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TERRITORIAL HOSPITAL REDEVELOPMENT TEAM

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Amendment Three (3)

IFB-001-THRT-T-023 (C) Renovation of the Charlotte Kimelman Cancer Institute

May 16, 2023

Insert Questions and Answers:

Question: Specification section 232113 lists no piping material for Below Ground CHWS+R. Please provide this information.

Answer: See attached [Attachment I](#).

Question: Refer to drawings E111 and E112, and the light fixture schedule on drawing E201. Fixture type L1 is scheduled as a 4' long recessed flangeless Ledalite. On drawings E111 and E112, this fixture is called out adjacent fixtures that scale 2', 4', 6', 8', 10', 12', 15' and 16' long. Please clarify design intent, particularly with respect to locations that are not in 4' increments.

Answer: The fixture is intended to be ordered as the required lengths are shown on plan. The 4-foot increment description is a designation of the lumen package selected for the fixture.

Question: Refer to drawings E111 and E112, and the light fixture schedule on drawing E201. Fixture type C1 is scheduled as a 4' long recessed flangeless Ledalite. On drawings E111 and E112, this fixture is called out adjacent fixtures that scale 3', 4', 8', 9', 12', 20' and 42' long. Please clarify design intent, particularly with respect to locations that are not in 4' increments. In addition, several of the locations cannot accommodate a 4' wide fixture.

Answer: The fixture is intended to be ordered as the required lengths are shown on plan. The 4-foot increment description is a designation of the lumen package selected for the fixture.

Question: Refer to drawing E122, room C216. Should one Nurse Call device C be located outside this toilet room and connected to the T type device inside the room?

Answer: Yes, a dome light should be provided here.

Question: Refer to drawing E121, room C163. There is one Nurse Call device type CB in this room, but there does not appear to be a device type CBAP to connect it to. Please clarify design intent.

Answer: We did show a code blue emergency station, it should be connected to the nurse call equipment panel (NCEC).

Question: Architectural drawing A103B calls for a minimum roof slope of ¼" per foot for tapered insulation. Is the ¼" minimum intended to apply at the valleys, or in the field of the roof (which would mean 1/8" at the valleys)?

Answer: Intent is 1/4" min slope at valleys.

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Question: Architectural details, such as A3 and A4/A351 call for a “continuous waterstop,” however it appears that only a 15-mil vapor barrier is specified; please clarify design intent.

Answer: Waterstop is desired at new slabs.

Question: Architectural details, such as A3 and A4/A351 call for sheet membrane waterproofing, drainage board and perimeter foundation insulation at the building perimeter, all of which are unusual and would require that new footings be formed rather than cast neat against earth. Also, where does any water collecting in the drainage board exit the system? Please confirm these details align with Owner intent.

Answer: These items can be removed- only the waterproofing is required.

Question: Is detail D3/A351 to be used where existing slabs on grade are to be removed for installation of new below grade piping and conduit? If not, please provide desired patch-back detail.

Answer: This is correct.

Question: Specification section 221119-2.1-A refers to a “Piping Schedule” that is supposed to delineate what Domestic water piping materials are to be used in specific locations. Please provide this schedule so we know what material to use where.

Answer: No piping schedule is provided. All piping materials, fittings, etc for 221116 – Domestic Water shall apply to all areas and 221316 for sanitary & vent piping as well as 221413 for storm piping also for all areas.

Question: Specification section 231113 seems to be written around a UST but the drawings show an AST. Please confirm the Storage Tank is Above Ground. The section is also missing information on the AST including size, gallon rating, material for the tank etc.

Answer: The Tank is AST and details of the tank are specified on drawings.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

A COPY OF THIS AMMENDMENT MUST BE RETURNED WITH YOUR BID

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ATTACHMENT I

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. Steel pipes and fittings.
- 2. Transition fittings.
- 3. Cased piping system.

- B. Related Sections:

- 1. Section 230553 - Identification for HVAC Piping And Equipment.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing hydronic piping systems with the following minimum working-pressure ratings:

- 1. Chilled-Water Piping: 150 psigat 105 deg F.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:

- 1. Cased piping.

- B. Shop Drawings: For underground hydronic piping. Signed and sealed by a professional engineer.

- 1. Calculate requirements for expansion compensation for underground piping.
- 2. Show expansion compensators, offsets, and loops with appropriate materials to allow piping movement in the required locations. Show anchors and guides that restrain piping movement with calculated loads, and show concrete thrust block dimensions.
- 3. Show pipe sizes, locations, and elevations. Show piping in trench, conduit, and cased pipe with details showing clearances between piping, and show insulation thickness.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.

- B. Welding certificates.
- C. Material Test Reports: For cased piping.
- D. Source quality-control reports.
- E. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX.
 - 1. Comply with provisions in ASME B31.9, "Building Services Piping."
 - 2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
- B. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.

PART 2 - PRODUCTS

2.1 STEEL PIPES AND FITTINGS

- A. Steel Pipe: ASTM A 53/A 53M, black with plain ends; type, grade, and wall thickness as indicated in "Piping Application" Article.
- B. Cast-Iron Pipe Flanges and Flanged Fittings: ASME B16.1, Class 125; raised ground face, and bolt holes spot faced.
- C. Steel Welding Fittings: ASME B16.9, seamless or welded.
 - 1. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
- D. Nipples: ASTM A 733, made of same materials and wall thicknesses as pipe in which they are installed.
- E. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.
 - 1. ASME B16.21, nonmetallic, flat, asbestos free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
 - a. Full-Face Type: For flat-face, Class 125, cast-iron and -bronze flanges.
 - b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.
- F. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

2.2 CASED PIPING SYSTEM

- A. Description: Factory-fabricated piping with carrier pipe, insulation, and casing.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Energy Task Force, LLC.

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- b. Insul-Tek Piping Systems, Inc.
 - c. Perma-Pipe, Inc.
 - d. Thermacor Process, L.P.
 - e. Thermal Pipe Systems.
- B. Carrier Pipe: Schedule 40, Standard-weight, steel pipe and fittings
- C. Carrier Pipe Insulation:
- 1. Polyurethane Foam Pipe Insulation: Rigid, cellular, high-pressure injected between carrier pipe and jacket.
 - a. Comply with ASTM C 591; thermal conductivity (k-value) shall not exceed 0.14 Btu x in./h x sq. ft. x deg F at 75 deg F after 180 days of aging.
- D. Casing: HDPE.
- E. Casing accessories include the following:
- 1. Joint Kit: Half-shell, pourable or split insulation, casing sleeve, and shrink-wrap sleeve.
 - 2. Expansion Blanket: Elastomeric foam, formed to fit over piping.
 - 3. End Seals: Shrink wrap the casing material to seal watertight around casing and carrier pipe.
- F. Manholes: Black steel with lifting eyes.
- 1. Finish: Spray-applied urethane, minimum 30 milsthick.
 - 2. Access: 30-inch-diameter waterproof cover with gasket, ladder, and two 6-inch vents, one high and one low, extending above grade with rain caps.
 - 3. Conduit Stub-Outs and Seals: Welded steel with drain and vent openings.
 - 4. Sump: 12 inches in diameter, 12 inches deep.
 - 5. Floatation Anchor: Oversized bottom keyed into concrete base.
- G. Source Quality Control: Factory test the carrier pipe to 150 percent of the operating pressure of system. Furnish test certificates.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. See Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING APPLICATION

A. Chilled-Water Piping:

- 1. NPS 10 inch and smaller shall be the following:
 - a. Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
- 2. NPS 12 inch and larger shall be the following:
 - a. Standard-Weight steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.
- 3. Cased piping with polyurethane carrier-pipe insulation.

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- a. Piping Insulation Thickness: 3 inches.

3.3 PIPING INSTALLATION

- A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicate piping locations and arrangements if such were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.
- B. Remove standing water in the bottom of trench.
- C. Do not backfill piping trench until field quality-control testing has been completed and results approved.
- D. Install manual air vents at high points.
- E. Install components with pressure rating equal to or greater than system operating pressure.
- F. Install piping free of sags and bends.
- G. Install fittings for changes in direction and branch connections.
- H. See Section 230517 "Sleeves and Sleeve Seals for HVAC Piping" for sleeves and mechanical sleeve seals through exterior building walls.
- I. Secure anchors with concrete thrust blocks. Concrete is specified in Section 033000 "Cast-in-Place Concrete."
- J. See paragraph entitled "PROTECTION" in this section for uninsulated underground piping protection

3.4 PROTECTION

- A. Underground Coating: Unless otherwise noted, paint all uninsulated piping underground except cast or ductile iron or PVC with two coats of asphaltic paint. Manual wiping is not acceptable.
- B. Protective Wrap: Wrap pipe that touches metal or is exposed to masonry with a layer of 6 mil polyethylene film or 15 lb. felt.
- C. Pipe Embedded in Concrete: Spirally wrap all pipe lines embedded in concrete with two layers of 30 lb. felt.
- D. Thread Protection: Coat all exposed threads on galvanized steel pipe after assembly with two coats of zinc chromate. Remove pipe thread lubricants prior to applying paint.
- E. Cathodic Protection: Cathodic protection for underground metal piping and equipment shall be provided by furnishing and installing insulating couplings, flanges, protective coatings, sand envelopes, and sacrificial anodes. After underground piping systems with protective covering have been installed, test for electrical insulation. Make necessary modifications and corrections to any system not electrically isolated. Provide packaged anodes complete with test stations electrically connected with "Cadwelds" to the buried materials and/or equipment. The location, weight and material of the anodes shall be as indicated on the drawings, or shall be installed in alternate locations that are acceptable to the Architect. The cathodic protection system shall be designed and installed as a complete system.

3.5 JOINT CONSTRUCTION

- A. See Section 330500 "Common Work Results for Utilities" for basic piping joint construction.
- B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to "Quality Assurance" Article.

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- E. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
 - F. Cased Piping Joints: Assemble sections and finish joints with pourable or split insulation and exterior jacket sleeve, and apply shrink-wrap seals.

3.6 IDENTIFICATION

- A. Install continuous plastic underground warning tapes during back filling of trenches for underground hydronic piping. Locate tapes 6 to 8 inches below finished grade, directly over piping. See Section 312000 "Earth Moving" for warning-tape materials and devices and their installation.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
 - 2. Hydrostatic Tests: shall only be performed on piping being filled with water, and intended to remain filled. Piping shall not be drained and left empty.
 - 3. Pneumatic Tests: shall be performed on underground piping intended to be installed, tested, and remain empty until connected to the active piping system.
- D. Tests and Inspections:
 - 1. Prepare all underground piping for tests by providing joint weld inspections according to ASME B31.1 as follows:
 - a. Non-destructive examination in accordance with Table 136.4, for all joint weld types, pressures, and temperatures, provide RT – Radiographic examination.
 - b. Radiography examination shall be performed in accordance with Article 2, Section V of the ASME 31.1 code. Acceptance standards: cracks or zones of incomplete fusion discontinuities will be unacceptable per the code tolerances.
 - 2. Prepare hydronic piping for hydrostatic testing according to ASME B31.9 and as follows:
 - a. Leave joints, including welds, uninsulated and exposed for examination during test.
 - b. Fill system with water. Where there is risk of freezing, air or a safe, compatible liquid may be used.
 - c. Use vents installed at high points to release trapped air while filling system.
 - 3. Hydrostatic test hydronic piping as follows:
 - a. Subject hydronic piping to hydrostatic test pressure that is not less than 1.5 times the design pressure.
 - b. After hydrostatic test pressure has been applied for 10 minutes, examine joints for leakage. Remake leaking joints using new materials and repeat hydrostatic test until no leaks exist.
 - 4. Prepare hydronic piping for pneumatic testing according to ASME B31.9 and as follows:
 - a. Leave joints, including welds, uninsulated and exposed for examination during test.
 - b. Fill system with 10 psig of nitrogen. Inspect pressure gauge for major leaks.
 - c. Use vents installed at high points to vent ambient air while filling system.
 - 5. Pneumatically test hydronic piping as follows:

- a. Subject hydronic piping to pneumatic test pressure that is not less than 1.25 times the design pressure. Pressure shall be applied in 25% stages to allow for equilibrium at each stage. Valves, pumps, and all components connected to the piping system shall be rated for the pneumatic test pressure.
 - b. After pneumatic test pressure has been applied for 10 minutes, examine joints for leakage. Remake leaking joints using new materials and repeat pneumatic test until no leaks exist.
- E. Prepare test and inspection reports.

*** END OF SECTION ***