To: All Plan Holders of Record

From: Verdantas LLC
For the Owner

Re: ***Addendum No. 3***
WWTP & LS Improvements
Contract A – WWTP Improvements
Contract B – Brooklyn Street LS Improvements
City of Port Clinton, Ohio

Date: October 27, 2026

This Addendum forms a part of the contract documents and modifies the original bidding documents dated October 2026 and all previous addenda, if any. Acknowledge receipt of this addendum in the space provided in the bid forms. Failure to do so may subject the bidder to disqualification.

QUESTIONS AND ANSWERS

Q1. Should the new disconnects for the 100 HP pumps be 200A?

A1. Yes, see revised Revised Plan Sheets 27/31 and 28/31 enclosed in this Addendum.

Q2. Per drawing 00E-04 seven (7) total new VFD's for the various pumps at the WWTP site are shown. Can you please advise who is to provide the VFD's and more details on the VFD's?

A2. The VFD's will be procured and installed as part of the Contract A Scope of Work. The design intent is to replace in-kind from the breakers to new pumps (pumps procured and installed by Owner); new VFD's that will maintain the same operational functionality and level of controls/service as the existing units, including the current Bypass Capability. Refer to Specification Section 26 29 23 – Variable Frequency Motor Controllers, enclosed with this Addendum for more details.

Q3. Are the (2) ADF and (2) RSS pumps just manufacturer cord between the disconnects and the pumps the entire way or will some conduit work be required on the load side of the disconnect?

A3. VFD rated listed cable from secondary side of VFD to disconnect. Rated cord with pump to disconnect is acceptable if provided with the pump, otherwise continue VFD to pump. Cable should be armored and protected in raceway.

Q4. Is the conduit and wire being replaced between the (3) 10 HP VFD's and the secondary pumps?

A4. As described in Construction Note No.1 on Sheet 00E-04, new wire and conduit from source to load is all new.

Q5. Can further details be provided for the work associated with Construction Note No.1 on drawing 20E-01, in relation to the duct detectors?

A5. Current design is code compliant. Contractor is only to verify if the current equipment utilize similar duct detectors. If so, Contractor shall notify the Owner for coordination work to be completed by the Fire Alarm Vendor outside the scope of work for this project. No work related to any fire alarm system is included in the scope of work for this project.

Q6. Can you advise if the equipment labeled as EF-1 and EF-2 on Sheets 30M-01 and 30M-02 are new HVAC equipment items to be furnished and installed as part of the project and need to be rewired?

A6. These are existing to remain, no electrical work is required.

Q7. Does the coating on the existing piping at the WWTP contain lead?

A7. No, the existing coating system does contain lead paint.

Q8. Can further details be provided for the work associated with Construction Note No.2 on drawing 20E-01?

A8. Contractor is to verify if the current units have the monitored. If so, Contractor will reconnect monitoring points to the new unit, and verify signal is captured.

Q9. Is any SCADA programming work required in relation to the work described under Construction Note No.2 on drawing 20E-01?

A9. No rewiring or programming is expected unless the existing switches, wiring or associated components are damaged during the installation of the proposed units.

Q10. Can you please specify a material type for the new MAU support steel shown on drawing 20S-01?

A10. The framing members shall match the existing AISC channels. Refer to the Structural General Notes on drawing 00S-01 for additional information.

SPECIFICATIONS

In Specification Section 015000 – Temporary Facilities and Controls,
Add the following paragraph to section 1.5 after paragraph C.:

D. Heating Units: shall be electric, fan forced with finned tubular heating elements, listed and labeled as defined in NFPA 70, certified by UL, and marked for intended location and application. Use of fuel burning (natural gas, liquid-propane, gasoline, fuel-oil, etc). heating units is prohibited.

Add Specification Section 26 29 23 – Variable Frequency Motor Controllers to the Contract Documents.

PLANS

Replace Plan Sheet 27/31 with the enclosed Revised Plan Sheet 27/31.

Replace Plan Sheet 28/31 with the enclosed Revised Plan Sheet 28/31.

EF:mep

Enclosures

Z:\Project Files\OA-PZ\Portclinton\33943 - Port Clinton WWTP & LS Improvements\Working\Bid Documents\Addenda\Addendum 03\Addendum 03.Doc

SECTION 26 29 23 - VARIABLE-FREQUENCY MOTOR CONTROLLERS

1. PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes electronic controlled variable frequency motor starter drives, VFD.

1) Related Specifications: The specifications located on Sheets 00E-01 and 00E-02 contain requirements that relate to this section.:

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

B. Product data for busway products indicating exact catalog numbers to be provided, type of enclosure, bus bar material, and confirmation of other data as specified.

C. Coordination Drawings: Layout floor plans and elevations showing busway system. Designate components and accessories including clamps, brackets, hanger rods, bus plugs, tap boxes, expansion joints, straight lengths, fittings, fire stops, and weather seals. Show accurately scaled components and spacial relationships to adjacent equipment and building features. Show busway types, dimensions, and finishes.

1.4 QUALITY ASSURANCE

A. Variable frequency drives and motor starters shall comply with applicable requirements of the latest standards of ANSI, IEEE, NEMA, AND NEC.

B. Each drive or starter shall be UL Listed.

C. Drives used throughout a project site shall be provided by the same manufacturer for all applications

D. Audible motor drive noise shall within 5 db of across line noise operation.

1.5 WARRANTY/TRAINING

A. Manufacturer shall warrant complete drive system for a period of 5 years.

B. A factory trained representative shall provide a minimum of 8 hours on-site training to Owner selected personnel on the operation and maintenance of each drive installed.

2. PART 2 - PRODUCTS

2.1 VARIABLE FREQUENCY DRIVE

A. GENERAL DESCRIPTION

1) The AC Drive shall be provided by Square D Company, Class 8839, Type ATV-58, General Electric Fuji AF-300 P11, or equal by Siemens.

2) A mechanical interlock shall prevent an operator from opening the AC Drive door when the disconnect is in the ON position. Another mechanical interlock shall prevent an operator from placing the disconnect in the ON position while the AC Drive door is open. It shall be possible for authorized personnel to defeat these interlocks.

3) Provisions shall be provided for locking all disconnects in the OFF position with up to three padlocks.

4) Current limiting fuses shall be installed and wired to the AC Drive input.

5) Provisions shall be made for accepting a padlock to lock the enclosure door.

B. APPLICATION DATA

1) The AC Drive shall be sized to operate a variable torque low noise load.

2) The speed range shall be from a minimum speed of 0.5 Hz to a maximum speed of 400 Hz.

C. ENVIRONMENTAL RATINGS

1) The AC Drive shall be designed to operate in an ambient temperature from 0°C to 40°C (32°F to 104°F).

2) The storage temperature range shall be -25°C to 70°C (-13°F to 158°F).

3) The maximum relative humidity shall be 95% at 40°C (104°F), non condensing.

4) The AC drive shall be rated to operate at altitudes less than or equal to 3,300 ft. (1000m).

D. RATINGS

1) The AC Drive shall be designed to operate from an input voltage of 208 15% VAC.

2) The AC Drive shall operate from an input voltage frequency range from 47.5 to 63 Hz.

3) The displacement power factor shall not be less than .95 lagging under any speed or load condition.

4) The efficiency of the AC Drive at 100% speed and load shall not be less than 96%.

5) The output carrier frequency of the AC Drive shall be randomly modulated and selectable at 2,4, or 10kHz depending on Drive rating for low noise operation. No AC Drive with an operable carrier frequency above 10kHz shall be allowed.

6) The output frequency shall be from 0.1 to 400 Hz for Drives up to 75 hp.

E. PROTECTION

1) Upon power-up the AC Drive shall automatically test for valid operation of memory, option module, loss of analog reference input, loss of communication, dynamic brake failure, dc to dc power supply, control power and the pre-charge circuit.

2) The AC Drive shall be UL 508C listed for use on distribution systems with 10,000 A rms available fault current. The power converter shall meet short circuit with standability of 65,000 rms symmetrical amperes as defined by NEMA ICS 7.1.09 and have the value listed on the AC Drive nameplate.

3) The power converter shall be protected against short circuits, between output phases and ground; and the logic and analog outputs.

4) The AC Drive shall have a minimum ac undervoltage power loss ride-through of 200 milliseconds. The AC Drive shall have the user defined option of frequency fold-back to allow motor torque production to continue to increase the duration of the power loss ride-through.

5) The AC drive shall have a selectable ride through function which will allow the logic to maintain control fro a minimum of one second without faulting.

6) For a fault condition other than a ground fault, short circuit or internal fault, an auto restart function will provide up to 5 programmable restart attempts. The programmable time delay before restart attempts will range from 1 second to 600 seconds.

7) The deceleration mode of the AC Drive shall be programmable fro normal and fault conditions. The stop modes shall include free-wheel stop, fast stop and dc injection braking.

8) Upon loss of the analog process follower reference signal, the AC Drive shall fault and/or operate at a user defined speed set between software programmed low speed and high speed settings.

9) The AC Drive shall have a thermal switch with a user selectable prealarm that will provide a minimum of 60 seconds delay before over temperature fault.

10) The AC Drive shall utilize bonded fin heatsink construction for maximum heat transfer.

11) The AC Drive shall have a programmable fold-back function that will anticipate a controller overload condition and fold back the frequency to avoid a fault condition.

12) The output frequency shall be software enabled to fold back when the motor is overloaded.

13) There shall be 3 skip frequency ranges that can each be programmed with a selectable bandwidth of 2 or 5 Hz. The skip frequencies shall be programmed independently, back to back or overlapping.

14) The AC Drive shall include Metal Oxide Varistors (MOV's) wired to the incoming AC Mains.

15) Provide any necessary filtering circuits or "chokes" if required for this drive to operate properly.

16) Isolation transformers shall be provided in stand-alone NEMA 1 enclosures for mounting separately from the AC Drive.

F. ADJUSTMENTS AND CONFIGURATIONS

1) The AC Drive shall self-configure to the main operating supply voltage and frequency. No operator adjustments will be required.

2) Upon power-up, the AC Drive will automatically send a signal to the connected motor and store the resulting resistance data into memory. The inductance data will be measured during no-load operation when operating at a frequency between 20-60 Hz. The AC Drive will automatically optimize the operating characteristics according to the stored data.

3) The AC Drive will be factory pre-set to operate most common applications.

4) A choice of three types of acceleration and deceleration ramps will be available in the AC Drive software; linear, S curve and U curve.

5) The acceleration and deceleration ramp times shall be adjustable from .1 to 999.9 seconds.

6) The volts per frequency ratios shall be user selectable to meet variable torque loads, normal and high torque machine applications.

7) The memory shall retain and record run status and fault type of the past 8 faults.

8) Slip compensation shall be a software enabled function.

9) The software shall have a NOLD (no load) function that will reduce the voltage to the motor when selected for variable torque loads. A constant volts Hz ratio will be maintained during acceleration. The output voltage will then automatically adjust to meet the torque requirement of the load.

10) The AC Drive shall offer programmable dc injection braking that will brake the ac motor by injecting dc current and creating a stationary magnetic pole in the stator. The level of current will be adjustable between 50-150% of rated current and available from 0.0-30 seconds continuously. For continuous operation after 30 seconds, the current shall be automatically reduced to 50% of the nameplate current of the motor.

11) Sequencing logic will coordinate the engage and release thresholds and time delays for the sequencing of the AC Drive output, mechanical actuation and dc injection braking in order to accomplish smooth starting and stopping of a mechanical process.

G. OPERATOR INTERFACE

1) The display will be high resolution, LCD backlighted screen capable of displaying graphics such as bar graphics such as bar graphs as well as six lines of twenty-one alphanumeric characters.

2) The AC Drive model number, torque type, software revision number, horsepower, output current, motor frequency and motor voltage shall all be listed on the drive identification display as viewed on the LCD display.

3) The display shall be configured to display one or two bar graphs with numeric data that are selectable and scalable by the operator. A user defined label function shall be available. As a minimum the selectable outputs shall consist of speed reference, output frequency, output current, motor torque, output power, output voltage, line voltage, dc voltage, motor thermal state, drive thermal state, elapsed time, motor speed, machine speed reference and machine speed.

4) A single keystroke scrolling function shall allow dynamic switching between display variables.

5) The terminal keypad will consist of programmable function keys. The functions will allow both operating commands and programming options to be preset by the operator. A hardware selector switch will allow the terminal keypad to be locked out from unauthorized personnel.

6) The operator terminal will offer a general menu consisting of parameter setting, I/O map, fault history, and drive configuration. A software lock will limit access to the main menu. The main menu will consist of keypad configuration, drive configuration, general configuration, diagnostic mode and drive initialization screens.

7) There will be arrow keys that will provide the ability to scroll through menus and screens, select or activate functions or increase the value of a selected parameter.

8) A data entry key will allow the user to confirm a selected menu, numeric value or allow selection between multiple choices.

9) An escape key will allow a parameter to return the existing value if adjustment is not required and the value is displayed. The escape function will also return to a pervious menu display.

10) A RUN key and a STOP key will command a normal starting and stopping as programmed when the AC Drive is in keypad control mode. The STOP key must be active in all control modes.

11) The AC Drive shall have three LEDs mounted on the front panel to indicate functional status. A green LED will verify that the AC Drive power supply is on. A red LED indicator will indicate an AC Drive fault. A yellow LED indicator will designate a pending fault condition.

12) The Keypad and all door mounted controls must be Type 1 rated.

H. CONTROL

1) External pilot devices shall be able to be connected to a terminal strip for starting/stopping the AC Drive, speed control and displaying operating status. All control inputs and outputs will be software assignable.

2) The control power for the digital inputs and outputs shall be 24 VDC.

3) The internal power supply incorporates an automatic current fold-back that protects the internal power supply if incorrectly connected or shorted. The transistor logic outputs will be current limited and not be damaged if shorted or excess current is pulled.

4) All logic connections shall be furnished on pull-apart terminal strips.

5) There will be two software assignable, optically isolated analog inputs. The analog inputs will be software selectable and consist of the following configurations: 0-20 mA, 4-20 mA, 20-4 mA, x-20 mA (where x is user defined) 0-5 V, 1-5 V or 0-10 V.

6) There will be four software assignable, optically isolated logic inputs that will be selected and assigned in the software. The selection of assignments shall consist of run/reverse, job, plus/minus speed (two inputs required), setpoint memory, preset speeds (up to two inputs), auto/manual control, controlled stop, terminal or keypad control, by-pass (two inputs required), motor switching, and fault reset.

7) There will be two software assignable, optically assignable analog outputs that can be selected and assigned in the software. The analog output assignments shall be proportional to the following motor characteristics: frequency current, power torque, voltage and thermal state. The output signal will be selectable from 0-20 mA or 4-20 mA.

8) Two voltage-free Form C relay output contacts will be provided. One of the contacts will indicate AC Drive fault status. The other contact will be user assignable.

9) There shall be hardware input-output extension module which also provides interlocking and sequencing capabilities. The module shall be fully isolated and housed in a finger safe enclosure with pull apart terminal strips. The module will add four logic inputs, two analog inputs, two relay outputs and one analog output. All of the I/O will be user assignable in the software as previously defined.

10) The AC Drive door mounted control island shall include a power On, Drive RUN, Drive Fault Light and Hand-Off-Auto selector switch with Manual Speed Potentiometer.

I. ISOLATION/BYPASS CONTACTORS

1) The AC Drive shall include IEC rated isolation and bypass contactors complete with thermal overload relay molded case switch disconnect interlocked with the door, control circuit transformer, motor flux decay timer and AFC/OFF/BYPASS switch. The operator shall have full control of the bypass starter by operation of the door mounted selector switch.

3. PART 3 - EXECUTION

3.1 GENERAL

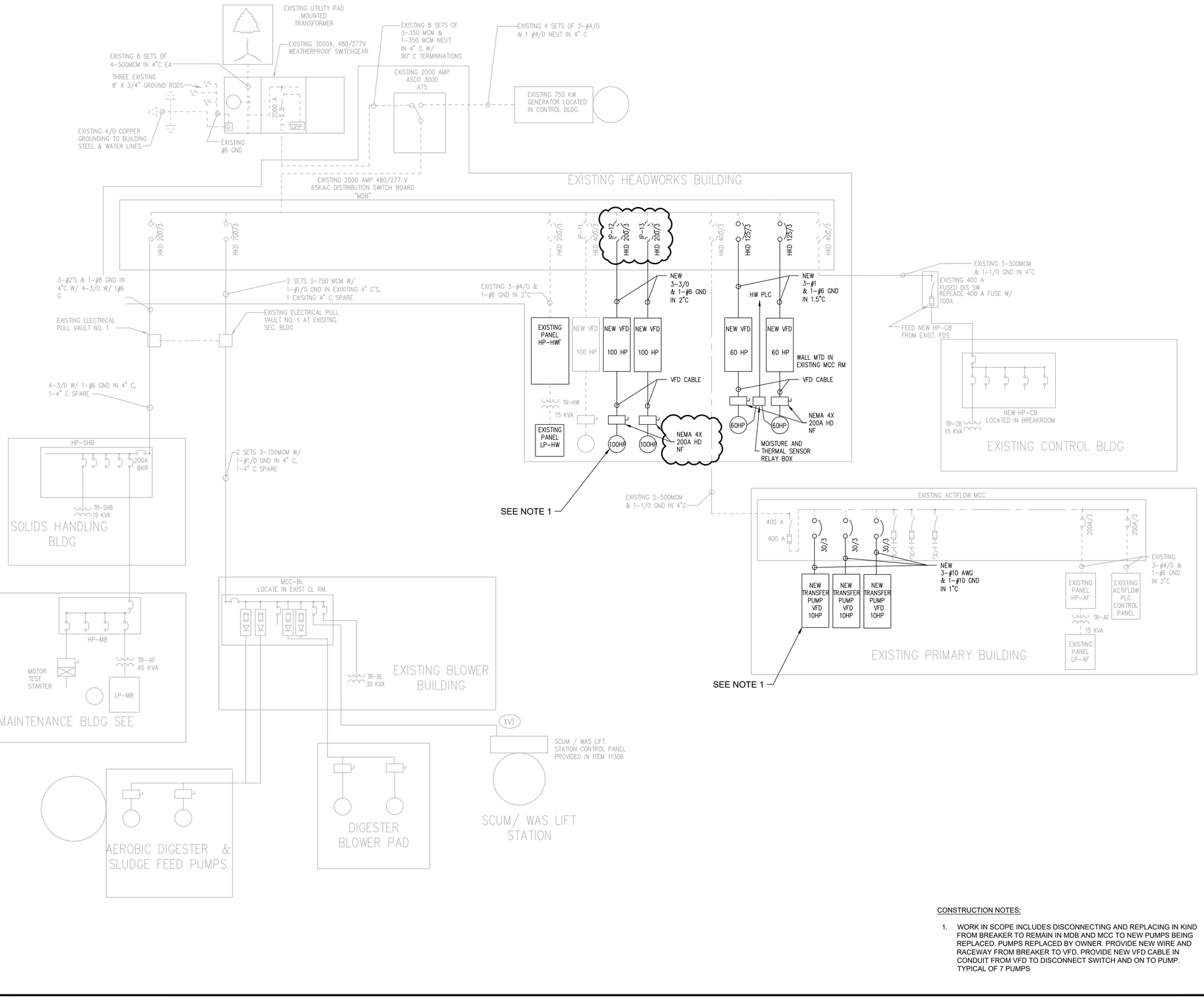
A. The electrical contractor shall connect power to all motors supplied by the Mechanical Contractor.

3.2 VARIABLE FREQUENCY DRIVE

A. Install in accordance with manufacturer's requirements.

B. The AC drive manufacturer shall provide a factory certified technical representative to supervise the contractor's installation, testing and start-up of the AC drives furnished under this specification.

END OF SECTION



CONSTRUCTION NOTES:

1. WORK IN SCOPE INCLUDES DISCONNECTING AND REPLACING IN KIND FROM BREAKER TO REMAIN IN MDB AND MCC TO NEW PUMPS BEING REPLACED. PUMPS REPLACED BY OWNER. PROVIDE NEW WIRE AND RACEWAY FROM BREAKER TO VFD. PROVIDE NEW VFD CABLE IN CONDUIT FROM VFD TO DISCONNECT SWITCH AND ON TO PUMP. TYPICAL OF 7 PUMPS

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NO	REVISION	DATE
1	ADDENDUM 03	10/27/26

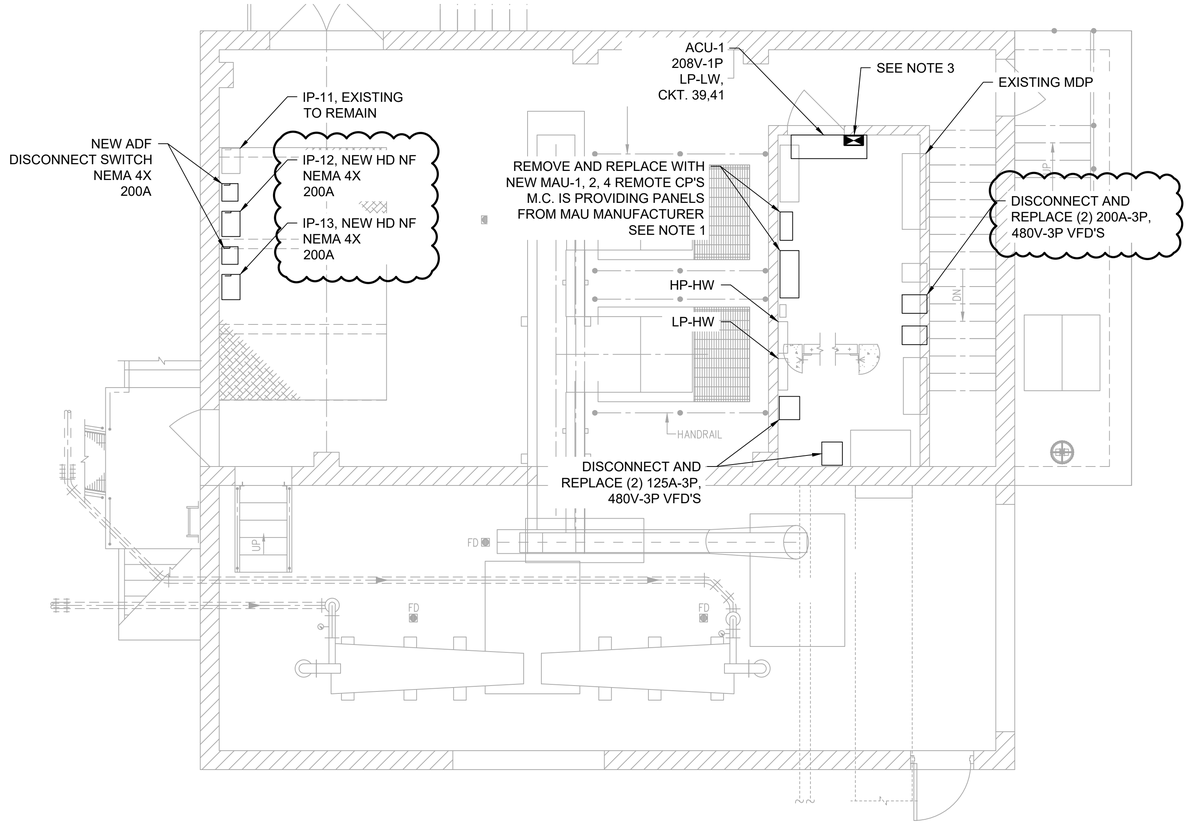
SCALE: AS NOTED
DATE: 9/21/2026
DESIGNED BY: PSM
DRAWN BY: PSM
CHECKED BY: CJZ

CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY OHIO

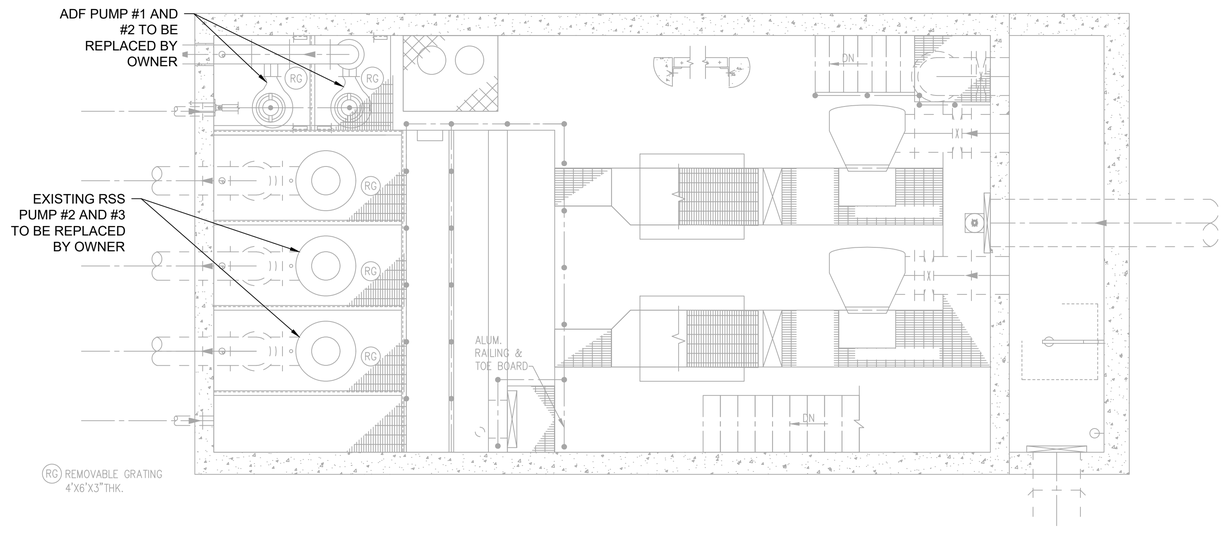
ELECTRICAL - E SERIES

ELECTRICAL SINGLE LINE

PROJECT NO: 33943
DRAWING NAME: 00E-04
SHEET 27 OF 31



UPPER ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



LOWER ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

CONSTRUCTION NOTES:

1. MAU-1, 2, 4 COME WITH DUCT DETECTORS THAT WILL BE CONTROLLED TO SHUT UNIT DOWN UPON SMOKE DETECTION. COORDINATE WITH OWNERS FIRE ALARM VENDOR IF THIS IS TO BE MONITORED.
2. MAU-1, 2, 4 DUCT SYSTEMS HAVE AIRFLOW SWITCHES TO VERIFY OPERATION. FIELD VERIFY EXISTING CONDITIONS. REWIRE NEW AIRFLOW SWITCHES TO SCADA SYSTEM ACCORDINGLY. SEE MECHANICAL DWG.S FOR AIRFLOW SWITCH LOCATIONS.
3. DISCONNECT AND REMOVE EGRESS UNIT. REWORK CONDUIT TO NEW UNIT WIRE TO EXISTING CIRCUIT.

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NO	REVISION	DATE
1	ADDENDUM 03	10/27/26

SCALE:	AS NOTED
DATE:	9/21/2026
DESIGNED BY:	PSM
DRAWN BY:	PSM
CHECKED BY:	CJZ

CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY OHIO

ELECTRICAL - E SERIES

ELECTRICAL HEADWORKS PLAN

PROJECT NO:	
33943	
DRAWING NAME	
20E-01	
SHEET	OF
28	31