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TRANSMITTAL COVER SHEET

DATE: July 1, 2024
PAGE: 1 of 9 (INCLUDING THIS PAGE)
TO: ALL CONTRACTORS
FROM: Craig Sanford
PROJECT: 2022 DWSRF TRANSMISSION MAIN (HDD REPLACEMENT)
FOR THE CITY OF THOMASVILLE
SRF PROJECT NO. FS101304-01
GMC PROJECT NO. CMGM230097(3)
RE: **ADDENDUM #2**

PLEASE COMPLETE BELOW AND RETURN IMMEDIATELY.

I, the undersigned, hereby acknowledge receipt of this Addendum.

Authorized Representative of Contractor

Date

Company Name

Telephone

Contractor's License Number (if applicable)



ADDENDUM NUMBER 2

2022 DWSRF TRANSMISSION MAIN (HDD REPLACEMENT)

FOR

THE CITY OF THOMASVILLE

SRF# FS101304-01

GMC PROJECT NO. CMGM-220097(3)

1. Revisions to Project Manual

- 1.1 The following revisions are hereby added as Addendum No. 2 to the referenced Project Manual and Plans and shall be considered when preparing bids.

2. Specification

- 2.1 The attached specification, 11 5500 – Vertical Turbine Pump shall be incorporated into the project manual.

3. Proposal

- 3.1 The attached, revised Proposal will be completed and submitted.

4. Acknowledgement

- 4.1 Receipt of Addendum shall be acknowledged in two ways:
 - 4.1.1 Note on (EJCDC C-410) Bid Form of the Project Manual – Bidder acknowledges receipt of “Addendum No. 2” and date of “July 1, 2024”.

AND

- 4.1.2 EMAIL GMC office immediately at ashley.morris@gmcnetwork.com and confirm that addendum has been received and is legible.

5. Conclusion

- 5.1 This is the end of Addendum Number 2, dated Monday, July 1, 2024.

BID PROPOSAL - ADDENDUM NO. 2

**PROJECT: 2022 DWSRF TRANSMISSION MAIN
CITY OF THOMASVILLE, ALABAMA
GMC PROJECT NO. CMGM220097(3)
DWSRF PROJECT NO. FS010304-01**

BIDDER: _____

<u>ITEM</u>	<u>QTY.</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
1	1	LS	Mobilization & General Conditions (N.T.E. 3% of Total Bid)	\$ LS	\$ _____
2	1	LS	Clearing & Grubbing	LS	_____
3	1	LS	Cleanup, Grassing, Mulching, Site & Landscape Restoration	LS	_____
4	1	LS	Erosion Control Measures	LS	_____
5	1	LS	Traffic Control Measures	LS	_____
6	1	LS	Allowance - Owner's Contingency	LS	10,000.00
7	20	LF	20" CL 250 Ductile Iron Pipe	_____	_____
8	300	LF	24" DR 9 C906 DIPS HDPE (Directional Drill Installation)	_____	_____
9	1	EA	Fire Hydrant Assembly	_____	_____
10	2	EA	Fusible MJ Adapter w/ 20" Long Body Sleeve w/ Restraints	_____	_____
11	10	EA	20" Bell Restraint Harness	_____	_____
12	2	EA	5 CY Concrete Deadman	_____	_____
13	1	TON	Ductile Iron Fittings	_____	_____
14	1	LS	WTF (Intake)- (1) High Service Pump (Furnish and Install a New HSP and all Related Appurtenances) - Demo. by Others	LS	_____
15	1	LS	WTF (Intake) - High Service Pump Electrical (Includes Wiring, Connections, Etc. of the New HSP to the Ex. Control Panel and All Related Appurtenances)	LS	_____
TOTAL BID					\$ _____

SECTION 11 5500 - VERTICAL TURBINE PUMPS

PART 1 - GENERAL

1.1 SUMMARY

- A. The CONTRACTOR shall furnish and install, as specified herein, a vertical turbine pump and related accessories. The equipment shall conform to the detailed specifications, which follow, and shall include the services, tests, equipment, and accessories as called for and as necessary for a complete and proper installation.

1.2 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 SUBMITTALS

- A. Submit the following information.
 - 1. Shop Drawings showing layout and dimensions
 - 2. Product Data
 - a. Pump Curves with design operating point marked
 - 3. Pump Test Certifications from manufacturer
 - 4. Installation Instructions
- B. Operations and Maintenance Data shall be submitted in accordance with the manufacturer's standard protocol.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Follow the manufacturer's recommendations for offloading equipment, storage and handling.
- B. The CONTRACTOR shall protect the equipment from all construction traffic and activities.
- C. The CONTRACTOR shall store the equipment in a protected location either at the project site or a secure location approved by the ENGINEER.
- D. If the equipment is stored off site, the CONTRACTOR shall allow the ENGINEER access to the equipment to observe the condition and to check for conformance with Contract Documents.

1.5 WARRANTY

- A. Manufacturer shall provide a two (2) year warranty on the equipment effective from startup of the equipment.

PART 2 PRODUCTS

2.1 PERFORMANCE CHARACTERISTICS & MATERIALS

- A. The vertical turbine pump shall have the following characteristics:
- | | |
|---------------------------------------|---------------------------------|
| 1. Design Capacity & Head | 1820 GPM @ 425' TDH |
| 2. Minimum Capacity & Head | 750 GPM @ 510' TDH |
| 3. Maximum Capacity & Head | 2525GPM @ 260' TDH |
| 4. Minimum Motor HP | 250 HP |
| 5. Minimum Number of Stages/Bowls | 9 |
| 6. Minimum Efficiency at design point | 82% |
| 7. Maximum Pump Speed (RPM) | 1185 RPM |
| 8. Impeller Material | 316 Stainless Steel |
| 9. Impeller Wear Ring Material | CA15 Stainless Steel |
| 10. Bowl Wear Ring Material | CA40 Stainless Steel |
| 11. Lineshaft Bearing Material | Abrasion Resistant Greene Tweed |
| 12. Lineshaft Sleeve Material | 304 Stainless Steel |
| 13. Lineshaft/Bowl Shaft Material | 416 Stainless Steel |

2.2 GENERAL

- A. The turbine pump shall be of the vertical multi-stage type, consisting of a cast iron discharge head, vertical hollow shaft motor, discharge column and shafting, and bowl assembly. The pump shall utilize the pumped media as lubricant.

2.3 BOWL ASSEMBLY

- A. The pump bowl assembly shall consist of a suction bell, bowls, impellers, impeller shaft, bearings, wear rings, and any additional items necessary for satisfactory operation.
1. Suction Bell: Shall be constructed of cast iron and machined for bolting to the bowls. The suction bell shall be a smooth bell-shaped entrance as a waterway to the impellers, and shall incorporate an integrally cast suction manifold bearing housing. The housing shall have an SAE660 bronze bearing and a cast iron suction manifold plug.
 2. Pump Bowls: Shall be constructed of close-grained cast iron with integrally cast diffusion vanes. The bottom bowl shall be machined to bolt to the suction bell. Each bowl shall be equipped with a combination SAE660 bronze and abrasion resistant greene tweed bearing, and a bowl wear ring. The bowl wear ring shall be constructed of CA 420 stainless steel. Each bowl interior shall be enameled to provide smooth passage of water and increase efficiency.
 3. Impellers: Shall be enclosed type, constructed of 316 stainless steel, dynamically and statically balanced. Each impeller shall also include a wear ring constructed of CA15 stainless steel. The impeller vanes shall be machined to match the contours of the suction bell, and also the contour of the series case. Impeller shall be secured by means of a 303 stainless steel taper lock to the bowl shaft. The impeller shaft shall be of 416 stainless steel. The total hydraulic down-thrust for pump shall be minimized. Up-thrust developed upon starting shall be acceptable, but pumps that operate in continuous upthrust shall not be acceptable and will not be considered. Verification of thrust values shall be provided and

documented with standard manufacturers published information. Failure to verify thrust calculations shall be basis for rejection of equipment.

2.4 COLUMN ASSEMBLY

- A. The Column Assembly: Shall be of the type designed for freshwater lubrication. The pump shall be of open line shaft construction. Column pipe shall be flanged and shall be fabricated of ASTM A106-58T Grade B, carbon steel, and sized as shown on the drawings (minimum 10" column pipe). Both top and bottom sections of column pipe (above the bowl assembly and below the discharge head) shall not exceed 5'-0" in length for proper support of the pump shaft. Intermediate column sections shall be 10' in length and shall be interchangeable. Bearing retainers shall be ASTM B-145 bronze with abrasion resistant greene tweed shaft bearings. Shaft bearings shall be secured by means of a 302 stainless steel bearing retainer lock ring and an SAE63 bronze bearing retainer lock nut. Retainers shall be threaded to fit inside the column coupling with column sections butted tightly to the bearing retainer on both sides. Design of column pipe sections shall be in compliance with the requirements stated in ANSI Specifications E101, Section 5.1 "*Standard Specifications for Discharge Column Pipe*".
- B. Line Shafting: Shall be of stainless steel, ground and polished. Shafting shall be connected by means of stainless-steel couplings. All shaft journals shall be flame sprayed stainless steel or chrome plated. Shafting size shall be determined from the thrust characteristics of the particular pump bowl under consideration but shall in no case be less than one inch in diameter, and shall be adequate size to transmit the full motor horsepower without failure. Undersized shafting shall be basis for rejection of the pump. Pump supplier shall submit manufacturer's published data to verify shafting selection. Failure to verify shaft sizing shall be basis for rejection of the equipment.
- C. A two-piece top shaft shall be furnished to facilitate removal of the motor. The top shaft and the line shaft shall be joined by means of a carbon steel threaded coupling. The top shaft shall be of C1045 carbon steel and of adequate size for the HP to be transmitted.

2.5 DISCHARGE HEAD

- A. The pump discharge head shall be of the cast iron type. The head shall be suitable for floor mounting and shall be furnished with a steel sole plate to facilitate future removal. The discharge head base shall be machined to accept the sole plate and shall be a class 150 integral discharge flange sized as shown on the drawings. The head shall have provisions for the mounting and securing of a vertical hollow shaft motor. The motor mounting flange shall be machined for a perfect fit and angular misalignment shall not be allowed.
- B. Lifting lugs shall be integrally cast on the discharge head and shall be capable of supporting the entire weight of the pump. A 1-inch NPT drain connection, 1/2 inch NPT pre-lube connection, and a 1/4 inch NPT gauge connection shall be provided. The pump discharge flange shall be provided. The pump discharge flange shall

conform to CL. 250 ANSI standard drilling for pipe flanges. The pump shall be sealed at the discharge head by means of graphited packing. An SAE 660 bronze bushing, a brass packing washer, and a CL 30 cast iron cadmium plated packing gland shall secure the packing and allow for adjustment for lubrication.

2.6 MOTOR

- A. The turbine pump shall be driven by a vertical hollow shaft motor suitable for 460 volt, 3 phase, 60 hertz. The motor shall be an integral part of the pumping unit, and shall be suitable for mounting as shown on the plans. The motor shall be sized so that it will not be overloaded at its rated capacity at any point on the pump performance curves. The motor shall be TEFC with Class H insulation and shall have a minimum service factor of 1.15.
- B. The motor shall have thrust bearing(s) capable of carrying the dead weight of all rotating parts of the pump plus the hydraulic thrust incurred during operation.
- C. The motor shall be vertical hollow shaft, squirrel cage induction type and shall conform to AIEE standards. Each motor shall be equipped with a non-reverse coupling. A coupling at the top of the motor shall facilitate vertical adjustment of the impellers of the pump. The motor shall also be furnished with a protective cap. All bearings shall be oil or grease lubricated, with proper provisions made to guard against the escape of lubricant.
- D. The motor shall be “inverter duty rated” and shall conform to the NEMA “High” standard for premium efficiency. The nameplate on the motor shall also indicate the motor is “inverter duty rated” to the NEMA “High” standard for premium efficiency.
- E. Thermostats shall be provided in the windings of each phase to afford protection of the motor against excessive operating temperature. Thermistors shall be normally closed, suitable for operations on 120 VAC, with leads from the same routed to an accessory conduit box for connections separate from the power wiring.

2.7 MISCELLANEOUS

- A. Data Plates: The pump shall be equipped with a data plate securely fastened to the pump that contains the manufacturer's name, pump size and type, serial number, pump speed, impeller data, capacity and head rating, and any other pertinent information.
- B. A fabricated steel sole plate shall be provided with each pump to facilitate installation and future removal. The plate shall be a minimum of 36" square and 1¼" thick, and shall be provided with 1¼" diameter holes for anchor bolts and tapped holes corresponding to drilling of the pump discharge head base bolting. A 24" minimum diameter hole shall be accurately cut in the center of the plate to allow passage of the pump, and the top surface shall be accurately machined to provide a perfectly flat surface for mounting the discharge head. Raw or mill finished steel plate is not considered acceptable. The base plate shall be grouted in place by the CONTRACTOR, in the position as indicated. ~~Anchor bolts shall be provided by the pump supplier, and will be fabricated of 304 stainless steel.~~

- C. Testing: The pump shall be performance tested prior to shipment to confirm pump performance. Test shall include, but not be limited to, checking the unit at its rated speed, capacity, head, efficiency, and brake horsepower at such conditions of head and capacity so as to properly establish the actual performance curve. Certified copies of the test reports shall be submitted for review prior to shipment. The Standards of the Hydraulic Institute shall govern the procedures and calculations for the prescribed testing.
- ~~D. A properly sized air release valve shall be provided with each of the Plant Water Pumps, with the discharge from the same routed back to the wet well. Air release valves shall be cast iron, with bronze/stainless steel/Delrin internals, baffle screens inside each valve, and external throttling devices to control the discharge of vented air. The valves shall be as manufactured by Crispin or equal. A pressure gauge shall be provided on the discharge of each pump, calibrated for a range of 0-200 PSIG. Gauges shall be 6" diameter, with stainless steel bourdon tubes and sockets. Casings will be phenolic with double strength glass lenses, and dials will be white with crisp black numerals. Gauges shall have 1/4" connections, and shall be Acragauge Model 75 or equal.~~
- E. Each pump shall be provided with a 120VAC solenoid valve that shall be piped to the provided opening in the discharge head to allow pre-lubrication of the pump shafting and bearings prior to operation of the pumps. Each pump shall be provided with a separate pre-lube solenoid valve and related piping/circuitry for independent operation. The solenoid valve shall be the same size as the tapped opening provided in the pump head, but not less than 1/2" diameter, and shall be furnished in standard bronze construction. The pump manufacturer shall be responsible for the sizing of the solenoid valve to ensure adequate flow of water for pre-lubrication of the pump shafting and bearings. Solenoid valves shall be suitable for use with potable water applications and shall be normally-closed, so that the valve opens when voltage is applied to the coil. Suitable isolation ball valve shall be provided on the inlet and outlet side of each solenoid valve to allow it to be removed from service for repair or replacement, and union connectors shall be provided to allow ease of replacement without need for re-soldering the prelube piping. All piping to/from the solenoid valve shall be copper, bronze, or 304 stainless steel. Solenoid valves shall be as manufactured by ASCO, or approved equal.
- ~~F. The pump control circuitry shall be provided with suitable output contacts and on-delay timers to enable the solenoid valve to be opened for an adjusted length of time (0-5 minutes) before the pump motor is started. Once the pump motor has been energized, the prelube solenoid valve shall be dropped out. Pilot lights shall be provided on the door of the motor control center indicating that the prelube piping is enabled and is (or should be) running. In lieu of circuitry in the motor control center, a separate locally mounted NEMA 4X stainless steel control panel shall be provided in the direct vicinity of the raw water pumps that includes the required circuitry, pilot lights, hand-off-auto-selector switches, off-delay timing relays, terminal strips, etc. as may be required to achieve the specified functionality.~~

2.8 MANUFACTURERS

- A. Flowserve model 15EHM-9 Stage – 1185 RPM
- B. Or Engineer Pre-Approved Equal

2.9 SUPPLIER CONTACT INFORMATION:

- A. Jim House & Associates, Inc.
24312 Highway 98
Fairhope, AL 36532
Office (251) 928-7867
E-mail – brent@jimhouse.com

PART 3 EXECUTION

3.1 INSTALLATION

- A. The CONTRACTOR shall install the pump as recommended by the pump manufacturer. The pump shall be installed plumb and square.

3.2 START-UP

- A. The manufacturer shall provide 2 days of field start-up services for the pump. Cost of these services shall be included in the cost of the pump.

END OF SECTION