

New York State Office of Mental Health Central New York Psychiatric Center Service Building Generator and Switchgear - Plumbing Contract (CR12)

<u>Category:</u>	Dormitories, Hospitals, Clinics	<u>Project ID #:</u>	1004391964
<u>Street Address:</u>	9005 Old River Rd. Marcy NY 13403	<u>Staff Estimate Value</u>	\$175,000.00
<u>County:</u>	Oneida	<u>Stage:</u>	BIDDING - SUBBIDS: ASAP
<u>Bid Date:</u>	7/19/2017 , 02:00PM		
<u>Architect:</u>			
<u>Documents Available:</u>	Plans, Specs available in Insight	Plans available from Dormitory Authority State Of New York (DASNY) - Corporate Headquarters/Albany Office	
<u>Last Update:</u>	6/1/2017	Plans,Specs were Added/Updated	

Notes

Scope Renovation of a mixed-use development in Marcy, New York. Completed plans call for the renovation of a educational facility. The project consists of construction of new service building, new generators, HVAC system, electrical, plumbing and sprinkler systems, site work, utilities, removal and replacement of electrical switchgear in Building 39 and asbestos & PCB abatement.. Plumbing Contract (CR12) estimated at \$140,000.00 to \$175,000.00. In accordance with State Finance Law 139-j and 139-k, this solicitation includes and imposes certain restrictions on communications between Dormitory Authority personnel and an Offerer during the procurement process. Designated staff for this procurement are: The Project Manager and ccontracts@dasny.org. Contacts made to other Dormitory Authority personnel regarding this procurement may disqualify the Offerer and affect future procurements with governmental entities in the State of New York. Contract term: 04/30/2019

Notes Bid Date: 07/19/2017 02:00PM Bids will be received at Dormitory Authority of the State of New York, 515 Broadway Albany, NY 12207 United States Pre-Bid Meeting: 06/08/2017 10:00AM At Central New York Psychiatric Center, DASNY Field Office, 9005 Old River Road, Marcy, New York 13403. Development include(s): Renovation

Details [Division 2]: Building Demolition, Hazardous Material Abatement, Clearing, Dewatering, Grading, Slope Protection & Erosion Control, Paving & Surfacing, Water Systems, Sewerage & Drainage, Fences & Gates, Landscaping. [Division 3]: Concrete Formwork, Concrete Reinforcement, Structural Concrete, Concrete Restoration & Cleaning. [Division 4]: Clay Unit Masonry, Concrete Unit Masonry. [Division 5]: Structural Steel, Metal Decking, Cold Formed Metal Framing, Metal Fabrications, Metal Stairs, Metal Railings. [Division 6]: Rough Carpentry. [Division 7]: Dampproofing, Insulation, Fireproofing, Firestopping. [Division 8]: Metal Doors, Coiling Doors and Grilles, Sectional Overhead Doors, Metal Windows, Hardware, Glass & Glazing, Curtain Walls. [Division 9]: Lath & Plaster, Stucco, Drywall/Gypsum, Tile, Painting. [Division 10]: Louvers & Vents, Interior Signs, Protective Covers, Partitions. [Division 11]: Vehicle Service Equipment, Water Supply/Treatment Equipment. [Division 12]: Furniture. [Division 13]: Ground Storage Tanks, Elevated Storage Tanks. [Division 14]: Material Handling Systems. [Division 15]: Mechanical Insulation, Fire Protection Systems, Plumbing Piping, Air Handling, Ductwork, Testing & Balancing. [Division 16]: Service/Distribution, Interior Lighting, Exterior Lighting, Emergency Lighting, Standby Power Generator Systems, Lightning Protection Systems, Alarm & Detection Systems, Voice & Data Systems, Electric Heating Cables & Mats.

Additional Details

<u>Listed On:</u>	5/24/2017	<u>Floor Area:</u>	
<u>Contract Type:</u>		<u>Work Type:</u>	Alteration
<u>Stage Comments 1:</u>		<u>Floors Below Grade:</u>	
<u>Stage Comments 2:</u>		<u>Owner Type:</u>	State/Provincial
<u>Bid Date:</u>	7/19/2017	<u>Mandatory Pre Bid Conference:</u>	
<u>Invitation #:</u>	3288309999,2033619	<u>Commence Date:</u>	8/18/2017
<u>Structures:</u>	1	<u>Completion Date:</u>	4/30/2019
<u>Single Trade Project:</u>		<u>Site Area:</u>	
<u>Floors:</u>		<u>LEED Certification Intent:</u>	
<u>Parent Project ID:</u>		<u>Units:</u>	
<u>Parking Spaces:</u>			

Project Participants

Company Role	Company Name	Contact Name	Address	Phone	Email	Fax
Plans Representative	Camelot Print and		630 Columbia Street	(518) 435-	camelotbids@teamc	(518) 435-

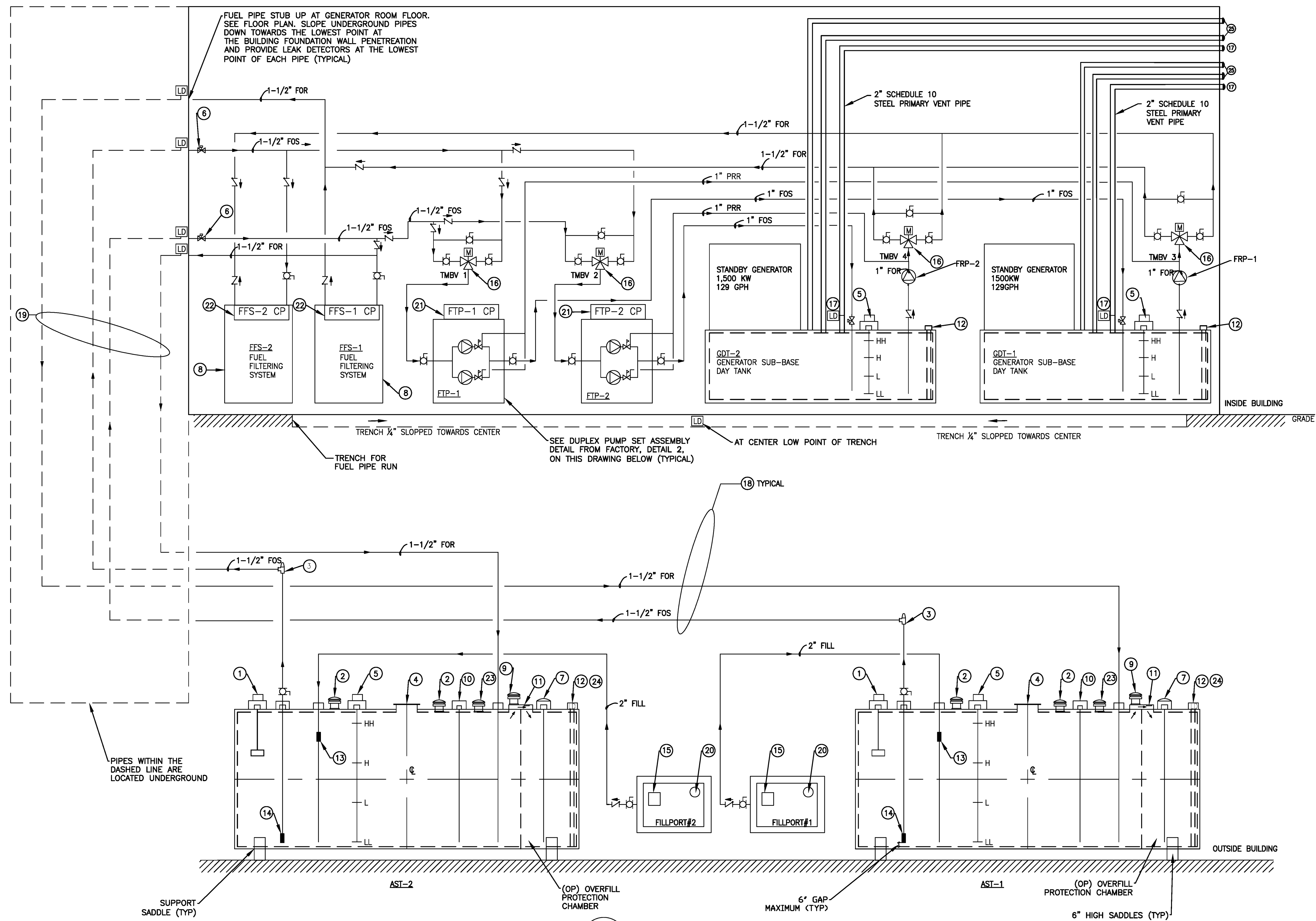
	Copy Center		Ext. , Latham, NY 12110	9696	amelot.com	9688
Owner	Dormitory Authority State Of New York (DASNY) - Corporate Headquarters/Albany Office	Jennifer Burtch	515 Broadway , Albany, NY 12207	(518) 257- 3000	contracts@dasny.org	(518) 257- 3475

Contracts

Classification	Conditions	Bonding	Bid Date	Bids To	Bid Type
General Contractor			7/19/2017	Owner	Open Bidding

History

User	Viewed	First Viewed Date	Currently Tracked?	Date Tracked
Adam Sweet	True	6/1/2017	False	

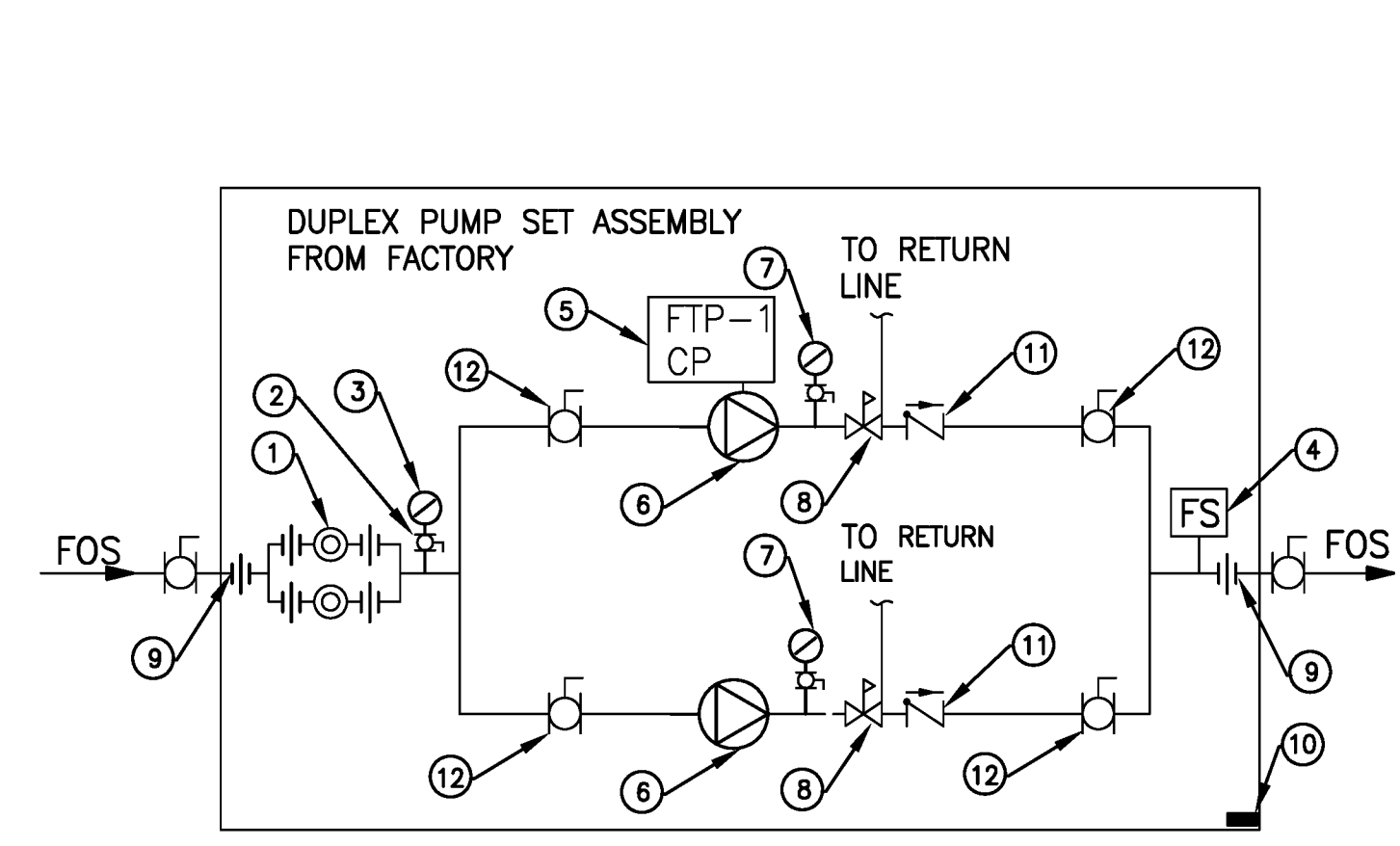


DIESEL FUEL OIL PIPING AND FLOW DIAGRAM KEY NOTES:

- 1 LEVEL SENSOR
- 2 SECONDARY EMERGENCY VENT, SIZE AS PER UL 142
- 3 ANTI-SIPHON VALVE
- 4 18" TIGHT BOLT MANWAY WITH 1/8" GASKET MATERIAL
- 5 LEVEL SWITCH
- 6 FUSIBLE LINK VALVE TO CLOSE ON FIRE
- 7 OP CHAMBER LEAK DETECTOR
- 8 FUEL FILTER SYSTEM
- 9 PRIMARY & OP VENT, TERMINATE 3' ABOVE TANK, SIZE AS PER UL 142
- 10 TANK HEATER, COORDINATE PORT SIZE REQUIRED, WITH HEATER MANUFACTURER.
- 11 PUMPOUT PORT WITH PLUG, FOR OP CHAMBER
- 12 2" INTERNAL INTERSTITIAL MONITOR PIPE WITH LEAK DETECTOR SENSOR
- 13 OVERFILL PREVENTION VALVE
- 14 FOOT VALVE WITH STRAINER
- 15 TANK ALARM AND ELECTRONIC LEVEL MONITORING SYSTEM
- 16 THREE WAY MOTORIZED BALL VALVE WITH END SWITCHES FOR TANK SELECTION
- 17 SUB-BASE TANK PRIMARY VENT, TERMINATE ON OUTSIDE WALL, WITH AN UPSIDE DOWN ELBOW WITH AN INSECT PROOF WIRE MESH AT 14'-0" ABOVE GRADE. PROVIDE INLINE FLOAT TYPE FLOW SWITCH FUEL LEAK DETECTOR 1'-0" ABOVE TANK.
- 18 ALL OUTDOOR ABOVE GROUND FUEL OIL PIPING SHALL BE DOUBLE WALL PIPING, WITH SCHEDULE 40 STEEL CARRIER PIPING AND SCHEDULE 10 STEEL CONTAINMENT PIPING (TYPICAL). PROVIDE PIPE ELECTRIC HEAT TRACING AND 1" FIBERGLASS PIPE INSULATION WITH WEATHER PROOF ALUMINUM JACKET.
- 19 ALL UNDERGROUND FUEL OIL PIPING SHALL BE DOUBLE WALL PIPING, WITH SCHEDULE 40 STEEL CARRIER PIPING AND SCH. 40 FIBERGLASS REINFORCED PLASTIC (FRP) CONTAINMENT PIPING (TYPICAL).
- 20 2" NPT REMOTE FILL PORT
- 21 DUPLEX PUMP SET CONTROL PANEL & WIRING
- 22 FUEL FILTER SYSTEM CONTROL PANEL & WIRING
- 23 PRIMARY VENT TERMINATES 3' ABOVE TANK, SIZE AS PER UL 142
- 24 PORT SIZES SHALL BE MINIMUM 4" FOR ALL TANK MOUNTED EQUIPMENT AND PIPE CONNECTIONS (TYPICAL), EXCEPT PRIMARY AND SECONDARY VENTS AND TANK HEATER.
- 25 SUB-BASE TANK SECONDARY EMERGENCY VENTS, SIZE PER UL 142. MINIMUM 5" SCHEDULE 10 STEEL VENT PIPES (2) PER GENERATOR. PROVIDE HANGER SUPPORT FROM CEILING. RUN AT 14'-0" AFT. TERMINATE ON OUTSIDE WALL, WITH AN UPSIDE DOWN ELBOW WITH AN INSECT PROOF WIRE MESH AT 14'-0" ABOVE GRADE.

FUEL OIL SYSTEM GENERAL NOTES:

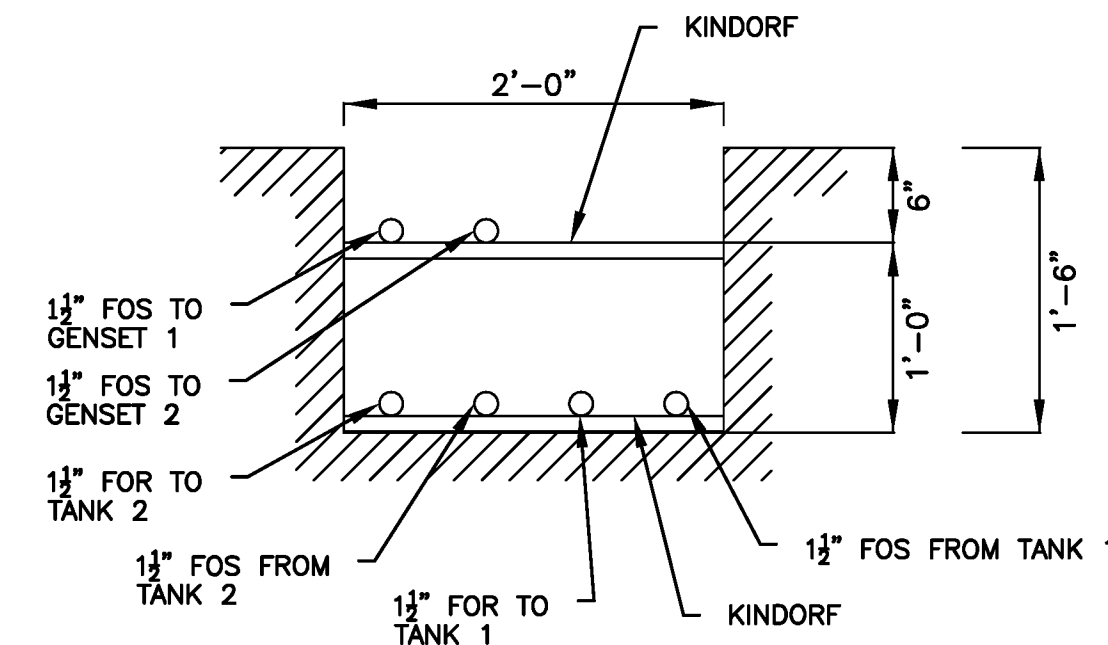
- 1 SEE DRAWING FS-001 FOR GENERAL NOTES, LEGEND AND EQUIPMENT SCHEDULES.
- 2 SEE DRAWING FS-104 FOR FUEL SYSTEM BMS POINT LIST AND CONTROL DIAGRAM.
- 3 FUEL PUMPS SHALL HAVE PRIORITY OF OPERATION. WHEN PUMPS START, FUEL FILTERING SYSTEM SHALL STOP.
- 4 WHEN FUEL TANK HEATER STARTS, FUEL FILTERING SYSTEM SHALL ALSO START AND CIRCULATE THE FUEL, TO PROVIDE EVEN HEATING OF STORED FUEL.



2 DUPLEX PUMP SET ASSEMBLY DETAIL
FS-103 SCALE: NTS

DUPLEX PUMP SET ASSEMBLY KEY NOTES:

- 1 DUPLEX STRAINER - 1" NPT - WITH 40 MESH BASKETS UNION CONNECTION, WITH DIFFERENTIAL PRESSURE SWITCH
- 2 GAUGE ISOLATION BALL VALVE - 1/4" NPT (TYP)
- 3 2-1/2" DIAL COMPOUND GAUGE - RANGE: 30"hg-0-15 PSI
- 4 FLOW SENSOR
- 5 PUMP SET CONTROL PANEL & WIRING
- 6 PUMP & MOTOR ASSY
- 7 2-1/2" DIAL DISCHARGE OIL PRESSURE GAUGE
- 8 PUMP PRESSURE RELIEF VALVE - 1/2" N.P.T.
- 9 POINT OF FIELD CONNECTION
- 10 PUMP SET BASIN LEAK DETECTION SWITCH
- 11 CHECK VALVE - 1" NPT
- 12 BALL VALVE - 1" NPT



3 TRENCH SECTION
FS-103 SCALE: 1"=1'-0"

THESE DOCUMENTS CONTAIN POTENTIALLY SENSITIVE INFORMATION AND SHALL BE USED FOR THEIR INTENDED PURPOSE. ONCE THE INTENDED PURPOSE HAS CEASED, THE DOCUMENTS SHALL BE DESTROYED IN A SECURE MANNER.
IF A VIOLATION OF STATE EDUCATION LAW FOR ANY PERSON, UNLESS UNDER THE DIRECTION OF A LICENSED ARCHITECT/ENGINEER TO ALTER THIS DOCUMENT IN ANYWAY, ALTERATIONS MUST HAVE THE SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATIONS, DATE AND ARCHITECT/ENGINEER'S SIGNATURE.
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CONSULTANTS:

Dewberry
Dewberry Engineers Inc.
31 PENN PLAZA
132 WEST 31ST STREET, SUITE 301
NEW YORK, NY 10001
PHONE: 212.685.0900
DEWBERRY PROJECT NO.: 50069842

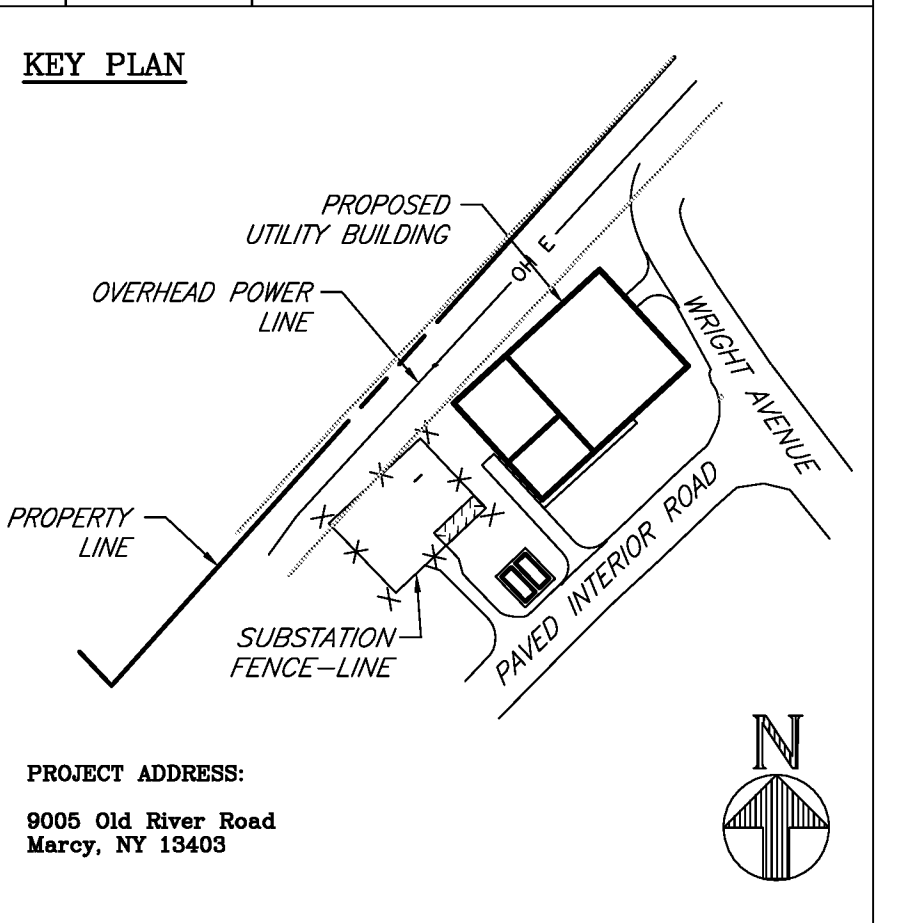
NANDINEE PHOOKAN ARCHITECTS
45 MAIN STREET SUITE 620
BROOKLYN NY 11201
T 718 643 9500 F 718 643 9555
www.nandineephookan.com

NSE
NS Engineers, P.C.
51 West Prospect Street, 2nd Floor
East Brunswick, NJ 08816
Phone: (732) 254-1163

FISHER ASSOCIATES
WWW.FISHERASSOC.COM
135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

REVISIONS

NO.	DATE	DESCRIPTION
05/18/2017	ISSUED FOR BID	



PROJECT ADDRESS:
9005 Old River Road
Marcy, NY 13403

Project:
NYS OFFICE OF MENTAL HEALTH
CENTRAL NEW YORK PSYCHIATRIC CENTER
9005 OLD RIVER ROAD, MARCY, NY 13403
SERVICE BUILDING, GENERATOR & SWITCHGEAR

Drawing Title:
DIESEL FUEL OIL PIPING AND FLOW DIAGRAM

SEAL & SIGNATURE: [Professional Seal]

DATE: 05/18/2017
PROJECT NO: 3288509999
DRAWING BY: SEA
CHECK BY: NIS
DRAWING NO:
FS-103.00

CAD FILE NO: SHEET NO:
66 of 100

CONSULTANTS:

Dewberry[®]
Dewberry Engineers Inc.
 31 PENN PLAZA
 132 WEST 31ST STREET, SUITE 301
 NEW YORK, NY 10001
 PHONE: 212.685.0900
 DEWBERRY PROJECT NO.: 50069842

NANDINEE PHOOKAN
 ARCHITECTS

45 MAIN STREET SUITE 620
 BROOKLYN, NY 11201
 T 718 643 9800 F 718 643 9565
 www.nandineephookan.com

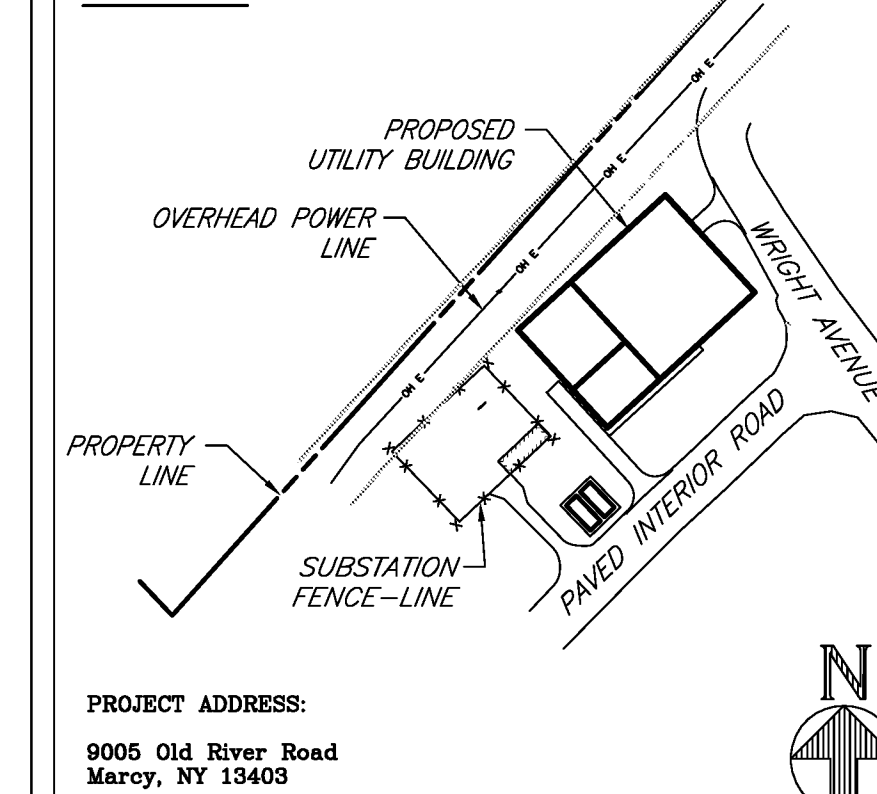
NSE
NS Engineers, P.C.
 51 West Prospect Street, 2nd Floor
 East Brunswick, NJ 08816
 Phone: (732) 254-1163

FISHER ASSOCIATES
 WWW.FISHERASSOC.COM
 135 Calkins Road, Rochester, NY 14623
 Phone: 565-334-1310

REVISIONS

NO.	DATE	DESCRIPTION
1	05/18/2017	ISSUED FOR BID

KEY PLAN



Project:
 NYS OFFICE OF MENTAL HEALTH
 CENTRAL NEW YORK PSYCHIATRIC CENTER
 9005 OLD RIVER ROAD, MARCY, NY 13403
 SERVICE BUILDING, GENERATOR & SWITCHGEAR

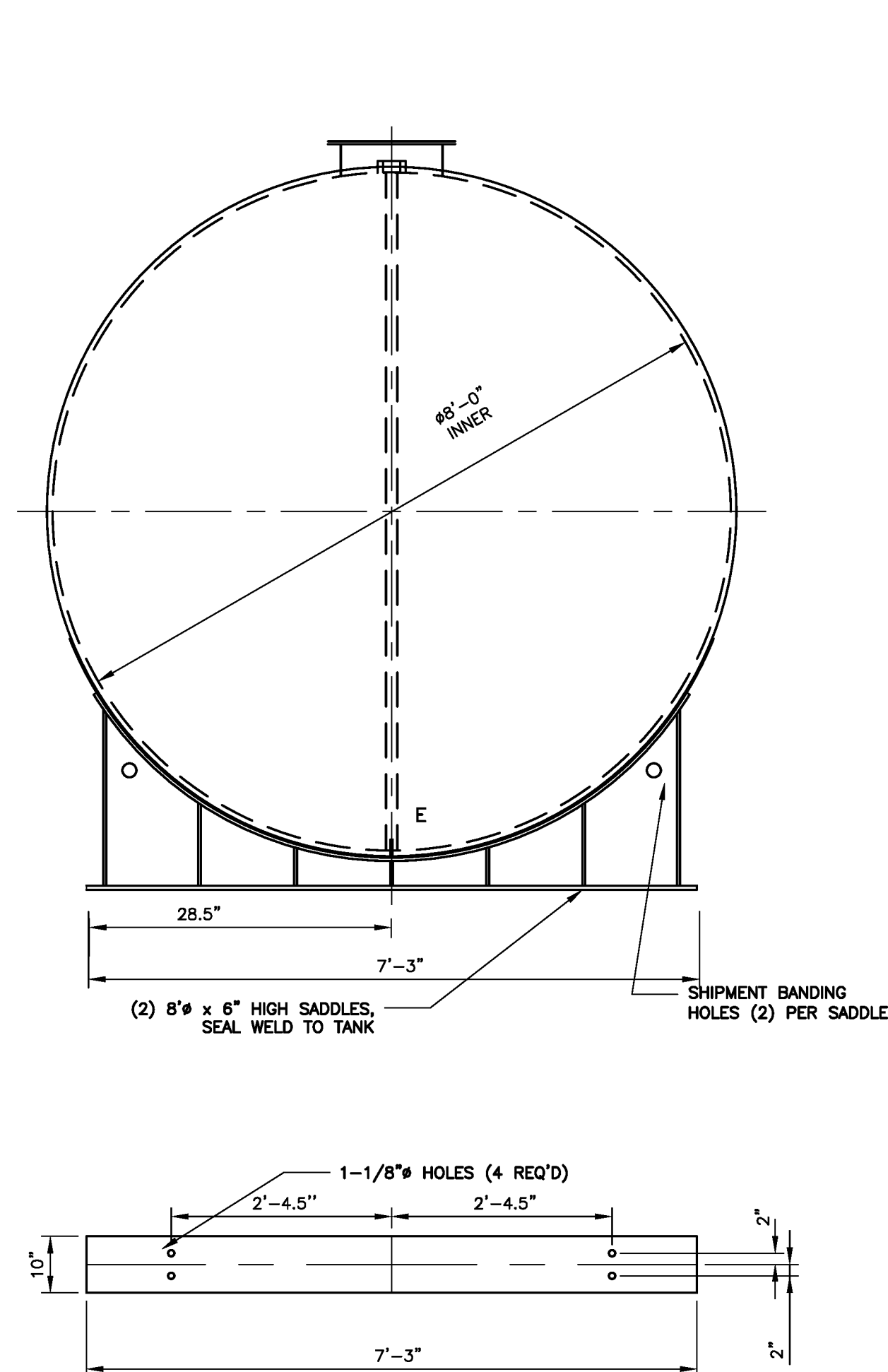
Drawing Title:

FUEL SYSTEM TANK DETAIL

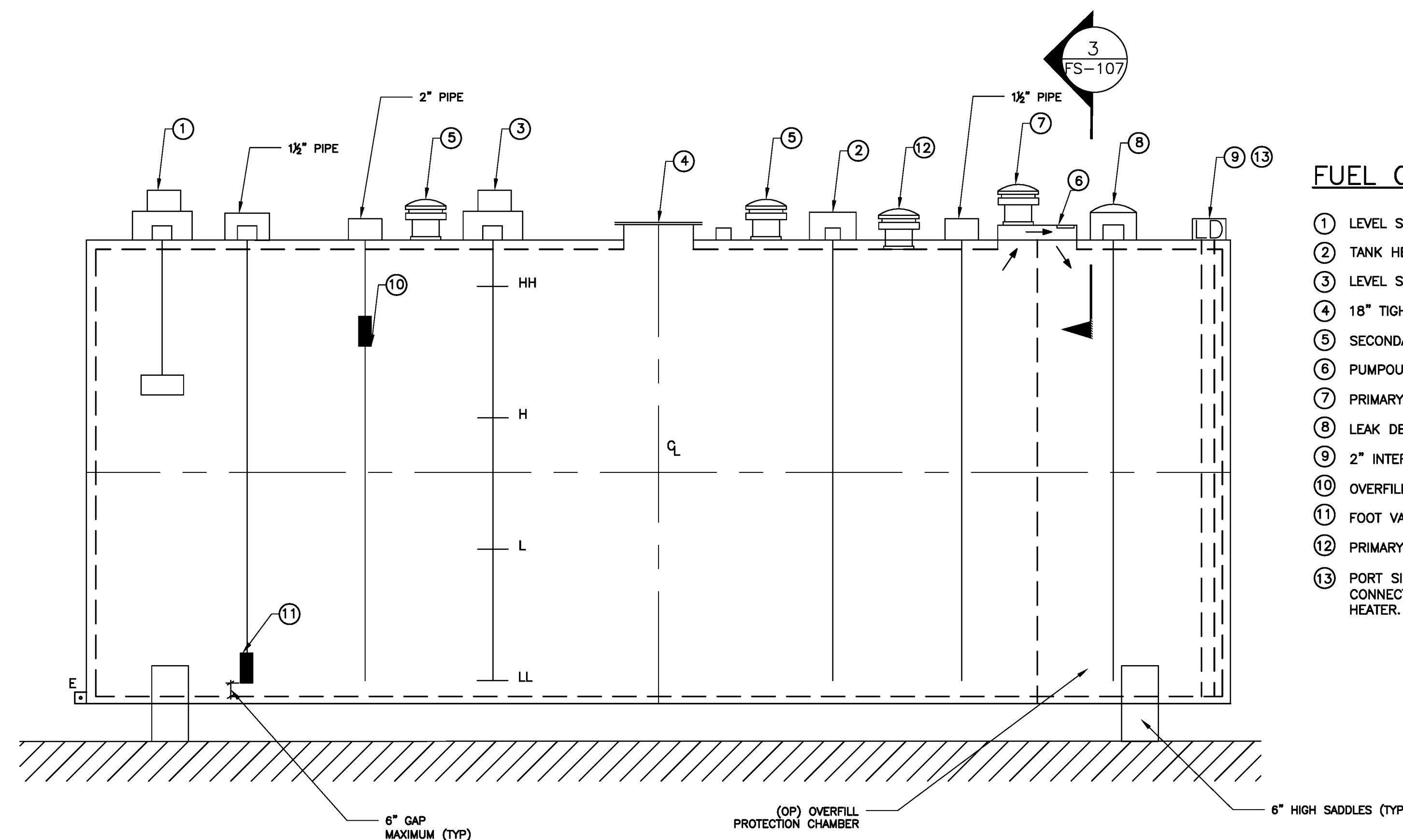
SEAL & SIGNATURE	DATE: 05/18/2017
	PROJECT NO: 3288309999
	DRAWING BY: SEA
	CHECK BY: NIS
	DRAWING NO:
	FS-107.00
CAD FILE NO:	SHEET NO: 70 of 100

FUEL OIL SYSTEM KEY NOTES:

- ① LEVEL SENSOR
- ② TANK HEATER, COORDINATE PORT SIZE REQUIRED, WITH HEATER MANUFACTURER.
- ③ LEVEL SWITCH
- ④ 18" TIGHT BOLT MANWAY WITH 1/8" GASKET MATERIAL
- ⑤ SECONDARY EMERGENCY VENT, SIZE AS PER UL 142
- ⑥ PUMPOUT PORT WITH PLUG, FOR OP CHAMBER
- ⑦ PRIMARY & OP VENT, TERMINATE 3' ABOVE TANK, SIZE AS PER UL 142
- ⑧ LEAK DETECTOR FOR OP CHAMBER
- ⑨ 2" INTERNAL INTERSTITIAL MONITOR PIPE WITH LEAK DETECTOR SENSOR
- ⑩ OVERFILL PREVENTION VALVE
- ⑪ FOOT VALVE WITH STRAINER
- ⑫ PRIMARY VENT TERMINATES 3' ABOVE TANK, SIZE AS PER UL 142
- ⑬ PORT SIZES SHALL BE MINIMUM 4" FOR ALL TANK MOUNTED EQUIPMENT AND PIPE CONNECTIONS (TYPICAL), EXCEPT PRIMARY AND SECONDARY VENTS AND TANK HEATER.

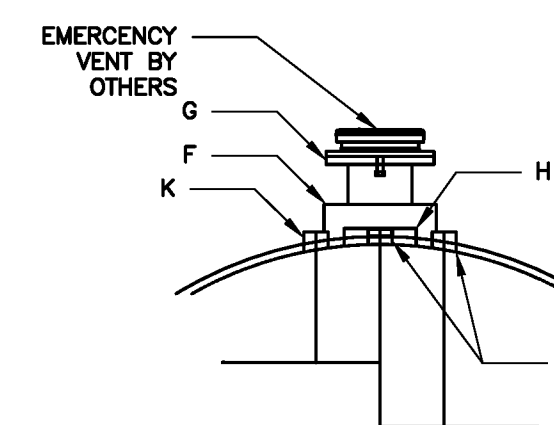


① BASE PLATE DETAIL
 FS-107 SCALE: N.T.S.



② 6,000 GALLON ABOVE GROUND DIESEL FUEL TANK SIDE VIEW
 FS-107 SCALE: N.T.S.

DESIGN DATA
CAPACITY - 6,000 GALLONS
TYPE - DOUBLE WALL - TYPE I
NO. REQ. - 2
OPERATING PRESSURE - ATMOSPHERIC
SPECIFIC GRAVITY = 1.0
TANK MATERIAL - MILD CARBON STEEL
THICKNESS - INNER- HEADS: 5/16" SHELL: 1/4"
THICKNESS - OUTER- HEADS: 1/4" SHELL: 7 GA
CONSTRUCTION - INNER - LAP WELD OUTSIDE ONLY
OUTER - LAP WELD OUTSIDE ONLY
TANK TEST - INNER - 5 PSIG
OUTER - 2 PSIG AND FULL VACUUM
INT. FINISH - NONE
EXT. FINISH - SP-6 BLAST, FINISH WHITE URETHANE
LABEL - UL 142, FLAMESHIELD, WITH OP CHAMBER



③ SECTION
 FS-107 SCALE: N.T.S.

LEGEND	
E	3" x 3" PLATE w/ 1/2" (MIN.) HOLE ON CENTER (GROUNDING LUG-ONE REQ'D)
F	31" LONG x 14" WIDE x 4" HIGH CLOSED TOP STEEL ENCLOSURE WELDED TO OUTER TANK
G	8" FFSO 150# FLANGE - PRIMARY EMERGENCY VENT USE
H	6" FNPT FITTING
K	2" FNPT FITTING

SECTION 231323 - FACILITY ABOVEGROUND FUEL-OIL STORAGE TANKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Flameshield, double wall, steel, aboveground fuel-oil storage tanks (AST).

1.3 DEFINITIONS

- A. AST: Aboveground storage tank.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, and dimensions of individual components and profiles.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
 - 3. Fuel-oil storage tank accessories.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and ballast pads and anchors, and lifting or supporting points.
 - 2. Indicate dimensions, components, and location and size of each field connection.
 - 3. Shop Drawing Scale: 1/4 inch per foot.

1.5 INFORMATIONAL SUBMITTALS

- A. Site Survey: Plans, drawn to scale, on which fuel-oil storage tanks are shown and coordinated with other services and utilities.
- B. Qualification Data: For qualified professional engineer.

- C. Seismic Qualification Certificates: For ASTs, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Brazing certificates.
- E. Welding certificates.
- F. Field quality-control reports.
- G. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fuel-oil equipment and accessories to include in emergency, operation, and maintenance manuals.
- B. The Owner will engage a qualified testing agency to conduct special inspections and tests required by authorities having jurisdiction as the responsibility of the Owner, as indicated in the NYS Statement of Special Inspections and Tests.

1.7 QUALITY ASSURANCE

- A. EPA Compliance: Comply with EPA and state and local authorities having jurisdiction. Include recording of fuel-oil storage tanks and monitoring of tanks.
- B. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of fuel-oil storage tanks that fail in materials or workmanship within specified warranty period.
 - 1. Storage Tanks:
 - a. Failures include, but are not limited to, the following when used for storage of fuel oil at temperatures not exceeding 150 deg F (66 deg C):
 - 1) Structural failures including cracking, breakup, and collapse.
 - 2) Corrosion failure including external and internal corrosion of steel tanks.
 - b. Warranty Period: 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design restraint and anchors for fuel-oil ASTs, and equipment, including comprehensive engineering analysis, using performance requirements and design criteria indicated.
- B. Seismic Performance: Factory-installed support attachments for AST shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.2 FLAMESHIELD, DOUBLE-WALL, STEEL, FUEL-OIL AST

- A. Description: UL 142, NFPA 30/30A, SwRI 97-04, Flameshield fire-resistant, double-wall, horizontal, steel tank; with overfill protection (OP) system, primary and secondary containment walls and with leak detection monitoring between the interstitial space.
- B. Flameshield tight-wrapped design, manufactured to the strict STI specifications, meets and tested by Southwest Research Institute to SwRI 97-04, for 2 hours fire resistance at 2000° F.
- C. The tank shall be equipped with an overfill protection (OP) system and integral 20% overfill chamber designed to capture and store any overfills during filling operations. Overfill chamber shall be equipped with a pump out port with plug. In the event of an overfill, the overfill protector chute shall direct the spill into the containment chamber. The containment chamber shall be at least 20% of the tank's storage volume. The collected product can be recovered by pumping it back to the primary tank, or to another storage tank, through the pump-out fitting located on the top of the tank.
- D. Construction: Fabricated with welded, carbon steel and insulation; suitable for operation at atmospheric pressure and for storing fuel oil with specific gravity up to 1.1 and with test temperature according to SwRI 97-04.
- E. Capacities and Characteristics:
 - 1. See schedule on drawings.
 - 2. Manholes:
 - a. Number Required: 1.
 - b. Diameter: 18 inches .
 - 3. Fuel-Oil Grade Number: Diesel.

2.3 SHOP PAINTING OF AST

- A. Apply manufacturer's standard prime coat to exterior steel surface of AST and supports.
- B. Prepare exterior steel surface of AST and tank supports.
- C. Shop Cleaning: After fabrication, blast clean according to SSPC-SP 6/NACE No. 3, SSPC-SP 10/NACE No. 2.
- D. After cleaning, remove dust or residue from cleaned surfaces.
- E. If surface develops rust before prime coat is applied, repeat surface preparation.
- F. Apply manufacturer's standard prime coat to shop-cleaned, dry surface same day as surface preparation.
- G. Apply manufacturer's standard two-component, epoxy finish coats.

2.4 FUEL-OIL AST ACCESSORIES

- A. Tank Manholes: 18-inch minimum diameter; bolted, flanged, and gasketed; centered on top of tank.
- B. Threaded pipe connection fittings on top of tank, for fill, supply, return, vent, sounding, and gaging. Include cast-iron plugs for shipping.
- C. Threaded pipe connection fittings on top or sides of tank as indicated, for fill, supply, return, vent, sounding, and gaging. Include cast-iron plugs for shipping.
- D. Striker Plates: Inside tank, on bottom below fill, vent, sounding, gage, and other tube openings.
- E. Lifting Lugs: For handling and installation.
- F. Ladders and Platform: Carbon-steel ladder and platform outside side tank, anchored to top, and side wall and bottom, and located as indicated.
- G. Supply Tube: Extension of supply piping fitting into tank, terminating 6 inches above tank bottom and cut at a 45-degree angle (1:1 slope).
- H. Sounding and Gage Tubes: Extension of fitting into tank, terminating 6 inches above tank bottom and cut at a 45-degree angle (1:1 slope).

2.5 LIQUID-LEVEL GAGE SYSTEM

- A. Description: Calibrated liquid-level gage system complying with UL 180 with floats, UL 1238 with probes or other sensors and remote annunciator panel.

- B. Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms; fuel indicator with registration in gallons; and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.
- C. Controls: Electrical, operating on 120V ac.

2.6 LEAK-DETECTION AND MONITORING SYSTEM

- A. Cable and Sensor System: Comply with UL 1238.
 - 1. Calibrated leak-detection and monitoring system with probes and other sensors and remote alarm panel for fuel-oil storage tanks and fuel-oil piping.
 - 2. Include fittings and devices required for testing.
 - 3. Controls: Electrical, operating on 120V ac.
 - 4. Calibrated liquid-level gage complying with UL 180 with floats, UL 1238 with probes or other sensors and remote annunciator panel.
 - 5. Remote Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms; fuel indicator with registration in gallons and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.

2.7 FUEL OIL

- A. Diesel Fuel Oil: ASTM D 975, Grade No. 2-D, general purpose.

2.8 SOURCE QUALITY CONTROL

- A. Pressure test and inspect fuel-oil storage tanks, after fabrication and before shipment, according to ASME and the following:
 - 1. Horizontal, Double-Wall Steel ASTs: UL 142, NFPA 30/30A, SwRI 97-04.
- B. Affix standards organization's code stamp.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for aboveground fuel-oil storage tanks to verify actual locations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

- A. Comply with requirements in Section 312001 "Earth Moving" for excavating, trenching, and backfilling.

- B. Allow for cast-in-place, concrete base.

3.3 FUEL-OIL AST INSTALLATION

- A. Install tank bases and supports.
- B. Concrete Bases: Anchor AST to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
 - 1. Construct concrete bases of dimensions indicated, but not less than 6 inches larger in both directions than supported unit.
 - 2. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 3. Install anchor bolts to elevations required for proper attachment to supported equipment.
 - 4. Use 3000-psig, 28-day, compressive-strength concrete and reinforcement as specified in Section 033000 "Cast-in-Place Concrete."
- C. Connect piping and vent fittings.
- D. Install ground connections.
- E. Install tank leak-detection and monitoring devices.
- F. Install steel ASTs according to STI R912.
- G. Fill storage tanks with fuel oil.

3.4 LIQUID-LEVEL GAGE SYSTEM INSTALLATION

- A. Install liquid-level gage system. Install panel inside building where indicated.

3.5 LEAK-DETECTION AND MONITORING SYSTEM INSTALLATION

- A. Install leak-detection and monitoring system. Install alarm panel inside building where indicated.
 - 1. Double-Wall, Fuel-Oil Storage Tanks: Install probes or use factory-installed integral probes in interstitial space.
 - 2. Install liquid-level gage.

3.6 LABELING AND IDENTIFYING

- A. Nameplates, pipe identification, and signs are specified in Section 230553 "Identification for HVAC Piping and Equipment."

3.7 FIELD PAINTING OF AST

- A. Prepare and touch up damaged exterior surface of AST and supports as specified in "Shop Painting of AST" Article.
- B. Prepare exterior steel surface of AST and tank supports.
- C. Field Cleaning: Blast clean damaged exterior surface of AST and supports according to SSPC-SP 6/NACE No. 3, SSPC-SP 10/NACE No. 2.
- D. After cleaning, remove dust or residue from cleaned surfaces.
- E. If surfaces develop rust before prime coat is applied, repeat surface preparation.
- F. Prepare surface of AST and supports and apply painting systems, conforming to manufacturer's standard two-component, epoxy finish coats.

3.8 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform the following tests and inspections[with the assistance of a factory-authorized service representative]:
 - 1. Tanks: Minimum hydrostatic or compressed-air test pressures for fuel-oil storage tanks that have not been factory tested and do not bear the ASME code stamp or a listing mark acceptable to authorities having jurisdiction:
 - a. Double-Wall Tanks:
 - 1) Inner Tanks: Minimum 3 psig (20.7 kPa) and maximum 5 psig (34.5 kPa).
 - 2) Interstitial Space: Minimum 3 psig (20.7 kPa) and maximum 5 psig (34.5 kPa), or 5.3-in. Hg (18-kPa) vacuum.
 - b. Where vertical height of fill and vent pipes is such that the static head imposed on the bottom of the tank is greater than 10 psig (69 kPa), hydrostatically test the tank and fill and vent pipes to a pressure equal to the static head thus imposed.
 - c. Maintain the test pressure for one hour.
- C. ASTs will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 231323