

2016-17 Capital Improvement Project (CIP) Phase II TA Project

<u>Category:</u>	Nursing Homes	<u>Project ID #:</u>	1004789818
<u>Street Address:</u>	2292 Saunders Settlement Rd. Sanborn NY 14132	<u>Staff Estimate Value</u>	\$9,750,000.00
<u>County:</u>	Niagara	<u>Stage:</u>	BIDDING - Biddate Set
<u>Bid Date:</u>	6/8/2018 , 03:00PM		
<u>Architect:</u>	Trautman Associates		
<u>Documents Available:</u>	Plans, Specs available in Insight		Plans available from Trautman Associates
<u>Last Update:</u>	5/25/2018		Project reviewed, Stage confirmed as Biddate Set

Project Events

Event	Date	Details
Bid Date	6/8/2018 , 03:00PM	Separate sealed bids will be received by the Owner at the Adult Learning Center: Niagara Wheatfield Central School District, 2292 Saunders Settlement Road, Sanborn, NY 14132, and at said time and place, publicly opened.
Pre-Bid Meeting	5/24/2018 , 01:30PM	A pre-bid conference will be held. The Architect, Engineer, and Construction Manager will be present. All bidders are encouraged to attend and will assemble at the Edward Town Middle School, ALC - Room N104, 2292 Saunders Settlement Road, Sanborn, NY.
Start Date	8/7/2018	Actual Start Date

Notes

Scope

Renovation of an elderly care / assisted living facility in Sanborn, New York. Completed plans call for the renovation of a elderly care / assisted living facility. The Owner may, at its discretion, waive informalities in bids, but is not obligated to do so, nor does it represent that it will do so. The Owner also reserves the right to reject any and all bids. Under no circumstances will the Owner waive any informality that, by such waiver, would give one Bidder a substantial advantage or benefit not enjoyed by all Bidders. No Bidder may withdraw their Bid before forty-five (45) days after the actual date of the opening thereof, unless a mistake to error is claimed by the Bidder in accordance with Instruction to Bidders. Separate Bids will be received for each of the following: Sitework Contract BP-01 General Trades Contract BP-02 Mechanical Contract BP-03 Plumbing Contract BP-04 Electrical Contract BP-05 The work will take place at Niagara Wheatfield CSD: Senior High School, Edward Town Middle School and Bus Garage: 2292 Saunders Settlement Road, Sanborn, New York 14132 Errick Road Elementary: 6839 Errick Road, North Tonawanda NY 14120 Colonial Village Elementary: 1456 Saunders Settlement Road, Niagara Falls, New York 14305 West Street Elementary: 5700 West Street, Sanborn, New York 14132 Bidding documents will be delivered by UPS upon request and receipt of a non-refundable delivery and handling charge of \$15 per set, payable by separate check. The Owner requires that all bids shall comply with the bidding requirements specified in the Instruction to Bidders. The Bidding Requirements, Contract Forms, General Conditions, Specifications and Plans may be examined at the following: Trautman Associates, Architects and Engineers 37 Franklin Street, Buffalo, New York 14202 McGraw-Hill Construction Construction Exchange of Buffalo and WNY 2660 William Street, Cheektowaga, New York 14227 Rochester Builders Exchange, 180 Linden Oaks, Suite 100, Rochester, NY 14625 Southern Tier Builders Association, 65 E. Main. St., Falconer, NY 14733

Notes

Pre-Bid Meeting: 05/24/2018 01:30PM A pre-bid conference will be held. The Architect, Engineer, and Construction Manager will be present. All bidders are encouraged to attend and will assemble at the Edward Town Middle School, ALC - Room N104, 2292 Saunders Settlement Road, Sanborn, NY. Bid Date: 06/08/2018 03:00PM Separate sealed bids will be received by the Owner at the Adult Learning Center: Niagara Wheatfield Central School District, 2292 Saunders Settlement Road, Sanborn, NY 14132, and at said time and place, publicly opened. Development include(s): Renovation

Details

[Division 2]: Building Demolition, Hazardous Material Abatement, Clearing, Dewatering, Shoring, Earthwork, Grading, Slope Protection & Erosion Control, Marine Work, Paving & Surfacing, Water Systems, Sewerage & Drainage, Fences & Gates, Landscaping. [Division 3]: Concrete Formwork, Concrete Reinforcement, Structural Concrete, Post-Tensioned Concrete, Structural Precast Concrete. [Division 4]: Clay Unit Masonry, Concrete Unit Masonry, Stone, Granite, Masonry Restoration & Cleaning. [Division 5]: Structural Steel, Metal Decking, Cold Formed Metal Framing, Metal Fabrications. [Division 6]: Rough Carpentry, Architectural Woodwork, Custom Casework. [Division 7]: Insulation, Exterior Insulation & Finish Systems, Fireproofing, Firestopping, Roofing Tiles, Manufactured Roofing & Siding. [Division 8]: Metal Doors, Wood Doors, Entrances & Storefronts, Metal Windows, Wood Windows, Hardware, Glass & Glazing. [Division 9]: Ceiling Suspension Systems, Stucco, Drywall/Gypsum, Tile, Terrazzo, Acoustical Ceilings, Acoustical Walls, Wood Flooring, Resilient Flooring, Carpet, Painting. [Division 10]: Visual Display Boards, Compartments & Cubicles, Interior Signs, Lockers, Partitions, Toilet & Bath Accessories. [Division 11]: Parking Control Equipment, Loading Dock Equipment, Athletic Equipment. [Division 12]: Manufactured Casework, Furniture, Multiple Seating. [Division 13]: Ground Storage Tanks. [Division 14]: Dumbwaiters, Elevators. [Division 15]: Mechanical Insulation, Plumbing Piping, Plumbing Fixtures, Hydronic Piping, HVAC Pumps, Boilers. Cooling Towers. Air Handling. Ductwork. Testina & Balancing. [Division 16]:

Additional Details

<u>Listed On:</u>	5/24/2018	<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>	County
<u>Bid Date:</u>	6/8/2018	<u>Mandatory Pre Bid Conference:</u>	
<u>Invitation #:</u>	16028	<u>Commence Date:</u>	8/7/2018
<u>Structures:</u>	1	<u>Completion Date:</u>	
<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
Consultant	Turner Construction Company - Buffalo		50 Lakefront Blvd , Buffalo, NY 14202	(716) 853-1900		(716) 853-1924
Consultant	ECC Technologies		2136 Five Mile Line Rd , Penfield, NY 14526	(585) 694-6905		
Geotechnical Consultant	Stohl Environmental LLC		4169 Allendale Pkwy , Buffalo, NY 14219	(716) 312-0070		(716) 312-8092
Owner	Niagara Wheatfield Central School District		2292 Saunders Settlement Rd . , Sanborn, NY 14132	(716) 215-3100		
Architect	Trautman Associates	Adrian Smith	37 Franklin St. Suite 100, Buffalo, NY 14202	(716) 883-4400	asmith@trautmanassoc.com	(716) 883-4268
Geotechnical Consultant	Professional Service Industries, Inc.	Steven P. Pump	3784 Commerce Court, Suite 300, North Tonawanda, NY 14120	(716) 694-8657		(716) 694-8638

Bidders

Company Name	Contact Name	Added Date	Address	Phone	Email	Bidding Role	Bid Rank	Bid Value	Fax Number
Mollenberg Betz, Inc.	George Ohar	5/24/2018	300 Scott Street , Buffalo, NY 14204	(716) 614-7473	info@mollenbergbetz.com	Prospective Bidder - General Contractor			(716) 614-7465
Turner Construction Company - Buffalo	Matt Sikora	5/24/2018	50 Lakefront Blvd , Buffalo, NY 14202	(716) 853-1900	msikora@tcco.com	Prospective Bidder - General Contractor			(716) 853-1924
Frey Electric Construction Co.		5/24/2018	100 Pearce Ave. , Tonawanda, NY 14150	(716) 874-1710		Prospective Bidder - General Contractor			(716) 874-0203
Concept Construction Corp	Alison Mazurkiewicz	5/24/2018	2555 Transit Road , Elma, NY 14059	(716) 675-9171	alison@conceptconstruction.com	Prospective Bidder - General Contractor			(716) 675-6609
R.B. Mac Construction	Bob Burke	5/24/2018	6688 Lincoln Avenue , Lockport, NY 14094	(716) 433-2495	bob@rbmacny.com	Prospective Bidder - General Contractor			
Mark Cerrone Inc.	Tina Capolupo	5/24/2018	2368 Maryland Avenue , Niagara Falls, NY 14305	(716) 282-5244	TCapolupo@MarkCerrone.com	Prospective Bidder - General Contractor			(716) 282-5245
Sicoli Construction Services, Inc	Ben Sicoli	5/24/2018	4800 Hyde Park Blvd , Niagara Falls, NY 14305	(716) 205-0540	bsicoli@sicoliconstruction.com	Withdrawn - General Contractor			(716) 205-0541

Contracts

Classification	Conditions	Bonding	Bid Date	Bids To	Bid Type
General Contractor		Bid:10.00%	6/8/2018	Owner	Open Bidding

History

User	Viewed	First Viewed Date	Currently Tracked?	Date Tracked
Adam Sweet	True	5/25/2018	False	

SECTION 231113 – FACTORY-ASSEMBLED ABOVEGROUND FUEL STORAGE AND DISPENSING SYSTEM

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. This Section includes fuel-oil and diesel-fuel-oil distribution systems in a complete factory-assembled package, including the following:
 - 1. Factory-Assembled Aboveground Storage Tank System.
 - 2. Pipes, tubes, and fittings.
 - 3. Dispensing System Power Distribution and Controls.
 - 4. Concrete-vaulted, steel, fuel-oil ASTs.
 - 5. Fuel-oil AST accessories.
 - 6. Overfill prevention assembly.
 - 7. Submersible Pumps.
 - 8. Dispensing Equipment.
 - 9. Fuel Management System
 - 10. Leak-detection and monitoring system.
 - 11. Concrete bases.
- B. The Owner will provide fuel to fill tanks. Contractor shall notify Owner in advance of setting date of tank for Owner to fill immediately thereafter.

1.3 DEFINITIONS

- A. AHJ: Authority Having Jurisdiction.
- B. AST: Aboveground storage tank.
- C. FAST: Factory-Assembled Aboveground Storage Tank System.

1.4 GOVERNING STANDARDS

- A. U.L. Standard 2085 for insulated Secondary Containment Aboveground Tanks for Flammable and combustible liquids.
- B. Tank shall carry the UL 2244 listing for tank and equipment.
- C. U.L. 142 Standard for primary and secondary steel tank wall construction.
- D. U.L 508A – The UL Safety Standard of Industrial Control Equipment.

- E. 2015 IFC – Ch. 6 – Building Services and Systems.
- F. 2015 IFC – Ch. 23 – Motor Fueling Dispensing Facilities & Repair Garages.
- G. 2015 IFC – Ch. 57 – Flammable and Combustible Liquids.
- H. National Fire Protection Assoc. NFPA 30 and 30A for “fire resistant” tanks and meet the requirements of the Uniform Fire Code Articles 52 and 79, Appendix II F and Appendix standard A-II-F-1 for “protected” aboveground tanks. NFPA 70, the national electric code.
- I. BOCA and SBCCI building Code approval, CARB Certified for Stage I and II Vapor Recovery.
- J. The standard Fire Protection material shall be lightweight concrete and surround the primary tank UFC Appendix Standard A-II-F (formerly UFC 79-7).
- K. All tanks and piping shall be properly installed in accordance with the manufacturer’s instructions and either “Petroleum Equipment Institute Recommended Practices for Installation of Aboveground Liquid Storage Systems” or “American Petroleum Institute Publication Installation of Aboveground Petroleum Storage Systems.”
- L. U.L. 971 – Non-metallic pipe and U.L. standard 567-89 pipe connections for flammable and combustible LP gas.
- M. ASTM A53 – Standard Specification for pipe, steel, black and hot-dipped, zinc coated welded and seamless.
- N. ASTM A36 – Standard Specification for Carbon Structural Steel.
- O. All applicable State and Local Requirements

1.5 ACTION SUBMITTALS

- A. Product Data:
 - 1. Provide catalog data on all controls, pumps, associated valves, piping, tanks and other equipment including material of construction, dimensional data, rated capacities, operating characteristics, and furnished specialties and accessories.
 - 2. Submit complete installation instruction manual as published by the FAST System manufacturer.
- B. Shop Drawings:
 - 1. Show details, sizes and dimensions, anchorage location and accessory items.
 - 2. Furnish setting diagrams for installation as required.
 - 3. Where required by local jurisdiction, provide manufacturer’s part numbers of integrated components, to facilitate permitting requirements of the FAST System.

1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings:
 - 1. Record documents shall include as built Drawings indicating the location of FAST System and system components, including piping and wiring diagrams.
 - 2. FAST System start-up and commissioning check-lists and other applicable documentation shall be provided.

- B. Warranty: Sample of special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Include manufacturers' installation, operation and maintenance instructions, spare parts lists, and training information for distribution and review in electronic format; when approved, a minimum of one complete O&M binder shall be provided for on-site use.
 - 1. FAST System start-up and commissioning check-lists and other applicable documentation shall be provided.

1.8 QUALITY ASSURANCE

- A. Manufacturer: Equipment controls, and tank shall be provided by a single supplier to ensure a complete functional and coordinated system with single source responsibility. Supplier shall give guidance to equipment and tank installation and shall complete all commissioning and owner training. The supplier shall be a firm with five (5) years of documented experience in the installation of integrated dispensing fuel systems.
- B. All auxiliary components necessary to be integrated into the complete FAST System shall be installed at the tank manufacturing facility.
- C. Installer: Company specializing in performing the work of this Section with minimum three (3) years documented experience. Bidding installation contractor shall be a licensed AST installer in the State of New York, during the entire duration of the project and hold any other license(s) required by the AHJ. The Contractor shall have the responsibility of notifying and coordinating with all local and state officials, including the Fire Department. All inspection and registration fees shall be paid by the Owner.
- D. All tanks equipment and piping materials shall be physically inspected and air tested before being installed. Any defects observed shall be immediately brought to the attention of the Owner. It shall be the sole responsibility of the Contractor to correct any deficiencies, with the manufacturer in strict accordance with manufacturers' recommendations, at no additional cost of the Owner.
- E. Brazing: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX.
- F. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- G. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.
- H. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- I. Comply with ASME B31.9, "Building Services Piping," for fuel-oil piping materials, installation, testing, and inspecting.
- J. Comply with requirements of the EPA and of state and local authorities having jurisdiction. Include recording of fuel-oil storage tanks and monitoring of tanks and piping.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Lift and support fuel-oil storage tanks only at designated lifting or supporting points, as shown on Shop Drawings. Do not move or lift tanks unless empty.
- B. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- C. Store pipes and tubes with protective PE coating to avoid damaging the coating and to protect from direct sunlight.
- D. Store PE pipes and valves protected from direct sunlight.
- E. Delivery to be coordinated to allow crane offloading and placement in prepared and final location, minimizing the need for double handling. Keep FAST System protected from physical damage caused by other construction activities.

1.10 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Owner and then only after acceptable temporary utility services have been provided.
 - 1. The depths and locations of existing utilities are not known. Notify utility companies and underground utility locating service. Actual locations shall use all means possible, including metal detectors, electronic sensors, prodding, and hand excavation to avoid disturbing existing buried utilities.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- B. The contractor shall furnish the labor, materials, equipment, appliances, services and hauling, and perform operations in connection with the construction and installation of the complete fuel storage and motor vehicle refueling system. Contractor shall examine work of this section and existing site conditions and notify architect of any conditions that would prevent a first class job. Proceeding with the work shall be construed as acceptance of these conditions.
- C. The contractor shall have the responsibility of notifying and coordinating with all local and state officials, including the Local Fire Department. All inspection and registration fees shall be paid by the contractor.
- D. Field Measurements: Field-Verify horizontal and vertical dimensions, clearances, and setbacks of spaces where FAST Systems will be installed prior to fabrication of FAST under this section.

1.11 WARRANTY

- A. Aboveground tank fuel storage and motor vehicle refueling system: Manufacturer's standard form in which manufacturer agrees to repair or replace any defective unit without charge provided that the tank is operated and maintained in accordance with the manufacturer's Owner's Manual against defects in material or workmanship from the date of purchase, for a period of thirty (30) years
- B. Warranty Period:
 - 1. As warranted by manufacturer of FAST System Component.
 - 2. One (1) year for parts, work quality and installation.

PART 2 - PRODUCTS

2.1 FACTORY-ASSEMBLED ABOVEGROUND STORAGE TANK (FAST) SYSTEM

A. Manufacturers:

1. Dispensing System Power Distribution and Controls: Design based on products manufactured by Core Engineered Solutions.
2. Double Wall Aboveground Storage Tanks: Design based on products manufactured by ConVault.
3. Submersible Pumps: Design based on products manufactured by Franklin Fueling Systems.
4. Fuel Dispensers: Design based on products manufactured by Wayne Fueling Systems.
5. Fuel Management System: Design based on products manufactured by Wayne Fueling Systems.
6. Tank Monitoring System: Design based on products manufacture by Veeder-Root.

B. Description:

1. Provide Factory-Assembled Aboveground Storage Tank (FAST) System with pre-plumbed dispensing systems, factory installed vents, valves and appurtenances. This specification requires that the system design, manufacture, and integration to be the responsibility of one specialized manufacturer in order to maintain quality through the steps of procurement, manufacture, integration, and field installation. Non-factory assembled, substitutions are not acceptable, and will not be considered for this project.
2. The FAST System shall include a specialty fuel system sub-panel, emergency stop (ESO) and point-to-point wiring diagram to facilitate ease of installation for all system components.

C. Regulatory Requirements:

1. EPA Compliance: Comply with EPA and state and local authorities having jurisdiction. Include recording of motor-fuel storage tanks and monitoring of tanks. Include installation permit/fees for fuel storage tank and all accessories and appurtenances.
2. Comply with the "National Electric Code" for equipment, wiring, and conduit installed under this section.
3. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 PIPES, TUBES, AND FITTINGS

- A. Primary product piping shall be galvanized and alcohol compatible.
- B. Installing contractor shall install galvanized pipe and it shall be protected from corrosion.
- C. Threaded fittings on U.L. labeled tank shall be of a material of construction consistent with the requirements of the U.L. label.
- D. All electrical system conduits shall be PVC coated rigid galvanized conduit.

2.3 DISPENSING SYSTEM POWER DISTRIBUTION AND CONTROLS

- A. The dispensing system power distribution and controls shall be a single source power connection with dedicated power/control outputs to pumps, dispensers, control valves, fuel management system, tank gauging and monitoring and other ancillary devices. The system shall include a monitored emergency stop button.

B. Basis-of –Design Product:

1. The Safesite™ DSC-100 Dispensing System Power Distribution and Controls.
2. Approved Equivalent.

C. The control panel provided shall integrate the following functions into one system:

1. Control Panel Specifications

- a. Single input power connection with main power disconnects.
- b. NEMA 4X enclosure suitable for outdoor and high corrosion areas.
- c. Panel mounted emergency stop control button.
- d. Dedicated dispenser control and anti-siphon circuit.
- e. Dedicated fuel management control circuit.
- f. Dedicated tank level gauge circuit.
- g. Dedicated fire suppression/ emergency stop controls circuit.
- h. Dedicated motor starter control and overload protection circuit (1-1/2 HP max).
- i. Dedicated dry output for remote emergency stop controls circuit.

2. Circuit Disconnects

- a. General: Each circuit leading to or through dispensing equipment, including all associated power, communication, data, and video circuits and equipment for remote pumping systems, shall be provided with a clearly identified and readily accessible switch or other approved means, located remote from the dispensing devices, to disconnect simultaneously from the source of supply, all conductors of the circuits, including the grounded conductor, if any. Single pole breakers utilizing handle ties shall not be permitted.
- b. Unattended Self-Service Motor Fuel Dispensing Facilities: Emergency controls as specified in 2011 NEC 514.11(A) shall be installed at a location acceptable to the AHJ, but the control shall be more than 20 ft. but less than 100 ft. from the dispensers. Additional emergency controls shall be installed on each group of dispensers or the outdoor equipment used to control the dispensers. Emergency controls shall shut off all power to all dispensing equipment at the station. Controls shall be manually reset only in a manner approved by the AHJ.

3. Optional Equipment

- a. Where indicated on the Drawings for the DSC-100 controller, optional additional equipment shall be provided for:
 - 1) Dedicated circuits for additional equipment (emergency stop controlled or non-emergency stop controlled)
 - 2) Lighting and control circuit.

2.4 CONCRETE-VAULTED, STEEL, FUEL-OIL AST

- A. Aboveground Fuel Storage Tanks: Provide (1) rectangular 6,000 gallon Factory-Assembled Aboveground Storage Tank system for unleaded gasoline, and provide (1) rectangular 8,000 gallon Factory-Assembled Aboveground Storage Tank system for diesel fuel. Provide piping from tanks to dispensers, hoses, breakaways, whips, stage I and II vapor recovery, spill and overfill containment, tank gauge monitoring, leak detection system, vent piping, vent caps, anchor pad, and fuel management system, etc. to make a complete factory-assembled system ready for use.

1. Tank Description: UL 142, UL 752 and UL 2085; thermally insulated, fire-resistant and protected, double-wall, horizontal, steel tank; with primary- and secondary-containment walls and insulation and with interstitial space; and meets ballistics protection levels 5, 6, and 8. The tank system must comply with all provisions of: 1) UFC 79-7, Appendix A-II-F, for both Vehicle Impact Protection and Projectile Resistance; 2) NFPA 30 and 30A; 3) IFC Chapter 57 and 4) IFC Chapter 23. The Tank System shall be tested, certified, and approved for Vapor Recovery by the State of California Air Resource Board (CARB) under Executive Order VR-302-B Standing Loss Control Recovery System for New Installations of Aboveground Storage Tanks effective 11/30/09.

- B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings by:
 1. ConVault, Inc.
 2. Approved Equivalent.

- C. Construction:
 1. Tanks: The tank shall be of double wall construction and provide secondary containment of the primary storage tank contents by an impervious steel outer wall. The tank shall be rectangular in shape. The tanks shall be fabricated with welded, carbon steel and insulation and encased in concrete that will protect from bullets.
 - a. The tank shall be suitable for operation at atmospheric pressure and for storing fuel oil with test temperature according to UL 2085.
 - b. The primary storage tank shall be constructed and listed in accordance with UL 142 Standards and designed for possible future relocation.
 - c. Welds shall be continuous on all sides and exterior seams, conforming to the American Welding Society Standard for continuous weld.
 - d. The primary and secondary tanks shall be pressure tested UL 142 Standard (5 PSIG for a minimum 24 hours) at the factory and shall be field tested by the installer before commissioning.
 - e. All openings shall be from the top only.
 - f. The tank shall be supplied with emergency vents for the primary and secondary tanks.

 2. Secondary Containment and Corrosion Protection: The interstitial monitoring area between the primary and secondary tanks shall be a true void, insuring reliability for testing and immediate migration of any liquid contents to the monitoring point. Designs incorporating insulation or other material in the secondary containment area will not be permitted.
 - a. The secondary containment must be tested for tightness (at the manufacturing plant and in the field before commissioning and use as may be required by local jurisdiction and code).
 - b. A 6-mil High-Density Polyethylene liner shall enclose the double wall tank and insulating material to protect against corrosion by isolating the tank and secondary containment from the concrete or other corrosive material.
 - c. Tank designs that do not protect the secondary containment from corrosion will not be permitted.
 - d. All exposed steel, with exception of stainless steel, shall be anti-oxidant powder coated to inhibit corrosion and meet ASTM B117. Secondary containment comprised of an (unprotected) exposed outer steel jacket will not be permitted.
 - e. The secondary tank shall provide reinforcement for the lightweight concrete.
 - f. The secondary tank shall provide true 360 degree radius pressure testable (minimum 3psi) containment for the primary tank.
 - g. The port openings in the top of the secondary tank shall be constructed with full welds to prevent moisture from seeping between the fire proofing material and secondary and primary tanks.
 - h. The top of the tank shall be sloped as that water will not accumulate on the top of the tank.

3. Thermal Protection: The tank system construction shall include thermal insulation by covering the double wall steel tank with a minimum of .25" thick polystyrene panels to protect against extreme temperatures.
4. Concrete Encasement: A vaulted Concrete enclosure shall encase and must protect both the primary and secondary containment steel tanks.
 - a. The concrete encasement shall be 6" thick with a minimum design strength of 4,000 psi.
 - b. The concrete design shall include the following for long-term durability:
 - 1) Air entrainment.
 - 2) Water reducing admixture.
 - 3) Steel reinforcement.
 - c. Concrete placement shall be a visually verifiable monolithic (seamless) pour to ensure the absence of voids on all sides and beneath the steel tank.
 - d. The double wall steel tank shall be pressured to 5 PSIG during concrete encasement to allow for expansion and contraction of the tank.
 - e. The vault enclosure shall have concrete support legs of unitized monolithic construction raising the concrete enclosure a minimum of 3" above the ground to meet visual inspection requirements.
 - f. A mid-level seam or other cold joint construction which could compromise the liquid tightness (secondary containment) and fire protection capability of the vault is not permitted.

D. Characteristics:

1. Fire Protection: The standard fire protection material shall be lightweight concrete and surround the primary tank. The tank system shall be designed and tested to provide a minimum Two (2) hour fire protection for the primary tank as per UL 2085 2 hour furnace fire test and 2 hour simulated pool fire test.
 - a. The average maximum rise in temperature of the primary tank during the test shall not exceed 260° F and the maximum temperature of any single point on the primary tank shall not exceed 400° F.
 - b. No steel members shall penetrate the walls or floor of the concrete encasement to assure isolation from pool fire heat.
 - c. The fire protective material shall allow liquid leaking from the primary tanks to penetrate the material and communicate with the leak detection tube according to UL 2085 Protected Secondary Containment.
 - d. The fire protective material shall be of a monolithic pour, performed at the factory.
 - e. The fire protective material shall provide an R10 insulating factor.
2. Ballistics and High Explosive (HE) Blast Resistance: The tank system shall carry a listing under UL Ballistics Standard 752, Levels 5,6, and 8 (see table below), signifying bullet-resisting protection against penetration, passage of fragments of projectiles, or fragmentation of the vault enclosure to the extent that any protected material, including the secondary containment and primary tank are not damaged.

Ballistics Tests

<u>UL 752 Protection Level</u>	<u>Shots</u>	<u>Ammunition</u>
Level 5	1	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball (.308 caliber)
Level 6	5	9.00mm Full Metal Copper Jacket with Lead Core
Level 8	5	7.62mm Rifle Lead Core Full Metal Copper Jacket, Military Ball (.308 caliber)

The tank system shall meet Department of Defense Uniform Facilities Criteria UFC 4-023-07 (Design to Resist Direct Fire Weapons Effects) guidelines for a "High" threat level parameter, and shall have been tested and passed the requirements to meet the following Ratings for Bullet Resistant Materials at a

National Institute of Justice (NIJ) / National Law Enforcement and Corrections Technology Center (NLECTC) approved laboratory accredited by the National Voluntary Laboratory Accreditation Program (NVLAP):

<u>Rating</u>	<u>Shots</u>	<u>Ammunition</u>
UL 752 Level 9	1	CAL .30 AP, M2, 166 gr.
National Institute of Justice (NIJ) Level 4	1	CAL .30 AP, M2, 166 gr.
State Department (SD-STD-.02.01) Revision G	3	CAL .30 AP, M2, 166 gr.
ASTM F-1233	3	CAL .30 AP, M2, 166 gr.

Blast Effects Analysis (BEA)

The tank system design shall have been subjected to a Blast Effects Analysis (BEA) assessing resistance and performance under the following blast threat scenarios per the FEMA 426 - Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings: 1) a 50-pound man-portable improvised explosive device (MPIED) at the standoff distance of 5 ft.; 2) a 500-pound vehicle-borne improvised explosive device (VBIED) at the standoff distance of 20 ft.; and 3) a vapor cloud explosion (VCE) with a load of 10 psi. The BEA shall conclude that the tank system will resist the explosion loads and remain intact, without failure of the primary tank or movement of the tank exceeding 2”.

- a. The fire protected tank must be able to be repaired in the field by a factory representative, when impacted by a bullet.
 - b. The factory representative must be able to certify that the primary and secondary containment do not leak, and that the fire protected material regains its minimum two (2) hour protection.
3. Leak Monitoring: A thru-tank leak detection monitoring tube terminating between the primary tank and secondary containment tank shall be provided to monitor any leaks from the primary tank..
 4. Signage: Tanks shall be marked on all sides as per state and local codes. Signs will be recessed in concrete exterior to insure against damage during off-loading, refilling or general functions.
 - a. Provide signs which contain information below. All signs shall be rust proof and fastened to the tank unit with rust proof hardware so as to be removable for repainting the tank.
 - 1) Manufacturer’s statement that tank conforms with Bulk Storage Regulation 6 NYCRR Part 614.
 - 2) Standard of design by which tank was manufactured.
 - 3) List of products and additives, which may be permanently stored in tank.
 - 4) Year in which tank was manufactured.
 - 5) Unique identification number.
 - 6) Dimensions, design, working capacity and tank model number.
 - 7) Name of manufacturer.
 - 8) Date of tank installation (fill port only)
 - 9) Fill port marked with a sign indicating product to be stored in tank, including the API color-coded symbol for the product.
 5. Neoprene bearing pads: kit for 2,000-6,000 gallon tank.
 6. Finish: The tank system shall be a low maintenance exposed aggregate coated with a clear sealer. Fiber clad steel, or painted steel vault tanks are not acceptable.
- E. Warranty: The tank system shall be warranted by the manufacturer against defects in material or workmanship for 30 years following the delivery of the tank. Warranties that limit such coverage for shorter periods and/or limit the primary tank warranty to failure solely due to non-corrosion related cracking, breakup or collapse will not be permitted. See warranty documents.

- F. Quality Assurance: The tank system shall be manufactured and labeled in strict accordance with the ConVault® standards as applied by a licensee of ConVault, Inc. The tank system shall be subject to the ConVault Quality Assurance Program.

2.5 FUEL-OIL AST ACCESSORIES

- A. Lifting Lugs: For handling and installation.
- B. Ladders:
 - 1. Stair Stringers, legs and bracing shall be ASTM A36 hot rolled steel sections. Legs shall be shop bolted to stringers.
 - 2. Railing shall be ASTM A53 Grade B steel pipe. Railing shall be formed and shop welded to stringers.
 - 3. Stringers, leg and railing assemblies shall be hot dip galvanized per ASTM A123 with an average coating thickness of 3 mils.
 - 4. Treads shall be “Grip-Strut” which are fabricated from material which has been mill galvanized before fabrication. Treads shall be bolted to stringers. Treads shall be 30” wide.
 - 5. Stairs shall be bolted to concrete slab utilizing 4 bolts – two in the front and one on each of the back legs of the unit. Bolts shall be ½” diameter suitable for concrete installation.
 - 6. Handrail shall be designed to withstand a load of 200# applied in any direction at any point on the top rail.
 - 7. Stairs shall be designed to safely carry a moving concentrated load of 1,000#.
 - 8. Stairs shall be designed for installation outdoors in accordance with the U.S. OSHA Standard for “Fixed Industrial Stairs”, 29CFR 1910.24.

2.6 OVERFILL PREVENTION ASSEMBLY

- A. Overfill prevention valve 2” and shall be capable of restricting flow into the tank, with pressure relief valve within the fill pipe to close automatically at 95% full.
- B. The tank system shall include a U.L. listed 7-gallon spill/overflow container manufactured as an integral part of the primary tank, surrounding the fill pipe, and protected by 2 hour fire rating of the enclosure. The spill/overflow container shall include a stick port and normally closed valve to release spilled product into the main tank. Exterior steel shall be anti-oxidant powder coated to inhibit rust.
- C. Overfill containment systems that are designed to release spilled product into the interstitial area will not be accepted.

2.7 SUBMERSIBLE PUMPS

- A. Submersible fuel oil supply pumps shall be provided per the Project Drawings.
- B. Basis-of-Design:
 - 1. Franklin Fueling STP75-VL2 with accessories indicated.
 - 2. Approved Equivalent.
- C. Configuration: ¾ HP fixed speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection requiring single-phase, 208-230 VAC, 60 Hz incoming power.

2.9 FUEL MANAGEMENT SYSTEM

- A. Basis-of-Design Product:
1. Wayne iX Fleet Fuel Controller (WU008756) with accessories as indicated.
 2. Approved Equivalent.
- B. Configuration: The system shall include one integral in-dispenser terminal to control access to the dispenser and one central controller for controlling/reporting fueling activity from the dispenser.
1. The in-dispenser terminal shall include:
 - a. CPU with 32-bit embedded processor, 5 USB ports, and Window CE operating system.
 - b. 4 x 3 membrane keypad, 0-9, clear, and enter keys, for user entries.
 - c. One of the following access identification readers: (1) RFID contactless reader; (2) Magnetic stripe reader; or (3) Proximity reader.
 2. The system controller shall include:
 - a. 120 GB solid state drive.
 - b. Windows POS Ready operating system and SQL Server Database.
 - c. 17" Color LCD monitor, keyboard, and mouse; 2 USB ports; and Ethernet port.
- C. Standards/ Approvals: C-UL-US listed and FCC approval.
- D. Warranty: 1 year parts and labor.
- E. The system shall have an IP address and 4-port Ethernet switch for connection to controller, other dispensers, or LAN. The recorded transactions shall be backed up in at least two places in addition to RAM to provide redundancy and shall be able to be moved to controller with a USB key if communication is interrupted. Each dispenser shall have the capacity to store up to one year of transaction if not transmitted to the controller.

2.10 LEAK-DETECTION AND MONITORING SYSTEM

- A. Tank Monitoring System
1. Configuration: Electronic system includes high level, low level, leak indications, alarm panel, magnetostrictive tank gauging probe, discriminating leak sensor, remote alarm and printer.
 2. Basis-of-Design Product: Veeder-Root "TLS-450Plus"
 3. Standard Features: WVGA LCD color touch screen, universal AC power supply (100-249 VAC, 50/60Hz), and rechargeable back up battery.
 4. Communications: five (5) configurable RS-232/RS-485 serial ports, three (3) Ethernet ports, two (2) Ethernet networks, two (2) USB ports both internal and external, and an external GSM/GPRS modem via Ethernet port.
 5. Construction: Approximate external dimension (inches) are 18.4x11x8.8 and the housing box is constructed on 16GA powder coated steel.
 6. Approvals: UL-listed, CUL-listed, ATEX-listed, IECEx-listed, NEPSI-listed, FCC-listed, EMC-listed, and PESO-listed.

2.11 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, Concrete-Vaulted and Insulated, Steel ASTs: UL 142 and UL 2085.
- B. Affix standards organization's code stamp.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The FAST System shall not be installed until substrates and adjacent construction has been properly constructed. Verify concrete tank slab, electrical service stub-ups, ESO location, bollard/barrier installation, clearances, setbacks, and other site related work that have impact to fueling system.
- B. Examine roughing-in for fuel-oil piping system to verify actual locations of piping connections before equipment installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Notify Manufacturer of any detail or design deviation as may be determined by site conditions.

3.2 FUEL TANK INSTALLATION

- A. Install FAST System in strict accordance with the manufacturer's recommendation, and applicable fire and environmental codes. State and local permits shall be obtained by the contractor prior to installation.
- B. The legs of all tanks shall be anchored using an engineered resilient pad interface in accordance with the manufacturer's recommendations.
- C. Tanks shall be grounded in accordance with electrical codes. Use grounding lugs installed by tank manufacturer.
- D. Tanks shall be clearly marked on all sides with warning signs "FLAMMABLE" or "NO SMOKING," tank volume, product identification, and other signs as required by local jurisdictions and applicable code.

3.3 ELECTRICAL SYSTEMS

- A. All wiring shall be designed and installed to meet the requirement of the NEC and NFPA 70. All necessary branch circuit conduit and wiring shall be installed, providing a stub-up at designated location to which the turn-key FAST fueling system can be connected. Install FAST manufacturer provide specialty fuel system sub-panel (Model DSC-100) and emergency stop (ESO) to facilitate ease of installation.
- B. All electrical devices used with or located within 20' of the FAST System shall conform to NFPA 70 Hazardous Locations. All electronic conduits and wiring connected to the tank shall be explosion proof and in strict accordance with NEC Class-1, Division 1 or other local standards, whichever is stricter.

- C. Pumps and all other equipment used in the hazardous areas should be UL listed. All wiring shall be designed and installed to meet the requirements of the NEC and NFPA 70. All necessary branch circuit conduit and wiring shall be installed as indicated on the Drawings.
- D. All electrical conduit used for the FAST System shall be PVC Coated Rigid Galvanized Conduit.

3.4 FIELD QUALITY CONTROL

- A. Perform system inspection as outlined in manufacturer's installation manual.
- B. Test fueling distribution in accordance with NFPA 30 and other applicable codes. Properly dispose of any fuel generated in adherence to environmental regulations.
- C. Submit field installation inspection report to the Architect.
- D. The final FAST System installation shall be inspected and approved by the manufacturer or its certified contractor.

3.5 SYSTEM ACTIVATION

- A. Prior to activating the FAST System, flush system piping with grade of fuel to be used by Owner to remove any debris and foreign matter in piping prior to filling tank for the first time.
- B. Service all systems, filters, and screens and dispose of fuel in accordance with EPA and NFPA regulations after flushing.
- C. Open valves to correct position for system operation.

3.6 ADJUSTING AND CLAEANING

- A. Touch-up any abraded areas with the application of same coating used by manufacturer. Manufacturer to include sufficient quantity of touch-up paint for this purpose.
- B. Repair or replace damaged components.

3.7 OPERATIONAL TRAINING

- A. Perform training of owner's personnel per the materials included with the FAST System manufacturer's installation manual.
- B. The installation contractor shall be responsible for the review of, and compliance with local requirements for system inspection, reporting, and regulation, as well as administrative paperwork requirements.

END OF SECTION 231113

LFA 05/08/2018