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MECHANICAL AND ELECTRICAL ENGINEERS:

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ADDENDUM # 3

Issue Date: 04 SEPTEMBER 2012

Bid Due Date: 11 SEPTEMBER 2112 No Change

Contract Documents for:

LONG TERM/INTERMEDIATE PSYCH UNIT

4801 Veterans Drive
St. Cloud, Mn.

for:

OWNER:

VA MEDICAL CENTER – ST. CLOUD

4801 Veterans Drive
St. Cloud, Mn.

Attachments:

Specification Sections: NONE

Partial Drawing Sheets: NONE

Full Drawing Sheets: C401

Architect Commission No.: 2032.001.01

To: Prospective Bidders and other Project Manual Holders

The provisions in the Contract Documents issued 15 MARCH 2012 apply to this addendum.

This Addendum forms a part of the *Contract Documents* and Modifies the *Original Bidding Documents* and all previously issued *Addendum*. [Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.]

This Addendum consists of this Document, ending at the words "END OF ADDENDUM", and the listed attachments:

Item Numbers are in the following configuration:

Addendum # ==>@
Item # ==>-1.

A
D
D
E
N I
D T
U E
M M

DESCRIPTION

CHANGES TO PRIOR ADDENDA

@-1. (NONE)

CHANGES TO BIDDING REQUIREMENTS

@-2. (NONE)

CHANGES TO CONDITIONS OF THE CONTRACT

@-3. (NONE)

CHANGES TO PROJECT MANUAL

<u>DOCUMENT</u>	<u>(NOT REISSUED) (REISSUED)</u>
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REVISIONS

<u>SECTION 00 01 00 TABLE OF CONTENTS- VOLUME TWO</u>	<u>NEW SECTION ISSUED</u>
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@-4. ADD the following to DIVISION 23:

6. **Section 23 06 56 GEOTHERMAL LOOP FIELD HEADER EXTENSION AND CONNECTION TO BUILDING**

<u>SECTION 09 51 00 ACOUSICAL CEILINGS</u>	<u>NOT REISSUED</u>
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@-5. REVISE 2.8. A. 6. to read:

6. Lay-in Panels: Sizes as shown, with **beveled tegular edges.**

@-6. ADD to 2.8 B.: **Basis of design is Armstrong or approved equal.**

<u>SECTION 23 21 13 HYDRONIC PIPING</u>	<u>NOT REISSUED</u>
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@-7. REVISE 2.3 B. to read:

B. 65 mm (2- 1/2inches) and Larger: Welded or flanged joints. Contractor's option:
Grooved mechanical couplings and fittings are NOT PERMITTED.

CHANGES TO DRAWINGS

CIVIL

<u>SHEET C401 UTILITY PLAN</u>	<u>REISSUED</u>
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@-8. Well Field connection information added.

A
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DESCRIPTION

INTERIORS

SHEET I000 ROOM FINISH SCHEDULE AND SPECIFICATIONS

NOT REISSUED

- @-9. FINISH LIST – BASIS OF DESIGN : Add the following to ACOUSTICAL CEILINGS:
1. MANUFACTURER; ARMSTRONG ULTIMA BEVELED TEGULAR **OR APPROVED EQUAL.**

END OF ADDENDUM #3

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SECTION 23 06 56
GEOHERMAL LOOP FIELD HEADER EXTENSION AND CONNECTION TO BUILDING

PART 1 - GENERAL

1.1 SCOPE OF WORK:

- A. Owner Furnished Information - The contents of this specification are based on information supplied by the Owner for the in place geothermal system. Verify in place conditions and materials in the field for extension and connection of the geothermal system. Implement provisions required to construct a compliant system for header extensions and connections.
- B. Furnish all labor, equipment, supplies and all materials and perform all operations necessary to extend and connect supply and return headers to the Long Term/Intermediate Psychiatric Unit Building for the closed-loop geothermal loop field system work as hereinafter described and shown on the accompanying drawings.
- C. This work shall be in accordance with this and other applicable sections and/or provisions of these specifications and with the applicable drawings.

1.2 RELATED WORK UNDER OTHER SECTIONS

- A. Connections to the heat pump piping system in the mechanical room shall be made under this section using adapter fittings as needed.
- B. Coordinate construction, materials, testing and startup and commissioning requirements with the mechanical system plans and specifications.

PART 2 - PRODUCTS

2.1 GEOTHERMAL PIPE:

- A. The pipe shall be PE3408 HDPE with a minimum cell classification of 45434C per ASTM D3035-93 and a minimum of DR15.5 (110 psi) for header pipe greater than 2 inch in diameter. This pipe will carry a warranty of no less than 25 years.
- B. Each pipe shall be permanently indent marked with the manufacturer's name, nominal size, pressure rating, relevant ASTM standards, cell classification number and date of manufacture.

2.2 FITTINGS:

- A. Pipe fittings shall meet the requirements of ASTM D2683 (for socket fusion fittings) or ASTM D3261 (for butt/saddle fusion fittings). Each fitting shall be identified with the manufacturer's name, nominal size, pressure rating, relevant ASTM standards and date of manufacturer.

2.3 GEOTHERMAL LOOP FIELD HEADERS:

- A. Horizontal trenches for the header piping shall be excavated for 6 feet of cover over header pipes. Trenches shall be dug 6" deeper than required and install a base of 6" of compacted rock-free backfill. Clean out all debris from trench before placing pipe.

- B. After the piping is installed, tested, flushed, purged, inspected and approved, backfill with 6" layers of rock free backfill. Coordinate the laying of the header piping with existing and new mechanical and electrical utilities.
- C. Prepare complete dimensioned drawing of geothermal loop field header extensions and connections to the building before backfilling. Locate field corners with buried steel rebar markers.

2.4 LOCATING TAPE:

- A. Locating tape must be foil backed, two inches wide or greater, with a continuous message printed every 36 inches or less reading: "CAUTION GEOTHERMAL PIPELINE BURIED BELOW". The tape shall be highly resistant to alkalis, acids, and other destructive agents found in the ground.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPING:

- A. Sheathing and shoring shall be done as necessary for protection of work and personnel safety. Unless otherwise indicated, excavation shall be open cut except for short sections. The contractor shall install geothermal locating tape 18 inches above all horizontal/header piping.

3.2 EXCAVATION, TRENCHING AND BACKFILLING:

- A. Excavation and Trenching: The bottom of trenches shall be tamped hard and graded to secure required fall. Bell holes shall be excavated so that pipe shall rest on solid ground for its entire length. Rock, where encountered, shall be excavated to a depth of six (6) inches below the bottom of the pipe, and before pipe is laid, the space between the bottom of the pipe and the rock surface shall be filled with gravel. All surplus excavating materials shall be removed from the job site to location directed by the Construction Manager.
- B. Filling and Backfilling - Exterior: Remove all debris from excavation before backfilling and do not proceed with backfill work until directed by Construction Manager. Backfill shall be free from plaster, bats or other debris and shall be placed in layers not exceeding 9" properly moistened and machine tamped to sufficient density that will prevent settlement or shrinkage. Rough backfill near building shall be terminated 4" below finish grade line to allow for topsoil application by the General Contractor.
- C. Filling and Backfilling - Interior: At areas below concrete floor slab on ground, a sandy loam backfill shall be placed in 6" layers and thoroughly compacted by approved means at optimum moisture to a density of 95% of Standard Proctor Density. Sandy loam fill shall contain no more than 10% of clay and/or silt. Fill shall not contain gravel particles larger than ½". Material for backfill shall be approved by Construction Manager and by an approved testing laboratory.

- D. Tests shall be made at expense of the Contractor by an approved testing laboratory, to determine adequacy of compaction. These tests shall be made during the compaction operation at various levels to insure uniformity of compaction and test reports shall show elevation as well as location of tests. The testing laboratory inspector shall be on the site at intervals during all major backfilling operations. Compaction tests shall be made at locations as directed by Construction Manager.
- E. Cracked and/or damaged floor slabs, walls or partitions resulting from improper compaction of fill materials shall be repaired or replaced, as directed by Construction Manager, at the Contractor's expense.

3.3 TESTING AND CLEANING:

- A. Cleanliness: During installation, trash, soil and small animals shall be kept out of the pipe. Ends of pipe shall be taped or capped until the pipe is joined to the circuit.

3.4 FLUSHING AND PURGING THE SYSTEM:

- A. Before backfilling the trenches, all systems shall be flushed and purged of air and flow tested to ensure all portions of the heat exchanger are properly flowing. A portable temporary purging unit shall be utilized and shall consist of the following: purge pump - high volume and high head; open reservoir; filter assembly with by-pass; flow meter; pressure gage; connecting piping; and connection hoses.
- B. Using the purging unit described above flush and purge each geothermal loop until free of air, dirt and debris. A velocity of 2 ft/sec. is required in all pipe sections to remove the air. This flushing and purging operation should be conducted with the water source heat pump piping isolated with shut off valves. After the geothermal loop field is completely flushed of air and debris, open the isolation valves and permit circulation through the heat pump portion of the system until the entire system is flushed and purged.
- C. Utilizing the purging unit, conduct a pressure and flow test on the geothermal loop heat exchanger to ensure the system is free of blockage.
- D. A final static pressure test shall be performed after all headers have been connected to the heat pump piping system. The entire system shall be subject to a 100 psig pressure test. The valves on each loop field header shall be closed and the contained pressure in each header shall not drop off over a 24 hour period.
- E. Coordinate construction activities outlined in this paragraph with mechanical and thermal well field contractors.

3.5 SYSTEM STARTUP:

- A. Contractor shall coordinate start-up activity with the geothermal well field contractor. Starting and testing of the circulating pumps, making adjustments, etc., will be done during this period to assure complete and trouble free operation of the total system.

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