.B.C.	UNIFORM BUILDING CODE
U.F.C.	UNIFORM FIRE CODE
U.G.	UNDER GROUND
U.L.	UNDERWRITER'S LABORATORY
U.M.C.	UNIFORM MECHANICAL CODE
UNL	UNLEADED
U.P.C.	UNIFORM PLUMBING CODE
U.S.T.	UNDERGROUND STORAGE TANK
V	VAPOR LINE
VPR	VAPOR FUEL
VAC.	VOLT AMP CURRENT
VFD	VARIABLE FREQUENCY DRIVE
V.R.	VAPOR RECOVERY
W/	WITH
W.C.	WATER COLUMN
WVS	WASTE VENT STACK

FUEL OIL GENERAL NOTES	
GENERAL:	
A.	CONTRACTOR SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE INSTALLING FLEET FUEL SYSTEMS AND MUST HAVE THE FOLLOWING CERTIFICATIONS IN ORDER TO BID ON THIS PROJECT OR BE INVOLVED ON ANY CONSTRUCTION. a. OPW FUEL MANAGEMENT CERTIFICATION b. OIL PROOF VEEDEER-ROOT CERTIFICATION
B.	NOT USED.
C.	THE INFORMATION INDICATED ON THESE DRAWINGS IS EXCLUSIVELY BASED ON INFORMATION TAKEN FROM AS-BUILT DRAWINGS, FIELD INVESTIGATION, AND INFORMATION OBTAINED FROM EXISTING SUBMITTAL DATA, ETC. THE PLANS DO NOT GUARANTEE ACCURACY BUT ARE ONLY AN INDICATION OF EXISTING CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXACT CONDITIONS SUCH AS EQUIPMENT PLACEMENT, PIPING (SIZE, ROUTING, AND ELEVATION), ETC. THE DRAWINGS ARE INTENDED TO PROVIDE THE CONTRACTOR AN INDICATION OF THE SYSTEM INSTALLED IN THE FACILITY TO DATE. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ADJUSTMENTS TO THE DRAWING INFORMATION AS REQUIRED TO MATCH EXISTING FIELD CONDITIONS. THE GENERAL CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR PROPER HANDLING AND INSTALLATION OF PIPING SYSTEM. THE GENERAL CONTRACTOR SHALL ENSURE THAT GOOD WORKMANSHIP AND CONSTRUCTION PROCEDURES ARE FOLLOWED THROUGHOUT THE INSTALLATION, REGARDLESS OF INCLUSION OR OMISSION OF ANY APPLICABLE SUGGESTION IN THESE INSTRUCTIONS OR ON THE DRAWINGS.
RESPONSIBILITY:	
A.	ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL ALL POWER WIRING, EQUIPMENT DISCONNECTS, LOW VOLTAGE WIRING, ATG SENSOR, AND PROBE WIRING TO MAKE SYSTEM OPERATIONAL
B.	FUEL OIL CONTRACTOR TO PROVIDE, CALIBRATE, AND INSTALL DISPENSERS, TANKS, PUMPS, AND PIPING
C.	FUEL OIL CONTRACTOR, ELECTRICAL CONTRACTOR, CONSTRUCTION MANAGER, AND NETWORK SUPPLIER MUST BE ON SITE ON DAY OF SYSTEM STARTUP.
SETTLEMENT:	
THE USE OF SPECIFIED MATERIALS AND SPECIFIED PROCEDURES WILL ENSURE THAT TANK SETTLEMENT, TANK DISTORTION, MOVEMENT IN CONCRETE SLAB, OR INSTALLATION FAILURE DO NOT OCCUR. SHOULD ANY INSTALLATION FAILURE BE MADE APPARENT, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR NOT FOLLOWING THE SPECIFIED PROCEDURES AND WILL INCUR ANY ADDITIONAL COSTS ASSOCIATED WITH THE CORRECTIVE MEASURES, INCLUDING COMPLETE REMOVAL AND RESETTling OF ALL ABOVEGROUND TANKAGE AT THE SITE. IF IT IS DETERMINED THAT MOVEMENT, SETTLEMENT, OR DISTORTION HAS BEEN CAUSED BY FACTORS BEYOND THE CONTRACTOR'S CONTROL, THE COST OF REMEDIAL MEASURES WILL BE BORNE BY OTHERS. THE FUEL OIL INSTALLATION CONTRACTOR DOES HEREBY AGREE TO GUARANTEE THE ABOVEGROUND TANKAGE INSTALLATION AGAINST FAILURE AS OUTLINED HEREIN ABOVE, FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.	
TANK, DISPENSER, AND PIPES:	
A.	THE DRAWINGS AND SPECIFICATIONS WILL DETERMINE THE EXACT LOCATION, NUMBER, SIZE, AND TYPE OF EQUIPMENT TO BE INSTALLED AND INSTALLATION TO BE FOLLOWED.
B.	ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S, FEDERAL, STATE, AND ALL OTHER APPLICABLE CODES, RULES, AND LOCAL REQUIREMENTS.
C.	CONTRACTOR ASSUMES RESPONSIBILITY FOR ALL NECESSARY PERMITS, INSPECTIONS, AND TESTS AND SHALL INCLUDE THE COST OF THESE REQUIREMENTS IN THEIR BID.
D.	CONTRACTOR TO INSTALL AND TEST ALL ALL TANKS, PIPING, DISPENSERS, AND MONITORING EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS, INCLUDING THE INSTALLATION OF STAGE I VAPOR RECOVERY.
E.	CONTRACTOR SHALL INSTALL ALL ABOVEGROUND PIPING SHOWN ON THE DRAWINGS, WITH A MINIMUM NUMBER OF BENDS/ELBOWS.
F.	NEW ABOVEGROUND FUEL PIPING MUST BE SINGLE WALL CARBON STEEL MATERIAL WITH EXTERIOR COATINGS.
G.	ABOVEGROUND TANKS AND PIPES MUST USE COLOR CODING, BANDING, PRODUCT NAMES, AND DIRECTION OF FLOW TO IDENTIFY PRODUCT SERVICE.
H.	PROVIDE LOW POINT DRAINS AT ALL LOW POINTS AND HIGH POINT VENTS AT ALL HIGH POINTS. INSTALL FUEL PIPING WITH A MINIMUM SLOPE OF 0.2% DOWN FROM THE HIGH POINTS TO THE LOW POINTS, UNLESS OTHERWISE INDICATED.
I.	PIPE SUPPORTS WELDED TO CARBON STEEL MUST BE EXTERIOR COATED CARBON STEEL. ALL OTHER PIPE SUPPORTS AND OTHER MISCELLANEOUS METAL SHAPES MUST BE HOT DIPPED GALVANIZED CARBON STEEL, UNLESS OTHERWISE INDICATED.
FINISH:	
ALL PRODUCTS TO BE SHERWIN-WILLIAMS. BOLLARDS AND ISLAND FORMS (IF REQUIRED BY AHJ) TO MATCH EXISTING.	
CANOPY:	
CANOPY IS A PREFAB STEEL STRUCTURE, REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.	
CONTRACTOR:	
A.	CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT SCOPE AND WILL NOTIFY THE PROJECT ENGINEER IN WRITING PRIOR TO THE INITIATION OF CONSTRUCTION. IF A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES IS FOUND, FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.
B.	THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR PROPER HANDLING AND INSTALLATION OF THE ASTS, DISPENSERS, AND ALL EQUIPMENT AND SHALL ENSURE THAT GOOD WORKMANSHIP PRACTICES AND CONSTRUCTION PROCEDURES ARE FOLLOWED REGARDLESS OF THE INCLUSION OR OMISSION OF ANY INSTRUCTION.
C.	UNKNOWN SITUATIONS OR CONDITIONS NOT COVERED IN THESE AND THE MANUFACTURER'S INSTRUCTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR, REGARDLESS OF THE PRESENCE OF THE MANUFACTURER, ENGINEER, OR OWNER AT THE INSTALLATION SITE.
D.	ABOVEGROUND TANKS MUST BE INSTALLED PER THESE SPECIFICATIONS, DRAWINGS, MANUFACTURER'S INSTRUCTIONS, AND NFPA 30 AND 30A. ANY LOCAL CODES THAT APPLY MUST BE FOLLOWED. FAILURE TO FOLLOW THESE INSTALLATION INSTRUCTIONS WILL VOID THE WARRANTY AND WILL RESULT IN TANK FAILURE. PROPER INSTALLATION OF ASTS HELP PREVENT TANK DAMAGE AND SHOULD ENSURE LONG-TERM CORROSION-PROOF SERVICE.
E.	THE INSTALLATION PROCEDURE SHALL COMPLY WITH BOTH THESE SPECIFICATIONS AND THE RESPECTIVE TANK MANUFACTURER'S SPECIFICATIONS. IF THE CONTRACTOR FINDS A CONFLICT IN BETWEEN THESE TWO SPECIFICATIONS, IT IS THEIR RESPONSIBILITY TO CONTACT THE ENGINEER OF RECORD FOR CLARIFICATION AND GUIDANCE.
F.	AN INTERSTITIAL INTEGRITY TEST SHALL BE PERFORMED ON EACH DOUBLE-WALLED STORAGE TANK WITH A CLOSED INTERSTICE AFTER IT IS DELIVERED AND PLACED AT ITS FINAL LOCATION AT THE FACILITY, AND BEFORE THE STORAGE TANK IS PLACED INTO SERVICE. TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURERS TESTING SPECIFICATIONS. TEST RESULTS SHALL BE PROVIDED TO EOR, CLIENT, AND ENVIRONMENTAL.
G.	ALL OVERFILL PROTECTION DEVICES SHALL BE TESTED FOR OPERABILITY AT INSTALLATION AND TEST RESULTS SHALL BE MAINTAINED AND AVAILABLE FOR INSPECTION BY THE DEPARTMENT OR COUNTY IN ACCORDANCE WITH RULE 62-762.711, F.A.C.
H.	PRESSURIZED SMALL DIAMETER INTEGRAL PIPING SYSTEMS CONNECTED TO DISPENSERS SHALL BE INSTALLED WITH SHEAR VALVES OR EMERGENCY SHUTOFF VALVES IN ACCORDANCE WITH SECTION 6.3 OF NFPA 30A, CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES, REQUIREMENTS FOR DISPENSING DEVICES, 2021 EDITION. THESE VALVES SHALL BE DESIGNED TO CLOSE AUTOMATICALLY IF A DISPENSER IS DISPLACED FROM ITS NORMAL POSITION. THE VALVES SHALL BE RIGIDLY ANCHORED INDEPENDENTLY OF THE DISPENSER. THE VALVES SHALL BE TESTED IN ACCORDANCE WITH PEIR/P1200-19, 2019 EDITION, INCORPORATED BY REFERENCE IN SUBPARAGRAPH 62-762.501(3)(B)8, F.A.C., AT THE TIME OF INSTALLATION BY A CERTIFIED CONTRACTOR TO CONFIRM THAT THE AUTOMATIC CLOSING FUNCTION OF THE VALVE OPERATES PROPERLY, AND THAT THE VALVE IS PROPERLY ANCHORED.
I.	RELEASE DETECTION DEVICES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH 62-762.701(4) F.A.C.
J.	CONTRACTOR SHALL PROVIDE TANK EXCAVATION HOLE PROTECTION WHEN REMOVING EXISTING FUEL TANKS UNTIL PAVING IS IN PLACE PER OSHA STANDARD 1910. COVERS AND / OR GUARDRAILS SHALL BE PROVIDED TO PROTECT PERSONNEL FROM THE HAZARDS OF OPEN PITS, TANK VATS, DITCHES, ETC.
K.	CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO FDEP BETWEEN 30-45 DAYS BEFORE INSTALLATION OF THE ABOVE GROUND STORAGE TANKS TO COMPLY WITH FAC 62-762.
L.	NOTIFICATION SHALL BE RECEIVED BY THE COUNTY IN WRITING OR ELECTRONIC FORMAT BETWEEN 30 AND 45 DAYS BEFORE THE INITIATION OF THE WORK RELATED TO THE CLOSURE OF THE EXISTING UNDERGROUND STORAGE TANKS.
M.	CONTRACTOR SHALL SUBMIT COMPLETED REGISTRATION FORM IN PAPER OR ELECTRONIC FORMAT TO THE DEPARTMENT WITHIN 10 DAYS AFTER COMPLETION OF THE DEMOLITION OF THE TWO UNDERGROUND FUEL STORAGE TANKS PER 62-762.802(3)(B)8, F.A.C. FOR CLOSURE OF FUEL TANKS.
N.	A CLOSURE INTEGRITY EVALUATION REPORT FORM FOR ASTS 62-762.901(7), MUST BE PROVIDED TO THE COUNTY WITH THE NOTIFICATION OF CLOSURE.
O.	CONTRACTOR SHALL TAKE FULL RESPONSIBILITY OF THE ABOVE GROUND STORAGE TANKS. PROVIDE CERTIFICATE OF LIABILITY FOR THE TANKS UNTIL VCS TAKES OWNERSHIP.

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REVISIONS

NO.	DATE	DESCRIPTION
1	07/09/26	ADDENDUM 1

TRANSPORTATION/MAINTENANCE DELTONA

REPLACE FUEL ISLAND AND TANKS

VCS Project NO. 2648210

2101 Eustace Ave
Deltona, FL 32725

ARCHENGR OF RECORD

JEREMY DEMBOSKI

DESIGNED BY JTD	DRAWN BY SRM
ISSUE DATE 3/23/2026	AE PROJECT NUMBER 145642003

SHEET TITLE
FUEL OIL SYMBOLS, ABBREVIATIONS, SHEET SPECS AND NOTES

DRAWING NO.
P000