



Mahler Water Reclamation Facility (MWRF) Interim Improvements

ADDENDUM NO. 2 FOR INTERIM IMPROVEMENTS PROJECT

To: All Prospective Bidders

The following clarifications, changes, additions and/or deletions are hereby made a part of the Contract Documents issued for the above referenced project as fully and completely as if the same were fully set forth therein.

This Addendum consists of 3 pages, including this cover page.

CHANGES AND ADDITIONS AND/OR DELETIONS

Additions are shown in underline. Deletions are shown in strikeout.

Changes to the Specifications

1. Section 01 12 16 Work Sequence and Constraints: 3.03.C.8.

Add: Receive Owner provided, skid-mounted solids dewatering equipment delivered from vendor and complete installation of equipment and appurtenances (e.g. solids conveyors). Anticipated delivery of solids dewatering equipment is May 31, 2023.

2. Section 40 61 96.13 Process Control Description

Replace specification with attached Section 40 61 96.13 to be included in Contract Documents.

3. Section 43 23 58 Rotary Lobe Pumps: 2.03.B

Add: 8. Motor windings shall be supplied with a normally closed thermostat, one per phase, wired in series to form a fail—safe motor protection circuit for the external fault circuit of the motor controller.

4. Section 40 72 00 Level Measurement: 2.01.A.7.f

Modify: f. 2 Cable Length = Approximately 20ft, CONTRACTOR shall verify length of cable required during submittal phase.

5. Section 40 73 00 Pressure, Strain and Force Measurement

New specification Section 40 73 00 attached to be included in Contract Documents.

6. 40 78 00 Panel Mounted Equipment: 2.01

Add: O. Miniature "Ice Cube" Relay (407800.R05):

1. Provide relays as shown on Drawings.
2. Relays shall be industrial plug-in blade style with the on/off status indicated by either a neon or LED indicating light or by mechanical means.
3. Relays shall be Form C contacts with a minimum of 4 poles and 7-amp contact rating.
4. Relay coil voltage shall be 120VAC.
5. Provide with DIN rail mounting screw terminal socket and retainer clips.
6. Relay bases shall be of the same manufacturer as the relay.
7. Provide Allen-Bradley p/n 700-HC14A14 relays, p/n 700-HN104 screw terminal sockets, and p/n 700-HN114 retainer clips, or approved equal.

7. Section 46 41 21 Jet Aspirating Mixing Equipment: 2.04

Add: L. Motor windings shall be supplied with a normally closed thermostat, one per phase, wired in series to form a fail—safe motor protection circuit for the external fault circuit of the motor controller.

Changes to the Drawings

Replace the following drawings with those attached to this Addendum:

M-010
M-011
E-003
E-005
E-010
E-011

End of Addendum No. 2

Mr. Greg Springman, Public Works Director

February 23, 2023

Date

SECTION 40 61 96.13

PROCESS CONTROL DESCRIPTIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Instrumentation control loops.

1.02 REFERENCED SECTIONS

- A. The following Sections are referenced in this Section
 - 1. Section 01 33 00 – Submittals
 - 2. Section 01 78 23 – Operation and Maintenance Data

1.03 SYSTEM DESCRIPTION

- A. The control loop descriptions provide the functional requirements of the control loops represented in the Contract Documents.
- B. Descriptions are provided as follows:
 - 1. Control system overview and general description.
 - 2. Major equipment to be controlled.
 - 3. Major field mounted instruments (does not include local gages).
 - 4. Manual control functions.
 - 5. Automatic control functions/interlocks.
 - 6. Major indications provided at local control panels and motor starters/VFD's.
 - 7. Remote indications and alarms.
- C. The control loop descriptions are not intended to be an inclusive listing of all elements and appurtenances required to execute loop functions, but are rather intended to supplement and complement the Drawings and other Specification Sections.
 - 1. The control loop descriptions shall not be considered equal to a bill of materials.
- D. Provide instrumentation hardware and software as necessary to perform control functions specified herein and shown on Drawings.

1.04 SUBMITTALS

- A. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
- B. Contract Closeout Information:
 - 1. Operation and Maintenance Data:
 - a. See Section 01 78 23 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.

- C. Control Strategy for Record Documents:
 - 1. Obtain this Specification Section in electronic format (Microsoft Word) from Engineer at beginning of Project.
 - 2. Revise and update the file monthly during construction and start-up to reflect all changes that occur due to specific equipment and systems supplied on the Project.
 - a. Show all revisions in 'track change' mode.
 - b. Change Specification Section Title to read "Control Loop Descriptions - Contractor Record Document."
 - c. Reference all changes by Request for Information (RFI) number or Change Proposal Request (CPR) number.
 - d. Submit revised file monthly to Engineer for review.
- D. Deliver the revised and updated file as a final control loop description Record Document in the Operation and Maintenance Manual described in Specification Section 01 78 23.
- E. Provide both paper copy and electronic copy (on CD-ROM) of the Record Document control loop descriptions in the Operation and Maintenance Manual described in Specification Section 01 78 23.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION

3.01 CONTROL LOOPS

- A. This Section includes control loops for Phase 1. The Phase 1 package that each control loop is associated with is noted below. Programming and other work associated with Phase 1 control loops shall not be included in the bid price for Phase 2.

CONTROL STRATEGY 1 – DEWATERING SCREW PRESS SYSTEM

1.1 REFERENCES

- A. Drawings:
 - 1. M-010, M-011, M-012
 - 2. E-004, E-005, E-010
 - 3. I-251, I-252
- B. Specifications:
 - 1. Section 41 12 13
 - 2. Section 46 33 33

1.2 SYSTEM COMPONENTS

- A. Major Equipment and Related Devices
 - 1. Conditioning Tank
 - a. Mixer: MIX-250-01
 - b. Level Switch: LSH-250-01
 - 2. Dewatering Screw Press
 - a. Screw Press: DEW-250-02
 - b. Level sensor: LE-250-02
 - c. Level indicator/transmitter: LIT-250-02
 - 3. Conveyors
 - a. Conveyors: CON-250-03, CON-250-04
 - b. Zero speed switches SSL-250-03, SSL-250-04
 - c. Emergency stop hand cables HS-250-03, HS-250-04
- B. Spray water control devices
 - 1. Motorized ball valves: CV-250-11, CV-250-12, CV-250-13
 - 2. Flow switches: FS-250-21,
- C. Flow Instruments
 - 1. Digested Sludge Flow Meter/Transmitter FE/FIT-250-00
- D. Control Panel
 - 1. Panel: LCS-250-01
 - 2. LOCAL/OFF/REMOTE selector switches: HS-250-01, HS-250-02, HS-250-03, HS-250-04
 - 3. START and STOP push buttons: PB-250-01B PB-250-01C, PB-250-02B, PB-250-02C, PB-250-03B, PB-250-03C, PB-250-04B, PB-250-04C
 - 4. FAST STOP push buttons: PB-250-10
 - 5. SPEED selector dials: HS-250-01B, HS-250-02B
 - 6. Running & Fault Lights: YA-250-01, YL-250-01A, YA-250-01A, YA-250-01B, YA-250-02, YL-250-02A, YA-250-02A, YA-250-02B, YA-250-03, YL-250-03A, YL-250-03A, YA-250-03B, YA-250-04, YL-250-04A, YL-250-04A, YA-250-04B
- E. Variable Speed Drives: VFD-250-01, VFD-250-02
- F. Motor Starters: MS-250-03, MS-250-04

1.3 SYSTEM INTEGRATOR SCOPE

- A. Screw Press Manufacturer to provide PLC programming for the Screw Press and provide system program to the Owner's System Integrator.
- B. All other PLC and SCADA programming excluding the Screw Press PLC shall be furnished and installed by the Owner's System Integrator. All references within this document that include System Integrator's scope shall be considered for reference only by the Contractor. The scope shall include the following:
 - 1. PLC and SCADA software and programming

2. Operator Interface Terminal and SCADA workstation screen development and programming.

1.4 DESCRIPTION

The Dewatering Screw Press System consists of the following components:

- Digested sludge flow meter
- Conditioning tank with mixer
- Screw press
- Polymer blending unit
- Screw press water spray system with control valve
- Inclined shaftless screw conveyor between the screw press and primary dumpster with two discharge points with the lower discharge point blocked off
- A horizontal shaftless screw conveyor between the most upstream discharge point on the inclined conveyor and the standby dumpster

When the digested sludge pump turns on and a flow signal is detected at the digested sludge flow meter, the polymer blending unit shall turn on and begin pumping polymer into the conditioning tank. The conditioning tank mixer shall also turn on. The polymer blending unit shall operate as described in Control Strategy 12. The conditioning tank mixer shall operate at an operator adjustable speed.

Digested sludge mixed with polymer will flow from the conditioning tank into the screw press head box. When the level in the screw press headbox reaches an operator adjustable setpoint, the screw press shall turn on and operate in either Constant Flow Mode or Variable Flow Mode. In Constant Flow Mode, the digested sludge and polymer flow are constant, but the screw press speed varies to maintain level in the screw press headbox. In Variable Flow Mode, the screw press speed is constant, but the digested sludge and polymer flow are varied to maintain level in the screw press headbox.

When the screw press is running, the three spray water control valves shall open one at a time in series. The first valve shall open for an operator adjustable length of time (e.g. 5 – 15 minutes) then close. The next valve shall open for an operator adjustable length of time (e.g. 5 – 15 minutes) then close. The final valve shall open for an operator adjustable length of time (e.g. 5- 15 minutes). Then the cycle shall repeat.

When the screw press is running, the inclined conveyor and horizontal conveyor shall also be running.

There shall be two shutdown modes for the Dewatering Screw Press System: Auto Shutdown and Immediate Shutdown. In Auto Shutdown Mode the equipment shall be shut down as follows: the polymer system shall stop, the blended sludge pump shall stop, the flocculation tank mixer shall stop, the screw press shall continue running for an operator adjustable amount of time then turn off, and the inclined conveyor shall continue running for an operator adjustable amount of time then turn off. In Immediate Shutdown Mode all equipment shall turn off immediately. At shutdown, the screw press shall either automatically empty itself of feed and dewatered sludge contents or shall be capable of retaining a plug of feed and/or dewatered sludge inside the dewatering screen basket for up to 72 hours without adversely impacting screw press components or startup procedures for the subsequent dewatering run.

The following conditions/alarms shall trigger Auto Shutdown Mode: blended sludge pump fault, sludge feed low flow, polymer system fault, flocculation tank mixer VFD fault, flocculation tank High-High level, screw press head box High-High level. The following conditions/alarms shall trigger Immediate Shutdown mode: screw press motor VFD fault, conveyor motor fault, conveyor E-stop pull cord activated, conveyor zero speed switch trip, any equipment FAST stop push button activated.

A cleaning cycle will automatically initiate at: the end of a dewatering run, as determined by a timer or after an inactive period following a system fault.

1.5 LOCAL MANUAL OPERATION

Local manual operation of the conditioning tank, screw press, inclined conveyor, conveyor knife gate valve, and horizontal conveyor can be initiated by using the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area. The equipment can then be operated using the START/STOP pushbuttons, OPEN/CLOSE push buttons, and SPEED selector dials on the local control station.

Local manual operation of screw press spray water valve can be initiated using the local manual override on the valve.

1.6 REMOTE MANUAL OPERATION

Remote manual operation of the conditioning tank, screw press, screw press spray water control valve, inclined conveyor, conveyor knife gate valve, and conveyors can be initiated by setting the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to MANUAL. The equipment can then be controlled with the controls on the SCADA control screen.

1.7 REMOTE AUTOMATIC OPERATION

Remote automatic operation of the conditioning tank, screw press, screw press spray water control valve, conveyors can be initiated by setting the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to AUTO. The equipment will then be controlled as described in Section 1.3.

1.8 SUMMARY OF LOOP FUNCTIONS

- A. Refer to the I/O list, P&IDs, and PLC drawings.

1.9 SCADA SCREENS

- A. Digested Sludge Flow Indication
- B. Conditioning Tank High Level Indication
- C. Conditioning Tank Mixer VFD Ready Indication
- D. Conditioning Tank Mixer VFD Running Indication
- E. Conditioning Tank Mixer VFD in Remote Indication
- F. Conditioning Tank Mixer VFD Fault Indication
- G. Conditioning Tank Mixer VFD Fast Stop Indication.
- H. Conditioning Tank Mixer VFD Start Command Indication
- I. Conditioning Tank Mixer VFD Speed Command Indication
- J. Conditioning Tank Mixer VFD Speed Feedback Indication
- K. Screw Press Head Box Level Indicator
- L. Screw Press VFD Ready Indicator
- M. Screw Press VFD Running Indicator
- N. Screw Press VFD in Remote Indicator
- O. Screw Press VFD Fault Indicator
- P. Screw Press VFD FAST STOP
- Q. Screw Press VFD Start Command Indicator

- R. Screw Press VFD Speed Command Indicator
- S. Screw Press VFD Speed Feedback Indicator
- T. Conveyor Zero Speed Indicator
- U. Conveyor E-Stop & Pull Cord Indicator
- V. Conveyor Motor Running Indicator
- W. Conveyor Motor in Remote Indicator
- X. Conveyor Motor Fault Indicator
- Y. Conveyor Motor Fast Stop Indicator
- Z. Conveyor Motor Start Indicator

1.10 HISTORICAL TRENDING

- A. Digested Sludge Flow
- B. Screw Press Head Box Level
- C. Screw Press Run Time hours
- D. Conveyor Run Time Hours

1.11 ALARMS

- A. Digested Sludge Flow Meter LOW FLOW
- B. Digested Sludge Flow Meter OUT OF RANGE
- C. Digested Sludge Flow Meter LOSS OF COMMUNICATIONS
- D. Conditioning Tank Mixer VFD FAULT. Reset by pressing the reset pushbutton on the VFD. Additionally, the fault may be reset by placing the LOR selector switch at the Local Control Station in the OFF position
- E. Conditioning Tank HIGH LEVEL switch.
- F. Screw Press VFD FAULT. Reset by pressing the reset pushbutton on the VFD. Additionally, the fault may be reset by placing the LOR selector switch at the Local Control Station in the OFF position.
- G. Screw Press FAST STOP.
- H. Screw Press Head Box HIGH LEVEL
- I. Conveyor E-STOP & PULL CORD

1.12 INTERLOCKS

- A. The Conditioning Tank Mixer FAST STOP switch is hardwired to the Conditioning Tank Mixer VFD.
- B. The Screw Press FAST STOP switch is hardwired to the Screw Press VFD.
- C. The Conveyor E-STOP switches and PULL CORDS are hardwired to the Conveyor Motors.

CONTROL STRATEGY 2 – POLYMER BLENDING UNIT

1.1 REFERENCES

- A. Drawings:
 - 1. M-010
 - 2. E-010
 - 3. I-253
- B. Specifications:
 - 1. Section 46 33 33

1.2 SYSTEM COMPONENTS

- A. Major Equipment and Related Devices:
 - 1. Polymer storage tote
 - 2. Polymer system skid POL-250-06
 - 3. Polymer feed pump PMP-250-06
 - 4. Mixing Chamber TNK-250-06
 - 5. Mixer MIX-250-07
- B. Pressure and Flow Devices:
 - 1. Pressure Indicators: PI-250-06, PI-250-06B
 - 2. Flow Switches: FSL-250-06A, FSL-250-06B
 - 3. Flow Indicators: FI-250-06A, FI-250-06B
- C. Potable water dilution water piping assembly
 - 1. Pressure regulating valve
 - 2. Pressure Indicator PI-250-06A
 - 3. Water control valve
- D. Vendor supplied local control station
 - 1. Panel: LCS-250-06
 - 2. LOCAL/OFF/REMOTE selector switch: HS-250-06
 - 3. Pump SPEED selector dial: HS-250-06
 - 4. Power ON, System RUNNING, and FAULT lights: YA-250-06A, YA-250-06B, YA-250-06C
 - 5. Polymer flow readout

1.3 SYSTEM INTEGRATOR SCOPE

- A. All PLC and SCADA programming shall be furnished and installed by the Owner's System Integrator. All references within this document that include System Integrator's scope shall be considered for reference only by the Contractor. The scope shall include the following:
 - 1. PLC and SCADA software and programming
 - 2. Operator Interface Terminal and SCADA workstation screen development and programming.

1.4 DESCRIPTION

The polymer blending unit in the Dewatering Screw Press System consists of the following components:

- Polymer system skid with polymer feed pump, mixing chamber, dilution water control valve, and associated piping, valves, and instruments
- Polymer storage tote
- Potable water dilution water piping

When the digested sludge pump turns on and a flow signal is detected at the digested sludge flow meter, the polymer blending unit shall be called to run and controlled via the vendor supplied panel for the polymer blending unit. The panel shall operate the polymer feed pump, potable dilution water control valve, and mixer to achieve an operator adjustable target polymer dose based on the digested sludge flow rate and operator

adjustable stored polymer concentration. The local control station shall monitor the feed pump flow switch and dilution water flow switch and alarm if flow is detected below and operator adjustable set point. The feed pump shall turn off and the potable water dilution water control valve shall shut in response to these alarms.

1.5 LOCAL MANUAL OPERATION

Local manual operation of the polymer blending unit can be initiated by using the LOCAL/OFF/REMOTE selector switch on the vendor supplied local control panel to LOCAL. The system can then be controlled using the START/STOP pushbuttons and SPEED selector dials on the panel. Dilution water flows can be adjusted manually using the rotary valves and rotameters on the polymer skid.

1.6 REMOTE MANUAL OPERATION

Remote manual operation of the polymer blending unit can be initiated by setting the LOCAL/OFF/REMOTE selector switch on the vendor supplied local control panel to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to MANUAL. The equipment can then be controlled with the controls on the SCADA control screen.

1.7 REMOTE AUTOMATIC OPERATION

Remote automatic operation of the polymer blending unit can be initiated by setting the LOCAL/OFF/REMOTE selector switch on the vendor supplied local control panel to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to AUTO. The equipment will then be controlled as described in Section 1.3.

1.8 SUMMARY OF LOOP FUNCTIONS

- A. Refer to the I/O list, P&IDs, and PLC drawings.

1.9 SCADA SCREENS

- A. Polymer System Set Point
- B. Polymer System Running Indicator
- C. Polymer System in Remote Indicator
- D. Polymer System Speed Control Indicator
- E. Polymer System Remote Start Indicator
- F. Polymer System Flow Fault Indicator
- G. Polymer System Fast Stop Indicator

1.10 HISTORICAL TRENDING

- A. Polymer System run time hours

1.11 ALARMS

- A. Polymer System FLOW FAULT
- B. Shower / Eyewash Flow Switch WATERFLOW ALARM

1.12 INTERLOCKS

- A. The FAST STOP switch on the Polymer System Control Panel is hardwire interlocked to the starter in the control panel.

CONTROL STRATEGY 3 – SLUDGE BLEND TANK

1.1 REFERENCES

- A. Drawings:
 - 1. M-250
 - 2. E-250
 - 3. I-250
- B. Specifications:
 - 1. Section 46 41 21

1.2 SYSTEM COMPONENTS

- A. Major Equipment and Related Devices
 - 1. Sludge Blend Tank: SLB-250-01
 - 2. Sludge Blend Tank Mixing Pumps: PMP-250-01, PMP-250-02
 - 3. Sludge Blend Tank Level Indicator/Transmitter: LIT-250-01
 - 4. Blended Sludge Pump: PMP-250-03
- B. MCC Devices:
 - 1. Variable Speed Drives: VFD-250-03
- C. Motor Starters: MS-250-01, MS-250-02

1.3 SYSTEM INTEGRATOR SCOPE

- A. All PLC and SCADA programming shall be furnished and installed by the Owner's System Integrator. All references within this document that include System Integrator's scope shall be considered for reference only by the Contractor. The scope shall include the following:
 - 1. PLC and SCADA software and programming
 - 2. Operator Interface Terminal and SCADA workstation screen development and programming.

1.4 DESCRIPTION

The Sludge Blend Tank Mixing System consists of the following components:

- Sludge blend tank
- Sludge blend tank mixing pumps
- Sludge blend tank level indicator
- Blended sludge pump

During normal operation, the sludge blend tank is continuously receiving flow from the WAS line. When the water level is above five (5) feet from the bottom of the tank as detected by the level indicating transmitter, the sludge blend tank mixing pump PMP-250-01 will turn on. The mixing system will operate at constant speed and provide 12-14 lbs of oxygen per hour. The sludge blend tank mixing pump will automatically shut down once the level in the tank falls below five (5) feet. If PMP-250-01 is no longer operational, a signal will be sent to SCADA and the operator will manually close its isolation valves and open the isolation valves for PMP-250-02. PMP-250-02 will then begin operation.

The blended sludge pump will operate on a VFD in accordance with Control Strategy 1 in Section 40 61 96.13 for the Dewatering Screw Press System. If the tank level as detected by the level indicating transmitter on the sludge blend tank falls below five (5) feet from the bottom of the tank, the blended sludge pumps will automatically shut down.

1.5 LOCAL MANUAL OPERATION

Local manual operation of the sludge blend tank mixing pump and blended sludge pump can be initiated by using the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area. The equipment can then be operated using the START/STOP pushbuttons, OPEN/CLOSE push buttons, and SPEED selector dials on the local control station.

1.6 REMOTE MANUAL OPERATION

Remote manual operation of the sludge blend tank mixing pump and blended sludge pump can be initiated by setting the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to MANUAL. The equipment can then be controlled with the controls on the SCADA control screen.

1.7 REMOTE AUTOMATIC OPERATION

Remote automatic operation of the sludge blend tank mixing pump and blended sludge pump can be initiated by setting the LOCAL/OFF/REMOTE selector switches for each piece of equipment on the local control station in the dewatering area to REMOTE. Then, from the Dewatering Screw Press System graphic display screen on the SCADA system, the MANUAL/AUTO selector switch for each piece of equipment should be toggled to AUTO. The equipment will then be controlled as described in Section 1.3.

1.8 SUMMARY OF LOOP FUNCTIONS

- A. Refer to the I/O list, P&IDs, and PLC drawings.

END OF SECTION

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SECTION 40 73 00

PRESSURE, STRAIN, AND FORCE MEASUREMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes

1. This section includes the requirements pertaining to the measurement and control instruments.

1.02 REFERENCES

A. American National Standards Institute (ANSI).

1. 51.1-1979 - (R1993) - Process Instrumentation Terminology.
2. 5.1-1984 - (R1992) - Instrumentation Symbols and Identification.

B. Instrumentation, Systems, and Automation Society (ISA).

1. 5.3-1983 - Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic, and Computer Systems.

C. National Fire Protection Association (NFPA) 70 - National Electrical Code.

D. National Electrical Manufacturer's Association (NEMA).

1. 1-2000 - Industrial Control and Systems General Requirements.

E. Underwriters Laboratory (UL).

1. 508 - Industrial Control Equipment.
2. 3121-1 - Standard for Safety for Process Control Equipment.

1.03 DEFINITIONS

A. Manufacturer's Representative - manufacturer's authorized employee of the service division.

1.04 SUBMITTALS

A. Contractor shall submit all the product data in Division 26 at the same time. Piecemeal submittals will be rejected as incomplete.

B. Submittal Format:

1. The product data shall be provided as individual PDFs for each Section, unless otherwise noted for specific items. Each PDF shall be numbered to match the specification Section numbers. Submittals not itemized and labeled as specified will be rejected as incomplete.
2. A submittal is required for each product specified. Each individual product submittal shall have the corresponding Reference Keynote Number (example - 16000.A01) typewritten in the upper right hand corner of the submittal. The submittals within each Section tab shall be in the same sequential order as they

are listed in the specification Section. Submittals not containing the Reference Keynote Number will be rejected as incomplete.

3. No typical submittals will be accepted. Each submittal shall be project specific and clearly identify specifically which components or parts are being submitted for approval. Any product submittals, such as a catalog sheet, which do not clearly identify which components or parts are being submitted for approval, will be rejected as incomplete.
 4. Submittals in PDF shall include an index, table of contents, or bookmarks with hyperlinks to the associated page of all submitted items. Index shall include each product specified with their corresponding Reference Keynote Number. Electronic submittals not containing a linked index, table of contents, or bookmarks will be rejected as incomplete.
- C. Refer to Section 26 05 00 – Common Work Results for Electrical Submittals for additional requirements.
- D. Product Data
1. Pursuant to Section 01300 – Submittal Procedures.
- E. Quality Assurance/Control Submittals
1. Manufacturers’ instructions for each item specified in PART 2 PRODUCTS.
 - a. Complete user manual including installation, wiring schematic, programming, calibration, communication, diagnostics, troubleshooting, recommended spare parts, and maintenance recommendations or requirements.

1.05 SEQUENCING

- A. CONTRACTOR shall not energize instrumentation until the completion of the continuity test certification and certification of installation by manufacturer’s representative.

1.06 SYSTEM START UP, COMMISSIONING, AND OWNER’S TRAINING

- A. Pursuant to Section 13490 Measurement and Control Commissioning.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Pressure Switch (407300.P40).
1. Pressure switches shall be provided as shown on the Drawings.
 2. Provide pressure switch controller with two independently adjustable setpoints, fixed deadband.
 3. Pressure switch enclosure shall NEMA 7/9, watertight, corrosion resistant, and explosion proof Division 1 & 2.
 4. The switch elements shall be rated a minimum of 10 amps at 125/250 VAC, 5 amps at 30 VDC.

5. Pressure switch actuator seals shall be Buna N with a minimum process temperature limit of - 150 degrees F.
6. Pressure switch pressure ports shall be 1/4-inch NPT female.
7. Pressure switches shall be rated for 200 PSI minimum.
8. Provide Ashcroft model PPD-KK-B-200-PSI-N7-25-JC-CH, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. All identification labeling shall be in compliance with Section 26 05 53 Electrical and Control Identification.
2. Field wiring shall be installed according to the Drawings and manufacturer's instructions.
3. Wire and cable shall be connected from terminal to terminal without splices.
4. Wire and cable shall be arranged in a neat manner and securely supported in cable groups.
5. Wiring shall be protected from sharp edges and corners.
6. Transmitter connections shall be made using a terminal junction box, analog receptacles, and analog connectors as shown.
7. All equipment to be located as shown, and rigidly attached to walls or floor as shown or directed by Owner's Representative. Install all equipment in strict accordance with manufacturer's recommendations and in compliance with all rules and regulations of jurisdictions having authority. All work to be set plumb or level, as applicable, to be rigid and neat in appearance. Provide shop drawing of equipment and accessory layout and manufacturer's recommendations for installation and accessories before installing.
8. All piping shall be installed as shown on the plans or as directed by Owner's Representative.
9. All piping shall be supported as required to eliminate stresses on equipment including, but not limited to, the feed pump and chlorine tablet feeder.

3.02 ADJUSTING

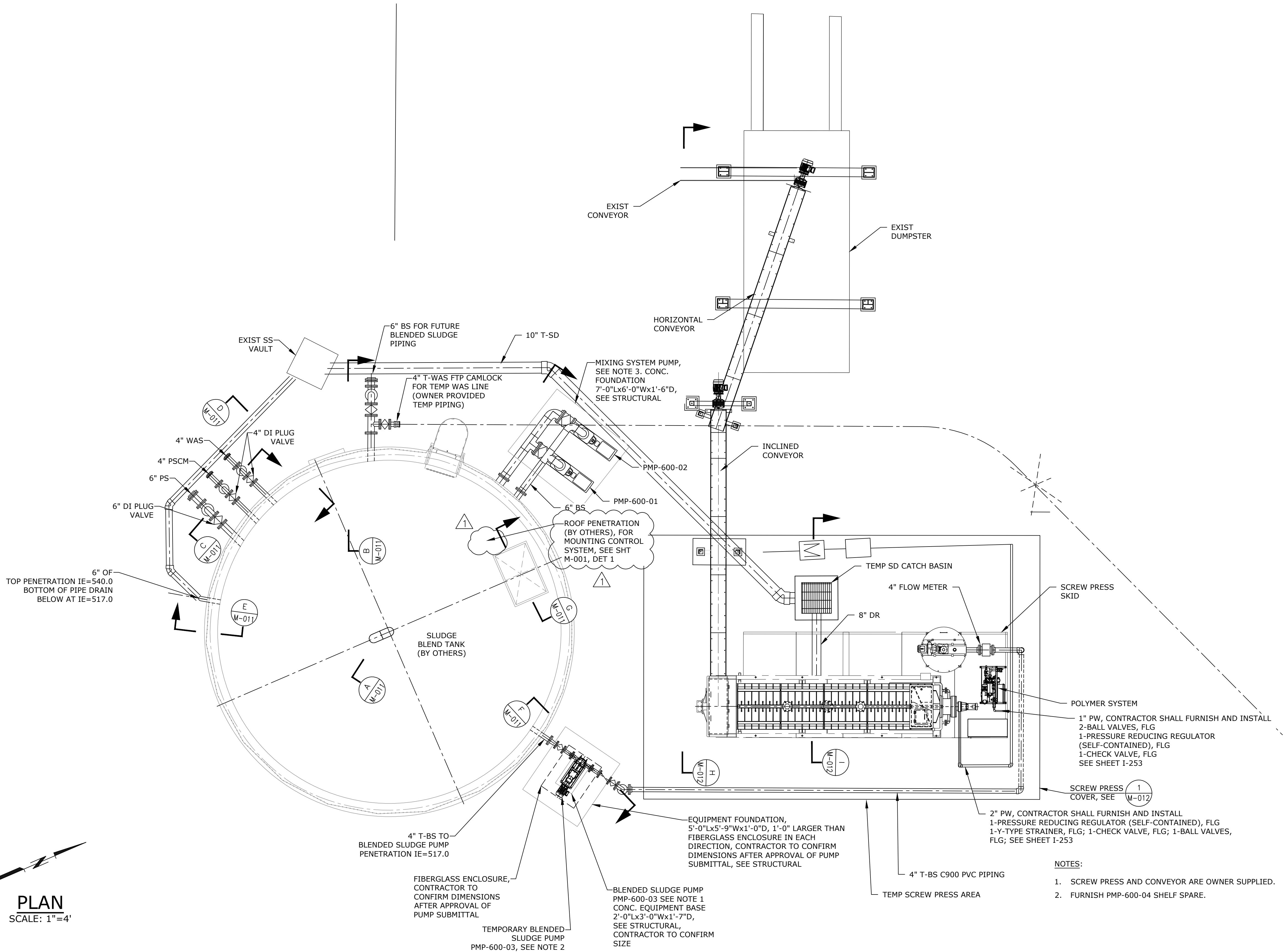
- A. The representative shall check the installation and supervise initial startup of the equipment. He shall certify that the installation is correct and that the equipment has operated satisfactorily.
- B. The overall accuracy of each instrumentation system or loop shall be as indicated in the specification for that system or loop. Each individual instrument shall have a minimum accuracy of ± 0.5 percent of full scale and a minimum repeatability of ± 0.25 percent of full scale unless otherwise indicated.

- C. The Contractor shall furnish a representative of the manufacturer to perform inspection, startup and training services. The manufacturer's representative shall be experienced in the operation and maintenance of the equipment.
- D. The representative shall check the installation and supervise initial startup of the equipment. He shall certify that the installation is correct and that the equipment has operated satisfactorily.
- E. After the installation and operation of the equipment has been certified, the manufacturer's representative shall train the City's personnel in the proper operation and maintenance of the equipment.

END OF SECTION

P:\Clients\936 City Of Sweet Home\50-21-09 WWTP Phase 1 Final Design\CAD\Production\IIP\19-2605-IIP-OR-M-010.dwg M-010 2/15/2023 11:28 AM SBARBER 23.1s (LMS Tech)

PLAN
SCALE: 1"=4'



- NOTES:
1. SCREW PRESS AND CONVEYOR ARE OWNER SUPPLIED.
 2. FURNISH PMP-600-04 SHELF SPARE.

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PLVM
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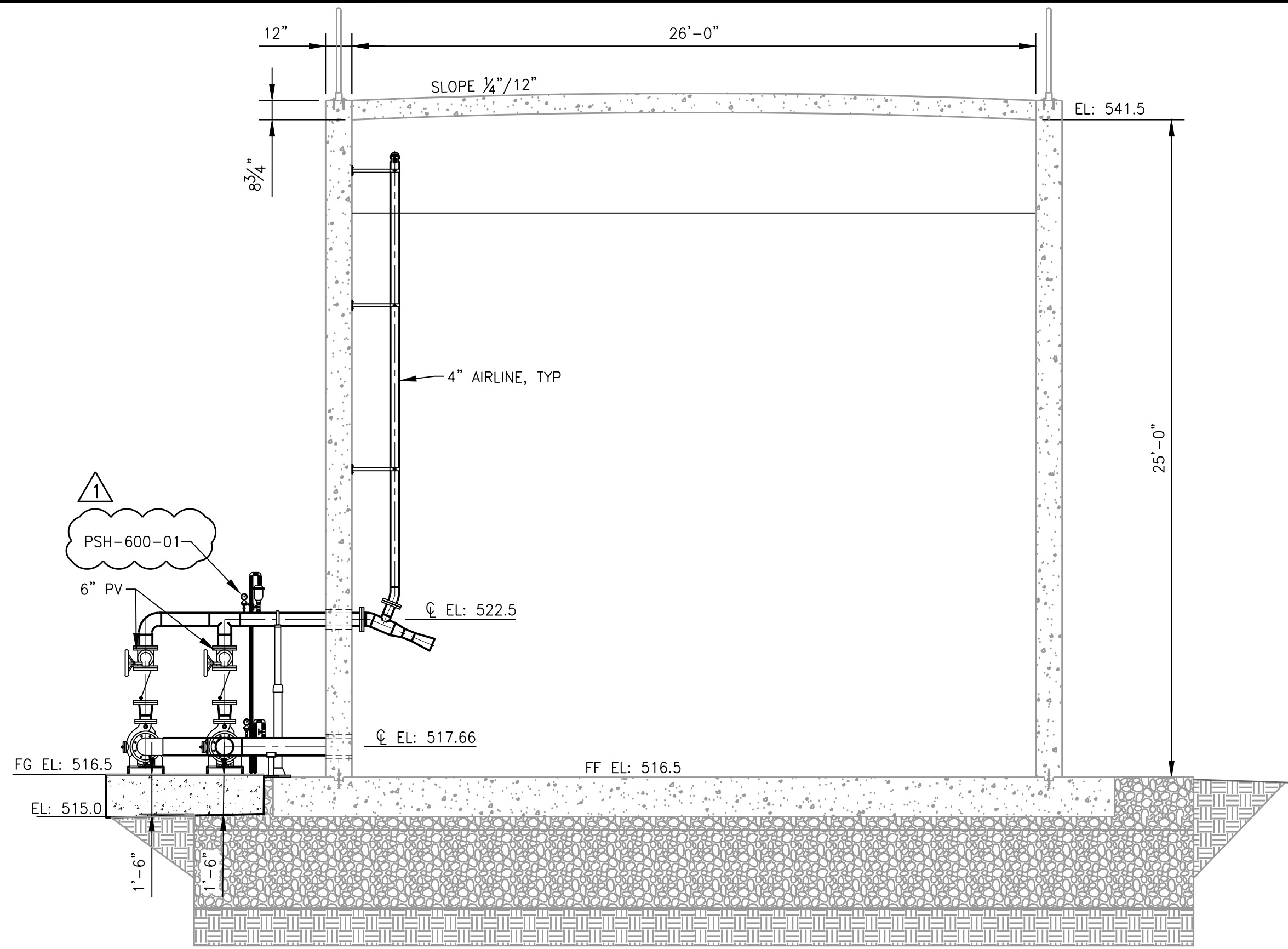
MAHLER WATER
RECLAMATION FACILITY
INTERIM IMPROVEMENTS
PROJECT

SOLIDS AREA DETAIL PLAN

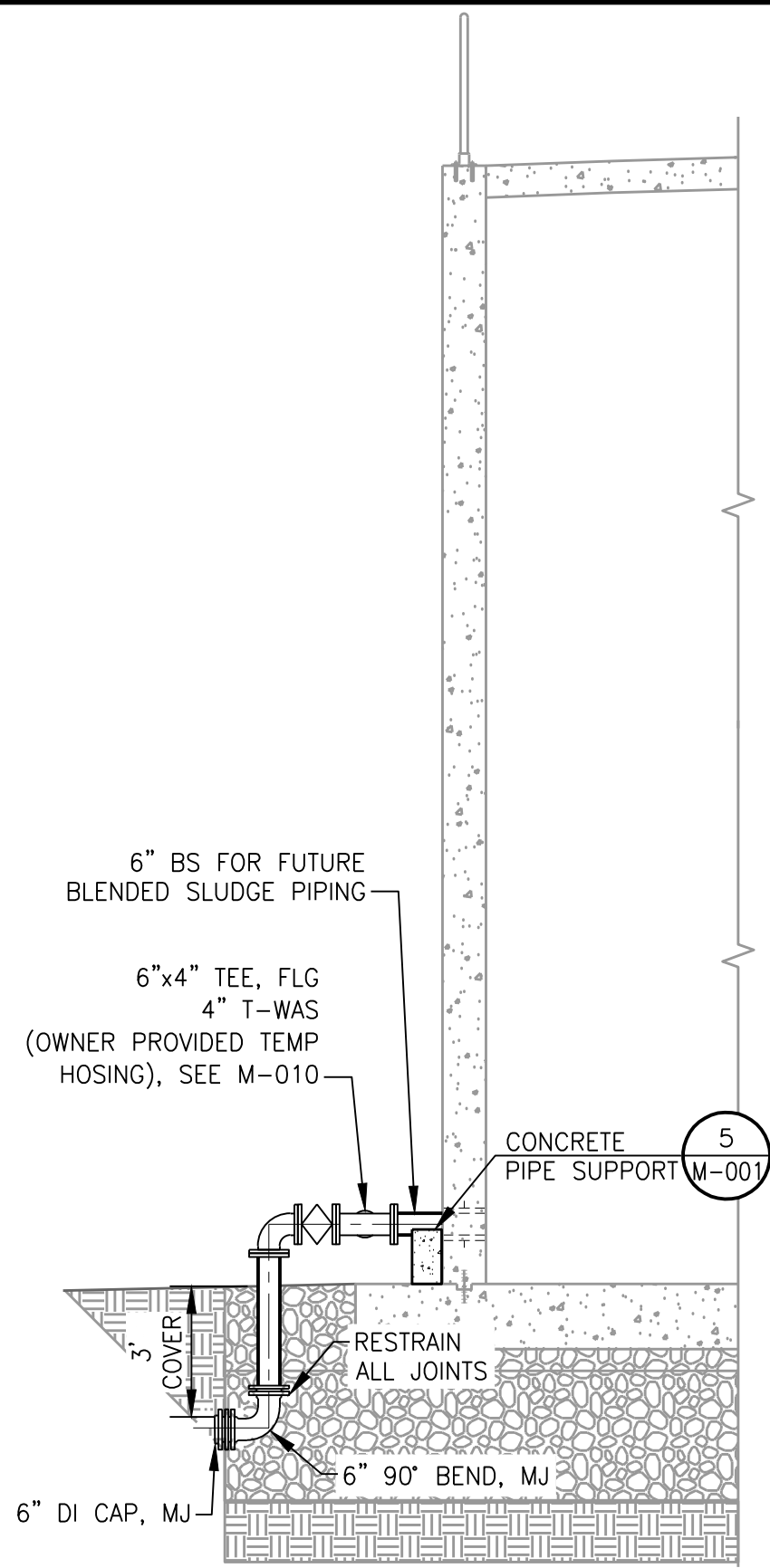
PROJECT NO.: 936-50-21-09 SCALE: AS SHOWN DATE: FEBRUARY 2023

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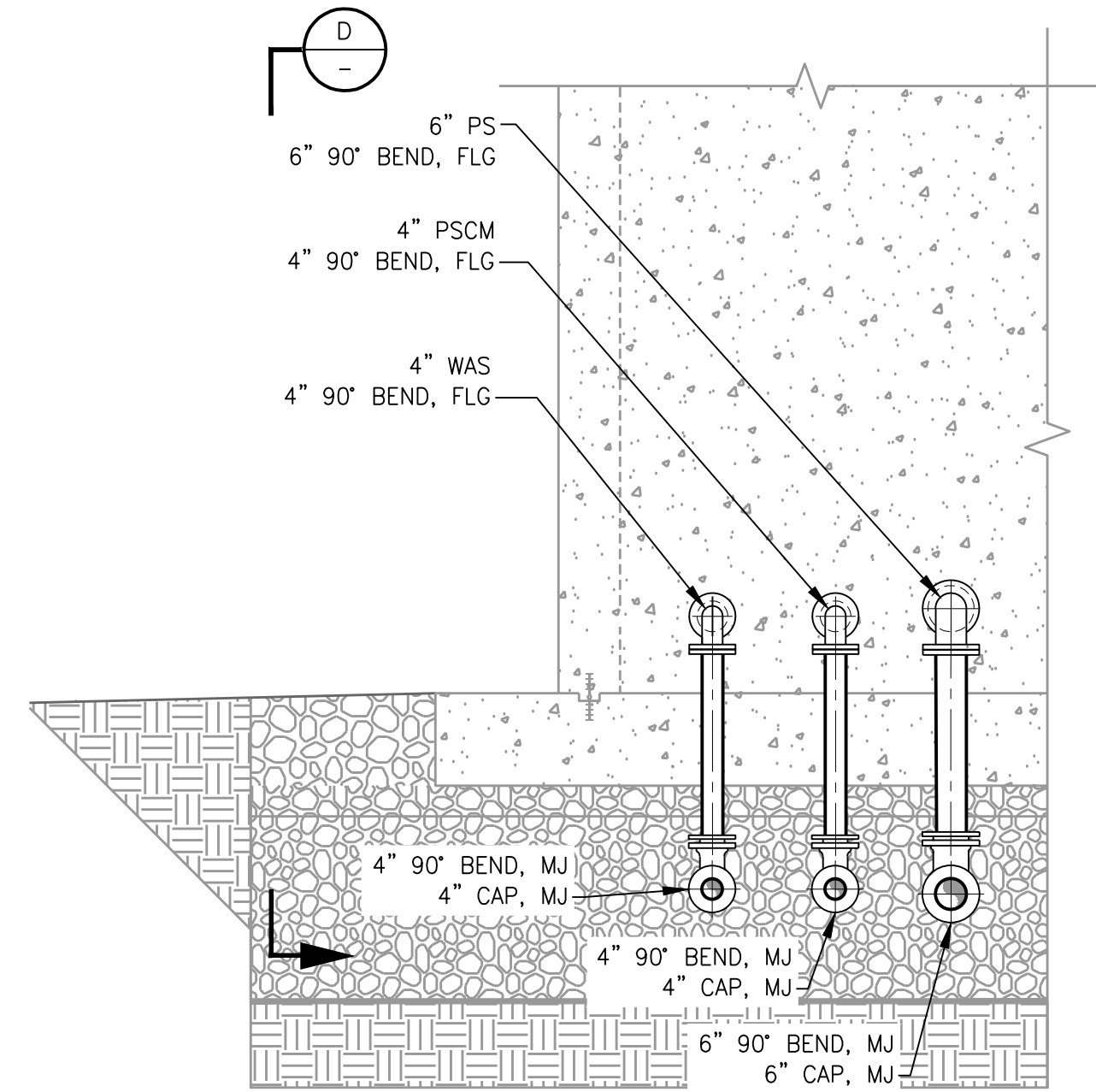
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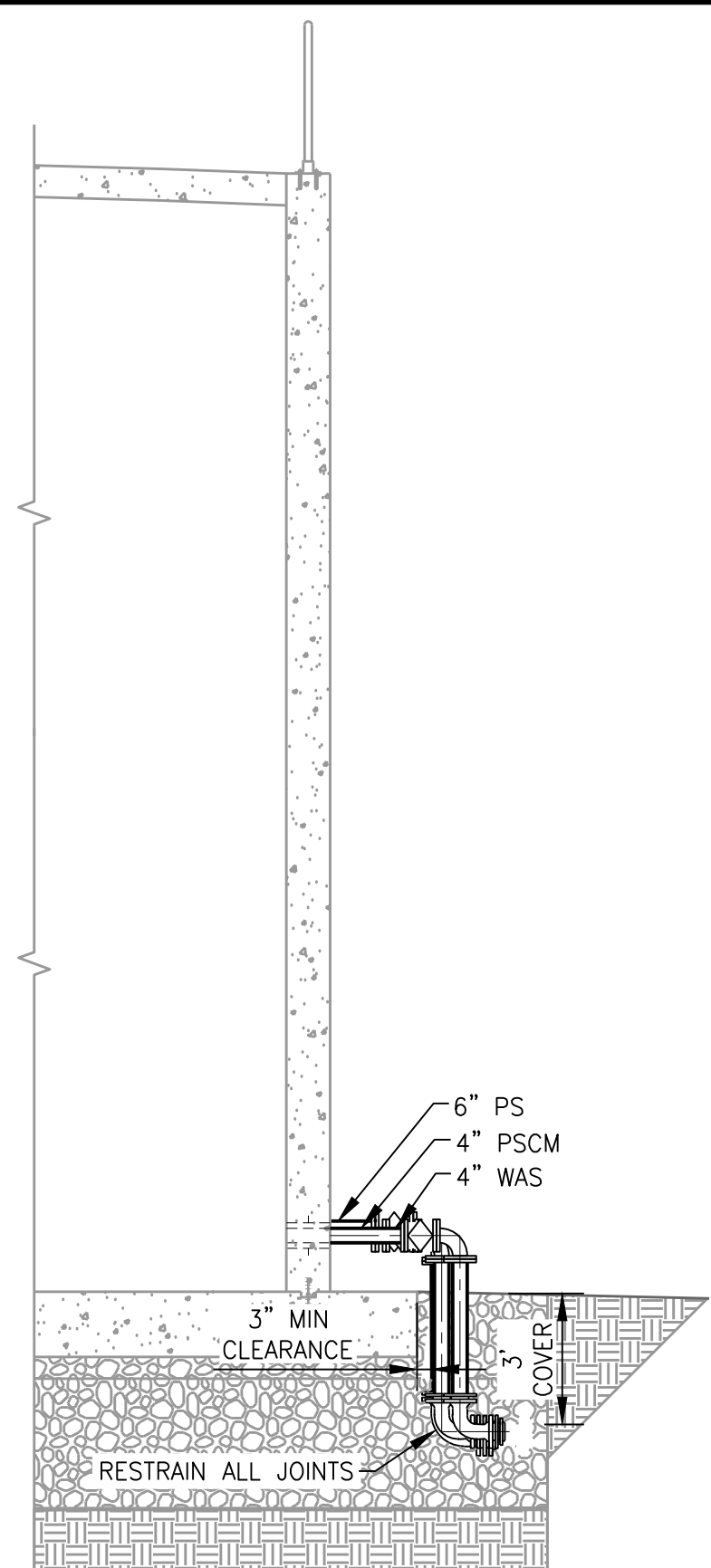
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SCALE: 1/4"=1'-0"



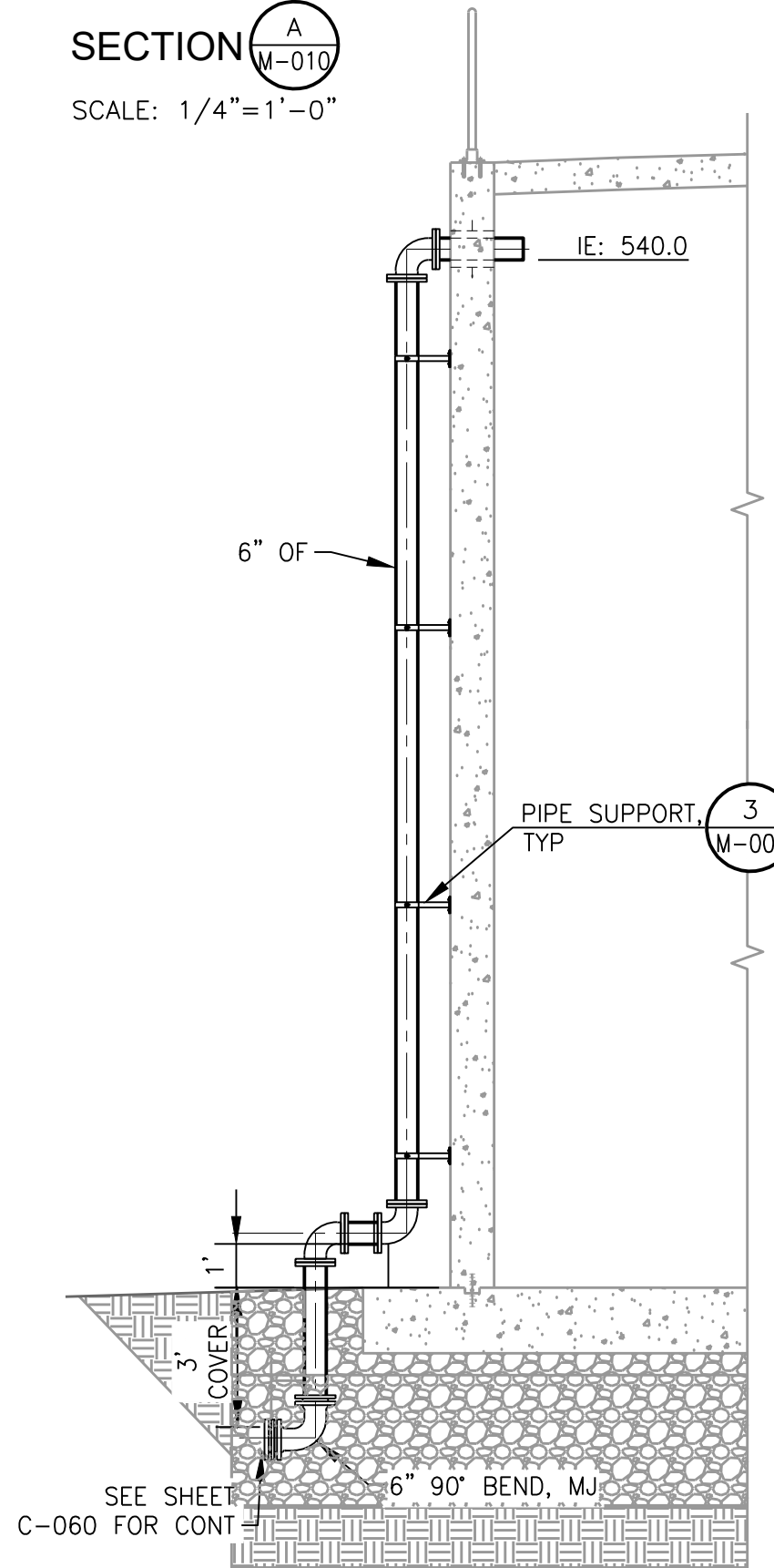
SECTION B
SCALE: 1/4"=1'-0"



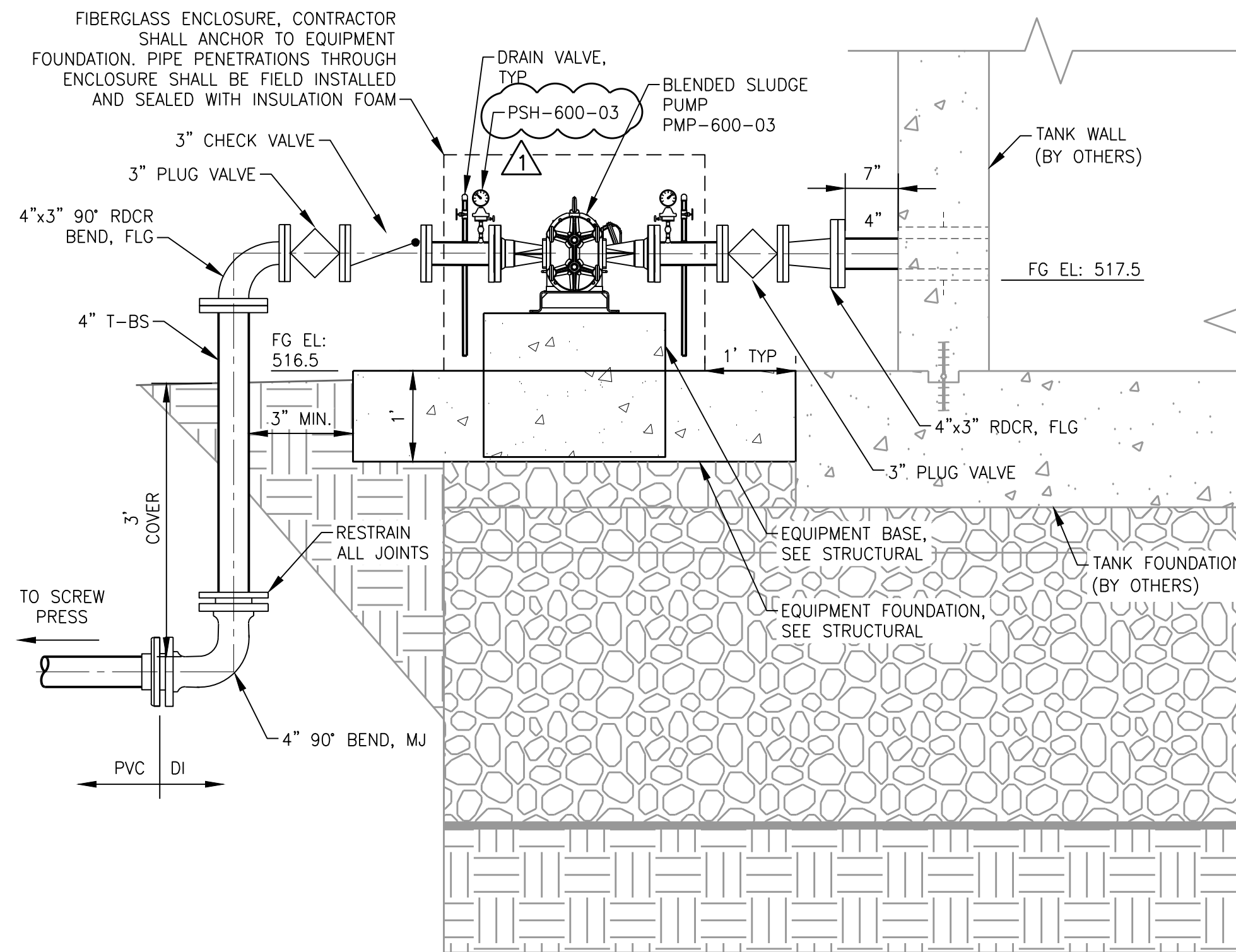
SECTION C
SCALE: 3/8"=1'-0"



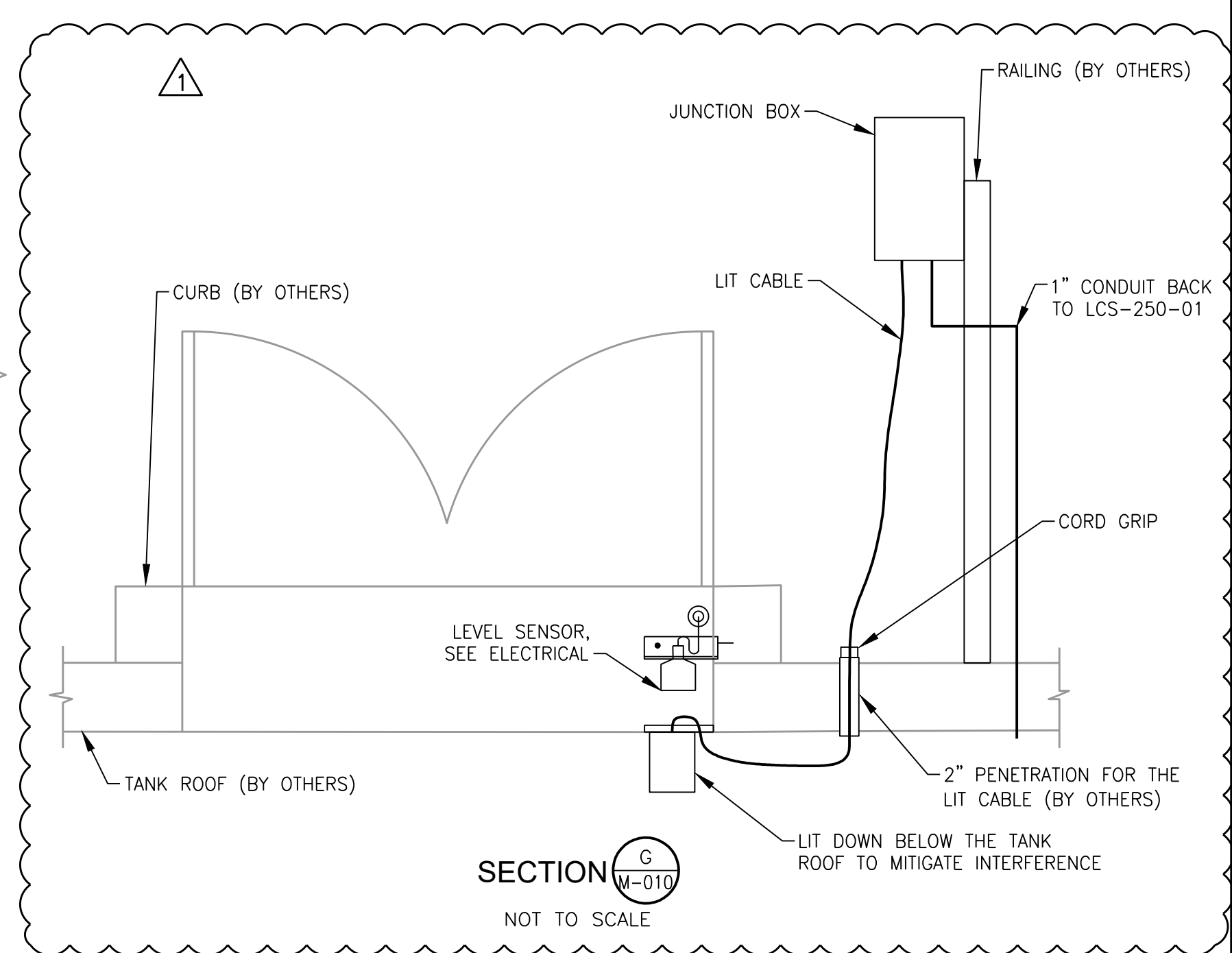
SECTION D
SCALE: 1/4"=1'-0"



SECTION E
SCALE: 1/4"=1'-0"



SECTION F
SCALE: 3/4"=1'-0"

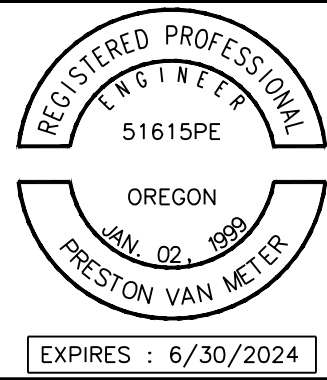


SECTION G
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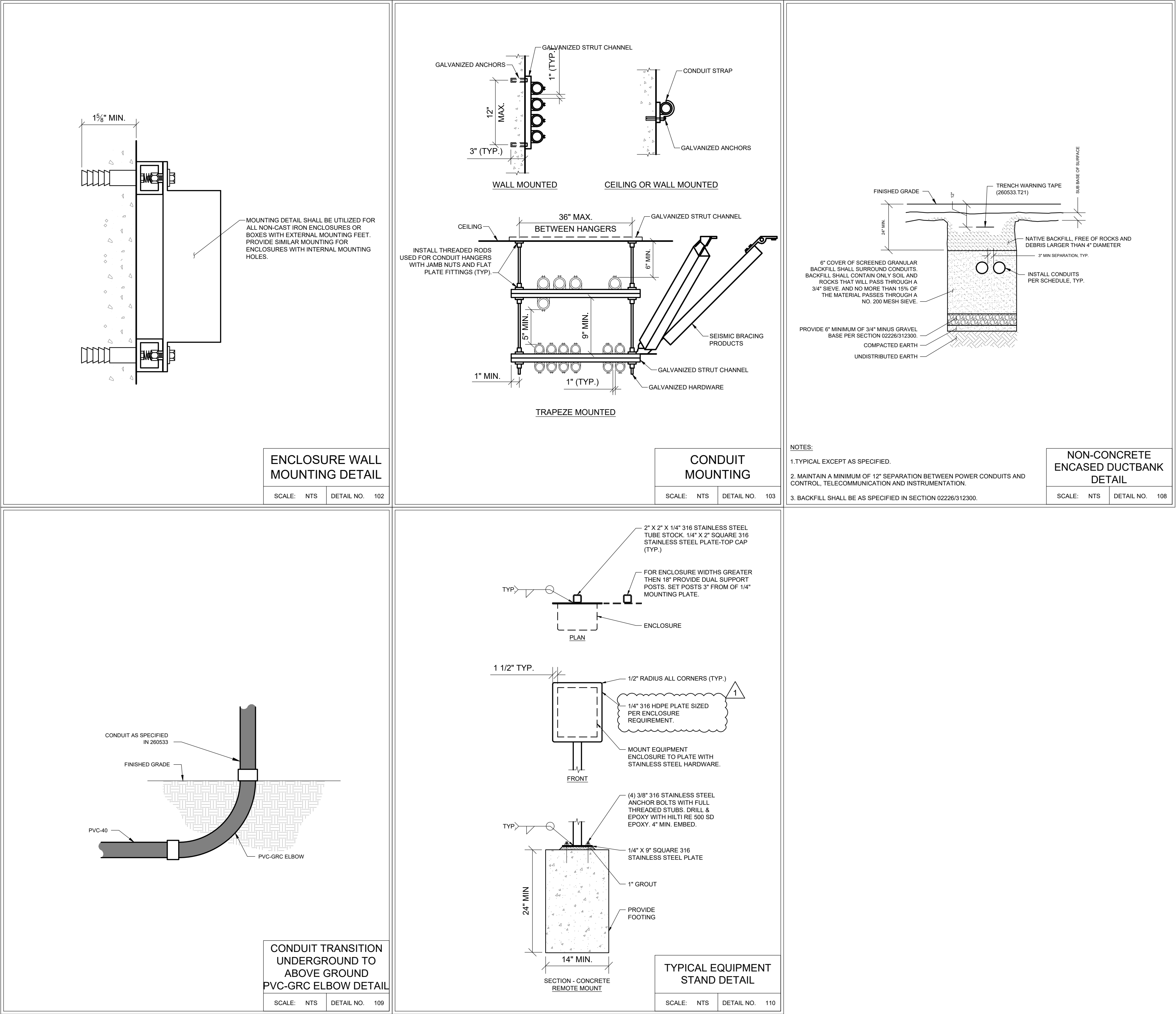


MAHLER WATER
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INTERIM IMPROVEMENTS
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PROJECT NO.: 936-50-21-09 SCALE: AS SHOWN DATE: FEBRUARY 2023

SLUDGE BLEND TANK
SECTIONS AND DETAILS

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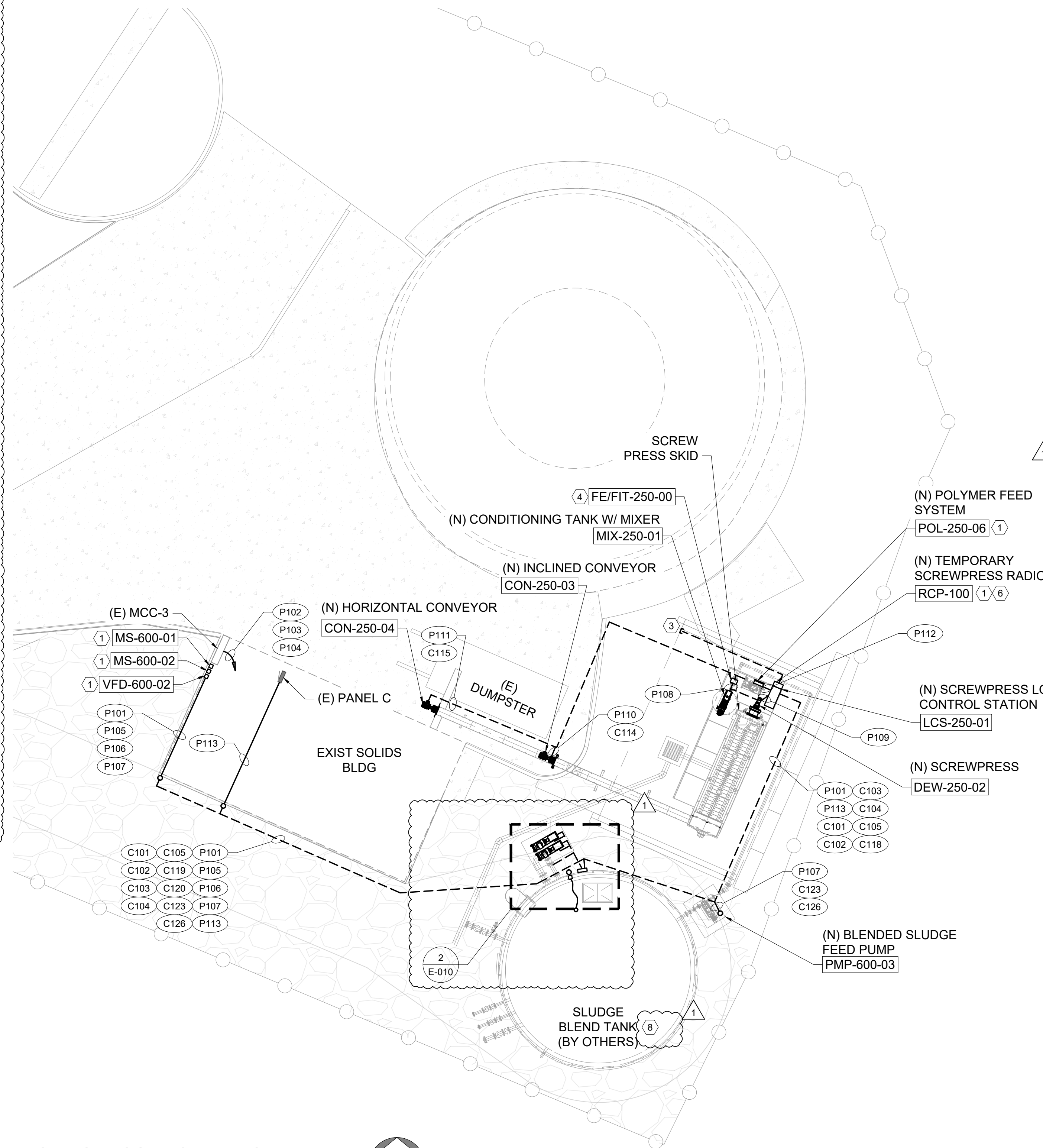
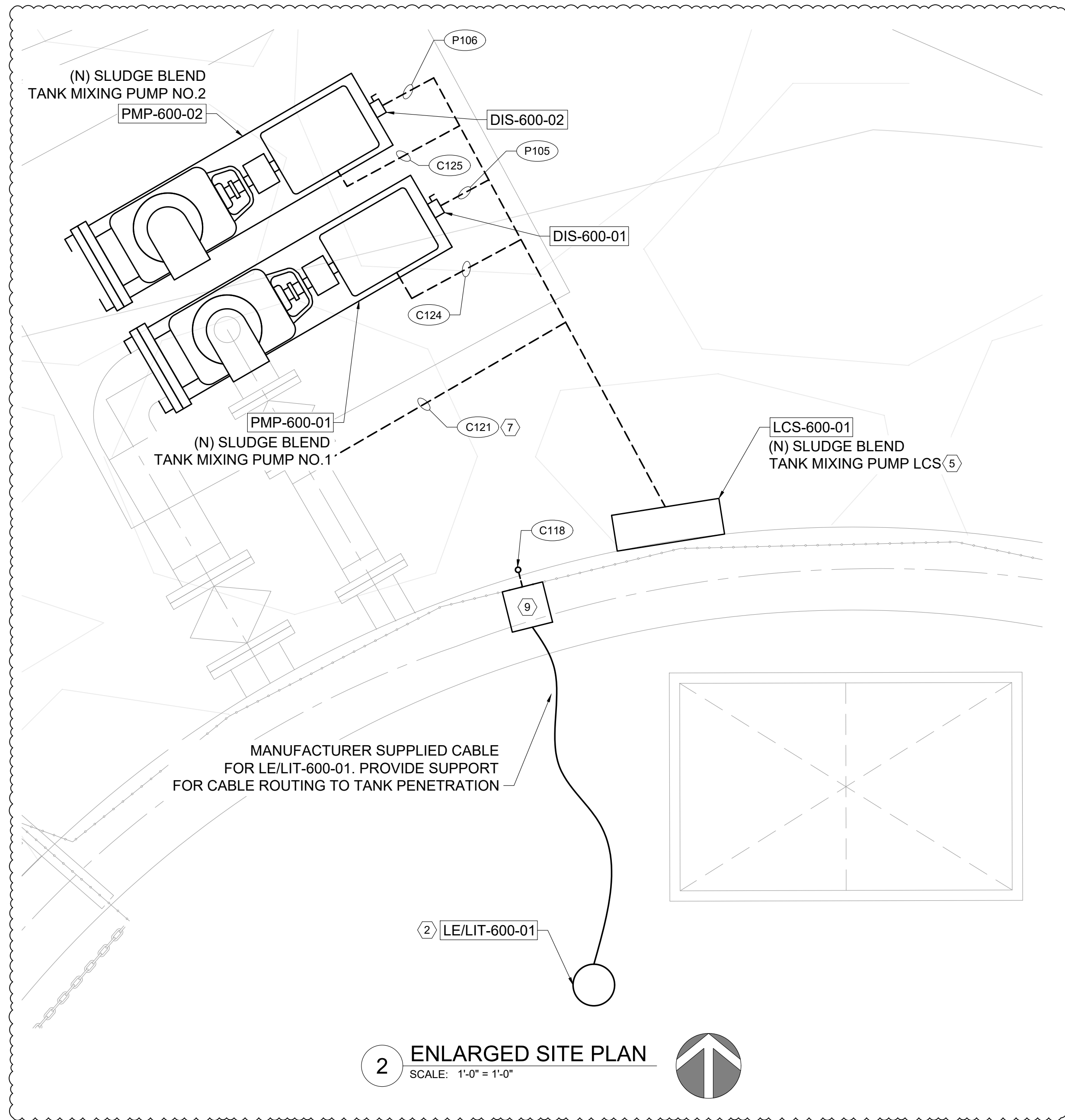
PROJECT NO.: 936-50-21-09 SCALE: AS SHOWN DATE: FEBURARY 2023

ELECTRICAL DETAILS

SHEET

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- SHEET KEY NOTES**
- OWNER FURNISHED, CONTRACTOR INSTALLED.
 - COORDINATE WITH MECHANICAL ON FINAL LOCATION OF PENETRATION FOR LEVEL TRANSMITTER. INSTALL 1'-0" BELOW BLEND TANK COVER. PROVIDE STAINLESS STEEL CORD CONNECTOR TO SUPPORT CABLE IN TANK.
 - CONTRACTOR SHALL PROVIDE 1.0" CONDUIT FROM TEMPORARY SCREWPRESS RADIO RCP-100 TO ROOF OF SCREWPRESS SKID COVER. MOUNT AT 13'-0" AFF. THE OWNER'S SYSTEM INTEGRATOR SHALL UTILIZE CONDUIT FOR COMMUNICATIONS WITH PLANT SCADA SYSTEM.
 - DIGESTED SLUDGE FLOWMETER. COORDINATE WITH MECHANICAL FINAL LOCATION. PROVIDE CONDUITS C106 AND C107 AS IDENTIFIED ON THE CONTROL CONDUIT SCHEDULE.
 - REFERENCE DRAWING E-011 FOR LOCAL CONTROL STATION DETAIL.
 - INSTALL RCP-100 ADJACENT TO SCREWPRESS LOCAL CONTROL STATION. LCS-250-01. REFERENCE DRAWING E-003, DETAIL NO. 110 FOR EQUIPMENT STAND REQUIREMENTS.
 - REFER TO MECHANICAL FOR FINAL LOCATION OF PRESSURE SWITCH, ROUTE PRESSURE SWITCH CONDUCTORS THROUGH LCS-600-01.
 - SLUDGE BLEND TANK IS CLASS 1, DIVISION 1 HAZARDOUS LOCATION. CONTRACTOR SHALL PROVIDE SEALING FITTINGS, AS REQUIRED BY CODE.
 - PROVIDE 6X6X6 STAINLESS STEEL ENCLOSURE FOR TERMINATING MANUFACTURER SUPPLIED CABLE FROM LE/LIT-600-01 AND HOMERUN BACK TO LCS-250-01 WITH TSP. PROVIDE TERMINAL BLOCKS AS REQUIRED.

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MAHLER WATER RECLAMATION FACILITY INTERIM IMPROVEMENTS PROJECT

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| PROJECT NO.: 936-50-21-09 | | SCALE: AS SHOWN | DATE: FEBRUARY 2023 |
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1. WIRING TYPICAL OF BOTH PUMPS.

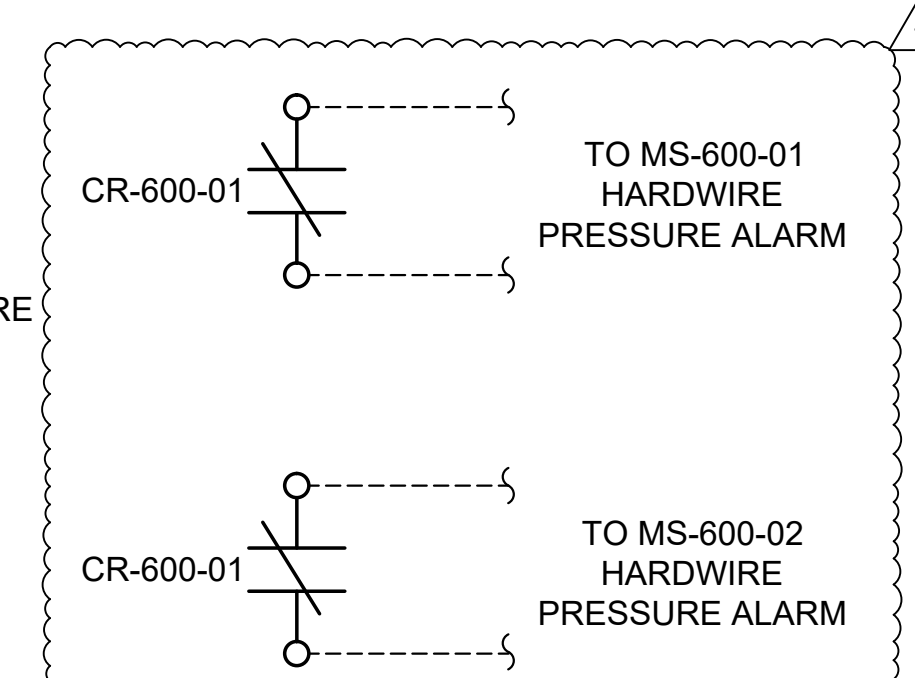
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| SLUDGE BLEND TANK MIXING PUMP LCS TITLE NAMEPLATE | | |
|---|---------------|---------------------------------|
| ENP | EQUIPMENT TAG | DESCRIPTION |
| 1 | PMP-600-01 | SLUDGE BLEND TANK MIXING PUMP 1 |
| 2 | PMP-600-02 | SLUDGE BLEND TANK MIXING PUMP 2 |

3 NAME: _____
SCALE: NTS _____

| SLUDGE BLEND TANK MIXING PUMP LCS COMPONENT NAMEPLATE | |
|---|------------------------------------|
| CNP | INSCRIPTION |
| 1 | LOCAL / OFF / REMOTE (3-POS) |
| 2 | RUNNING INDICATOR LIGHT (RED) |
| 3 | START PUSHBUTTON |
| 4 | STOP PUSHBUTTON |
| 5 | FAST STOP |
| 6 | MOTOR FAIL INDICATOR LIGHT (AMBER) |



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REGISTERED PROFESSIONAL
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86683
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OREGON
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BENJAMIN E. PERRY
EXPIRES: 12-31-2024



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LCS-600-01 ELEVATION DETAIL

SHEET

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