



Addendum No.: 3

Date Of Addendum: June 16, 2017

CT DAS • Construction Services • Process Management and Procurement Unit

Capitol Area System (CAS) Extension
101 Lafayette Street
Hartford, CT 06106
BI – 2B – 393

Original Bid Due Date / Time:

June 21, 2017

1:00 PM

Previous Addendums: Addendum #2 dated June 09, 2017, Addendum #1 dated May 31, 2017

TO: Prospective Bid Proposers:

This Addendum forms part of the "Contract Documents" and modifies or clarifies the original "Contract Documents" for this Project dated 05/02/2017. Prospective Bid Proposers shall acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form.

Failure to acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form shall subject Bid Proposers to disqualification.

The following clarifications are applicable to drawings and specifications for the project referenced above.

Item 1:

Question: Was there a typo on the commissioning requirements of 10 working weeks to perform startup and commissioning located in Specification Section 235700.01 page 4. Does this mean 10 working Days which is 2 working weeks? I am assuming that these durations start after the 150 calendar days?

Answer: There is a typo. The requirement should read 10 working "days." Commissioning shall commence once Substantial Completion is achieved.

Item 2:

Question: I have a question about the 30 day endurance test, and the acceptance test for the heat exchanger located in Specification Section 235700.01 page 17 and 18. I am assuming that these tests will happen after the 150 calendar days and after the initial startup and commissioning?

Answer: The endurance test period outlined in section 235700.01, Part 3.3.B occurs after start-up and commissioning. Commissioning needs to commence after substantial completion is achieved.

Item 3:

Question: Is there a location shown for the leak detection panel for the pre-insulated system if there is not, please provide a location for the Leak Detection Panel so the electrical contractors know where to run the conduit and wire to.

Answer: No panel is required. Refer to response to item #12.

Item 4:

Question: Is there a costs associated with using the PMWeb you described in the specification? If there is do you know how much it will cost?

Answer: Refer to Specification Section 01 12 19 F for all requirements associated with PMWeb. Costs for utilizing and attending training for PMWeb as the project management collaborative software tool as described in this section must be included with the proposals by the bidding contractors. There are no costs associated with PMWeb licenses that are the responsibility of the contractors.

Item 5:

Question: Drawing ME1.00 note 4, states that we are to coordinate shut down of existing CHWS+R mains on Oak Street with CAS a minimum of (2) weeks prior to commencement of work. Will CAS be responsible for fully draining system so that new tee connections can be welded to existing CHWS+R mains?

Answer: CAS will be responsible for isolation and draining of CHWS&R lines as required.

Item 6:

Question: Will new pipe trenches be allowed to be left open during business hours or will they have to be backfilled daily? Can road plates be used in lieu of backfilling?

Answer: Refer to Specification Section 011100 "Summary of Work," item E.6.

**Addendum No.: 3****Date Of Addendum: June 16, 2017****Item 7:**

Question: Please confirm if a substitute product for the underground piping system can be manufactured by Thermacor Process, Inc. Please see attached Form 7001 Substitute Product Request form. The anticipated lead time schedule is similar to Perma-Pipe.

Answer: Per section 232113.13 "Underground and Exterior Hydronic Piping" Part 2.1.A, the pipe manufacturer shall be Perma-Pipe with no exceptions.

Item 8:

Question: At approximately station 2+00 there are (6) 4 foot manholes within very close proximity of each other. It is my understanding that 4 foot manholes detail (as shown on C2.01) may not be necessary for this application and a smaller manhole can be utilized. The concern is the manholes being in such a congested area within the parking area. If you place a qty of 6 at 4' round we are talking about a minimum of a 15' area with manhole covers. If this detail is incorrect can you please let us know what size manhole we need to provide ASAP.

Answer: Detail is correct. Four (4) foot manholes are required for full valve access.

Item 9:

Question: Do we need to scan the slabs for re-bar before we install the concrete anchors underside of the concrete slabs?

Answer: Scanning of slabs is not required. Refer to response to item #14.

Item 10:

Specification Section 232113.13 has been modified to call for 100% visual inspection by an independent testing agency with only 10% requiring x-ray (5% below grade and 5% above grade). The language has been modified to be clear that the contractor shall engage the services of a factory authorized service representative for installation compliance and an independent testing agency for weld quality certification. Refer to attached revised Specification Section 232113.13 "Underground and Exterior Hydronic Piping."

Item 11:

Question: For the "ETS Change-Over & Status Panel", I assume the status lights are actual lights and the "Components" is a label next to light indicators and not icons on a touch screen. Under same header from #2 above, the "System Wiring Diagram", is this meant to be a graphic on screen that has light indications on the valves and pumps to show status or something else?

Answer: For the "ETS Change-over & Status Panel", the intent is for the lights to be actual lights with the "components" as labels (not icons on a touch screen). The "Systems Wiring Diagram" is intended to be a label with a graphic of the system wiring and not a screen graphic.

Item 12:

Question: I have Several RFI's on the Perma-Pipe product.

- 1) The Spec Call for Perma-Pipe Xtru-Therm with ATP Electrical Heat Trace
 - a) We will be Providing the Xtru-Therm Product but the ATP Wire is for Leak Detection not Heat Trace This should be changed to say Leak Detection.
 - b) The ATP wire will require a Leak Detection Panel. The AT-30K is the Model # of the Panel That should be used with this Leak Detection Cable. The Contract will need to know this so he can provide 120 volt to the Panel and labor to mount the panel and hook up to the Pipe's Leak detection cable.
- 2) The Spec calls out the Finish on the Pipe to be Fusion-Bond Epoxy 20 Mils Thick. It will Be Epoxy 20 Mils Thick but it is Not Fusion Bond it is a 2 Part Factory Applied By Perma-Pipe.
- 3) The Spec Talks About Pipe Supports & Conduit. This is Not Applicable to the Xtru-Therm Product. Should be removed from the spec.

Answer: In Specification Section 232113.13, the intent of the ATP wire is to provide the leak detection conduit and ATP wire for future connection to a panel if desired by the owner. The specification has been corrected to read "leak detection" instead of "heat trace" and clarified that a panel is not required, but wire must be provided to allow for future connection. A correction has also been made to the pipe finish to read "two part factory applied" instead of "fusion bonded." References to "pipe supports & conduit" and other accessories not applicable for this project have been deleted. The 1" thickness for chilled water and 2" thickness for hot water insulation specified in this section are the minimum required by code from table 6.8.3 in ASHRAE 90.1.

Item 13:

The trench details have been modified to address the two trench conditions on this project. Refer to attached sketches SKME1.00-1 and SKC2.01-1.

The intent is to not put a new conduit for communication on the HWSR. No additional communication conduit is required.



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Item 14:

The structural engineer reviewed the piping in the garage during design and has no concerns about the weight of the suspended pipe. The structural engineer also reviewed the attachment to structure detail and support spacing during design and, based on the existing structure information available to us at that time, has no concerns about hitting reinforcement. No existing reinforcement on the ceiling / slab shall be cut as part of this project.

Item 15:

The ETS control system is a stand-alone system and is not required to interface with the existing JCI building control system. The ETS has BACnet capabilities onboard for a future integration with the building control system.

Item 16:

SS 01 22 16 Unit Price Schedule – It is clarified that this Specification Section is "NOT USED" and the associated schedule in this Specification Section is removed.

Item 17:

On Drawing C1.01, for HWSR pipes, all piping is 6". Any references to any other size is incorrect.

All questions must be in writing (not phone or e-mail) and must be forwarded to the consulting Architect/Engineer (AI Engineers, Inc. – John Lloyd via Fax (860) 635-7312) with copies sent to the DAS Project Manager (Sarah Tierney via email to sarah.tierney@ct.gov or fax to (860) 622-2965).

End of Addendum 3

A handwritten signature in cursive script that reads "Mellanee Walton".

Mellanee Walton, Associate Fiscal Administrative Officer
State of Connecticut
Department of Administrative Services, Construction Services
Process Management and Procurement Unit
450 Columbus Boulevard, Suite 1302
Hartford, CT 06103

SECTION 232113.13 - UNDERGROUND AND EXTERIOR HYDRONIC PIPING

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. Pre-insulated below grade and exterior piping.

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 psig at 200 deg F.
 - 2. Hot-Water Piping: 150 psig at 200 deg F.
- B. Install piping per manufacturer's guidelines. Provide anchors and expansion compensation per manufacturer's recommendations. Submit layout drawings with calculations, signed by a professional engineer, for owner and design engineer review and approval. Trench dimensions may vary at anchor and expansion compensation locations. Coordinate with trenching contractor prior to excavation.

1.4 INFORMATIONAL SUBMITTALS

- A. Profile Drawings: Show system piping in elevation. Draw profiles at horizontal scale of not less than 1 inch equals 50 feet and at vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing hydronic piping.
- B. Qualification Data: For qualified Installer.
- C. Welding certificates.
- D. Material Test Reports: For conduit piping.
- E. Source quality-control reports.
- F. Field quality-control reports.

1.5 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.
3. Provide certification that each welder has passed a basic weld test for low stress pipe. The weld test must have been taken within 6 months of the start date of the contract. The basic test shall be similar to the following:

The test is made on pipe 12 inches or less in diameter. The test butt weld shall be made with the pipe in a horizontal fixed position so that the test weld includes at least one section of overhead position welding. The beveling, root opening, and other details must conform to the specifications of the procedure under which the welder is being qualified. Upon completion, the test weld is cut into four coupons and subjected to a root bend test. If, as a result of this test, two or more of the four coupons develop a crack in the weld material, or between the weld material and base metal, that is more than 1/8 -inch long in any direction, the weld is unacceptable. Cracks that occur on the corner of the specimen during testing are not considered. A welder who successfully passes a butt weld qualification test under this section shall be qualified to weld on all pipe diameters less than or equal to 12 inches.

- B. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.

PART 2 - PRODUCTS

2.1 PRE-INSULATED PIPING SYSTEM

- A. Description: Factory-fabricated and -assembled, airtight and watertight, drainable, pressure-tested piping.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Perma-Pipe, Inc., XTRU-THERM with PermAlert ATP leak detection (**No exceptions**). **Note: Control panel for leak detection is not required. Leak detection wiring is being provided to allow for monitoring at a future date.**

- B. Pipe: Schedule 40, seamless steel pipe and fittings.

- C. Pipe Insulation:

1. Polyurethane Foam Pipe Insulation: Unfaced, preformed, rigid cellular polyurethane material intended for use as thermal insulation.

- a. Comply with ASTM C 591, Type I or Type IV, except thermal conductivity (k-value) shall not exceed 0.19 Btu x in./h x sq. ft. x deg F at 75 deg F after 180 days of aging.
 - b. Flame-spread index shall be 25 or less and smoke-developed index shall be 50 or less for thickness up to 1-1/2 inches as tested by ASTM E 84.
 - c. Fabricate shapes according to ASTM C 450 and ASTM C 585.
- D. Seamless HDPE Jacket.
1. Finish: With two coats of factory applied epoxy, minimum 20 mils thick.
 2. Cover: HDPE seamless jacket in accordance with ASTM D1248, type 3, Class C with minimal thickness of 0.125 inches.
 3. Fittings: Factory-fabricated and -insulated elbows and tees. Elbows may be bent pipe equal to carrier pipe. Tees shall be factory fabricated and insulated, and shall be compatible with the carrier pipe.
 4. Expansion Offsets and Loops: Size casing to contain piping expansion.
 5. Accessories include the following:
 - a. Guides and Anchors: Steel plate welded to carrier pipes and to casing, complete with vent and drainage openings inside casing.
 - b. Joint Kit: Half-shell, pourable or split insulation and shrink-wrap sleeve.
- E. Source Quality Control: Factory test conduit to 15 psig for a minimum of two minutes with no change in pressure. Factory test 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

1. Pre-insulated piping.
 - a. Piping Insulation Thickness:
 - 1) Chilled Water: 1 inch.
 - 2) Hot Water: 2 inch.

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 piping at uniform grade of 0.2 percent. Install drains, consisting of a tee fitting, NPS 3/4 ball valve, and short NPS 3/4 threaded nipple with cap, at low points and elsewhere as required for system drainage. Install manual air vents at high points.
- E. In conduits, install drain valves at low points and manual air vents at high points.
- F. Install components with pressure rating equal to or greater than system operating pressure.
- G. Install piping free of sags and bends.
- H. Install fittings for changes in direction and branch connections.
- I. Install anchors per manufacturer's layout drawings.

3.4 IDENTIFICATION

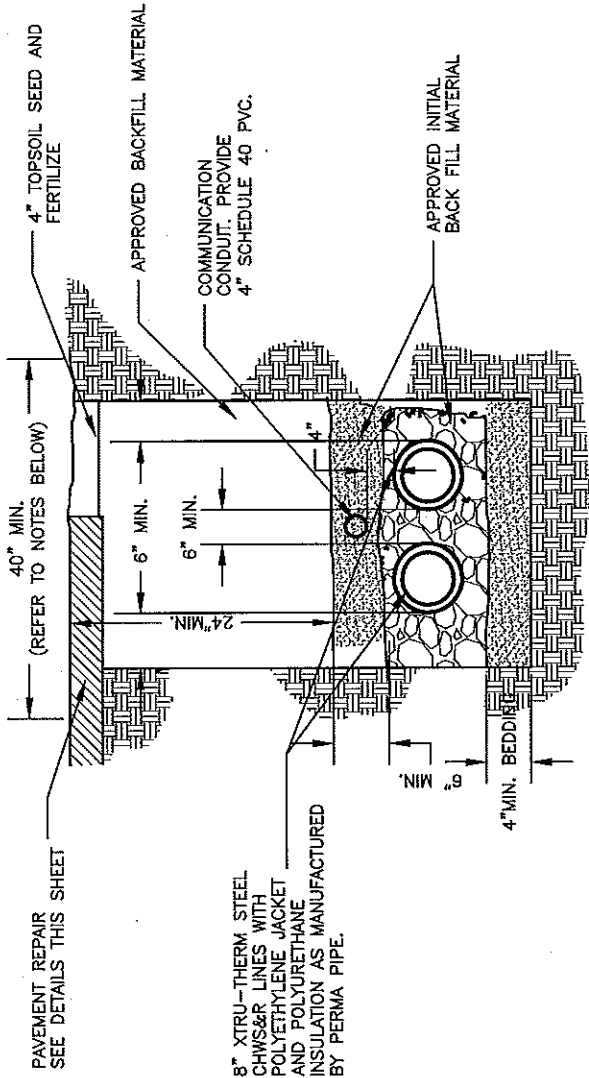
- A. Install continuous plastic underground warning tapes during back filling of trenches for underground hydronic piping. Locate tapes 6 to 8 inches below finished grade, directly over piping. See Section 312000 "Earth Moving" for warning-tape materials and devices and their installation.

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Contractor shall engage a factory-authorized service representative of the piping and valve manufacturers to inspect, and adjust components, assemblies, and equipment installations, including connections, and supervision of all field joint installations.
 - 1. The factory representative shall issue a written acceptance of the installation of all piping components on behalf of the appropriate manufacturer.
- B. Provide welding tests and inspections.
 - 1. Independent Testing Agency: Contractor shall engage an independent testing agency to perform the following weld acceptance testing:
 - a. Acceptance criteria shall be per API 1104 section 9 and CFR 195.228.
 - b. Visual inspection of 100% of all joints.
 - c. Radiographic testing of 10% of all piping joints. The joints shall be selected randomly from two lots: 5% from below grade piping and 5% from above grade piping.
 - d. Re-weld any joint using new material if deficiencies in welds at that joint are determined.

- C. Provide hydronic tests and inspections:
1. Independent Testing Agency: Contractor shall engage an Independent Testing Agency to observe and document all hydronic testing.
 2. Prepare hydronic piping for 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. 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.
- D. Prepare and submit test and inspection reports. Note any deficiencies observed and corrective actions taken.


END OF SECTION 232113.13

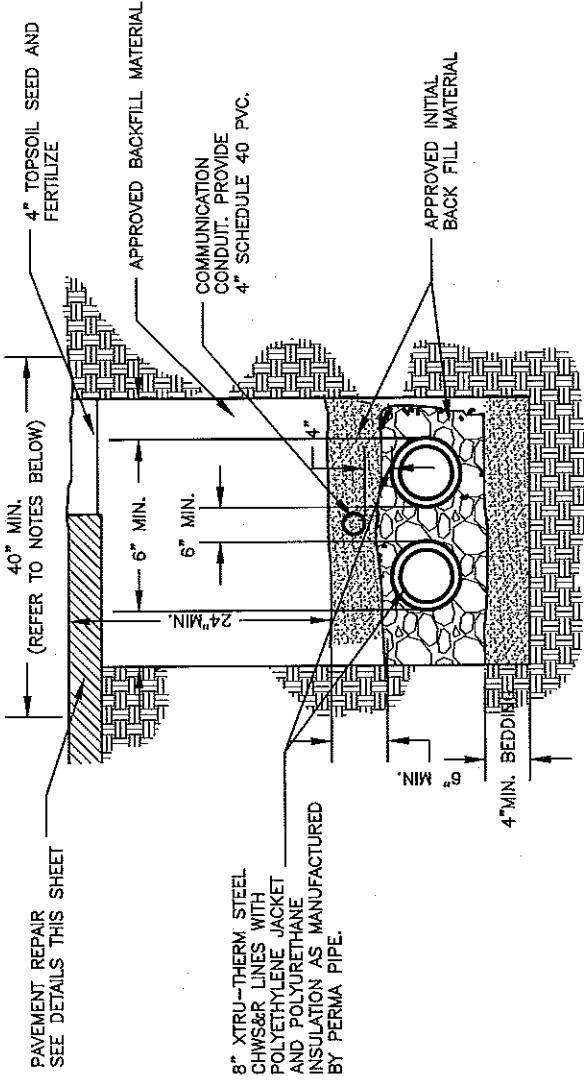


NOTES:

1. DETAIL DEPICTS TWO PIPE TRENCH CONDITION (CHILLED WATER SUPPLY AND RETURN ONLY).
2. FOUR PIPE TRENCH CONDITION ALSO OCCURS ON THIS PROJECT (CHILLED WATER SUPPLY AND RETURN AND HOT WATER SUPPLY AND RETURN).
3. MINIMUM TRENCH WIDTH FOR FOUR PIPE CONDITION IS 72".
4. SPACING BETWEEN PIPES IN ALL CONDITIONS IS 6" MINIMUM.
5. SPACING BETWEEN PIPES AND EDGE OF TRENCH IN ALL CONDITIONS IS 6" MINIMUM.
6. TRENCH WIDTH WILL VARY AT PIPE ANCHOR AND EXPANSION COMPENSATION LOCATIONS. COORDINATE WITH APPROVED MANUFACTURER'S LAYOUT DRAWINGS.

TYPICAL TRENCH DETAIL

 AI Engineers, Inc. <small>819 Misco Street Middletown, CT 06457 Telephone: 860-355-7172 Fax: 860-355-7172 www.aiengineers.com</small>	DATE: 06-12-17 SCALE: NTS DRAWN BY: CSG CKD BY: RMD	101 LAFAYETTE ST. CAS SYSTEM EXTENSION HARTFORD, CT CIVIL DETAILS
	SKC2.01-1	



NOTES:

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TYPICAL TRENCH DETAIL

AI Engineers, Inc.
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 Middlebury, VT 05751
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 www.aie.com

DATE:	06-12-17	101 LAFAYETTE ST. CAS SYSTEM EXTENSION HARTFORD, CT
SCALE:	NTS	
DRAWN BY:	CSG	MECHANICAL SITE PLAN
CK'D BY:	RMD	

SKME1.00-1