ADDENDUM NO. 4

TO BID AND CONTRACT DOCUMENTS

FOR

Central Weber Sewer Improvement District

Dewatering Building HVAC Improvements Project

Engineer Project No.: 70123-000

November 26, 2024

LICENSED PROFESSIONAL ENGINEER
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PREPARED BY

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This Addendum No. 4 modifies the Proposal Documents for Central Weber Sewer Improvement District's **Dewatering Building HVAC Improvements Project** and shall become part of the Contract Documents for this Project.

Bidders shall acknowledge receipt of Addenda by number in the space provided for that purpose in Specification Section 00 40 00 – Bid Form.

I. CONTRACT DOCUMENTS: CONTRACT/TECHNICAL SPECIFICATIONS

A. Add Specification Section 22 13 16 – SANITARY WASTE AND VENT PIPING

i. Document is attached.

II. CONTRACT DOCUMENTS: DRAWINGS

A. No Changes

This Addendum, including attachments (if any), shall become part of the Contract and all provisions of the Contract shall apply thereto.

Bidders shall acknowledge receipt of all Addenda by number in the space(s) provided in the Proposal Documents.

Hazen and Sawyer

Chris Thunhorst, P.E.

NO. 11876335-2202

ATTACHMENTS

SECTION 22 13 16
SANITARY WASTE AND VENT PIPING

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section pertains to sanitary sewer and vent systems, including piping, equipment and all necessary accessories as designated in this section.

B. A complete listing of all acronyms and abbreviations are included in Section 22 05 00 – Common Results for Plumbing.

1.02 RELATED WORK

A. Section 00 72 00 – General Conditions

B. Section 01 33 00 – Submittal Procedures

C. Section 01 75 00 – Checkout and Startup Procedures

D. Section 07 90 00 – Joint Fillers, Sealants and Caulking: Sealant Products

E. Section 09 90 00 – Painting: Preparation and Finish Painting and Identification of Piping Systems.

F. Section 22 05 00 – Common Results for Plumbing: Pipe Hangers and Supports, Materials Identification.

G. Section 22 07 19 – Plumbing Piping Insulation

H. Section 26 05 26 – Grounding and Bonding for Electrical Systems

I. Section 26 05 33.13 – Conduit for Electrical Systems

J. Section 26 05 33.16 – Boxes for Electrical Systems

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society of Mechanical Engineers (ASME):

1. A13.1-2007 – Scheme for the Identification of Piping Systems

2. A112.36.2M-1991(R 2012) – Cleanouts

032819

3. A112.6.3-2001 (R2007) – Standard for Floor and Trench Drains

4. B1.20.1-2013 – Pipe Threads, General Purpose (Inch)

5. B16.1-2010 – Gray Iron Pipe Flanges and Flanged Fittings

6. B16.4-2011 – Standard for Grey Iron Threaded Fittings Classes 125 and 250

7. B16.15-2013 – Cast Copper Alloy Threaded Fittings, Classes 125 and 250

8. B16.18-2012 – Cast Copper Alloy Solder Joint Pressure Fittings

9. B16.21-2011 – Nonmetallic Flat Gaskets for Pipe Flanges

10. B16.22-2013 – Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings

11. B16.23-2011 – Cast Copper Alloy Solder Joint Drainage Fittings: DWV

12. B16.24-2001 (R2006) – Cast Copper Alloy Pipe Flanges and Flanged Fittings

13. B16.29-2012 – Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings: DWV

14. B16.39-2009 – Malleable Iron Threaded Pipe Unions Classes 150, 250, and 300

15. B18.2.1-2012 – Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)

C. American Society of Sanitary Engineers (ASSE):

1. 1001-2008 – Performance Requirements for Atmospheric Type Vacuum Breakers

2. 1018-2001 – Performance Requirements for Trap Seal Primer Valves – Potable Water Supplied

3. 1044-2001 – Performance Requirements for Trap Seal Primer Devices – Drainage Types and Electronic Design Types

4. 1079-2012 – Performance Requirements for Dielectric Pipe Unions

D. American Society for Testing and Materials (ASTM):

1. D1785-2012 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

2. D2321-2011 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

3. D2564-2012 – Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems

4. D2665-2012 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings

5. D2855-1996 (R 2010) – Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings

6. D5926-2011 – Standard Specification for Poly(Vinyl Chloride) (PVC) Gaskets for Drain, Waste, and Vent (DWV), Sewer, Sanitary, and Storm Plumbing Systems

7. F402-2005 (R 2012) – Standard Practice for Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings

8. F477-2010 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

9. F1545-1997 (R 2009) – Standard Specification for Plastic-Lined Ferrous Metal Pipe, Fittings, and Flanges

E. International Code Council (ICC):

1. IPC-2012 – International Plumbing Code

F. Manufacturers Standardization Society (MSS):

1. SP-123-2013 – Non-Ferrous Threaded and Solder-Joint Unions for Use With Copper Water Tube

G. National Fire Protection Association (NFPA):

1. 70-2014 – National Electrical Code (NEC)

H. Plumbing and Drainage Institute (PDI):

1. WH-201 (R 2010) – Water Hammer Arrestors Standard

I. Underwriters' Laboratories, Inc. (UL):

1. 508-99 (R2013) – Standard for Industrial Control Equipment

1.04 SUBMITTALS

A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 00 – Submittal Procedures.

B. Information and material submitted under this Section shall be marked “SUBMITTED UNDER SECTION 22 13 16 – SANITARY WASTE AND VENT PIPING”, with applicable paragraph identification.

C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, and capacity.

1. Piping

2. Floor Drains

3. Grease Removal Unit

4. Cleanouts

5. Trap Seal Protection

6. Penetration Sleeves

7. Pipe Fittings

8. Traps

9. Exposed Piping and Fittings

D. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane or the floor drain.

1.05 AS-BUILT DOCUMENTATION

A. The installing contractor shall maintain as-built drawings of each completed phase for verification; and, shall provide the complete set at the time of final systems certification testing. As-built drawings are to be provided, and a copy of them on Auto-Cad version 2022 or newer provided on compact disk or DVD. Should the installing contractor engage the testing company to provide as-built or any portion thereof, it shall not be deemed a conflict of interest or breach of the ‘third party testing company’ requirement.

B. Certification documentation shall be provided prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and a certification that all results of tests were within limits specified.

PART 2 – PRODUCTS

2.01 SANITARY WASTE, DRAIN, AND VENT PIPING

Polyvinyl Chloride (PVC)

1. Polyvinyl chloride (PVC) pipe and fittings are permitted where the waste temperature is below 140 degrees F.

2. PVC piping and fittings shall NOT be used for the following applications:

    a. Waste collected from steam condensate drains.

    b. Spaces such as mechanical equipment rooms, kitchens, Sterile Processing Services, sterilizer areas, and areas designated for sleep.

    c. Vertical waste and soil stacks serving more than two floors.

    d. Exposed in mechanical equipment rooms.

    e. Exposed inside of ceiling return plenums.

3. Polyvinyl chloride sanitary waste, drain, and vent pipe and fittings shall be solid core sewer piping conforming to ASTM D2665, sewer and drain series with ends for solvent cemented joints.

4. Fittings: PVC fittings shall be solvent welded socket type using solvent cement conforming to ASTM D2564.

5. B813.

2.02 SPECIALTY PIPE FITTINGS

A. Transition pipe couplings shall join piping with small differences in outside diameters or different materials. End connections shall be of the same size and compatible with the pipes being joined. The transition coupling shall be elastomeric, sleeve type reducing or transition pattern and include shear and corrosion resistant metal, tension band and tightening mechanism on each end. The transition coupling sleeve coupling shall be of the following material:

    1. For PVC soil pipes, the sleeve material shall be elastomeric seal or PVC, conforming to ASTM F477 or ASTM D5926.

    2. For dissimilar pipes, the sleeve material shall be PVC conforming to ASTM D5926, or other material compatible with the pipe materials being joined.

B. The dielectric fittings shall conform to ASSE 1079 with a pressure rating of 125 psig at a minimum temperature of 180 degrees F. The end connection shall be solder joint copper alloy and threaded ferrous.

C. Dielectric flange insulating kits shall be of non-conducting materials for field assembly of companion flanges with a pressure rating of 150 psig. The gasket shall be neoprene or phenolic. The bolt sleeves shall be phenolic or polyethylene. The washers shall be phenolic with steel backing washers.

D. The di-electric nipples shall be electroplated steel nipple complying with ASTM F1545 with a pressure rating of 300 psig at 225 degrees F. The end connection shall be male threaded. The lining shall be inert and noncorrosive propylene.

2.03 CLEANOUTS

A. Cleanouts shall be the same size as the pipe, up to 4 inches; and not less than 4 inches for larger pipe. Cleanouts shall be easily accessible and shall be gastight and watertight. Minimum clearance of 24 inches shall be provided for clearing a clogged sanitary line.

B. Floor cleanouts shall be gray iron housing with clamping device and round, secured, scoriated, gray iron cover conforming to ASME A112.36.2M. A gray iron ferrule with hubless, socket, inside calk or spigot connection and counter sunk, taper-thread, brass or bronze closure plug shall be included. The frame and cover material and finish shall be nickel-bronze copper alloy with a square shape. The cleanout shall be vertically adjustable for a minimum of 2 inches. When a waterproof membrane is used in the floor system, clamping collars shall be provided on the cleanouts. Cleanouts shall consist of wye fittings and eighth bends with brass or bronze screw plugs. Cleanouts in the resilient tile floors, quarry tile and ceramic tile floors shall be provided with square top covers recessed for tile insertion. In the carpeted areas, carpet cleanout markers shall be provided. Two-way cleanouts shall be provided where indicated on drawings and at every building exit. The loading classification for cleanouts in sidewalk areas or subject to vehicular traffic shall be heavy duty type.

C. Cleanouts shall be provided at or near the base of the vertical stacks with the cleanout plug located approximately 24 inches above the floor. If there are no fixtures installed on the lowest floor, the cleanout shall be installed at the base of the stack. The cleanouts shall be extended to the wall access cover. Cleanout shall consist of sanitary tees. Nickel-bronze square frame and stainless steel cover with minimum opening of 6 by 6 inches shall be furnished at each wall cleanout. Where the piping is concealed, a fixture trap or a fixture with integral trap, readily removable without disturbing concealed pipe, shall be accepted as a cleanout equivalent providing the opening to be used as a cleanout opening is the size required.

D. In horizontal runs above grade, cleanouts shall consist of cast brass tapered screw plug in fitting or caulked/hubless cast iron ferrule. Plain end (hubless) piping in interstitial

space or above ceiling may use plain end (hubless) blind plug and clamp.

2.04 TRAPS

Traps shall be provided on all sanitary branch waste connections from fixtures or equipment not provided with traps. Exposed brass shall be polished brass chromium plated with nipple and set screw escutcheons. Concealed traps may be rough cast brass or same material as the piping they are connected to. Slip joints are not permitted on sewer side of trap. Traps shall correspond to fittings on cast iron soil pipe or steel pipe respectively, and size shall be as required by connected service or fixture.

2.05 PENETRATION SLEEVES

A. A sleeve flashing device shall be provided at points where pipes pass through membrane waterproofed floors or walls. The sleeve flashing device shall be manufactured, cast iron fitting with clamping device that forms a sleeve for the pipe floor penetration of the floor membrane. A galvanized steel pipe extension shall be included in the top of the fitting that will extend 2 inches above finished floor and galvanized steel pipe extension in the bottom of the fitting that will extend through the floor slab. A waterproof caulked joint shall be provided at the top hub.

PART 3 – EXECUTION

3.01 PIPE INSTALLATION

A. The pipe installation shall comply with the requirements of the International Plumbing Code (IPC) and these specifications.

B. Branch piping shall be installed for waste from the respective piping systems and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Owner or specified in other Sections.

C. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.

D. All pipe runs shall be laid out to avoid interference with other work.

E. The piping shall be installed above accessible ceilings where possible.

F. The piping shall be installed to permit valve servicing or operation.

G. The piping shall be installed free of sags and bends.

H. Seismic restraint shall be installed where required by code.

I. Changes in direction for soil and waste drainage and vent piping shall be made using appropriate branches, bends and long sweep bends. Sanitary tees and short sweep quarter bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Long turn double wye branch and eighth bend fittings shall be used if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Proper size of standard increaser and reducers shall be used if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

J. Buried soil and waste drainage and vent piping shall be laid beginning at the low point of each system. Piping shall be installed true to grades and alignment indicated with unbroken continuity of invert. Hub ends shall be placed upstream. Required gaskets shall be installed according to manufacturer's written instruction for use of lubricants, cements, and other installation requirements.

K. Aboveground PVC piping shall be installed according to ASTM D2665. Underground PVC piping shall be installed according to ASTM D2321.

L. If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no cost to the Owner.

3.02 JOINT CONSTRUCTION

A. For PVC piping, solvent cement joints shall be used for joints. All surfaces shall be cleaned and dry prior to applying the primer and solvent cement. Installation practices shall comply with ASTM F402. The joint shall conform to ASTM D2855 and ASTM D2665 appendixes.

3.03 SPECIALTY PIPE FITTINGS

A. Transition coupling shall be installed at pipe joints with small differences in pipe outside diameters.

B. Dielectric fittings shall be installed at connections of dissimilar metal piping and tubing.

3.04 PIPE HANGERS, SUPPORTS AND ACCESSORIES

A. All piping shall be supported according to the International Plumbing Code (IPC), Section 22 05 00 – Common Results for Plumbing, and these specifications. Where conflicts arise between these the code and Section 22 05 00 – Common Results for Plumbing the most restrictive or the requirement that specifies supports with highest loading or shortest spacing shall apply.

B. Hangers, supports, rods, inserts and accessories used for pipe supports shall be painted according to Section 09 90 00 – Painting. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.

C. Horizontal piping and tubing shall be supported within 12 inches of each fitting or coupling.

D. The maximum spacing for plastic pipe shall be 4 feet.

E. Vertical piping and tubing shall be supported at the base, at each floor, and at intervals no greater than 15 feet.

F. In addition to the requirements in Section 22 05 00 – Common Results for Plumbing shall have the following characteristics:

1. Solid or split unplated cast iron.

2. All plates shall be provided with set screws.

3. Height adjustable clevis type pipe hangers.

4. Adjustable floor rests and base flanges shall be steel.

5. Hanger rods shall be low carbon steel, fully threaded or threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.

6. Riser clamps shall be malleable iron or steel.

7. Rollers shall be cast iron.

8. See Section 22 05 00 – Common Results for Plumbing, for requirements on insulated pipe protective shields at hanger supports.

G. Miscellaneous materials shall be provided as specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories. If the vertical distance exceeds 20 feet for cast iron pipe additional support shall be provided in the center of that span. All necessary auxiliary steel shall be provided to provide that support.

H. Cast escutcheon with set screw shall be provided at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.

I. Penetrations:

1. Water proofing: At floor penetrations, clearances shall be completely sealed around the pipe and make watertight with sealant as specified in Section 07 90 00 – Joint Fillers, Sealants and Caulking.

COORDINATE ALL ROOF PENETRATIONS WITH ARCHITECTURAL DESIGN DETAILS.

J. Exhaust vents shall be extended separately through roof. Sanitary vents shall not connect to exhaust vents.

SYSTEM TESTING SHALL BE COORDINATED WITH PROJECT COMMISSIONING REQUIREMENTS.

3.05 TESTS

A. Sanitary waste and drain systems shall be tested either in its entirety or in sections.

B. Waste System tests shall be conducted before trenches are backfilled or fixtures are connected. A water test or air test shall be conducted, as directed.

1. If entire system is tested for a water test, tightly close all openings in pipes except highest opening, and fill system with water to point of overflow. If the waste system is tested in sections, tightly plug each opening except highest opening of section under test, fill each section with water and test with at least a 10-foot head of water. In testing successive sections, test at least upper 10 feet of next preceding section so that each joint or pipe except upper most 10 feet of system has been submitted to a test of at least a 10-foot head of water. Water shall be kept in the system, or in portion under test, for at least 15 minutes before inspection starts. System shall then be tight at all joints.

2. For an air test, an air pressure of 5 psig gauge shall be maintained for at least 15 minutes without leakage. A force pump and mercury column gauge shall be used for the air test.

3. After installing all fixtures and equipment, open water supply so that all p-traps can be observed. For 15 minutes of operation, all p-traps shall be inspected for leaks and any leaks found shall be corrected.

4. Final Tests: Either one of the following tests may be used.

a. Smoke Test: After fixtures are permanently connected and traps are filled with water, fill entire drainage and vent systems with smoke under pressure of 1 inch of water with a smoke machine. Chemical smoke is prohibited.

b. Peppermint Test: Introduce 2 ounces of peppermint into each line or stack.

END OF SECTION