GHR ENGINEERS AND ASSOCIATES, INC.
Mechanical & Electrical Consulting Engineers

Date: May 10, 2016

To: Plan Holders

Subject: Addendum No. 1 to the Bidding Documents for:

Brookens Pods 200 and 300
Boiler Replacement Project
Champaign County Administrative Services
1776 East Washington Street
Urbana, Illinois 61801

Addendum No. 1 becomes a part of the bidding and contract documents and modifies the original bidding documents, dated May 5, 2016. Acknowledge receipt of Addendum No. 1 in the space provided on Bid Form. **FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.**

Specifications

1. Section 23 2123 - Hydronic Pumps

   a. Add the attached Section 23 2123.

Bids are due Thursday, June 2, 2016 at 2:00 p.m. prevailing time at Lyle Shields Conference Room, Brookens Administrative Center, 1776 East Washington, Urbana, Illinois 61801.

Respectfully submitted,

GHR Engineers and Associates, Inc.

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JGM/smh

Addendum No. 1.wpd

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Base Bid

1. HVAC Contractor work includes the following:

a. Inline centrifugal pumps.
b. Base mounted pumps.

1.2 DEFINITIONS

A. Buna-N: Nitrile rubber.

B. EPT: Ethylene propylene terpolymer.

1.3 SUBMITTALS

A. Product Data: Include certified performance curves and rated capacities, operating characteristics, furnished specialties, final impeller dimensions, and accessories for each type of product indicated. Indicate pump's operating point on curves.

B. Shop Drawings: Show pump layout and connections. Include setting drawings with templates for installing foundation and anchor bolts and other anchorages.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Operation and Maintenance Data: For pumps to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain hydronic pumps through one source from a single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. UL Compliance: Comply with UL 778 for motor-operated water pumps.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles with wooden flange covers or with screwed-in plugs.

B. Store pumps in dry location.

C. Retain protective covers for flanges and protective coatings during storage.

D. Protect bearings and couplings against damage from sand, grit, and other foreign matter.

E. Comply with pump manufacturer's written rigging instructions.

1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 CLOSE-COUPLED, IN-LINE CENTRIFUGAL PUMPS

A. Manufacturers:

1. Armstrong Pumps Inc.
2. Bell & Gossett; Div. of ITT Industries.
3. Burks Pumps; Div. of Crane Pumps & Systems.
4. Demming Div.; Crane Co.
5. Flowserve Corporation; Div. of Ingersoll-Dresser Pumps.
6. Grundfos Pumps Corporation.
7. Little Giant Pump Co.; Subsidiary of Tecumseh Products Co.
8. MEPCO (Marshall Engineered Products Co.).
9. PACO Pumps.
10. Patterson Pump Co.; a Subsidiary of The Gorman-Rupp Co.
11. Peerless Pump; a Member of the Sterling Fluid Systems Group.
12. Taco, Inc.
13. Thrush Company Inc.
14. Weinman; Div. of Crane Pumps & Systems.

B. Description: Factory-assembled and -tested, centrifugal, overhung-impeller, close-coupled, in-line pump as defined in HI 1.1-1.2 and HI 1.3; designed for installation with pump and motor shafts mounted horizontally or vertically. Rate pump for 125-psig minimum working pressure and a continuous water temperature of 200 deg F.

C. Pump Construction:

1. Casing: Radially split, cast iron, with replaceable bronze wear rings, threaded gage tappings at inlet and outlet, and threaded companion-flange connections.
2. Impeller: ASTM B 584, cast bronze; statically and dynamically balanced, keyed to shaft, and secured with a locking cap screw. Trim impeller to match specified performance.
3. Pump Shaft: Steel, with copper-alloy shaft sleeve.4.Mechanical Seal: Carbon rotating ring against a ceramic seat held by a stainless-steel spring, and Buna-N bellows and gasket. Include water slinger on shaft between motor and seal.5.Pump Bearings: Permanently lubricated ball bearings.

D. Motor: Single speed, with permanently lubricated ball bearings, unless otherwise indicated; and rigidly mounted to pump casing. Comply with requirements in Division 23 Section "Common Motor Requirements for HVAC Equipment."

2.2 WATER CIRCULATING PUMPS - Base Mounted Pumps

A. Provide horizontally or vertically split-casing type circulating pumps as scheduled on drawings, arranged to permit access to revolving parts without disconnecting suction and discharge piping or moving motor. Pumps shall be fitted with grease lubricated ball bearings to zerk fittings and drain plugs in dust and moisture proof housing, machine fitted to assure permanent, perfect alignment (cast iron casing with bronze fittings). Renewable bronze casing wearing rings shall be provided. Pumps shall be equipped with mechanical seals (and stainless steel shaft sleeves). Provide bronze impeller. Manufacturer shall especially note arrangement of piping for high static heads and shall check the water condition at job site before recommending type of seal or packing gland.

B. Each pump shall deliver the total gpm listed in the schedule against the total dynamic head listed, and pump characteristic curve shall have a cut-off point at a head no more than 20% or less than 10% above rated discharge head.

C. The pump shall be mounted on a cast iron or fabricated steel drip-lip subbase and direct connected by Dodge Para-Flex, Woods, Falk or Waldron flexible coupling to the electric motor.

1. See Section 23 0500 for further motor requirements.

D. Mount base with assembled pump and motor on 3½" thick concrete housekeeping base. Base of pump shall be tightly packed with wet grout after pump is aligned, leveled and anchored. Install standpipe minimum of 12" high over grout pouring hole to assure that all areas of base are filled. Each pump shall be mounted on an inertia base.

E. The manufacturer of all pumps shall be responsible for the supervision of the pump installation and field alignment to make sure pumps installed are to their requirements. Submit alignment report to Architect / Engineer stating pumps are properly aligned.

F. Suction diffusers with integral strainers shall be provided by the pump manufacturer. Diffusers shall match pumps and shall be provided with support foot and pressure gauge taps.

G. Acceptable Manufacturers

1. Armstrong
2. Bell and Gossett
3. Aurora
4. Pacific Pump Company
5. Thrush

H. Forward shop drawing submittals to the Architect / Engineer for review. Include pump curve with operating point plotted.

I. Each pump shall be equipped with a VFD provided by the Temperature Control Contractor.

2.3 PUMP SPECIALTY FITTINGS

A. Suction Diffuser: Angle pattern, 175-psig pressure rating, cast -iron body and end cap, pump-inlet fitting; with bronze startup and bronze or stainless-steel permanent strainers; bronze or stainless-steel straightening vanes; drain plug; and factory-fabricated support.

B. Triple-Duty Valve: Angle or straight pattern, 175-psig pressure rating, cast-iron body, pump-discharge fitting; with drain plug and bronze-fitted shutoff, balancing, and check valve features. Brass gage ports with integral check valve, and orifice for flow measurement.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine equipment foundations and anchor-bolt locations for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Examine roughing-in for piping systems to verify actual locations of piping connections before pump installation.

3.2 PUMP INSTALLATION

A. Comply with HI 1.4 or HI 2.4 as appropriate.

B. Install pumps with access for periodic maintenance including removal of motors, impellers, couplings, and accessories.

C. Independently support pumps and piping so weight of piping is not supported by pumps and weight of pumps is not supported by piping.

D. Set base-mounted pumps on concrete foundation. Disconnect coupling before setting. Do not reconnect couplings until alignment procedure is complete.

1. Support pump baseplate on rectangular metal blocks and shims, or on metal wedges with small taper, at points near foundation bolts to provide a gap of 3/4 to 1-1/2 inches between pump base and foundation for grouting.
2. Adjust metal supports or wedges until pump and driver shafts are level. Check coupling faces and suction and discharge flanges of pump to verify that they are level and plumb.

3.3 ALIGNMENT

A. Align pump and motor shafts and piping connections after setting on foundation, grout has been set and foundation bolts have been tightened, and piping connections have been made.

B. Comply with pump and coupling manufacturers' written instructions.

C. Adjust pump and motor shafts for angular and offset alignment by methods specified in HI 1.1-1.5, "Centrifugal Pumps for Nomenclature, Definitions, Application and Operation or HI 2.1-2.5, "Vertical Pumps for Nomenclature, Definitions, Application and Operation."

3.4 CONNECTIONS

A. Piping installation requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to machine to allow service and maintenance.

C. Connect piping to pumps. Install valves that are same size as piping connected to pumps.

D. Install suction and discharge pipe sizes equal to or greater than diameter of pump nozzles.

E. Install triple-duty valve on discharge side of pumps.

F. Install suction diffuser and shutoff valve on suction side of pumps.

G. Install flexible connectors on suction and discharge sides of base-mounted pumps between pump casing and valves.

H. Install pressure gages on pump suction and discharge, at integral pressure-gage tapping, or install single gage with multiple input selector valve.

I. Install electrical connections for power, controls, and devices.

J. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

K. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

END OF SECTION 23 2123