



January 12, 2024

**Addendum No. 2
BL012-24**

Lanier Filter Plant Dewatering Building Modifications and Chemical Improvements

The following addition/changes modify the Bid No. BL012-24 "Lanier Filter Plant Dewatering Building Modifications and Chemical Improvements" Contract Documents, dated December 2023, as first advertised on December 20, 2023.

I. Modifications

M1. Make the following changes to the Technical Specifications

- i. **Specification 01 11 00:** DELETE Specification Section 01 11 00 and REPLACE in its entirety with the attached Specification 01 11 00.
- ii. **Specification 40 61 13:** DELETE Specification Section 40 61 13 and REPLACE in its entirety with the attached Specification 40 61 13.
- iii. **Specification Appendix 40 61 93A:** DELETE Specification Appendix 40 61 93A and REPLACE in its entirety with the attached Appendix 40 61 93A.
- iv. **Specification 46 33 11:** DELETE Specification Section 46 33 11 and REPLACE in its entirety with the attached Specification 46 33 11.

M2. Make the following changes to the Drawings shown:

- i. Replace 78 E-102 with the attached 78 E-102 Drawing.
- ii. Replace 78 E-604 with the attached 78 E-604 Drawing.
- iii. Replace 00 I-101 with the attached 78 I-101 Drawing.
- iv. Replace 78 I-101 with the attached 78 I-101 Drawing.
- v. Replace 78 I-102 with the attached 78 I-102 Drawing.

II. Questions and Responses

Q1. What is the completion in days for this project?

A1. Per the Notice to Bid, Consecutive Calendar Days for Completion: 430 (Substantial) / 460 (Final).

Q2. Would Gwinnett County consider extending the bid deadline by three (3) weeks?

A2. DWR will not extend the bid deadline.

- Q3. Please provide the plan holders list.**
A3. Please see attachment A1.
- Q4. Can you please confirm if the Owner/Engineer requires a Field Trailer/Office?**
A4. A field trailer/office is not required for this work.
- Q5. Specification 46 33 11 calls for MPM-78201, MPM-7802, MPM-7803, and MPM-78204 Ferric Sulfate Feed Pumps, but the drawings and 78 I-101 call for MPM-78711, MPM-78712, MPM-78713, and MPM-78714. Can you please confirm the correct tags?**
A5. The correct tags should be MPM-78711, MPM-78712, MPM-78713, and MPM-78714. Please see attached revised Specification 46 33 11 to reflect these correct tag numbers.
- Q6. Specification 46 33 11 Section 2.3B calls for one 304 SS or FRP Metering Pump Table (Approximately 2'-3"H x 2'W x 8'L). Drawings 78 D-202 & 78 D-203 call for one 1/8" 316SS wall mounted table per Pump (1'-4" x 1'-6" x 1/4" thick). Can you please confirm if one common pump table is to be provided per Specification 46 33 11, or one table per pump?**
A6. Please provide one table per pump as shown on the Drawings. Please see attached revised Specification 46 33 11 to reflect the corrected table criteria.
- Q7. The Sump Pumps called out on 78 I-101 and 78 I-102 have a specification reference of 43 21 00. Specification 43 21 00 is Pumping Equipment – Basic Requirements. Can you please provide a Sump Pump Specification?**
A7. Please refer to Sheet 78 D-102 Keynote 1 and Sheet 78 D-204 Keynotes 2 and 3 for sump pump criteria.
- Q8. Please provide the Pre-Bid Sign-In Sheet.**
A8. Please see Attachment A2.

III. Attachment

- A1. BL012-24 Plan Holders List.
A2. BL012-24 Pre-Bid Sign-In Sheet.
A3. 01 11 00 – Summary of Work (Revised Specification).
A4. 40 61 13 – Process Control System General Requirements (Revised Specification).
A5. 40 61 93A – INPUT-OUTPUT LIST (Revised).
A6. 46 33 11 Chemical Feed – Liquid Systems (Revised Specification).
A7. Drawings 78 E-102, 78 E-604.
A8. Drawing 00 I-101, 78 I-101, and 78 I-102.

All bidders shall acknowledge receipt of this addendum by inserting its number and date in the Bid Form. Failure to do so may subject bidder to disqualification. This addendum forms a part of the Contract Documents.

Sincerely,

Brittany Bryant, CPPB
Purchasing Associate III

[BL012-24] Lanier Filter Plant Dewatering Building Modifications and Chemical Improvements

Plan Holders List

Company Name	Contact Name	Phone Number	Email Address
Reeves Young	Scarleth Valeriano	678-536-4558	svaleriano@reevesyoung.com
Alberici Constructors Inc.	Charlotte Enfinger	770-456-6591	charlotte.enfinger@alberici.com
IHC Construction Companies, LLC	Peter Nielsen	847-417-1092	pnielsen@ihcconstruction.com
Sol Construction, LLC	Rafael De La Cruz	770-449-2581	rdelacruz@solconstructionllc.com
Dodge Construction Network, LLC	Joanie Sarmiento	844-326-3828	Joanie.Sarmiento@construction.com
Reynolds Construction, LLC	Jeanie Lucas	904-695-9290	jeanie.lucas@reynoldscon.com
Construction Connect	Bejagan Jamaica	800-364-2059	Jamaica.Bejagan@ConstructConnect.com

PRE-BID CONFERENCE

BL#012-24

	<u>Representative Name</u>	<u>Company Name</u>	<u>Phone #</u>	<u>E-Mail Address</u>
1.	Chris James	Reeves Young	878-602-2218	CJames@ReevesYoung.com
2.	Andy Armento	SunCoast	470-589-9088	andyarmento armento@SUNCOAST-GRUP.COM
3.	Katie Butterfield	SOL CONST	770-455-1822	estimating@solconstructionllc.com
4.	Mike Wendt	Herc	470-608-2275	mike.wendt@HercRentals.com
5.	Humberto Larios	SOL CONST.	404-932-5589	humberto.larios@yahoo.com
6.	Peter Nielsen	IHC Construction	847-417-1097	pnielsen@ihcconstruction.com
7.	BEN HESLEY	Crowder	864-764-0513	bhesley@crowderusa.com
8.	Justin Guy	Crowder	864-399-5162	dguy@crowderusa.com
9.	Nathan Kulling	IHC Construction	678 463 7606	n.kulling@IHCconstruction.com
10.	Mike Raybourn	Alberici	(919) 616-6211	Mike.Raybourn@Alberici.com
11.	JEREMY MULLINS	Crowder	404-557-3502	jmullins@crowderusa.com
12.	HUNTER BRISTER	UNITED RENTALS FLUID SOLUTIONS	470-829-2756	hbrister@ur.com
13.	Stuart Jeffcoat	HDR	678-925-3323	stuart.jeffcoat@hdrinc.com

<u>Department Representative Name</u>	<u>Department</u>	<u>Department Representative Name</u>	<u>Department</u>
Brittany Bryant	DOFS-Purchasing		
Anne Lovey	DWR		

SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Location and description of Work and prior uses of the Site.
 - 2. Construction Contracts for this Project.
 - 3. Others retained by Owner for the Project.
 - 4. Work by others under Owner's control on other projects.
 - 5. Work by others not under Owner's control.
 - 6. Work by Owner.
 - 7. Sequence and progress of Work.
 - 8. Contractor's use of the Site.
 - 9. Easements and rights-of-way.
 - 10. Partial utilization by Owner.
 - 11. Utility owners.
- B. Related Requirements:
 - 1. Include, but are not limited to, the following:
 - a. Section 01 14 16 - Coordination with Owner's Operations.

1.2 LOCATION AND DESCRIPTION OF WORK

- A. The Work is located at the Lanier Filter Plant located at 2590 S Waterworks Rd, Buford, GA 30518. This facility is owned and operated by Gwinnett County Department of Water Resources (GCDWR).
- B. The Project includes constructing the Work broadly described below, in accordance with the Contract Documents, with all related appurtenances. Work shown on the Drawings, or indicated in the Specifications, or indicated elsewhere in the Contract Documents is part of the Work, regardless of whether indicated below. The Work includes, but is not limited to, the following:
 - 1. Demolition of existing temporary ferric sulfate storage and feed system
 - 2. Demolition of existing first floor restrooms
 - 3. New Ferric Sulfate Storage and Feed System
 - 4. New first and second floor restrooms
 - ~~5. Perform programming of programmable logic controllers (PLCs) and configuration of human machine interface (HMI) configuration using MR Systems as the County approved system integrator~~
 - ~~6.5.~~ New ferric sulfate fill station, lime fill station, associated fill piping, and driveway modifications and chemical containment
 - ~~7.6.~~ Demolition of the existing lime fill station
 - ~~8.7.~~ and all other Work required in accordance with the Contract Documents
- C. Contracting Method: The Project will be constructed under a single prime construction Contract.

1.3 CONSTRUCTION CONTRACTS FOR THIS PROJECT

- A. Single Prime Construction Contract: The Contract requires all the Work for the Project not expressly allocated to Owner or others in the Contract Documents.

1.4 OTHERS RETAINED BY OWNER FOR THE PROJECT

- A. Engineer:
 - 1. Engineer is identified in the Agreement.

2. Engineer's responsibilities for the Project, relative to Contractor, are indicated throughout the Contract Documents.
 3. Engineer will furnish the required engineering services during construction to ensure the Work is in accordance with the Contract Documents.
- B. Non-Professional Services Contracted by Owner: Owner will retain services of the following entities to perform the services indicated relative to the Project. Contractor shall coordinate and schedule the Work with, and cooperate with, the entities performing the following services for Owner.
1. Code-Required Special Inspections and Testing:
 - a. Owner has, or will, retain the services of a qualified testing laboratory to perform code-required testing and special inspections for the Work, in accordance with Section 01 45 33 and selected other provisions of the Contract Documents related to field testing.
 - b. Identification: Code-required special inspections retained and contracted by the Owner.

1.5 WORK BY OTHERS UNDER OWNER'S CONTROL - OTHER PROJECTS

- A. Other construction contracts have been or will be awarded by Owner that are in close proximity to or border on the Work of this Project. Work under these other contracts is briefly described in this Article.
- B. Indicate name and contract designation of other project:
1. LFP Sanitary Sewer and Waste System Improvements Project.
 - a. Principal Work Location: Site work adjacent to Dewatering Building and Preclarification Basins, and adjacent areas.
 - b. Scope: Sanitary Sewer Pump Station and force main with associated yard piping modifications.
 2. Lime Panel Addition
 - a. Principal Work Location: Lime Storage Room within the Dewatering Building.
 - b. Scope: Addition of a new Lime Panel by January 2025.

1.6 WORK BY OWNER

- A. Owner will perform the following in connection with the Work:
1. Operate all existing valves, flow-control gates, pumps, equipment, and appurtenances that will affect Owner's operations or facility processes, unless otherwise specified or indicated.

1.7 SEQUENCE AND PROGRESS OF WORK

- A. Sequencing:
1. Incorporate sequencing of the Work into the Progress Schedule.
 2. Sequencing Requirements:
 - a. Prior to beginning any demolition work associated with removing the existing restrooms from service, the new upstairs and downstairs restrooms must be operational for Owner's use. Contractor shall complete both new restrooms within 6 months of receiving the Notice to Proceed.
 - b. The new lime fill station must be fully operational before the demolition activities associated with the existing lime fill station can begin. The Contractor will coordinate with the Owner and the Engineer regarding the tie-in for the new fill line into the existing lime tank so that it occurs between lime deliveries.
 - c. Existing temporary ferric sulfate storage and feed system to remain in service until new Ferric Sulfate Storage and Feed System is substantially complete and fully accepted by the Owner and Engineer.
- B. Requirements for sequencing and coordinating with Owner's operations, including maintenance of facility operations during construction, and requirements for tie-ins and shutdowns, are in Section 01 14 16 - Coordination with Owner's Operations.

1.8 CONTRACTOR'S USE OF SITE

- A. Use of Site - General:
 - 1. Limits on Contractor's use of the Site are indicated on the Drawings.
 - 2. Contractors shall share use of the Site with other contractors and others specified in Articles 1.3 through 1.6 (inclusive) of this Section.
 - 3. Relocate stored materials and equipment that interfere with operations of Owner, other contractors, and others performing work for Owner.
 - 4. Contractor to receive approval from Owner at the outset of the Work regarding appropriate parking at the site for construction staff during working hours.
 - 5. For any demolition waste, Contractor will not use Owner's dumpsters or other facilities to store demolition waste. Should Contractor require a dumpster for collection and hauling of demolition waste, Contractor shall submit a plan for the location of the dumpster for approval by the Owner and Engineer showing a location on the north side of the Dewatering Building.
- B. Owner will occupy the Site jointly with Contractor during construction for performance of Owner's typical operations. Coordinate with Owner in all construction operations to minimize conflicts between Contractor and Owner's employees and others under Owner's control. Owner will have Owner's suppliers for deliveries of chemicals and other items accessing the Site from time to time, possibly on a daily basis.
 - 1. Owner will allow the Contractor to block the northwestern lane of the truck bay inside the Dewatering Building during working hours. The Contractor will be responsible for clearing this truck bay for normal operations at the end of each working day. The truck bays on the east side cannot be blocked by the Contractor.
 - 2. For the overhead pipe installation in the truck bay of the Dewatering Building, the Owner requires 24-hour notice prior to work occurring in that area for the coordination of dumpster truck traffic for the removal of dewatered solids from the building.
- C. Should Contractor have a fuel tank onsite to support construction activities, Contractor shall provide spill containment for any fuel tanks. The containment volume shall be greater than 120% volume of the total fuel stored in the tank. Contractor shall provide spill kit onsite.

1.9 PARTIAL UTILIZATION BY OWNER

- A. Prior to Substantial Completion of the entire Work under the Contract, substantially complete the Work as follows:
 - 1. Work indicted for Milestones (if any).
 - a. Functional use of upstairs and downstairs restrooms within 6 months of NTP .

1.10 UTILITY OWNERS

- A. Utilities known to Engineer and that may have Underground Facilities or other facilities in the vicinity of the Work include power owned by Georgia Power and water/sewer utilities owned by the Owner.
- B. Utilities and their owners indicated in the Contract Documents are for Contractor's convenience. Neither Owner nor Engineer will be liable to Contractor or any utility owner for failure to indicate utility, its owner, or complete and correct contact information in the Contract Documents where Contractor's reasonable and ordinarily-exercised diligence would reveal the presence of the utility and its owner. Nothing in the Contract mitigates Contractor's responsibilities under the General Conditions, Supplementary Conditions and Property, and Laws and Regulations, including "call before you dig" regulations.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

SECTION 40 61 13
PROCESS CONTROL SYSTEM GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Basic requirements for complete instrumentation system for process control.
 2. Requirement for Contractor to subcontract the Process Control System portion of the Work to a “Systems Integrator”.
- B. Related Specification Sections include but are not necessarily limited to:
1. Section 40 61 21 - Process Control System Testing.
 2. Section 40 61 43 - Surge Protection Devices for Instrumentation and Control Equipment.
 3. Section 40 61 93 - Process Control System Input-Output List.
 4. Section 40 61 96 - Process Control Descriptions.
 5. Section 40 62 05 - Computer System Hardware and Ancillaries.
 6. Section 40 63 43 - Programmable Logic Controllers.
 7. Section 40 66 05 - Network Equipment.
 8. Section 40 67 00 - Control System Equipment Panels and Racks.
 9. Section 40 67 63 - Uninterruptible Power Supply.
 10. Section 40 68 63 - Configuration of HMI Software and Reports.
 11. Section 40 70 06 - Schedule of Instrumentation for Process Systems.
 12. Section 40 72 00 - Level Instrumentation.
 13. Section 40 73 00 - Pressure Instrumentation.
 14. Section 40 78 00 - Panel Mounted Instruments.
 15. Section 40 79 00 - Miscellaneous Instruments and Appurtenances.

1.2 QUALITY ASSURANCE

- A. Referenced Standards:
1. Gwinnett County Department of Water Resources SCADA System Standards.
 2. Gwinnett County Department of Water Resources Intelligent P&ID Development Standards.
 3. The International Society of Automation (ISA):
 - a. 7.0.01, Quality Standard for Instrument Air.
 - b. S5.1, Instrumentation Symbols and Identification.
 - c. S5.3, Graphic Symbols for Distributed Control/Shared Display Instrumentation, Logic and Computer Systems.
 - d. S20, Standard Specification Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves.
 - e. 62443-3-3 Security for Industrial Automation and Control Systems, Part 3-3: System Security Requirements and Security Levels
 4. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
 5. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC).
 6. Underwriters Laboratories, Inc. (UL):
 - a. 913, Standard for Safety, Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations.
 7. National Institute of Standards and Technology (NIST)
 - a. SP 800-82, Guide to Industrial Control Systems (ICS) Security
- B. Qualifications:

1. System Integrator:
 - a. Experience:
 - 1) Have satisfactorily provided control system integration for a minimum of five projects of similar magnitude and function.
 - b. Certification:
 - 1) Control Systems Integrators Association (CSIA) Certification
 - 2) System integrator shall be certified and endorsed by Rockwell Automation for PLC programming.
 - 3) System integrator shall be certified and endorsed by Wonderware.
 - c. Qualification:
 - 1) Regularly engaged in the design and the installation of process control and instrumentation systems and their associated subsystems as they are applied to the municipal water and wastewater industry.
 - 2) Maintains a permanent, fully staffed and equipped service facility within 200 miles of the project site with full time employees capable of designing, documenting, fabricating, installing, calibrating, programming, configuring, providing training services, and testing the systems specified herein.
 - 3) Capable of responding to on-site problems within 12 hours of notice. Provide an on-site response within 4 hours of notification starting at two months before scheduled startup to two months after startup completion.
2. Panel Fabricator:
 - a. Experience:
 - 1) Have satisfactorily fabricated control panels for a minimum of five projects of similar magnitude and function.
 - b. Certification:
 - 1) UL508A Certification
3. PLC Programmer:
 - a. Experience:
 - 1) Have satisfactorily provided programming of control systems utilizing the same manufacturers' PLC for a minimum of five projects of similar magnitude and function.
 - b. Certification:
 - 1) Current certification by PLC manufacturer specific to PLC manufacturer equipment and development software used on project.
 - a) Current certification by Rockwell Automation for PLC programming.
4. Installation Supervisor:
 - a. Experience:
 - 1) Installation supervisor shall have had experience in overseeing installation and startup of at least three similar installations within the last 5 years.
 - b. Qualifications:
 - 1) Successfully completed ISA or manufacturer's training courses on general process instrumentation and configuration and implementation of the specific programmable controllers, computers, and software proposed for this project.
5. HMI Programmer:
 - a. Experience:
 - 1) Have satisfactorily provided HMI programming for the type of system specified herein for a minimum of five projects of similar magnitude and function.
 - b. Certification:
 - 1) Current certification by HMI software manufacturer specific to HMI manufacturer equipment and development software used on project.
 - a) Current certification by Wonderware.
6. Network Configurator:
 - a. Experience:
 - 1) Have satisfactorily provided network component configurations specified herein for a minimum of five projects of similar magnitude and function.

- b. Certification:
 - 1) Cisco Certified Network Associate (CCNA).
- C. Miscellaneous:
 - 1. Comply with electrical classifications and NEMA enclosure types shown on Drawings.

1.3 DEFINITIONS

- A. Calibrate: To standardize a device so that it provides a specified response to known inputs.
- B. Hazardous Areas: Class I, II or III areas as defined in NFPA 70.
- C. Highly Corrosive and Corrosive Areas: Rooms or areas identified on the Drawings where there is a varying degree of spillage or splashing of corrosive materials such as water, wastewater or chemical solutions; or chronic exposure to corrosive, caustic or acidic agents, chemicals, chemical fumes or chemical mixtures.
- D. Intrinsically Safe Circuit: A circuit in which any spark or thermal effect is incapable of causing ignition of a mixture of flammable or combustible material in air under test conditions as prescribed in UL 913.
- E. System Integrator: A Contractor/Subcontractor who combines instrumentation, control devices, hardware, software, and networking products from multiple vendors to provide a fully functioning control system.

1.4 SYSTEM DESCRIPTION

- A. Control System Requirements:
 - 1. This Specification Section provides the general requirements for the control system.
 - 2. The control system consists of all primary elements, transmitters, switches, controllers, computers, communication devices, recorders, indicators, panels, signal converters, signal boosters, amplifiers, special power supplies, special or shielded cable, special grounding or isolation, auxiliaries, software, wiring, and other devices required to provide complete control of the plant as specified in the Contract Documents.
 - 3. Vendor packaged systems shall use Allen Bradley PLCs as specified in the Contract Documents.
 - 4. Communications between the SCADA system and equipment vendor-provided PLCs, VFDs and other equipment, as indicated in the Contract Documents, shall be via Allen Bradley Ethernet/IP communications protocol.
 - a. Provide additional hardware and configuration as required to support SCADA communications.
- B. Utilization of System Integrator:
 - 1. Retain a System Integrator subcontractor to provide a fully functioning control system.
 - a. The System Integrator shall be responsible for the provision of an integrated control system fully functioning in accordance with the requirements of the Contract Documents.
 - b. Owner's Approved System Integrator: MR Systems, LLC.
 - 1) Contact: Sothorn Khel, 678-325-2824, skhel@mrsystems.com.
 - 2) Contractor shall cover MR Systems cost.
 - c. As a minimum, the responsibilities of the System Integrator shall include:
 - 1) Control system performance.
 - 2) Supervision of installation and final connections.
 - 3) Controller programming.
 - 4) HMI configuration.
 - 5) Calibrations.
 - 6) Computer and network equipment configuration
 - 7) Preparation of Drawings and Operation and Maintenance Manuals.
 - 8) System start-up.
 - 9) Training.

- 10) Demonstration of substantial completion and all other aspects of the control system.
 - 11) Integration of equipment and instrumentation into SCADA system.
 - 12) Network Communications.
 - 13) Modifications to existing network architecture.
 - 14) Factory testing.
 - 15) Wiring verification and loop checks.
2. Provide all required coordination of instrumentation with other work to ensure that necessary wiring, conduits, contacts, relays, converters, and incidentals are provided in order to transmit, receive, and control necessary signals to other control elements, to control panels, and to receiving stations.
 3. All instrumentation and equipment shall all be tagged as shown in the Contract Drawings and using the format described in the GCDWR SCADA System Standards and the GCDWR Intelligent P&ID Development Standards.
 4. Prior to Shop Drawing preparation, the Systems Integrator shall inspect the Owner's existing equipment and as-constructed electrical documentation so as to be able to fully coordinate the interface of new and existing instrumentation and controls.
 - a. All costs associated with this Work shall be incorporated into the original bid.
 - b. Although such Work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure, complete and compatible installation.
 5. The System Integrator shall provide a complete and working system.
 6. The System Integrator is required to make all modifications necessary to existing panels and equipment in order to accommodate additional I/O and related controls and communications hardware as required to ensure a complete and working system.
 - a. Locate and determinate and/or replace existing wiring within existing control panels associated with equipment being added or replaced in this project.
 - b. Perform all software and configuration changes as required to ensure a complete and working system.
 - c. Provide new or updated panel drawings (layout and wiring) for all panels that are modified.
 - d. Existing equipment that is removed from service shall be turned over to the Owner at their discretion.
 - e. Operation of existing communications networks shall be maintained after any associated network equipment is replaced or any other changes are made to the network.
 7. The System Integrator shall be responsible for programming the PLC and creating/ updating HMI screens for all equipment covered under the scope of this Contract in compliance with Gwinnett County Department of Water Resources SCADA System Standards documents.
 8. The System Integrator shall be responsible for making modifications to the existing Plant PLC logic as required per the Contract Documents.
 9. SCADA HMI Graphics:
 - a. Modify existing HMI as required to reflect changes to existing system and incorporate all new equipment and related controls, alarms, etc. to match existing Owner standards and preference.
 - b. Existing functionality, including all existing indications and alarms, shall be maintained on the existing HMI.
 - c. Trending and report generation for new equipment shall match existing Owner standards and preference.
 10. Sun shields are to be provided for:
 - a. Outdoor instruments and control panels with exposed displays.
 - b. Outdoor indicating transmitters.
 - c. Outdoor control panels as required to assist in maintaining interior panel temperature within the rated operating temperatures of panel components.

11. The System Integrator shall be responsible for coordinating with equipment vendors prior to and during installation and start-up.
12. System Integrator shall be responsible for adding all equipment into Owner's network architecture and network monitoring tools.

C. Control Panels

1. Control Panel supply scope includes, but is not limited to:
 - ~~a. New PLC panel LCP-78A~~
 - ~~1) A new ControlLogix PLC panel will be added on the first floor of the Dewatering Building as shown in the Contract Drawings to allow incorporation of the following equipment:~~
 - ~~a) Ferric Sulfate system equipment.~~
 - ~~b.a.~~ Truck Fill panels:
 - 1) Ferric Sulfate truck fill panel LCP-78703.
 - 2) Lime truck fill panel LCP-78405.
 - ~~e.b.~~ Valve Actuator control panels:
 - 1) Local control panel LCP-78701.
 - 2) Local control panel LCP- 78702.
 - ~~d.c.~~ Sump Pump control panels:
 - 1) Ferric Sulfate tanks containment sump pump control panel LCP-78704.
 - 2) Ferric Sulfate fill station sump pump control panel LCP-78721.
 - 3) Lime fill station sump pump control panel LCP-78406.

1.5 SUBMITTALS

A. Shop Drawings:

1. Submittals shall be original printed material or clear unblemished photocopies of original printed material.
 - a. Facsimile information is not acceptable.
2. Limit the scope of each submittal to one Specification Section.
 - a. Each submittal must be submitted under the Specification Section containing requirements of submittal contents.
 - b. Do not provide any submittals for Specification Section 40 61 13.
3. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Equipment catalog cut sheets.
 - c. Instrument data sheets:
 - 1) ISA S20 or approved equal.
 - 2) Separate data sheet for each instrument type.
 - d. Materials of construction.
 - e. Minimum and maximum flow ranges.
 - f. Pressure loss curves.
 - g. Physical limits of components including temperature and pressure limits.
 - h. Size and weight.
 - i. Electrical power requirements and wiring diagrams.
 - j. NEMA rating of housings.
 - k. Submittals shall be marked with arrows to show exact features to be provided.
4. Comprehensive asset inventory of all networked components:
 - a. Provide in Excel spreadsheet format.
 - b. Coordinate with the Owner or Engineer to determine the preferred method of delivery to assure security of information contained in asset inventory.
 - c. Include:
 - 1) Device ID.
 - 2) Manufacturer.
 - 3) Model Number.
 - 4) Serial Number.

- 5) IP Address.
 - 6) Device Use description.
 - 7) Firmware.
 5. Network Diagrams:
 - a. Provide in both AUTO CAD and PDF formats.
 - b. Coordinate with the Owner or Engineer to determine the preferred method of delivery to assure security of information contained in Network Diagrams.
 - c. Logical Network Diagram(s):
 - 1) Depict information flow through network(s), and include:
 - a) Major network devices, subnets, and VLANs.
 - b) Include all wireless communication devices.
 - c) Include the following information for each networked device:
 - (1) Device ID.
 - (2) Device description.
 - (3) Manufacturer/model number.
 - (4) IP address.
 - (5) Ports and Protocols
 - d. Physical Network Diagram(s):
 - 1) Show all network components, ports, protocols, connections and cables.
 - a) Include all wireless communication devices.
 6. Comprehensive set of wiring diagrams as specified in Section 40 67 00.
 7. Panel fabrication drawings as specified in Section 40 67 00.
 8. PLC equipment drawings.
 9. HMI graphics.
 10. Nameplate layout drawings.
 11. Drawings, systems, and other elements are represented schematically in accordance with ISA S5.1 and ISA S5.3.
 - a. The nomenclature, tag numbers, equipment numbers, panel numbers, and related series identification contained in the Contract Documents shall be employed exclusively throughout submittals.
 12. All panel and wiring drawings shall be provided in both hardcopy and softcopy.
 - a. Furnish electronic files on owner's designated electronic media.
 - b. Drawings in AUTO CAD format.
 13. Provide a parameter setting summary sheet for each field configurable device.
 14. Certifications:
 - a. Documentation verifying that calibration equipment is certified with NIST traceability.
 - b. Approvals from independent testing laboratories or approval agencies, such as UL, FM or CSA.
 - 1) Certification documentation is required for all equipment for which the specifications require independent agency approval.
 15. Testing reports: Source quality control reports.
- B. Qualifications Submittal:
1. Documentation verifying contractor/subcontractor adherence to specified certifications and qualifications
- C. Contract Closeout Information:
1. Operation and Maintenance Data:
 - a. See Specification Section 01 78 23 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.
 2. All Shop Drawings shall be modified with as-built information/corrections.
 3. Instrumentation and Control Equipment Operation and Maintenance Manual Content:
 - a. Provide a printed copy of the following sheets following the Equipment Record sheets or ISA Data Sheets.
 - 1) Loop Check-out Sheet.
 - 2) Instrument Certification Sheet.

- 3) Final Control Element Certification Sheet.
- b. Provide the following detailed information:
 - 1) Use equipment tag numbers from the Contract Documents to identify equipment and system components.
 - 2) As-constructed fabrication or layout drawings and wiring diagrams.
 - 3) As-constructed network asset inventory, and physical and logical network diagrams.
 - a) Coordinate with the Owner or Engineer to determine the preferred method of delivery to assure security of this information.
 - 4) Software Licenses:
 - a) Provide a single Software Licenses submittal with documentation of the software licenses for all software provided.
 - b) Spreadsheet including license numbers, registration records, expirations for service contracts,, and name of owner representative to whom each software has been registered with the OEM as the licensee.
 - 5) Software Recovery and Reconstitution Images:
 - a) For each control system component on which software is installed or configured under this project, provide a recovery image of the software or configuration. This image must allow for bare-metal restore such that restoration of the image is sufficient to restore system operation to the imaged state without the need for re-installation of software.
- c. Password Summary Report:
 - 1) Provide a Password Summary Report documenting the administrative password for each device and describing the procedure to change the password for each device. Do not provide the Password Summary Report in electronic format. Provide two hardcopies of the Password Summary Report, each copy in its own sealed envelope.
 - 2) Provide listing of all temporary Systems Integrator usernames setup for each device.
- d. Additional information as required in the associated equipment or system Specification Section.
4. Warranties: Provide copies of warranties and list of factory authorized service agents.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not remove shipping blocks, plugs, caps, and desiccant dryers installed to protect the instrumentation during shipment until the instruments are installed and permanent connections are made.

PART 2 - PRODUCTS

2.1 NEMA TYPE REQUIREMENTS

- A. Provide enclosures/housing for control system components in accordance with the area designations provided on the Drawings.
 1. Areas designated as wet: NEMA Type 4.
 2. Areas designated as wet and/or corrosive: NEMA Type 4X.
 3. Areas designated as Class I hazardous, Groups A, B, C, or D as defined in NFPA 70:
 - a. NEMA Type 7 unless all electrical components within enclosure utilize intrinsically safe circuitry.
 - 1) Utilize intrinsically safe circuits to the maximum extent practical and as depicted in the Contract Documents.
 4. Areas designated as Class II hazardous, Groups E, F, or G as defined in NFPA 70:
 - a. NEMA Type 9 unless all electrical components within enclosure utilize intrinsically safe circuitry.

- 1) Utilize intrinsically safe circuits to the maximum extent practical and as depicted in the Contract Documents.
5. Either architecturally or non-architecturally finished areas designated as dry, noncorrosive, and nonhazardous: NEMA Type 12.
6. Areas designated to be subject to temporary submersion: NEMA 6P.

2.2 PERFORMANCE AND DESIGN REQUIREMENTS

- A. Unless stated otherwise, system operating criteria are as follows:
 1. Stability: After controls have taken corrective action, as result of a change in the controlled variable or a change in setpoint, oscillation of final control element shall not exceed two cycles per minute or a magnitude of movement of 0.5% full travel.
 2. Response: Any change in setpoint or change in controlled variable shall produce a corresponding corrective change in position of final control element and become stabilized within 30 seconds.
 3. Agreement: Setpoint indication of controlled variable and measured indication of controlled variable shall agree within 3% of full scale over a 6:1 operating range.
 4. Repeatability: For any repeated magnitude of control signal, from either an increasing or decreasing direction, the final control element shall take a repeated position within 0.5% of full travel regardless of force required to position final element.
 5. Sensitivity: Controls shall respond to setpoint deviations and measured variable deviations within 1.0% of full scale.
 6. Performance: All instruments and control devices shall perform in accordance with manufacturer's specifications.

2.3 ACCESSORIES

- A. Provide identification devices for instrumentation system components in accordance with Specifications.
- B. Provide corrosion resistant spacers to maintain 1/4 IN separation between equipment and mounting surface in wet areas, on below grade walls and on walls of liquid containment or processing areas such as Clarifiers, Digesters, Reservoirs, etc.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Wherever feasible, use bottom entry for all conduit entry to instruments and junction boxes.
- B. Install electrical components per the requirements of the Electrical design.

3.2 FIELD QUALITY CONTROL

- A. See Section 01 75 00 and Section 40 61 21.

END OF SECTION



Loop Check-out Sheet

Project Name:		Owner's Project No. (if applicable):	Page of
Project Owner:		Regulatory Agency Project No. (if applicable):	
HDR Project		Date:	

LEAK AND TERMINATION/CONTINUITY CHECKS

DESCRIPTION	FIELD					CONTROL CAB	
	LEAK CHECK ₍₁₎			TERM/CONT CHECK ₍₂₎		TERM/CONT CHECK ₍₂₎	
	Device Tag No.	Process Conn.	Signal Tube	Device Tag No.	Termination Ident.	Device Tag No.	Termination Ident.

1. Leak check for pneumatic signal tubing to be per ISA-PR7.1.
2. Termination/continuity check includes check at terminated equipment for: (a) correct polarity, (b) appropriate signal generation, transmission and reception, and (c) correct shield & ground terminations.

OPERATOR INTERFACE CHECK-OUT

MONITORING POINTS OBSERVED

PARAMETER TYPE	TAG NO.	TAG NO.	TAG NO.	TAG NO.	TAG NO.	TAG NO.
PROCESS VAR						
EQUIP STATUS						
ALARM POINT						

OPERATOR CONTROL FUNCTIONS CHECKED

FUNCTION TYPE	TAG NO.	LOCATION	TAG NO.	LOCATION	TAG NO.	LOCATION

FINAL CONFIGURED SETTINGS

TAG NO.	SWITCH & ALARM SP	CONTROLLERS			
		Gain	Reset, rpm	Deriv. (rate), min	PV Set Point

Describe all interlocks checked, equipment started/stopped, valves/operators stroked. Describe modes of operation checked, and location of operator interface (local/remote).

I certify that the control loop referenced on this page has been completely checked and functions in accordance with applicable drawings and specifications.

Certified by: _____
(Work Performed By)

Date: _____



Instrument Certification Sheet

Project Name:	Owner's Project No. (if applicable):
Project Owner:	Regulatory Agency Project No. (if applicable):
HDR Project No.	Date:
Control Loop No.:	
Instrument Tag No.	Transmitter/gauge span:
Manufacturer:	Switch set-point:
Model No.	Switch dead band:
Serial No.	Switch range:

TRANSMITTERS AND INDICATORS

% OF SPAN	INCREASING INPUT			DECREASING INPUT		
	INPUT	OUTPUT	ERROR (% of span)	INPUT	OUTPUT	ERROR (% of span)
0%						
25%						
50%						
75%						
100%						
Other (if applicable)						
Other (if applicable)						

SWITCHES

ACTUATION POINT	INCREASING INPUT			DECREASING INPUT		
	INPUT	OUTPUT	ERROR (% of range)	INPUT	OUTPUT	ERROR (% of range)
High (Increasing input)						
Low (Decreasing input)						

Maximum allowable error (per Contract Documents): _____

Remarks: _____

CALIBRATION EQUIPMENT UTILIZED

DEVICE TYPE	MFR/MODEL NO.	ACCURACY	NIST TRACEABILITY?

Certified by: _____

Date Certified: _____

HDR Project No. 10352995

Gwinnett County Department of Water Resources
 Lanier Filter Plant Dewatering Building
 Modifications and Chemical Improvements
 PROCESS CONTROL SYSTEM GENERAL REQUIREMENTS
 40 61 13 - 11

December 2023
Issued for Bid



Final Control Element Certification Sheet

Project Name:	Owner's Project No. (if applicable):
Project Owner:	Regulatory Agency Project No. (if applicable):
HDR Project No.	Date:
Control Loop No.:	

Tag No.	Actuator: Pneumatic: _____ Electric: _____
Description:	Positioner: Direct: _____ Reverse: _____
Manufacturer:	Positioner: Input: _____ Output: _____
Model No.	I/P Converter: Input: _____ Output: _____
Serial No.	Valve to _____ on air failure
	Valve to _____ on power failure

I/P CONVERTER

% OF SPAN	INCREASING INPUT			DECREASING INPUT		
	INPUT	OUTPUT	ERROR (% of span)	INPUT	OUTPUT	ERROR (% of span)
0%						
25%						
50%						
75%						
100%						

Specified I/P converter accuracy: _____ % of span.

FINAL CONTROL ELEMENT

% OF SPAN	INCREASING INPUT			DECREASING INPUT		
	INPUT	TRAVEL	ERROR (% of full travel)	INPUT	TRAVEL	ERROR (% of full travel)
0%						
25%						
50%						
75%						
100%						

Remarks: _____

CALIBRATION EQUIPMENT UTILIZED

DEVICE TYPE	MFR/MODEL NO.	ACCURACY	NIST TRACEABILITY?

Certified by: _____

Date Certified: _____

APPENDIX 40 61 93A
PLC I/O List

I/O Tag	I/O Type	I/O Description	PID Drawing No	Processor Cabinet No	Comments	Revision	Revision Remarks
LCP-78A PLC I/O's							
LAH-78722	DI	Ferric Sulfate Fill Station Containment Sump High Level Alarm	78 I-101	LCP-78A		A	
LAH-78703A	DO	Ferric Sulfate Tanks High Level Alarm Strobe to Truck Fill Panel	78 I-101	LCP-78A		A	
LAH-78703B	DO	Ferric Sulfate Tanks High Level Alarm Horn to Truck Fill Panel	78 I-101	LCP-78A		A	
XI-78703	DI	Ferric Sulfate Tanks High Level Alarm Acknowledged from Truck Fill Panel	78 I-101	LCP-78A		A	
LI-78703A	AO	Ferric Sulfate Tank No.1 Level to Truck Fill Panel	78 I-101	LCP-78A		A	
LI-78703B	AO	Ferric Sulfate Tank No. 2 Level to Truck Fill Panel	78 I-101	LCP-78A		A	
LAH-78705	DI	Ferric Sulfate Tanks Containment Sump High Level Alarm	78 I-101	LCP-78A		A	
LI-78701	AI	Ferric Sulfate Tank No. 1 Level	78 I-101	LCP-78A		A	
LI-78702	AI	Ferric Sulfate Tank No. 2 Level	78 I-101	LCP-78A		A	
ZI-78701	DI	Ferric Sulfate Tank No. 1 Outlet Valve In Remote	78 I-101	LCP-78A		A	
HSO-78701	DO	Ferric Sulfate Tank No. 1 Outlet Valve Open Command	78 I-101	LCP-78A		A	
HSC-78701	DO	Ferric Sulfate Tank No. 1 Outlet Valve Close Command	78 I-101	LCP-78A		A	
ZIO-78701	DI	Ferric Sulfate Tank No. 1 Outlet Valve Open	78 I-101	LCP-78A		A	
ZIC-78701	DI	Ferric Sulfate Tank No. 1 Outlet Valve Closed	78 I-101	LCP-78A		A	
ZI-78702	DI	Ferric Sulfate Tank No. 2 Outlet Valve In Remote	78 I-101	LCP-78A		A	
HSO-78702	DO	Ferric Sulfate Tank No. 2 Outlet Valve Open Command	78 I-101	LCP-78A		A	
HSC-78702	DO	Ferric Sulfate Tank No. 2 Outlet Valve Close Command	78 I-101	LCP-78A		A	
ZIO-78702	DI	Ferric Sulfate Tank No. 2 Outlet Valve Open	78 I-101	LCP-78A		A	
ZIC-78702	DI	Ferric Sulfate Tank No. 2 Outlet Valve Closed	78 I-101	LCP-78A		A	
ZI-78711	DI	Ferric Sulfate Feed Pump No. 1 In Remote	78 I-101	LCP-78A		A	
XI-78711	DI	Ferric Sulfate Feed Pump No. 1 Running	78 I-101	LCP-78A		A	
XA-78711	DI	Ferric Sulfate Feed Pump No. 1 Fault	78 I-101	LCP-78A		A	
MAH-78711	DI	Ferric Sulfate Feed Pump No. 1 Leak Alarm	78 I-101	LCP-78A		A	
HS-78711	DO	Ferric Sulfate Feed Pump No. 1 Start/Stop Command	78 I-101	LCP-78A		A	
SI-78711	AI	Ferric Sulfate Feed Pump No. 1 Speed Feedback	78 I-101	LCP-78A		A	
SC-78711	AO	Ferric Sulfate Feed Pump No. 1 Speed Command	78 I-101	LCP-78A		A	
ZI-78712	DI	Ferric Sulfate Feed Pump No. 2 In Remote	78 I-101	LCP-78A		A	
XI-78712	DI	Ferric Sulfate Feed Pump No. 2 Running	78 I-101	LCP-78A		A	
XA-78712	DI	Ferric Sulfate Feed Pump No. 2 Fault	78 I-101	LCP-78A		A	
MAH-78712	DI	Ferric Sulfate Feed Pump No. 2 Leak Alarm	78 I-101	LCP-78A		A	
HS-78712	DO	Ferric Sulfate Feed Pump No. 2 Start/Stop Command	78 I-101	LCP-78A		A	
SI-78712	AI	Ferric Sulfate Feed Pump No. 2 Speed Feedback	78 I-101	LCP-78A		A	
SC-78712	AO	Ferric Sulfate Feed Pump No. 2 Speed Command	78 I-101	LCP-78A		A	

APPENDIX 40 61 93A
PLC I/O List

I/O Tag	I/O Type	I/O Description	PID Drawing No	Processor Cabinet No	Comments	Revision	Revision Remarks
ZI-78713	DI	Ferric Sulfate Feed Pump No. 3 In Remote	78 I-101	LCP-78A		A	
XI-78713	DI	Ferric Sulfate Feed Pump No. 3 Running	78 I-101	LCP-78A		A	
XA-78713	DI	Ferric Sulfate Feed Pump No. 3 Fault	78 I-101	LCP-78A		A	
MAH-78713	DI	Ferric Sulfate Feed Pump No. 3 Leak Alarm	78 I-101	LCP-78A		A	
HS-78713	DO	Ferric Sulfate Feed Pump No. 3 Start/Stop Command	78 I-101	LCP-78A		A	
SI-78713	AI	Ferric Sulfate Feed Pump No. 3 Speed Feedback	78 I-101	LCP-78A		A	
SC-78713	AO	Ferric Sulfate Feed Pump No. 3 Speed Command	78 I-101	LCP-78A		A	
ZI-78714	DI	Ferric Sulfate Feed Pump No. 4 In Remote	78 I-101	LCP-78A		A	
XI-78714	DI	Ferric Sulfate Feed Pump No. 4 Running	78 I-101	LCP-78A		A	
XA-78714	DI	Ferric Sulfate Feed Pump No. 4 Fault	78 I-101	LCP-78A		A	
MAH-78714	DI	Ferric Sulfate Feed Pump No. 4 Leak Alarm	78 I-101	LCP-78A		A	
HS-78714	DO	Ferric Sulfate Feed Pump No. 4 Start/Stop Command	78 I-101	LCP-78A		A	
SI-78714	AI	Ferric Sulfate Feed Pump No. 4 Speed Feedback	78 I-101	LCP-78A		A	
SC-78714	AO	Ferric Sulfate Feed Pump No. 4 Speed Command	78 I-101	LCP-78A		A	
PAH-78711	DI	Ferric Sulfate Feed Pump No. 1 High Pressure Alarm	78 I-101	LCP-78A		A	
PAH-78712	DI	Ferric Sulfate Feed Pump No. 2 High Pressure Alarm	78 I-101	LCP-78A		A	
PAH-78713	DI	Ferric Sulfate Feed Pump No. 3 High Pressure Alarm	78 I-101	LCP-78A		A	
PAH-78714	DI	Ferric Sulfate Feed Pump No. 4 High Pressure Alarm	78 I-101	LCP-78A		A	
FAH-78706	DI	Ferric Sulfate Eye Wash Shower Alarm	78 I-101	LCP-78A		A	
XA-78790A	DI	LCP-78A Panel UPS Fault	78 I-102	LCP-78A		A	
XI-78790	DI	LCP-78A Panel UPS On Battery	78 I-102	LCP-78A		A	
XA-78790B	DI	LCP-78A Panel UPS Battery Alarm	78 I-102	LCP-78A		A	
XA-78790C	DI	LCP-78A Panel Intrusion	78 I-102	LCP-78A		A	
XA-78790D	DI	LCP-78A Panel DC Power Supply Fail	78 I-102	LCP-78A		A	
FAH-78142	DI	Chemical Fill Station Eye Wash Shower Alarm	78 I-102	LCP-78A		A	

APPENDIX 40 61 93A
PLC I/O List

I/O Tag	I/O Type	I/O Description	PID Drawing No	Processor Cabinet No	Comments	Revision	Revision Remarks
Existing Lime System PLC (LCP-xx) I/O's							
LAH-78407	DI	Lime Fill Station Containment Sump High Level Alarm	78 I-102	LCP-78A		A	
LAH-78405A	DO	Lime Tank High Level Alarm Strobe to Truck Fill Panel	78 I-102	LCP-78A		A	
LAH-78405B	DO	Lime Tank High Level Alarm Horn to Truck Fill Panel	78 I-102	LCP-78A		A	
XI-78405	DI	Lime Tank High Level Alarm Acknowledged from Truck Fill Panel	78 I-102	LCP-78A		A	
LI-78405	AO	Lime Tank Level to Truck Fill Panel	78 I-102	LCP-78A		A	

SECTION 46 33 11
CHEMICAL FEED - LIQUID SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Chemical metering pumps for:
 - a. Ferric Sulfate.
 - 2. System accessories.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Section 01 61 03 - Equipment - Basic Requirements.
 - 2. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.
 - 3. Section 40 05 51 - Valves - Basic Requirements.
 - 4. Section 40 61 96 – Process Control Descriptions.
 - 5. Section 43 21 00 - Pumping Equipment - Basic Requirements.

1.2 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. National Electrical Manufacturers Association (NEMA):
 - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. Secure and coordinate entire system including but not necessarily limited to metering pumps, electric equipment, controls, hardware, valving, and piping through the metering pump manufacturer.

1.3 SYSTEM DESCRIPTION

- A. System shall be supplied through a single source and include all components specified herein.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 61 03.
 - 2. Drawings and product data:
 - a. See Specification Section 43 21 00.
 - b. Pump:
 - 1) Chemical resistance data for materials used.
 - 2) Complete performance information:
 - a) Capacity, operating range.
 - b) Pressure rating.
 - c) NPSH required.
 - d) Stroke speed, length.
 - e) Horsepower required.
 - f) Plunger diameter.
 - c. Valves:
 - 1) See Specification Section 40 05 51.
 - d. Piping:
 - 1) See Specification Section 40 05 00.
 - e. Control modes.
- B. Contract Closeout Information:
 - 1. Operation and Maintenance Data:
 - a. See Specification Section 01 78 23 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.

1.5 PROJECT CONDITIONS

A. Pumped Liquid:

LIQUID	SPECIFIC GRAVITY	TEMP DEGF
Ferric Sulfate	1.5-1.6	50-85

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

- 1. Metering pumps and accessories:
 - a. Watson Marlow.
 - b. Or approved equal.

2.2 METERING PUMPS

A. Materials:

- 1. Positive Displacement Peristaltic Type:
 - a. Process Fluid shall be contained within tubing and shall not directly contact any rotary or metallic components during normal operation.
 - b. Tubing material and size shall be appropriate for chemical service
 - c. Tube material: PTFE
 - d. Housing material: Manufacturer recommended

B. Pump Performance and Design Requirements:

- 1. Ferric Sulfate Feed Pumps No. 1-3 shall have the following characteristics:
 - a. Tag numbers: ~~MPM-78201, MPM-7802, MPM-7803~~ MPM-78711, MPM-78712, MPM-78713, MPM-78714.
 - b. Chemical: Ferric Sulfate.
 - c. Heads/unit: 1.
 - d. Capacity/head (GPH): 30.
 - e. Discharge pressure (PSI): 30
 - f. Pump speed control: Variable
 - g. Electrical requirements: 120V, single phase.
- 2. Ferric Sulfate Feed Pump No. 4 shall have the following characteristics:
 - a. Tag number: MPM-78204.
 - b. Chemical: Ferric Sulfate.
 - c. Heads/unit: 1
 - d. Capacity/head (GPH): 250.
 - e. Discharge pressure (PSI): 30
 - f. Pump speed control: Variable
 - g. Electrical requirements: 120V, single phase.

C. Pump Fabrication:

- 1. Pump:
 - a. Ball-check inlet and outlet valves.
 - b. Moving parts totally enclosed and self-lubricating.
 - c. Complete external control with 10:1 minimum manual stroke adjustment, adjustable while operating.
 - d. Capable of operating dry without damage to any component.
 - e. Repeatable accuracy: 1% of maximum output or better.

- f. Nameplate with chemical, capacity (GPH) and pressure (PSI) ratings.
 - 2. Drive:
 - a. Motors:
 - 1) TENV.
 - 2) See Specification Section 01 61 03.
 - b. Speed reducers permanently lubricated.
 - c. Hydraulic drives to automatically vent gases and relieve excess pressures.
 - 3. Support:
 - a. Mount pump and drive on common support plates.
 - b. Fabricate to withstand all operating loads.
 - c. Provide anchorage of support.
 - 4. Controls:
 - a. Solenoid pumps:
 - 1) ON-OFF switch with local speed control (0-100%) or pulse frequency or 4-20 mA input signal.
 - 2) See Specification Section 40 61 96.
 - b. Motor drive:
 - 1) ON-OFF switch with SCR drive with 20:1 range. Local manual speed control or 4-20 mA input signal.
 - 2) See Specification Section 40 61 96.
- D. Spare Parts:
- 1. Provide the following spare parts for each metering pump:
 - a. One set "O" rings and gaskets.
 - b. One each diaphragm.
 - c. One set ball checks and seats.
 - d. One can hydraulic fluid (1 quart minimum).

2.3 SYSTEM ACCESSORIES

- A. Provide each accessory listed for each metering pump or as shown on Drawings:
- 1. Calibration chamber:
 - a. PVC, graduated in ml.
 - b. Size: 1,000 ML.
 - c. Include isolation ball valve.
 - 2. Pressure relief valve:
 - a. PVC or Kynar with TFE or hypalon with TFE facing diaphragm.
 - b. External pressure setting.
 - c. Sized for pump capacity.
 - d. Pipe discharge to supply tank.
 - 3. Back pressure valve:
 - a. PVC or Kynar with TFE or hypalon with TFE facing diaphragm.
 - b. External pressure setting.
 - c. Sized for pump capacity.
 - 4. Pulsation dampener:
 - a. Wetted components: PVC.
 - b. Sized for 5% variation from average pressure.
 - c. Provide stainless steel pressure gage, 2.5 IN DIA dial, glycerine-filled and gas fill valve.
- B. Miscellaneous Accessories:
- 1. Ferric Sulfate Metering pump table:
 - a. Quantity required: ~~41~~.
 - b. ~~Dimensions (approximate):~~
 - ~~1) Height: 2' 3".~~
 - ~~2) Width: 1'-4" 2'-0".~~
 - ~~2) Length: 1'-6" 8'-0".~~

- 3) Thickness: 1/4".
 - c. Materials: 1/8" 316 stainless steel~~304 stainless or fiberglass reinforced plastic.~~
 - e.d. Table shall be mounted to the wall as shown on Drawings.
- 2. Main connection:
 - a. Corporation cock type.
 - b. Pipe NPT size: 1 IN DIA.
 - c. Provide corporation cock with compression fitting for solution tube.
 - d. Provide 1 IN DIA PVC solution isolation ball and check valves.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. See Specification Section 01 61 03.

3.2 DEMONSTRATION

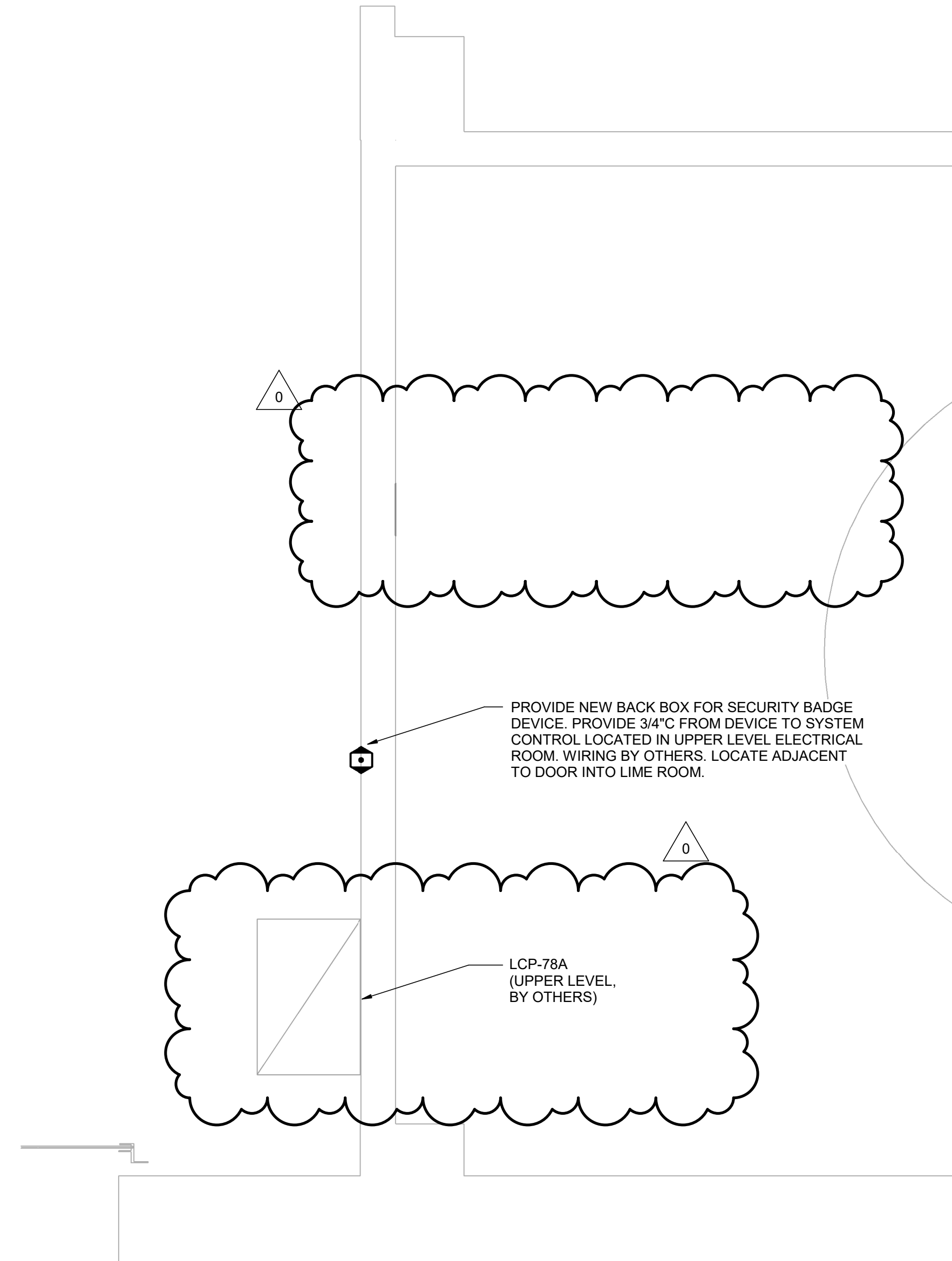
- A. See Specification Section 01 75 00.

END OF SECTION

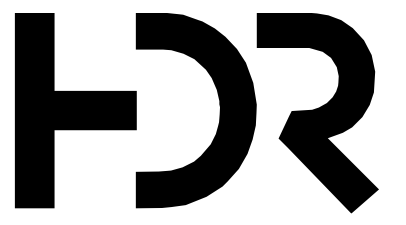


PANEL LCP 78A LOCATION - LIME
AREA UPPER LEVEL

NOT TO SCALE



1
78
E-101 LIME STORAGE PUMPS AREA
1/2" = 1'-0"



HDR Engineering, Inc.
1100 Peachtree Street NE
Suite 400
Atlanta, GA 30309

CONSULTANT PROJ. NO. 10352995



LAWRENCEVILLE, GA

GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

**LANIER FILTER PLANT
DEWATERING
BUILDING
MODIFICATIONS AND
CHEMICAL
IMPROVEMENTS**

GCDWR PROJ. NO. F-1447-01

NO.	DATE	ISSUED FOR	BY
0	01/2024	ADDENDUM #2	
	12/2023	ISSUED FOR BID	
	08/2023	ISSUED FOR PERMITTING	

DATE	2023-12-13
DESIGNED BY	J. SACHAREWITZ
DRAWN BY	J. SACHAREWITZ
CHECKED BY	J. VAN TASSEL
APPROVED BY	STUART JEFFCOAT, PE

ELECTRICAL

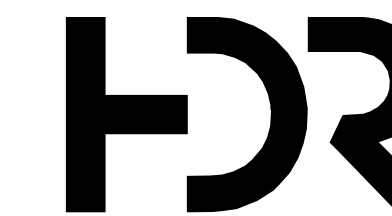
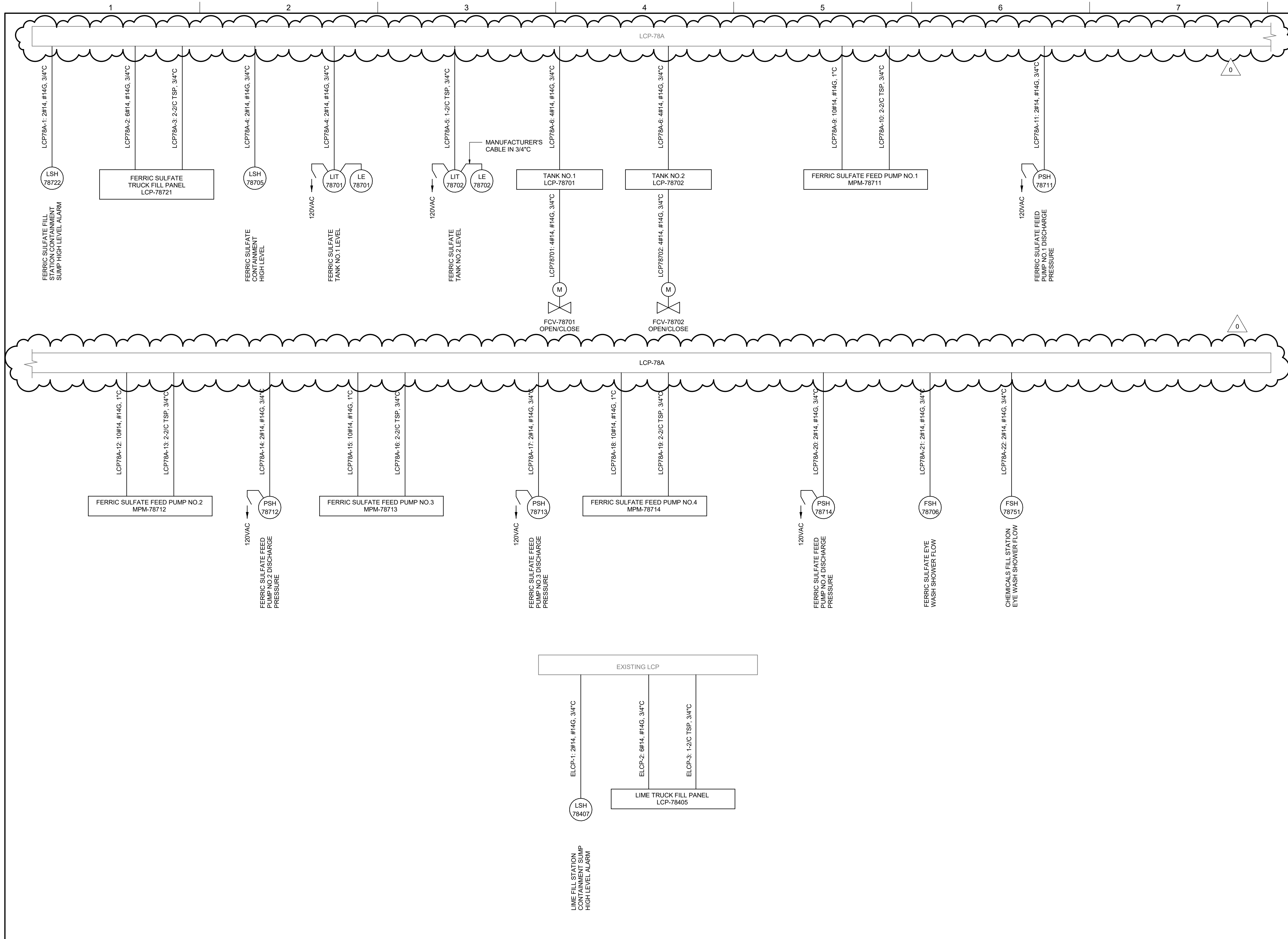
78 E-102

**DEWATERING
BUILDING LOWER
LEVEL ENLARGED
PLAN**

SCALE: As indicated

SHEET 101 OF 109

Autodesk_Docs/10352995_Gwinnett-LFP_Coagulant_Feed_PR_2022/10352995-02.E1.vt
1/12/2024 10:04:52 AM



HDR Engineering, Inc.
1100 Peachtree Street NE
Suite 400
Atlanta, GA 30309

CONSULTANT PROJ. NO. 10352995



LAWRENCEVILLE, GA
GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

**LANIER FILTER PLANT
DEWATERING
BUILDING
MODIFICATIONS AND
CHEMICAL
IMPROVEMENTS**

GCDWR PROJ. NO. F-1447-01

NO.	DATE	ISSUED FOR	BY
0	01/2024	ADDENDUM #2	
	12/2023	ISSUED FOR BID	
	08/2023	ISSUED FOR PERMITTING	

DATE 2023-12-13
DESIGNED BY J. SACHAREWITZ
DRAWN BY J. SACHAREWITZ
CHECKED BY J. VAN TASSEL
APPROVED BY STUART JEFFCOAT, PE

ELECTRICAL

78 E-604

CONDUIT RISER

SCALE: NOT TO SCALE

SHEET 107 OF 109



CONSULTANT PROJ. NO. 10352995

NOT FOR CONSTRUCTION



LAWRENCEVILLE, GA
GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

LANIER FILTER PLANT
DEWATERING
BUILDING
MODIFICATIONS AND
CHEMICAL
IMPROVEMENTS

GCDWR PROJ. NO. F-1447-01

NO.	DATE	ISSUED FOR	BY
0	01/2024	ADDENDUM #2	
	12/2023	ISSUED FOR BID	
	08/2023	ISSUED FOR PERMITTING	

DATE 2023-12-13
 DESIGNED BY M. ELWAZZAN
 DRAWN BY Z. PIERCE
 CHECKED BY D. GIEDT
 CHECKED BY _____
 APPROVED BY DANIEL GIEDT

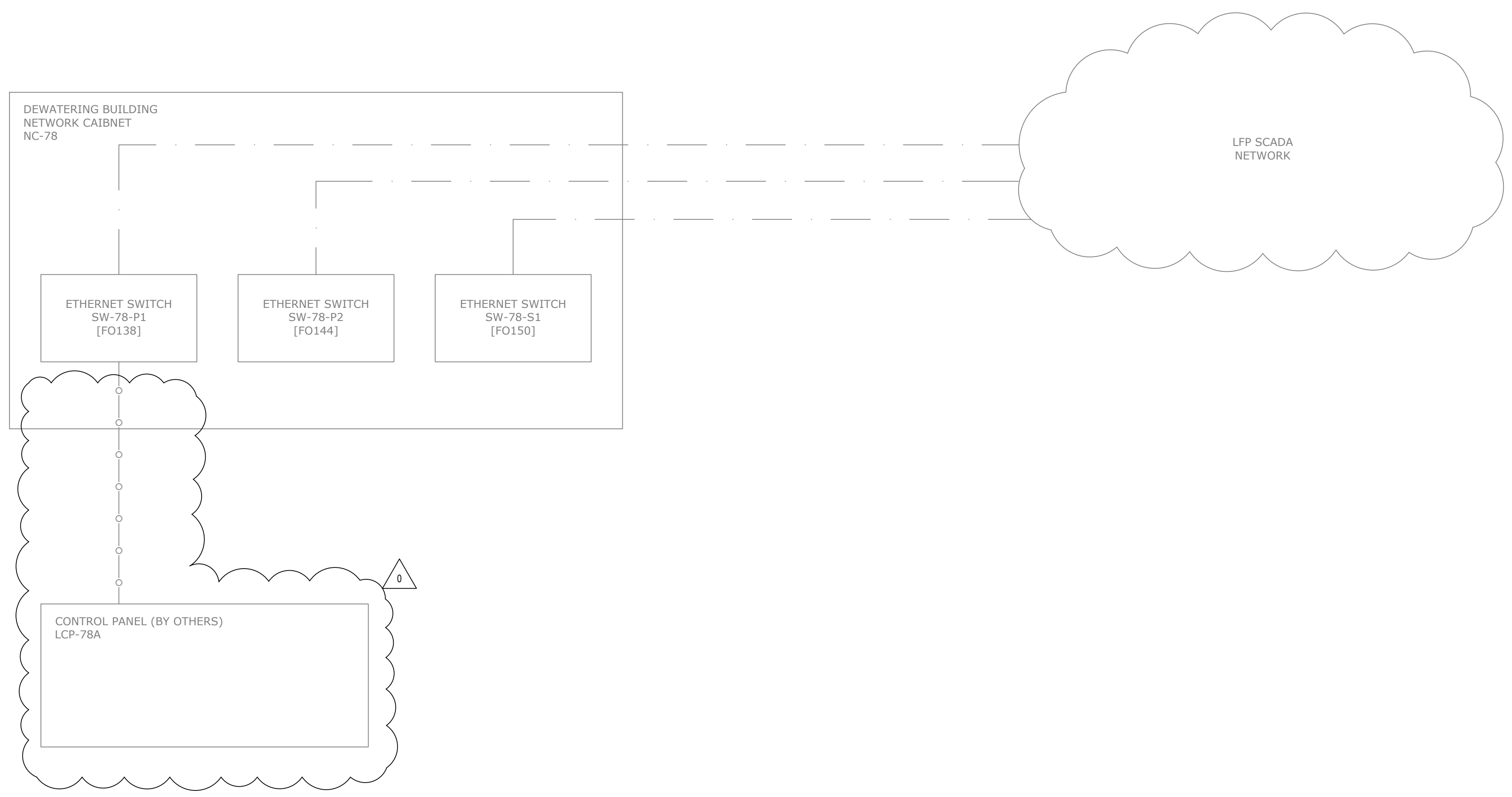
INSTRUMENTATION

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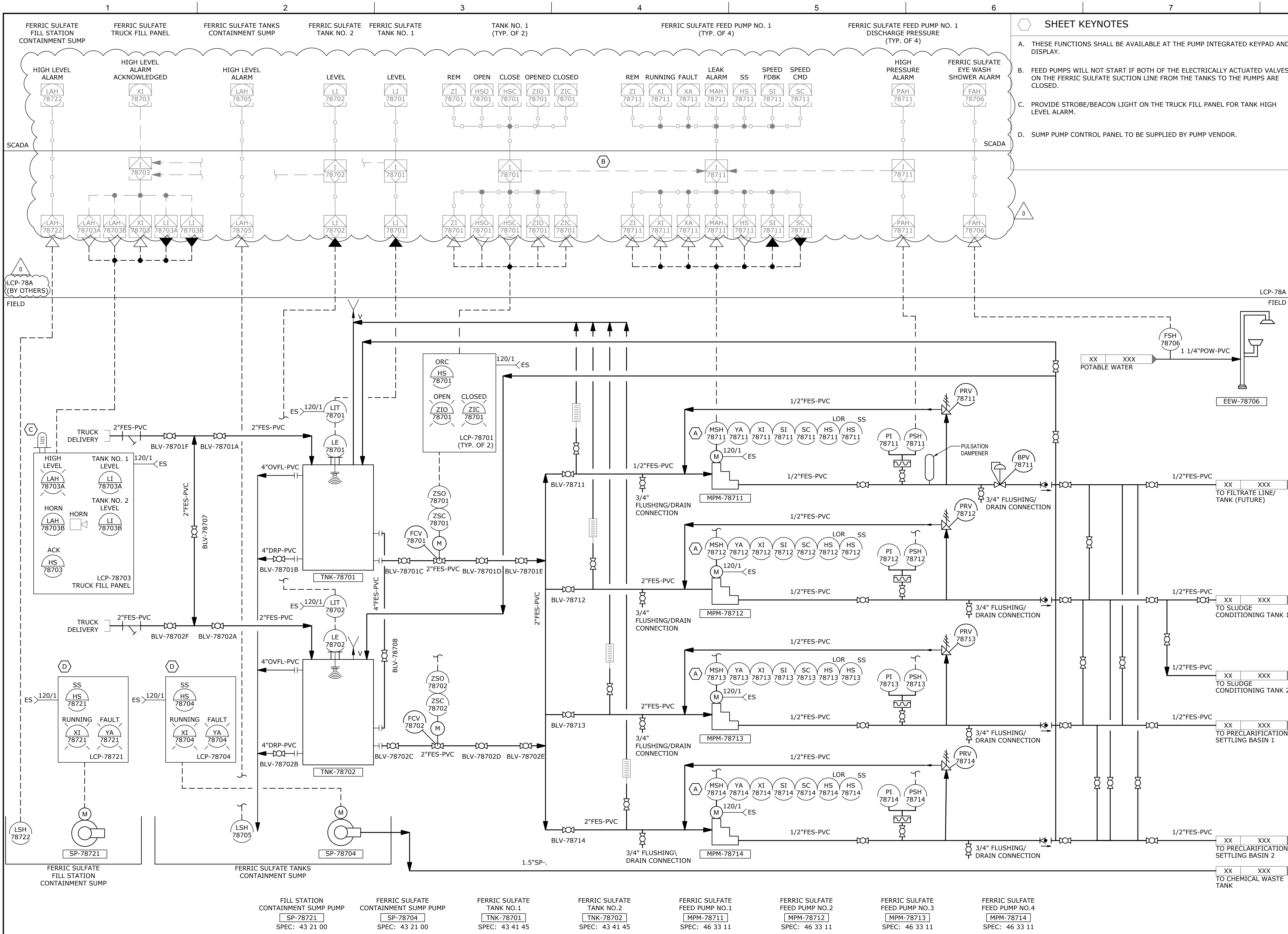
SCADA NETWORK
ARCHITECTURE
BLOCK DIAGRAM

SCALE: NOT TO SCALE

SHEET 13 OF 109



LEGEND	
— 0 —	COPPER ETHERNET
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- SHEET KEYNOTES**
- A. THESE FUNCTIONS SHALL BE AVAILABLE AT THE PUMP INTEGRATED KEYPAD AND DISPLAY.
 - B. FEED PUMPS WILL NOT START IF BOTH OF THE ELECTRICALLY ACTUATED VALVES ON THE FERRIC SULFATE SUCTION LINE FROM THE TANKS TO THE PUMPS ARE CLOSED.
 - C. PROVIDE STROBE/BEACON LIGHT ON THE TRUCK FILL PANEL FOR TANK HIGH LEVEL ALARM.
 - D. SUMP PUMP CONTROL PANEL TO BE SUPPLIED BY PUMP VENDOR.



CONSULTANT PROJ. NO. 10352995

NOT FOR CONSTRUCTION



LAWRENCEVILLE, GA
GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES

**LANIER FILTER PLANT
DEWATERING
BUILDING
MODIFICATIONS AND
CHEMICAL
IMPROVEMENTS**

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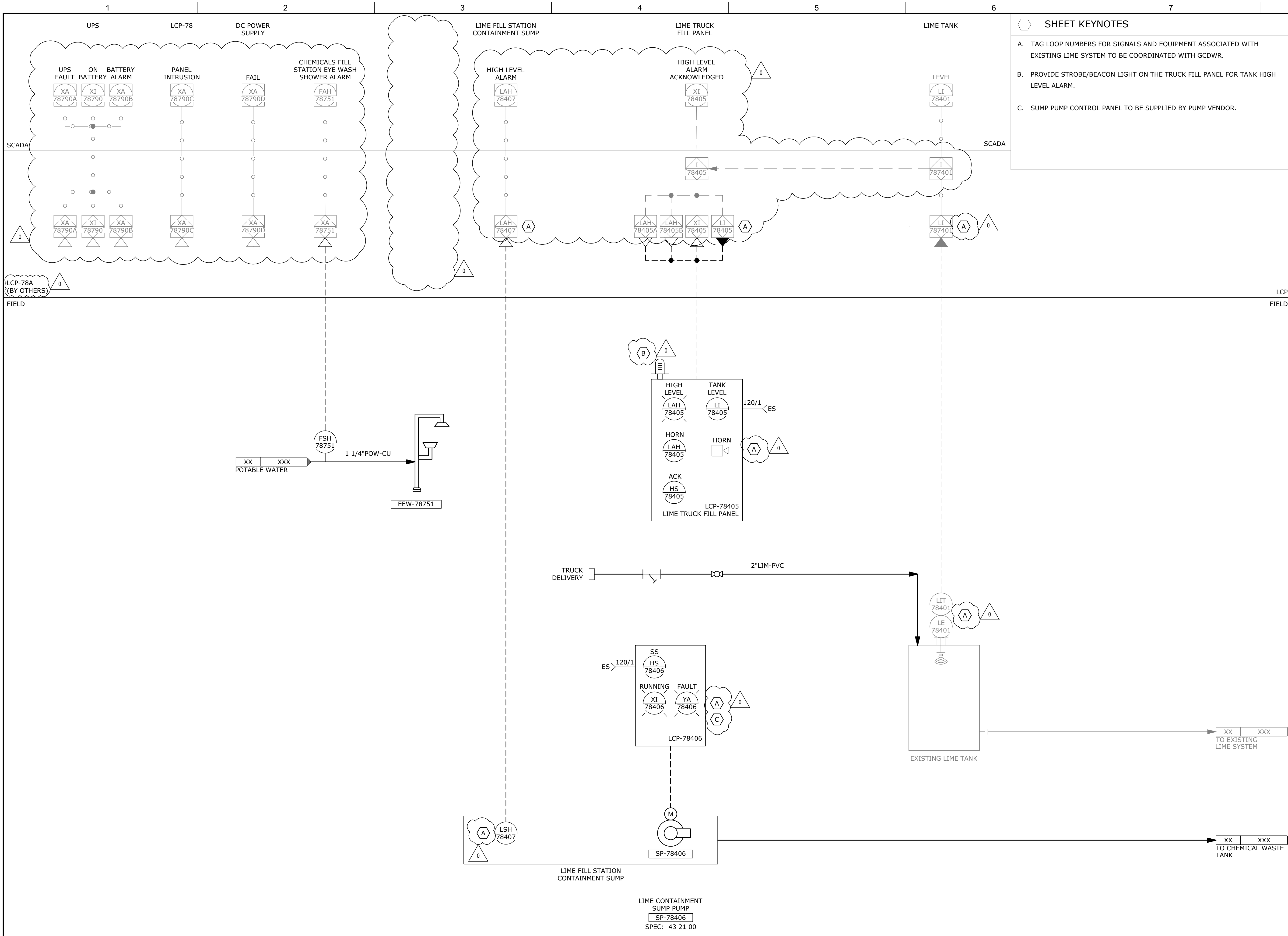
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CHECKED BY	
APPROVED BY	DANIEL GIEDT

INSTRUMENTATION

78 I-101
**FERRIC SULFATE
SYSTEM P&ID**

SCALE: NOT TO SCALE

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SHEET KEYNOTES

- A. TAG LOOP NUMBERS FOR SIGNALS AND EQUIPMENT ASSOCIATED WITH EXISTING LIME SYSTEM TO BE COORDINATED WITH GCDWR.
- B. PROVIDE STROBE/BEACON LIGHT ON THE TRUCK FILL PANEL FOR TANK HIGH LEVEL ALARM.
- C. SUMP PUMP CONTROL PANEL TO BE SUPPLIED BY PUMP VENDOR.

HDR Engineering, Inc.
1100 Peachtree Street NE
Suite 400
Atlanta, GA 30309

CONSULTANT PROJ. NO. 10352995

NOT FOR CONSTRUCTION

Gwinnett
Water Resources

LAWRENCEVILLE, GA

**GWINNETT COUNTY
DEPARTMENT OF WATER
RESOURCES**

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DEWATERING
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DRAWN BY: Z. PIERCE

CHECKED BY: D. GIEDT

APPROVED BY: DANIEL GIEDT

INSTRUMENTATION

78 I-102

**LIME SYSTEM
FILL STATION
P&ID**

SCALE: NOT TO SCALE

SHEET 109 OF 109

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