

CITY OF PORT CLINTON

CONTRACT A - PORT CLINTON WWTP IMPROVEMENTS

CONTRACT B - BROOKLYN STREET LIFT STATION IMPROVEMENTS

OTTAWA COUNTY

OHIO 811 DESIGN SERIAL NUMBER & UTILITY LIST:

XX - W STATE ROUTE 163

PORT CLINTON - CITY OF
(SEWER & WATER)
1868 E PERRY ST.
PORT CLINTON, OHIO 43452
(419) 734-5522

OHIO EDISON
2508 W. PERKINS AVE.
SANDUSKY, OHIO 44870
(419) 627-6887
JEFFREY SCHMIDT
schmidja@firstenergycorp.com

COLUMBIA GAS OF OHIO:
1800 BROAD AVE.
FINDLAY, OHIO 45840
(614) 301-3875

OTTAWA COUNTY
SANITARY ENGINEER
315 MADISON ST. ROOM 105
PORT CLINTON, OHIO 43452
(419) 734-6725

ALL-TEL:
360 HIGHLAND ROAD
MACEDONIA, OHIO 44067
(800) 782-6206

CHARTER COMM (SPECTRUM)
3760 INTERCHANGE DR
COLUMBUS, OHIO 43204
(614) 255-6340



FRONTIER COMMUNICATION
3126 N MCCORD RD.
TOLEDO, OHIO 434617
(419) 841-7281
AMY ROTH:
amy.1. Roth@ftr.com
PAUL HAMAKER:
paul.hamaker@FTR.com

OHIO TELECOM (AKA OMNI FIBER)
115 W 2ND ST.
PORT CLINTON, OH 43452
(419) 734-2369
KARL KOPCHAK:
karl.kopchak@omnifiber.com

SOUTH PASSAGE CORP.
4140 N CROGAN ST
PORT CLINTON, OHIO 43452
(419) 797-7443

1. UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.
2. THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.



NOTE:

THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.

SEPTEMBER 2026



LOCATION MAP
NOT TO SCALE

verdantas

ENGINEER'S PROJECT No. 33943

COUNCIL

LISA SARTY	PRESIDENT
BETH GILLMAN	COUNCIL MEMBER
RICHARD MORGAN	COUNCIL MEMBER
CARMEN DRAFT	COUNCIL MEMBER
AVERY ROBINSON	COUNCIL MEMBER
CATHY KING	COUNCIL MEMBER
JERRY TAROLLI	COUNCIL MEMBER
PAT HOVIS	COUNCIL MEMBER

ADMINISTRATIVE

MIKE SNIDER	MAYOR
BRYAN KLOSS	SAFETY-SERVICE DIRECTOR

CITY OF PORT CLINTON APPROVALS:

MAYOR	MIKE SNIDER	9/28/26	DATE
SAFETY-SERVICE DIRECTOR	BRYAN KLOSS	9-28-26	DATE

ENGINEER/ARCHITECT:

VERDANTAS
8150 STERLING COURT
MENTOR, OH 44060

(440) 951-9000 PHONE
(440) 951-7487 FAX

Eric M. Fallon

ERIC M. FALLON



P.E. No. 67551

9/21/2026
DATE

BID SET

verdantas

8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

DATE	NO.	AS NOTED	SCALE	DATE	DESIGNED BY	DRAWN BY	CHECKED BY
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CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY
GENERAL - 00 SERIES
COVER SHEET

PROJECT NO:	33943
DRAWING NAME	00G-01
SHEET	1
OF	31

DISCIPLINE INFORMATION:

INDEX EXPLANATION:



- ### DRAWING CODED NOTE TYPES:

- PLAN REVISIONS:**

REFERENCE DIMENSION:



CAST IRON WALL CASTING ABBREVIATIONS

CAST IRON WALL CASTING ABBREVIATIONS



CH = CHAIN
EM = ELECTRIC MOTOR
ES = EXTENSION STEM
FB = FLOOR BOX
FS = FLOOR STAND
GE = GEAR
HC = HYDRAULIC CYLINDER
HW = HANDWHEEL
LE = LEVER
LW = "L" WRENCH
ON = OPERATING NUT
PC = PNEUMATIC CYLINDER
PD = PNEUMATIC DIAPHRAGM
TW = "T" WRENCH
VB = VALVE BOX

PIPE END JOINT ID:

- BE = BELL
CM = COMPRESSION
F = FLARED
FL = FLANGED
GR = GROOVED
L = LUG
MJ = MECHANICAL JOINT
NPT = NATIONAL PIPE THREAD
RJ = RESTRAINED JOINT
S = SOLDERED
SJ = SLIP JOINT (PUSH ON)
SW = SOLVENT WELDED
TH = THREADED
WE = WELDED

PIPE MATERIAL ID:

- BR = BRASS
BS = BLACK STEEL
BZ = BRONZE
CI = GRAY CAST IRON
CU = COPPER
CS = CAST IRON
CT = CARBON STEEL TUBING
DIP = DUCTILE IRON PIPE
DR = DIAMETER RATIO
FRP = FIBERGLASS REINFORCED PLASTIC
GS = GALVANIZED STEEL
HDPE = HIGH-DENSITY POLYETHYLENE PIPE
PVC = POLYVINYL CHLORIDE PIPE
SS = STAINLESS STEEL
STL = STEEL PIPE
SDR = STANDARD DIAMETER RATIO
SCH = SCHEDULE

VALVE ID:

- AC = AIR CHECK VALVE
AN = ANGLE VALVE
AR = AIR RELEASE VALVE
AV = AIR & VACUUM VALVE
BA = BALL VALVE
BFV = BUTTERFLY VALVE
BK = BACKPRESSURE VALVE
BP = BACKFLOW PREVENTER
CV = CHECK VALVE
CO = CONE VALVE
GV = GATE VALVE
GL = GLOBE VALVE
KG = KNIFE GATE VALVE
KN = KNIFE VALVE
MV = MUD VALVE
PD = PLUG DRAIN VALVE
PF = PRESSURE RELIEF
PG = PRESSURE REGULATOR
PI = PINCH VALVE
PV = PLUG VALVE
PRV = PRESSURE REDUCING VALVE
PT = PRESSURE TEMPERATURE RELIEF
RF = RATE-OF-FLOW CONTROLLER
SV = SOLENOID VALVE
SU = SURGE VALVE
TE = TELESCOPING VALVE
TM = TEMPERATURE CONTROL VALVE

EQUIPMENT ID:

- AC = AIR COMPRESSOR
AER = AERATOR
B = BLOWER
BFP = BELT FILTER PRESS
CLS = CLASSIFIER
CMB = COMMUNITOR
CMP = COMPACTOR
CFD = CHEMICAL FEEDER
CNV = CONVEYOR
CNT = CENTRIGUE
CC = CALIBRATION CYLINDER
CFD = CHEMICAL FEEDER
CP = CONTROL PANEL
CR = CRANE
D = DECANTER
DR = DRIVE
DFL = DISC FILTER
F = FAN
FL = FILTER
FM = FLOW METER
GBT = GRAVITY BELT THICKENER
GSG = GRINDER
GEN = GENERATOR
HB = HOSE BIB
M = MOTOR
MX = MIXER
P = PUMP
PS = PUMP STATION
SMP = SAMPLER
SCR = SCREEN

GATE ABBREVIATIONS:

- BG - BULKHEAD GATE
 SG - SLIDE GATE
 SP - STOP PLATE
 SL - STOP LOG
 ALUM - ALUMINUM
 SS - STAINLESS STEEL
 CI - CAST IRON
 POLY - POLYMER
 B/C - BOTTOM OF CHANNEL
 T/C - TOP OF CHANNEL
 A - HEIGHT
 B - WIDTH

8150 STERLING COURT
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DESIGNED BY:	EMF
DRAWN BY:	CAS
CHECKED BY:	EMF

**CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS**

OHIO

GENERAL - 00 SERIES

SHEET INDEX AND LEGENDS

PROJECT NO

33943

00G-02

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OF

GENERAL:

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE PLANS AND TECHNICAL SPECIFICATIONS, VISIT THE PROJECT SITE, AND NOTIFY IN WRITING THE PROJECT ENGINEER OF ANY DISCREPANCIES IN THE PLANS OR SPECIFICATIONS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO CONSTRUCTION AND SUBMIT ANY NECESSARY MODIFICATIONS TO THE ENGINEER FOR APPROVAL.
3. ANY REVISIONS TO THE ACCEPTED CONSTRUCTION PLANS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A CURRENT SET OF "AS BUILT" DRAWINGS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND SHALL NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES.
6. NO WORK MAY COMMENCE WITHOUT AN EXECUTED NOTICE TO PROCEED.
7. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH OSHA AND ENGINEER SAFETY REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL VISITORS, EMPLOYEES AND WORKERS ON THE CONSTRUCTION SITE.
8. ANY DAMAGE TO UTILITIES DURING THIS WORK BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL CONSTRUCT THIS PROJECT IN COMPLIANCE WITH FEDERAL, STATE AND LOCAL BUILDING CODES.
10. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SECURITY OF ALL STORED MATERIALS ON OWNER'S SITE.
11. THE CONTRACTOR SHALL COORDINATE WITH OWNER THE STORAGE OF STORED MATERIALS AND REMOVED EXISTING EQUIPMENT TO BE RETAINED.
12. ACCESS MUST BE MAINTAINED FOR EMERGENCY VEHICLES AT ALL TIMES.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN PEDESTRIAN, LOCAL ROADWAY, AND DRIVEWAY ACCESS AT ALL TIMES.
14. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE "UNIFORM MANUAL OF TRAFFIC CONTROL".
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SIGNING AND TRAFFIC CONTROL AS DIRECTED BY THE LOCAL MUNICIPALITY. ALL SIGNS AND MATERIAL USED SHALL CONFORM TO THE SPECIFICATIONS SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
16. ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES EXCEPT THE TIME WHEN UTILITY INSTALLATION AND PAVEMENT REPLACEMENT WILL NOT PERMIT.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING A SITE FOR DISPOSAL OF ALL EXCAVATED MATERIAL THAT IS UNSUITABLE FOR USE AS BACKFILL AND ALL OTHER EXCESS EXCAVATED MATERIALS. THE CONTRACTOR SHALL PROVIDE THE CITY WITH THE LOCATION OF THE DISPOSAL SITE AND WRITTEN PERMISSION FOR USE OF THE SITE FROM THE PROPERTY OWNER.
18. APPROVAL BY THE OWNER AND/OR THEIR REPRESENTATIVE CONSTITUTES NEITHER EXPRESSED NOR IMPLIED WARRANTIES AS TO THE FITNESS, ACCURACY, OR SUFFICIENCY OF PLANS, DESIGNS, OR SPECIFICATIONS.
19. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY AND ALL EXISTING WORK DAMAGED DURING OR DUE TO THE EXECUTION OF THIS CONTRACT AT HIS OWN EXPENSE. ALL SAID WORK TO BE REPAIRED OR REPLACED TO THE SATISFICATION OF THE OWNER.
20. THE CONTRACTOR MUST COORDINATE HIS WORK WITH THE OWNER. THE CONTRACTOR MUST MAINTAIN ADEQUATE ACCESS FOR ALL MAINTENANCE VEHICLES.
21. THE CONTRACTOR SHALL FURNISH ALL TEMPORARY FACILITIES AS REQUIRED TO MAINTAIN SANITARY FLOWS DURING THE COURSE OF THE WORK.
22. THE INFORMATION PROVIDED WITHIN THESE PLANS IS SPECIFIC TO THE ANTICIPATED WORK AREAS AND IS NOT INCLUSIVE OF ALL TOPOGRAPHIC AND UTILITY FEATURES OUTSIDE OF THE AREA.
23. CONTRACTOR SHALL CLEAR ALL DEBRIS, DIRT, VEHICLES, AND EQUIPMENT FROM WALKWAY AND TRAFFIC ROUTES AT THE CONCLUSION OF WORK EACH DAY.
24. OSHA PROHIBITS CRANE AND BACKHOE OPERATIONS WITHIN 10 FEET OF ENERGIZED PRIMARY CONDUCTORS. TEMPORARY RELOCATION OF ELECTRICAL UTILITIES, INCLUDING RESTRAINT OF POLES, RELOCATION OF POLES, AND RUBBER COVERING OF ENERGIZED CONDUCTOS MAY BE REQUIRED. THE COORDINATION AND COST OF THESE SERVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MAY RESTRAIN POLES IF THE METHOD OF SUPPORT HAS BEEN SUBMITTED AND APPROVED BY THE UTILITY COMPANY.
25. THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT FILL ANY WETLANDS, LOW LANDS, FLOOD PLAINS, OR DRAINAGE WAYS WITH SAID DEBRIS WITHOUT OBTAINING PROPER APPROVALS, PERMITS, LICENSES, ETC. FROM LOCAL, STATE, OR FEDERAL AGENCIES AND/OR PRIVATE LANDOWNERS.
26. NOTIFY THE CITY WWTP SUPERINTENDENT TWENTY-FOUR (24) HOURS PRIOR TO STARTING CONSTRUCTION.

NOISE CONTROL PRACTICES:

1. CONSTRUCTION EQUIPMENT WILL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS AS REQUIRED BY SAFETY STANDARDS AND LOCAL NOISE ORDINANCE.
2. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYTIME HOURS UNLESS OTHERWISE DIRECTED BY THE OWNER.

PRESERVATION OF PROPERTY CORNERS AND SURVEY MARKERS:

1. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, PROPERTY CORNERS, REFERENCE POINTS AND STAKES AND IN CASE OF WILLFUL OR CARELESS DESTRUCTION, HE/SHE SHALL ENGAGE A REGISTERED SURVEYOR TO REPLACE THEM AT HIS/HER EXPENSE AND SHALL BE RESPONSIBLE FOR ANY MISTAKES THAT MAY BE CAUSED BY THEIR LOSS OR DISTURBANCE.

STATIONING AND LOCATIONS:

1. ALL LOCATIONS AND ITEMS CALLED OUT BY STATION ARE SUBJECT TO ADJUSTMENT IN THE FIELD AS APPROVED BY THE ENGINEER.

RESTORATION:

1. THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM HIS/HER OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER. RESTORATION SHALL INCLUDE SEEDING AND MULCHING DISTURBED AREAS, RESTORATION OF EXISTING DRIVES, AND FINAL CLEAN UP.
2. ALL EXISTING STORM AND SANITARY SEWER FACILITIES, INCLUDING TILE, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR RECONNECTED TO THE EXISTING OR PROPOSED SYSTEM AS DIRECTED BY THE ENGINEER AT NO COST TO THE OWNER.

EXISTING UTILITIES:

1. EXISTING UTILITIES SHOWN ARE FROM BEST AVAILABLE RECORDS AND FIELD INVESTIGATIONS AND ARE NOT NECESSARILY COMPLETE OR EXACT. THE CONTRACTOR IS RESPONSIBLE FOR INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE BY PRE-EXCAVATING ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED AND EXISTING UTILITIES. THE CONTRACTOR SHALL COORDINATE HIS/HER WORK WITH THE UTILITY OWNER.
2. WHERE EXISTING POWER OR TELEPHONE POLES ARE IN CLOSE PROXIMITY TO WORK, THE CONTRACTOR SHALL COORDINATE HIS WORK EFFORTS WITH THOSE OF THE UTILITY COMPANIES SUCH THAT THEIR EXISTING FACILITIES CAN BE MAINTAINED AND PROTECTED DURING THE TIME WORK IS GOING ON ADJACENT TO THE POLE. THE COST FOR ANY REQUIRED PROTECTION OR RELOCATION OF EXISTING POWER OR TELEPHONE POLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NOT THAT OF THE CITY.
3. THE CONTRACTOR SHALL BE REQUIRED, AT HIS EXPENSE, TO DO EVERYTHING NECESSARY TO PROTECT, SUPPORT AND SUSTAIN ALL SANITARY SEWERS, STORM DRAINS, WATER, PROCESS OR GAS PIPES, SERVICE PIPES, ELECTRIC LIGHTS, POWER AND TELEPHONE POLES, CONDUIT AND OTHER FIXTURES LAID ACROSS OR ALONG THE SITE OF THE WORK. THE ENGINEER AS WELL AS THE COMPANY OR CORPORATION OWNING SAID PIPES, POLES OR CONDUITS MUST BE NOTIFIED OF THE SAME BY THE CONTRACTOR, BEFORE ANY SUCH FIXTURES ARE REMOVED OR DISTURBED. IN CASE ANY OF THE SAID SEWER, DRAIN, GAS, PROCESS OR WATER PIPES, SERVICE PIPES, ELECTRIC LIGHT, POWER AND TELEPHONE POLES, CONDUITS OR OTHER FIXTURES ARE DAMAGED THEY SHALL BE REPAIRED BY THE AUTHORITIES HAVING CONTROL OF THE SAME AND THE EXPENSE OF SAID REPAIRS SHALL BE DEDUCTED FROM THE MONIES WHICH ARE DUE OR TO BECOME DUE THE CONTRACTOR UNDER THIS CONTRACT.
4. EXISTING UTILITY (GAS, ELECTRICAL, CABLE TELEVISION, TELEPHONE, WATER LINE, STORM OR SANITARY SEWER, WATER LINE OR STORM OR SANITARY SEWER APPURTENANCE, ETC.) IN OR OUTSIDE THE CONSTRUCTION LIMITS DAMAGED DURING THE CONSTRUCTION OF THE PROPOSED PROJECT, WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE. INDIVIDUAL SANITARY, STORM, GAS, WATER, ELECTRIC AND TELEPHONE AND CABLE SERVICE CONNECTIONS ARE NOT SHOWN. THE CONTRACTOR SHALL LOCATE AND PROTECT SERVICE CONNECTIONS THROUGHOUT THE COURSE OF THE WORK. IN THE EVENT SERVICE CONNECTIONS ARE BROKEN OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SERVICE CONNECTION TO THE SATISFACTION OF THE OWNER AT NO ADDITION COST TO THE OWNER
5. SHOULD IT BECOME NECESSARY TO CHANGE THE POSITION OR TEMPORARILY REMOVE ANY STORM DRAIN, SANITARY SEWER, ELECTRIC CONDUITS, WATER PIPES, GAS PIPES, PROCESS OR OTHER PIPES OR WIRES IN ORDER TO PERMIT THE CONTRACTOR TO USE A PARTICULAR METHOD OF CONSTRUCTION OR IN ORDER TO CLEAR THE STRUCTURES BEING BUILT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE LOCATION AND CIRCUMSTANCES IMMEDIATELY
6. NO SURFACE, GROUND OR TRENCH WATER SHALL BE ALLOWED TO FLOW INTO EXISTING SANITARY SEWERS.





8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

REVISION		DATE	
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SCALE:	N/A	DATE:	9/21/2026
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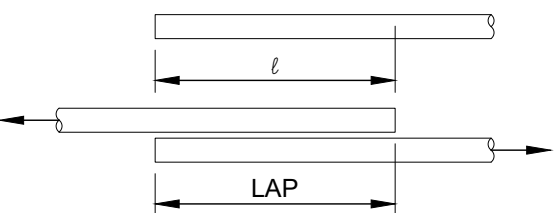
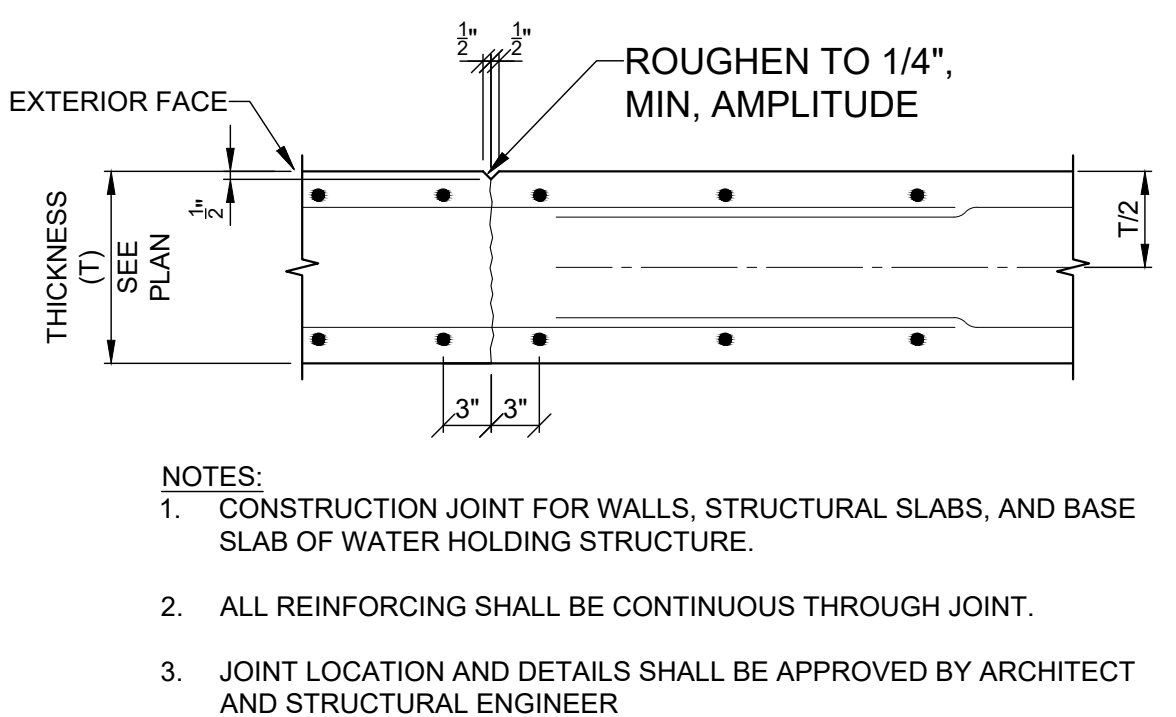
CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY

OHIO
GENERAL - 00 SERIES
GENERAL NOTES - 1

PROJECT NO:	
33943	
DRAWING NAME	
00G-03	
SHEET	OF
3	31

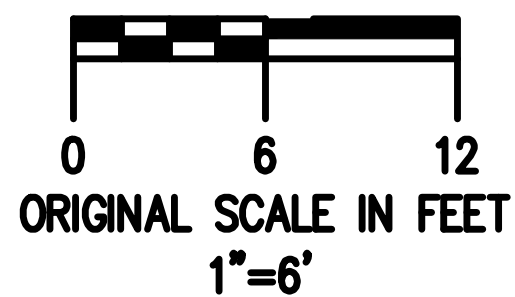
PER THE IBC SECTION 1705, SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING ITEMS:

- DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
- a. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK DESIGNATED TO ASSURE IT IS CONSTRUCTED IN CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
- b. THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION REPORTS AND TESTS TO THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.
- c. DISCREPANCIES MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK.
- d. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED WITHIN THE AGREED UPON TIME TO THE BUILDING OFFICIAL PRIOR TO THE START ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- e. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A STATEMENT OF RESPONSIBILITY ACKNOWLEDGING THE AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
2. CONCRETE:
- a. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT. (PERIODIC)
- b. REINFORCING BAR WELDING:
- VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. (PERIODIC)
 - INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16" (PERIODIC)
 - INSPECT ALL OTHER WELDS (CONTINUOUS)
- c. INSPECT ANCHORS CAST IN CONCRETE (PERIODIC)
- d. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS:
- ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. (CONTINUOUS)
 - MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE. (PERIODIC)
- e. VERIFY USE OF REQUIRED MIX DESIGN. (PERIODIC)
- f. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. (CONTINUOUS)
2. STRUCTURAL STEEL:
- a. PRIOR TO WELDING:
- WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS. (PERIODIC)
 - WELDING PROCEDURE SPECIFICATION (WPS) AVAILABLE. (CONTINUOUS)
 - MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE. (CONTINUOUS)
 - MATERIAL IDENTIFICATION -TYPE/GRADE (PERIODIC)
 - WELDER IDENTIFICATION SYSTEM MAINTAINED BY FABRICATOR OR ERECTOR TO IDENTIFY WHICH WELDER HAS WELDED A JOINT OR MEMBER. (PERIODIC)
 - CONFIGURATION AND FINISH OF ACCESS HOLES (PERIODIC)
 - FIT UP OF FILLET WELDS (PERIODIC)
 - A. DIMENSIONS (ALIGNMENT, GAPS AT ROOT)
 - B. CLEANLINESS (CONDITION OF STEEL SURFACES)
 - C. TACKING (TACK WELD QUALITY AND LOCATION)
 - CHECK WELDING EQUIPMENT
- b. DURING WELDING
- CONTROL AND HANDLING OF WELDING CONSUMABLES (PERIODIC)
 - A. PACKAGING
 - B. EXPOSURE CONTROL
 - NO WELDING OVER CRACKED TACK WELDS (PERIODIC)
 - ENVIRONMENTAL CONDITIONS (PERIODIC)
 - A. WIND SPEED WITHIN LIMITS
 - B. PRECIPITATION AND TEMPERATURE
 - WPS FOLLOWED (PERIODIC)
 - A. SETTINGS ON WELDING EQUIPMENT
 - B. TRAVEL SPEED
 - C. SELECTED WELDING MATERIALS
 - D. SHIELDING GAS TYPE/FLOW RATE
 - E. PREHEAT APPLIED
 - F. INTERPASS TEMPERATURE MAINTAINED (MIN/MAX)
 - G. PROPER POSITION (F, V, H, OH)
 - WELDING TECHNIQUES (PERIODIC)
 - A. INTERPASS AND FINAL CLEANING
 - B. EACH PASS WITHIN PROFILE LIMITATIONS
 - C. EACH PASS MEETS QUALITY REQUIREMENTS
 - PLACEMENT AND INSTALLATION OF STEEL HEADED STUDS. (CONTINUOUS)
- c. AFTER WELDING:
- WELDS CLEANED (PERIODIC)
 - SIZE, LENGTH AND LOCATION OF WELDS (CONTINUOUS)
 - WELDS MEET VISUAL ACCEPTANCE CRITERIA (CONTINUOUS)
 - A. CRACK PROHIBITION
 - B. WELD/BASE-METAL FUSION
 - C. CRATER CROSS-SECTION
 - D. WELD PROFILES
 - E. WELD SIZE
 - F. UNDERCUT POROSITY
 - ARC STRIKES (CONTINUOUS)
 - k-AREA (CONTINUOUS)
 - WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES (CONTINUOUS)
 - BACKING REMOVED AND WELD TABS REMOVED, IF REQUIRED (CONTINUOUS)
 - REPAIR ACTIVITIES (CONTINUOUS)
 - DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER (CONTINUOUS)
 - NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD (PERIODIC)
- d. PRIOR TO BOLTING:
- MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS (CONTINUOUS)
 - FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS (PERIODIC)
 - CORRECT FASTENER SELECTED FOR THE JOINT DETAIL INCLUDING GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE (PERIODIC)
 - CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL (PERIODIC)
 - CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS (PERIODIC)
 - PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED. (PERIODIC)
 - PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS (PERIODIC)
- e. DURING BOLTING:
- FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED. (PERIODIC)
 - JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRE-TENSIONING OPERATION (PERIODIC)
 - FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING. (PERIODIC)
 - FASTENERS ARE PRE-TENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES. (PERIODIC)
- f. AFTER BOLTING:
- DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS. (CONTINUOUS)



NOTES:

1. TABULATED VALUES ARE BASED ON A MINIMUM YIELD STRENGTH OF 60,000 PSI [420 MPa]. LENGTHS ARE IN INCHES.
2. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND OC SPACING OF THE BARS ARE DEFINED AS:
BEAMS AND COLUMNS
 - CASE 1: CONCRETE COVER AT LEAST $1.0d_b$ AND OC SPACING AT LEAST $2.0 d_b$
 - CASE 2: CONCRETE COVER LESS THAN $1.0d_b$ OR OC SPACING LESS THAN $2.0 d_b$
3. **OTHER BARS**
 - CASE 1: CONCRETE COVER AT LEAST $1.0d_b$ AND OC SPACING AT LEAST $3.0 d_b$
 - CASE 2: CONCRETE COVER LESS THAN $1.0d_b$ OR OC SPACING LESS THAN $3.0 d_b$
4. TENSION LAP SPLICES OF #1 OR #2 (18 #43 OR #57) BARS ARE NOT PERMITTED. THE TABLE LENGTHS FOR THOSE BAR SIZES ARE TENSION DEVELOP LENGTHS. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES [300 mm] OF CONCRETE CAST BELOW THE BARS.



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**CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS**

OTTAWA COUNTY

OHIO

LIFT STATION - 10 SERIES - CIVIL

LIET STATION EXISTING CONDITIONS

PROJECT NO

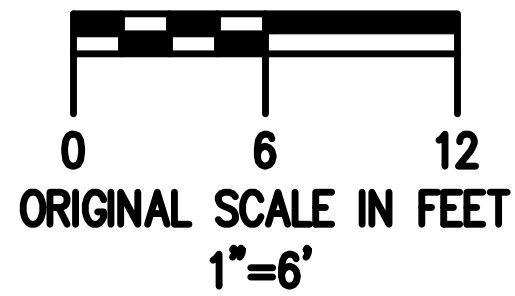
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TEMPORARY ACCESS-
DO NOT BLOCK.
REPAIR AND RESTORE
TO LIKE CONDITION
AS REQUIRED.



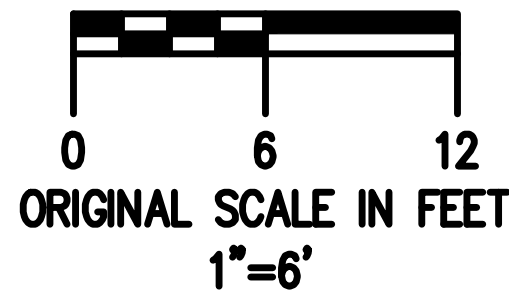
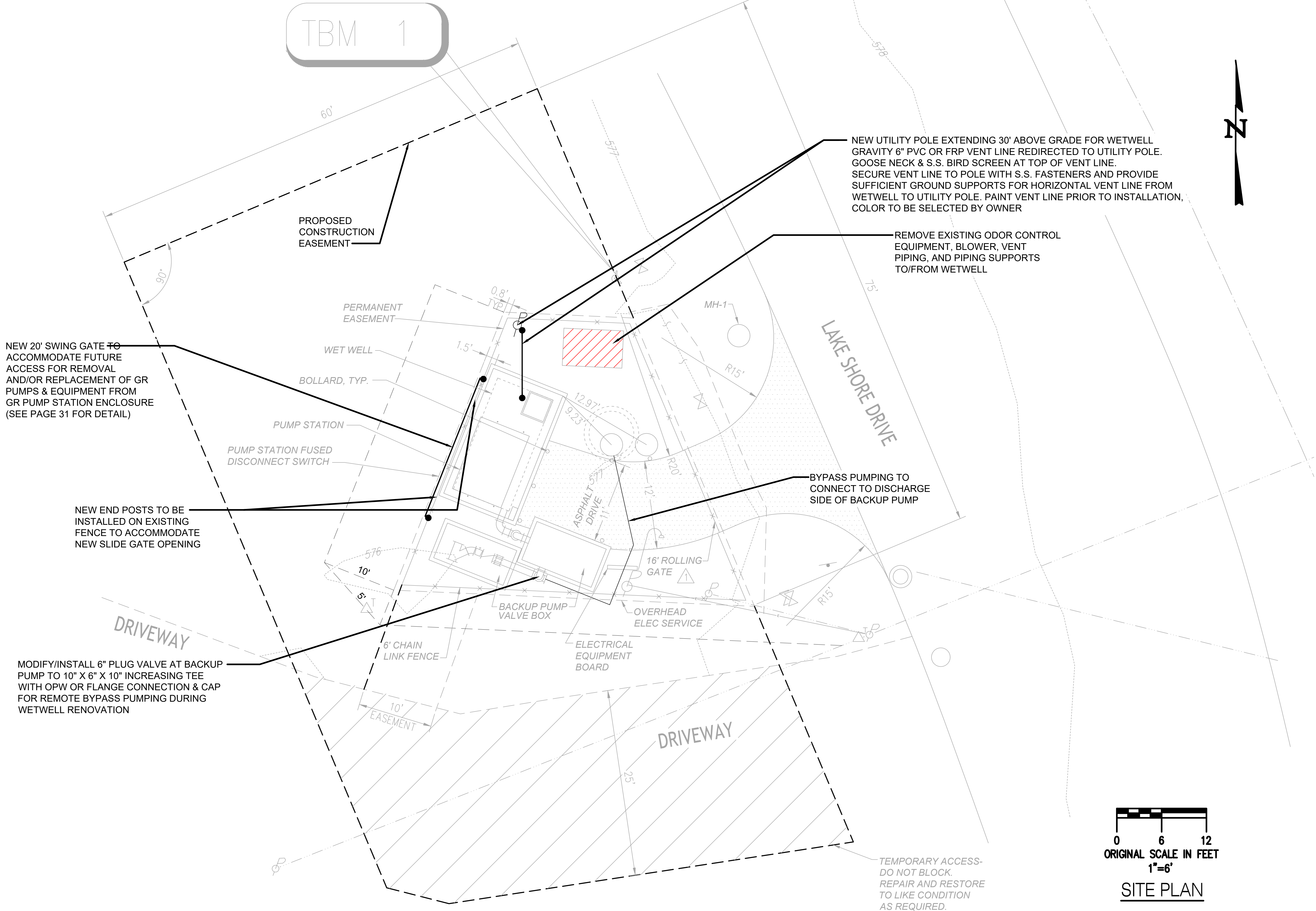
CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY
OHIO

LIFT STATION - 10 SERIES - CIVIL

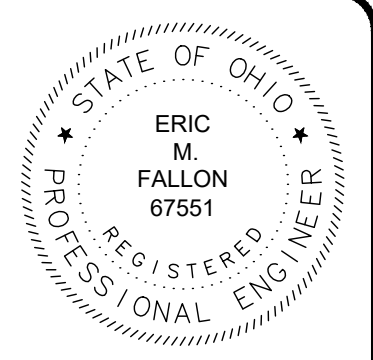
LIFT STATION PROPOSED EASEMENTS

PROJECT NO:	
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SHEET	OF
8	31

TBM 1



SITE PLAN



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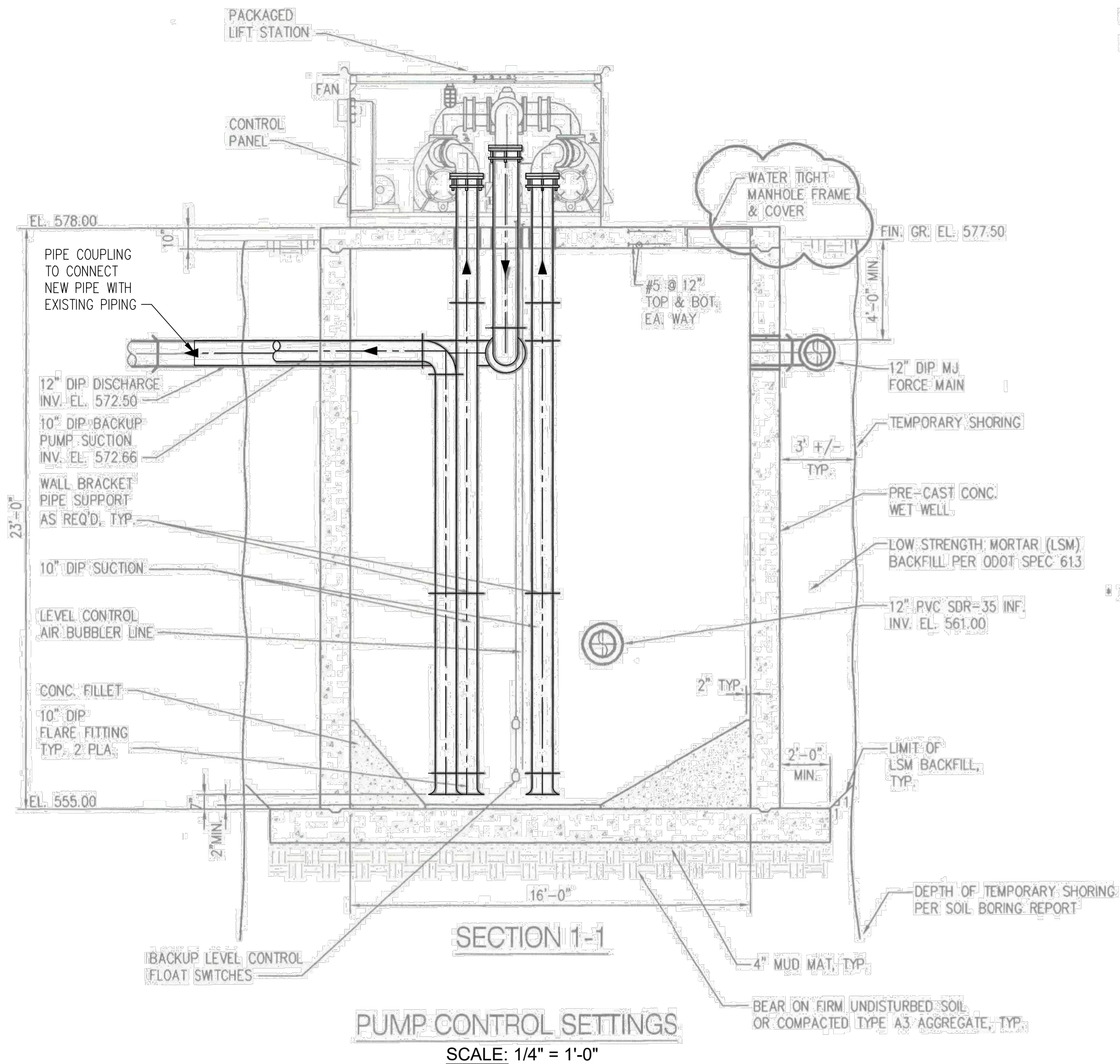
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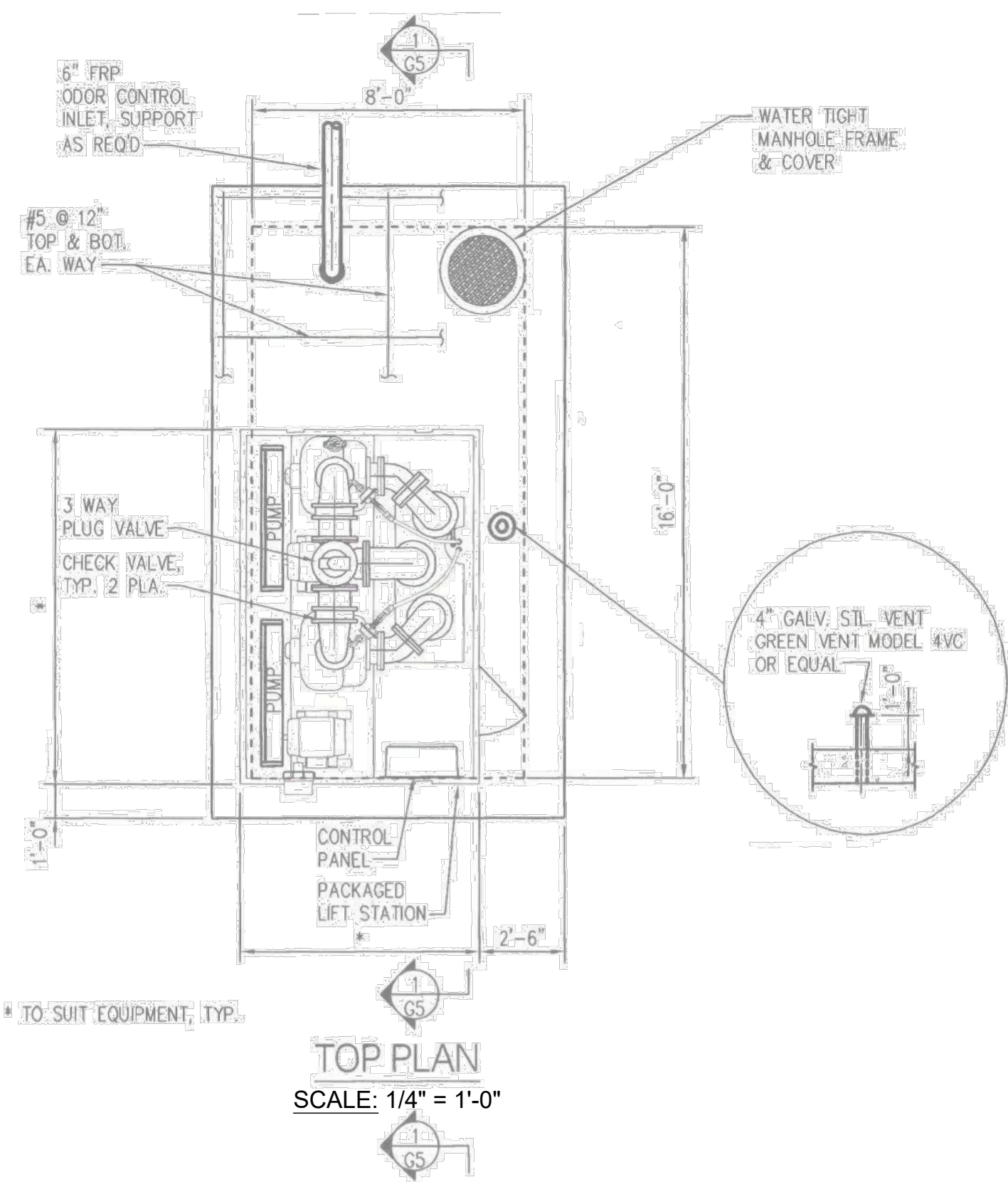
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CITY OF PORT CLINTON, OHIO	OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS	OTTAWA COUNTY
LIFT STATION - 10 SERIES - CIVIL	
LIFT STATION BYPASS PUMPING	

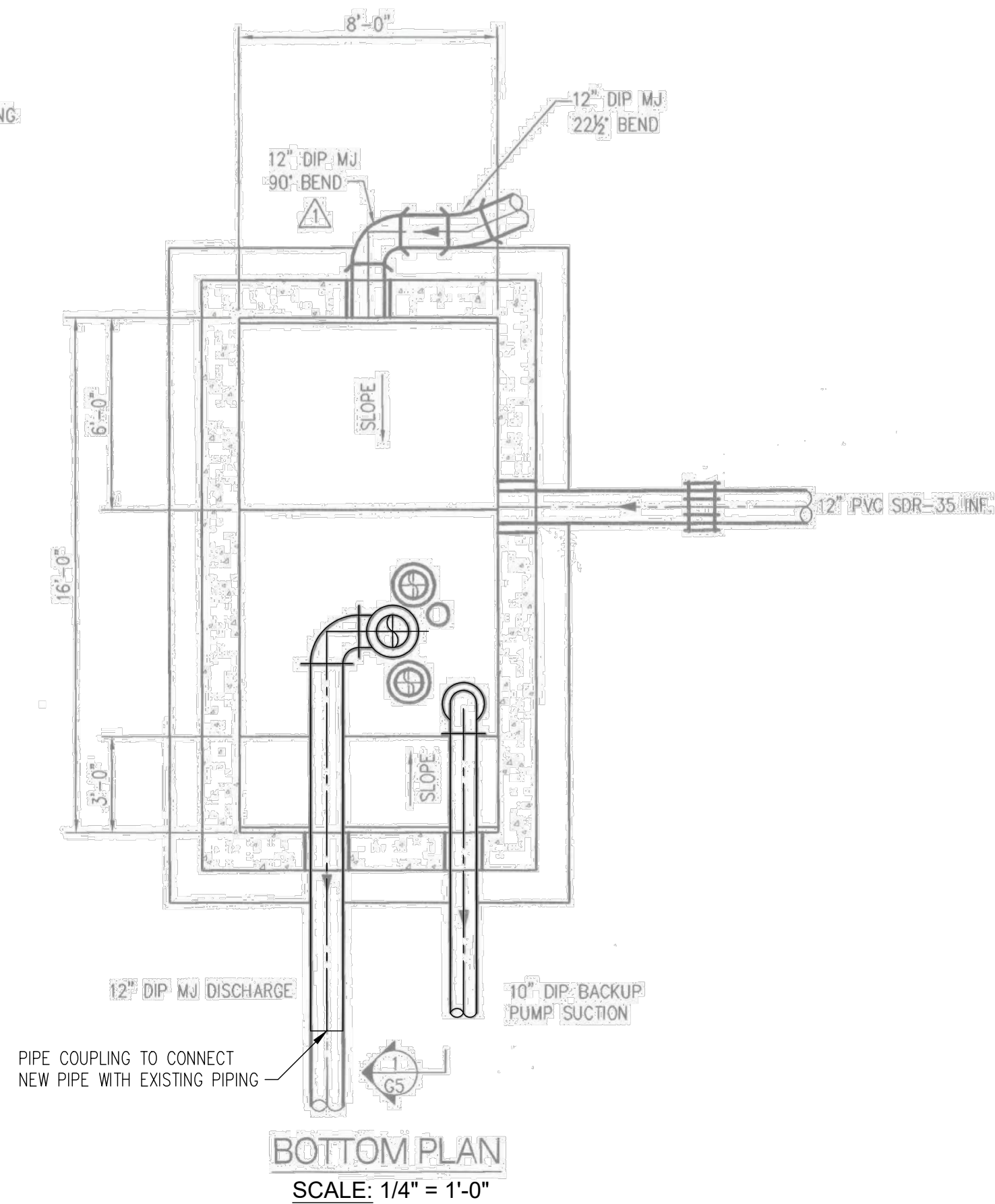
PROJECT NO:	33943
DRAWING NAME	10C-03
SHEET	OF
9	31



PUMP CONTROL SETTINGS
SCALE: 1/4" = 1'-0"



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



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

- GENERAL NOTES:
1. CONTRACTOR SHALL REMOVE AND STORE PACKAGED LIFT STATION ON SITE DURING CONSTRUCTION.
 2. UPON COMPLETION OF THE IMPROVEMENTS IN THE WET WELL THE CONTRACTOR SHALL REINSTALL THE EXISTING LIFT STATION.
 3. ALL INTERIOR WET WELL PIPING SHALL BE REPLACED. REFER TO SPECIFICATION 400519.
 4. ALL PIPING TO BE REPLACED UP TO THE FIRST FLANGE IN THE LIFT STATION.
 5. THE CONTRACTOR SHALL REPLACE THE NOTED PIPING 5' PAST THE EDGE OF THE WET WELL. THE CONTRACTOR SHALL REMOVE AND REPLACE THE LINK SEAL.



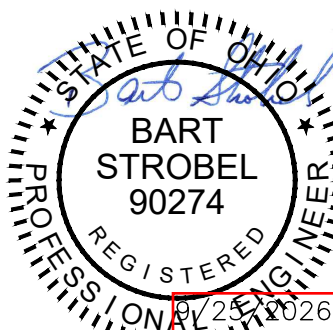
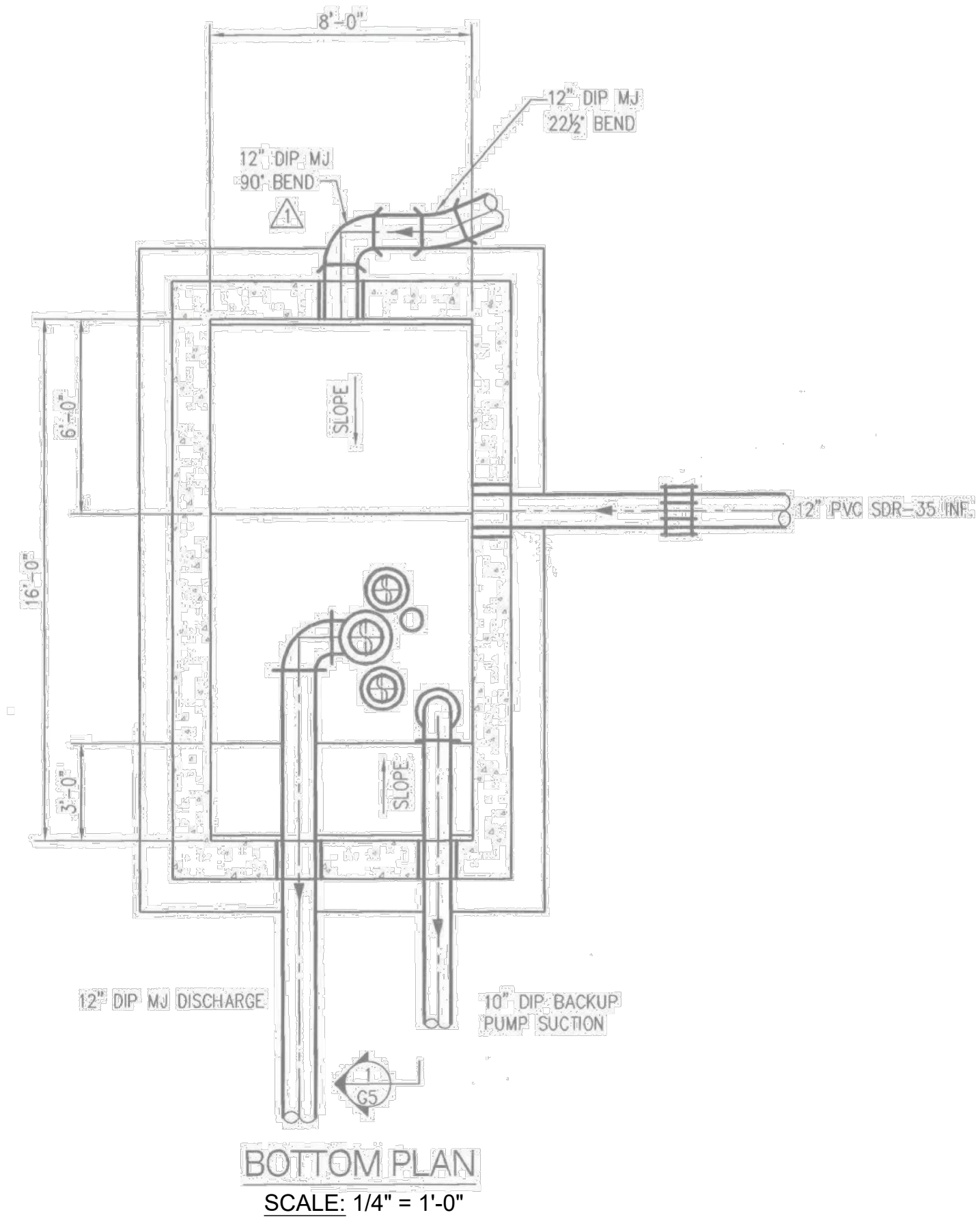
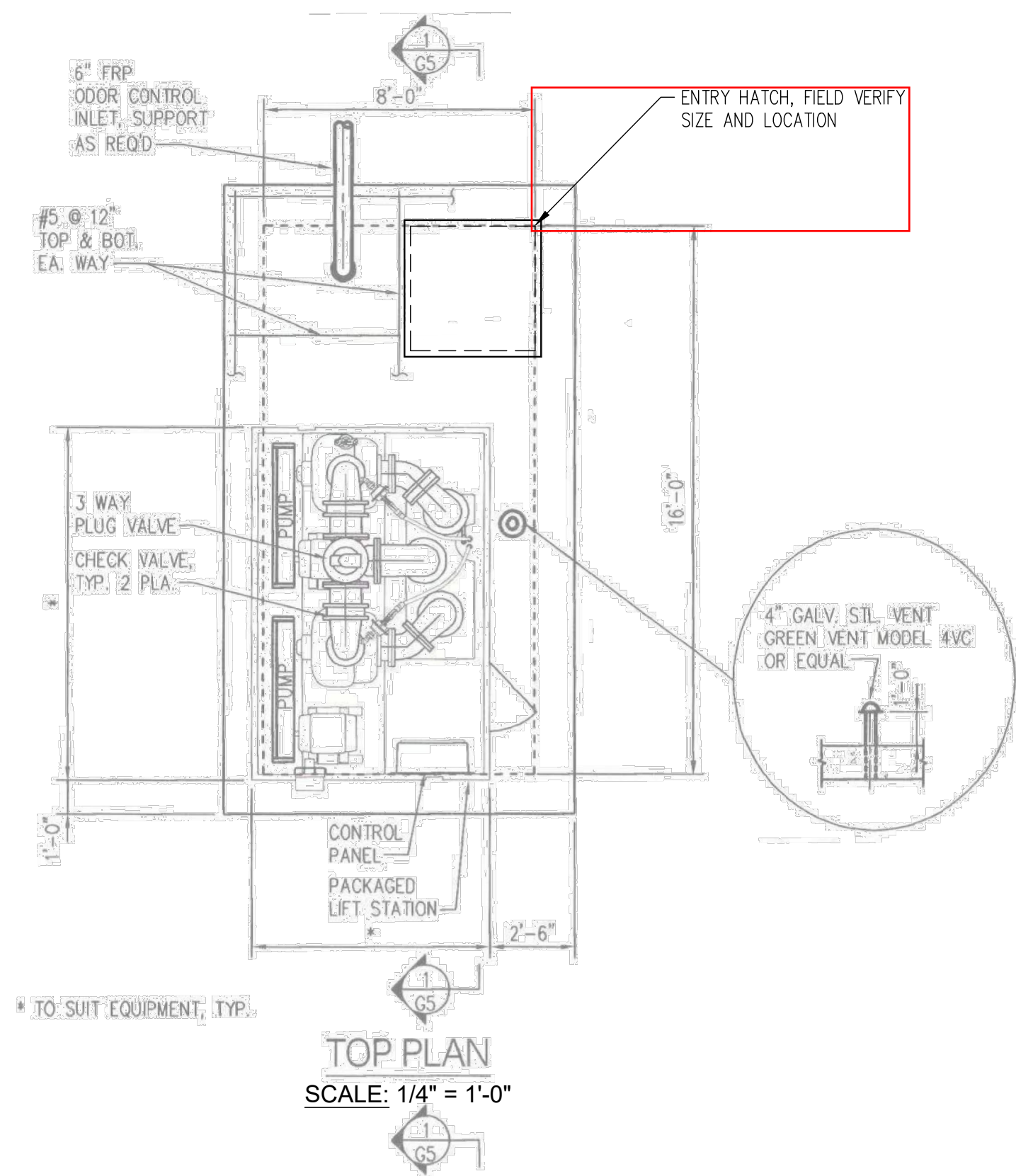
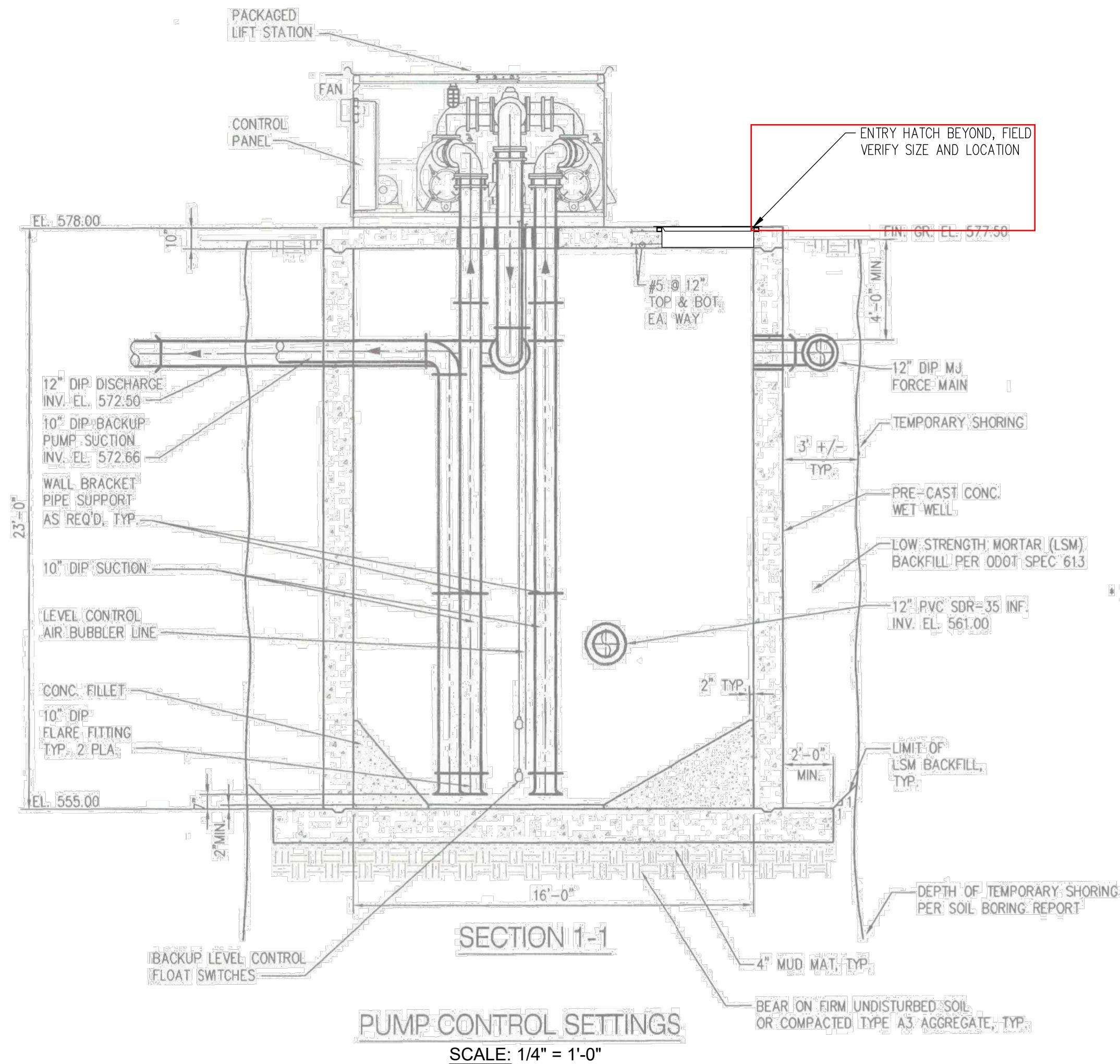
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NO	REVISION	DATE

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DATE:	9/21/2026
DESIGNED BY:	EMF
DRAWN BY:	CAS
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CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY
OHIO
LIFT STATION - 10 SERIES - PROCESS
LIFT STATION PUMP REPLACEMENTS

PROJECT NO:
33943
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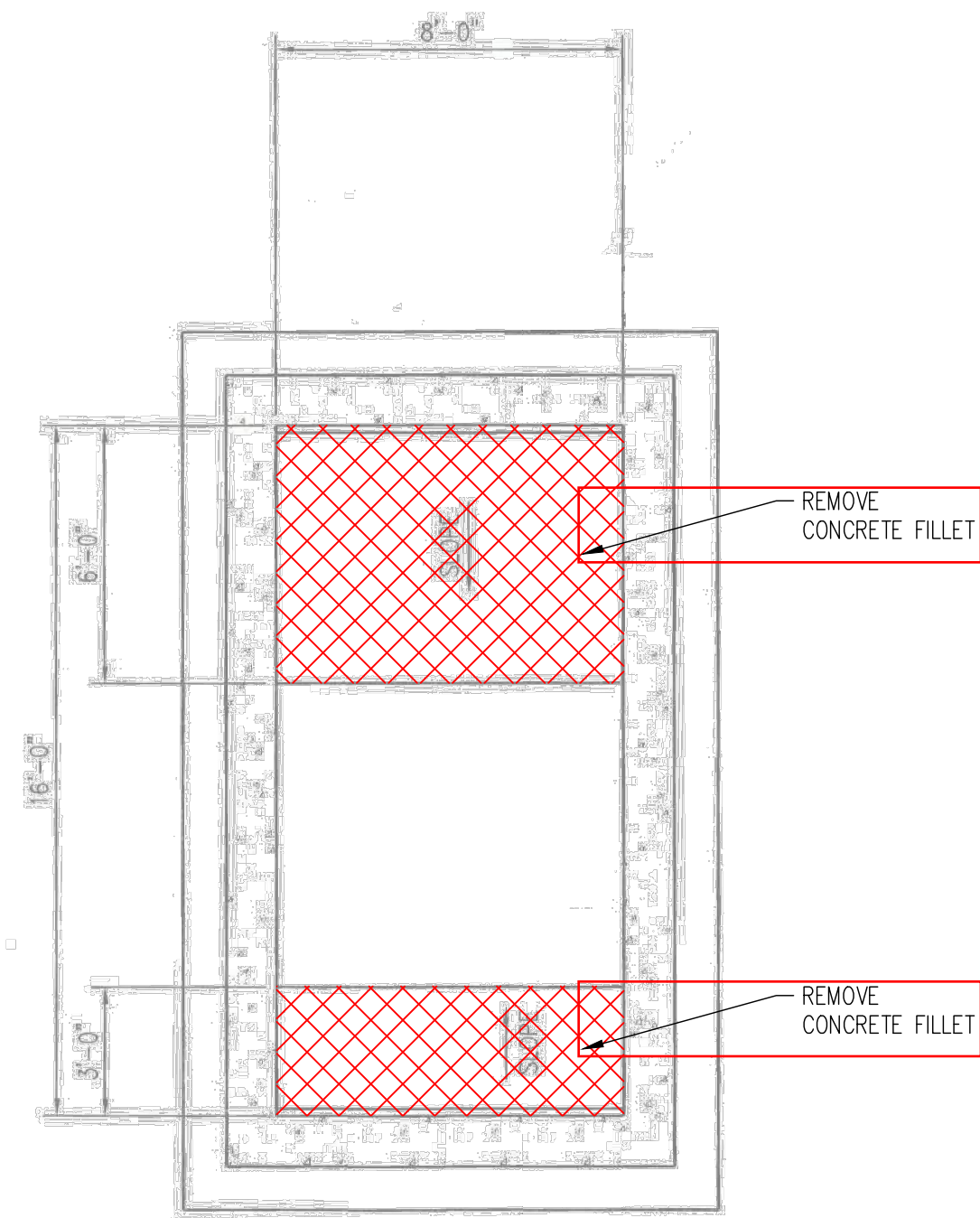
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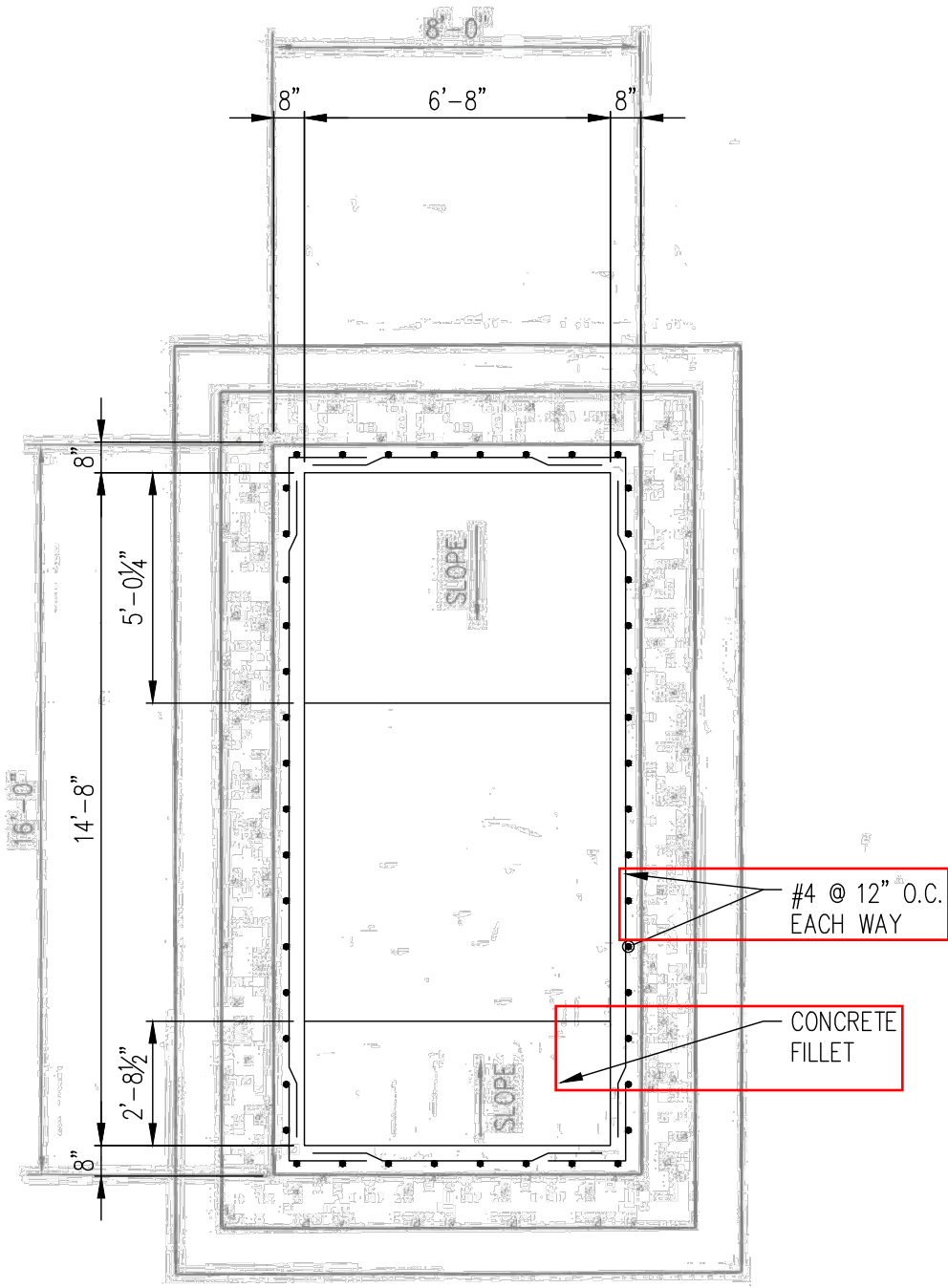
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CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY
OHIO
LIFT STATION - 10 SERIES - STRUCTURAL
LIFT STATION EXISTING CONDITIONS

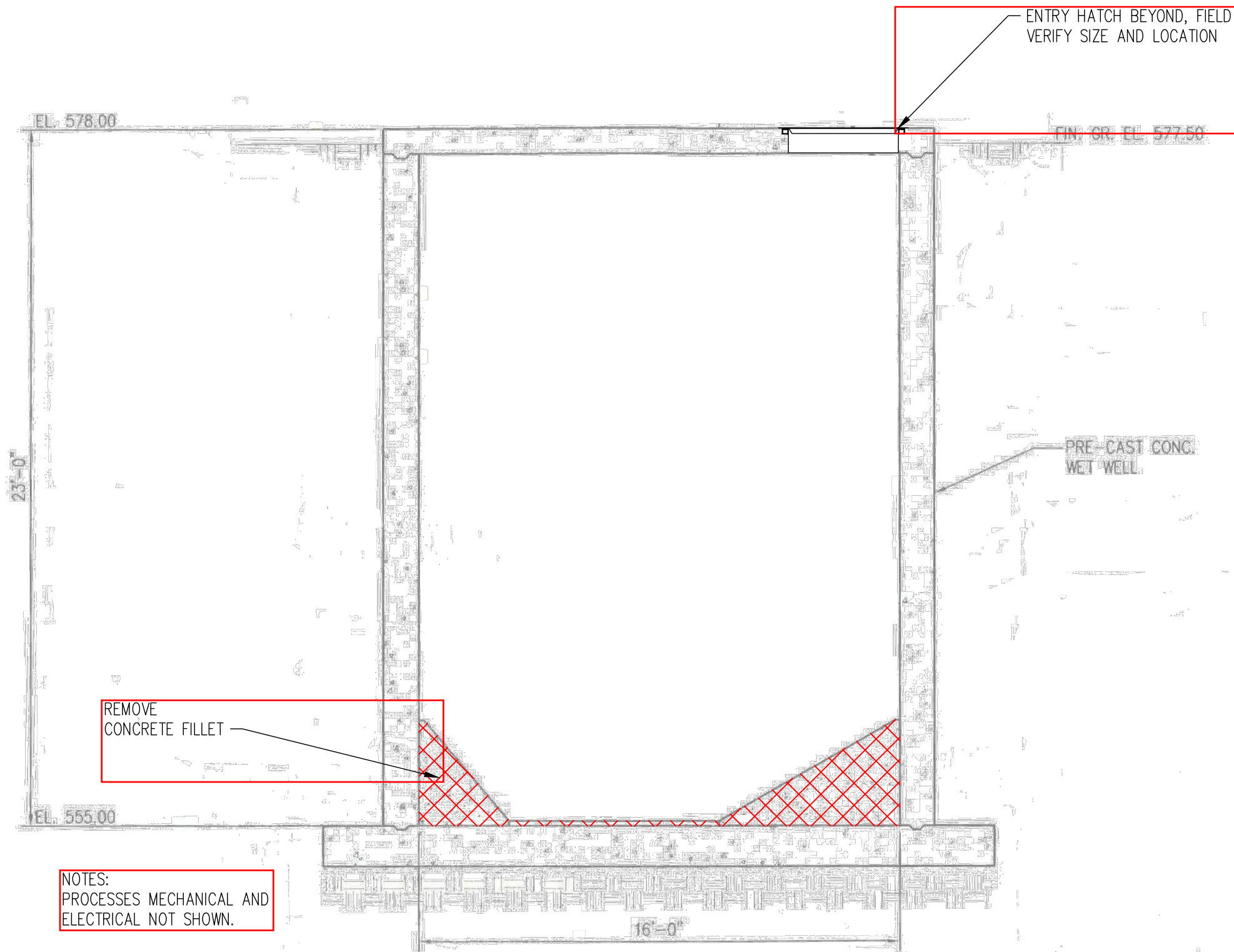
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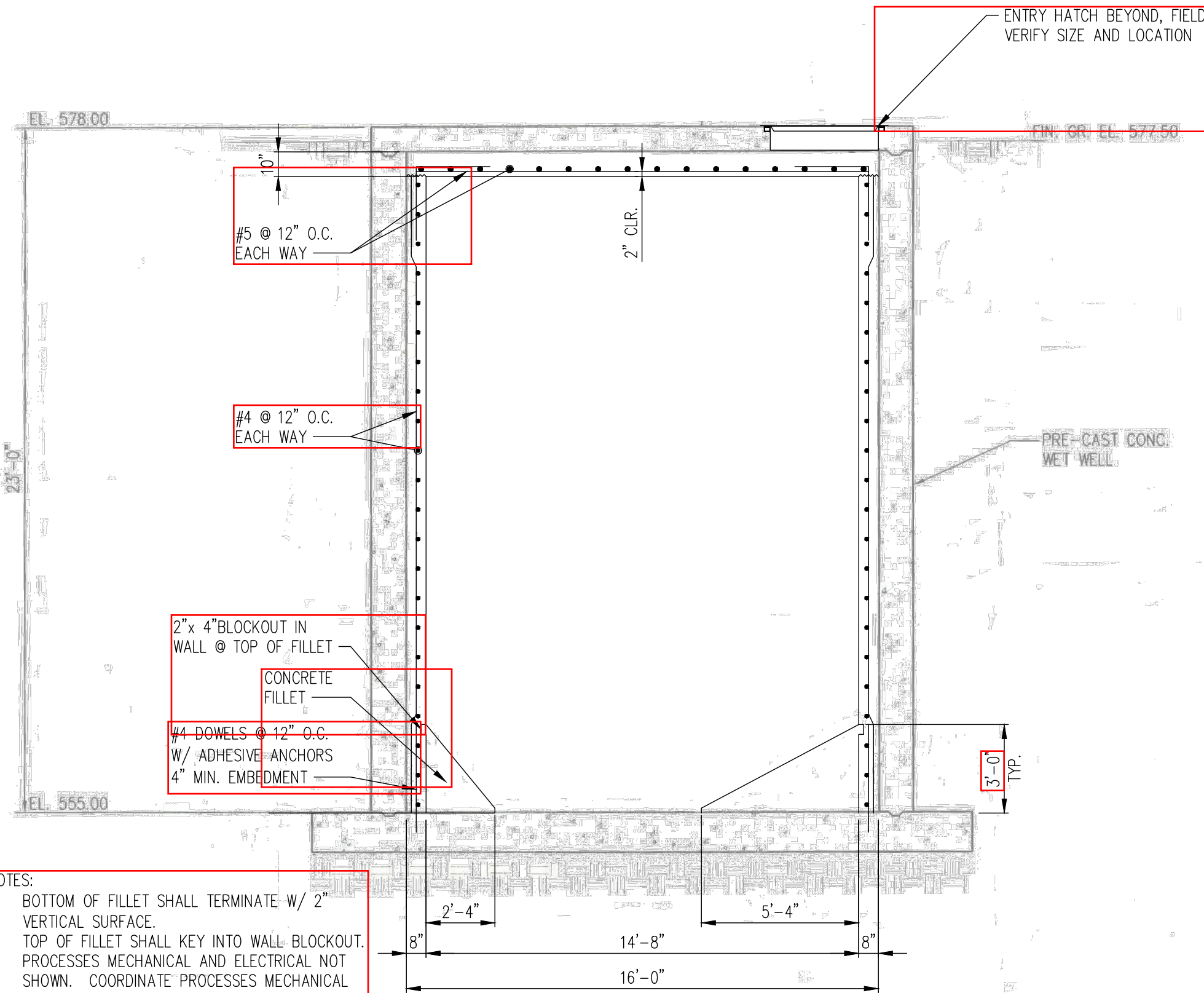
DEMO BASE SLAB PLAN
SCALE: 1/4" = 1'-0"



BASE SLAB PLAN
SCALE: 1/4" = 1'-0"



DEMO WET WELL PLAN
SCALE: 1/4" = 1'-0"



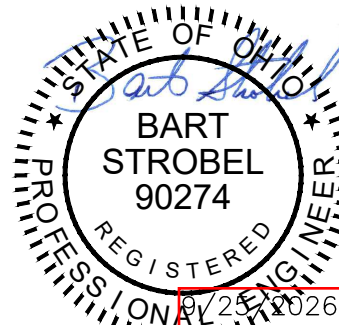
WET WELL PLAN
SCALE: 1/4" = 1'-0"

PLAN NOTES:

- SEE SHEETS 5 THRU ## FOR GENERAL STRUCTURAL NOTES.
- SEE SHEET 6 FOR TYPICAL DETAILS.
- COORDINATE LOCATION AND SIZE OF PENETRATIONS AND OPENINGS WITH PROCESS. MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS, TYP. OPENING SHALL BE PER PROCESS MECHANICAL AND CIVIL STANDARDS FOR SIZE AND SEALING REQUIREMENTS.
- REINFORCING IN 8" WALLS SHALL BE CENTERED IN THE WALL. PROVIDE STANDARD HOOKS AS SHOWN
- FIELD VERIFY EXISTING CONDITION OF STRUCTURE. NOTIFY ENGINEER IF DAMAGE OR DETERIORATION OF THE CONCRETE IS EXCESSIVE. IF DAMAGE OR DETERIORATED CONCRETE EXTEND MORE THE 4" DEEP FROM THE ORIGINAL SURFACE AND/OR HALF OF THE CONCRETE DEPTH, CONTACT THE ENGINEER.
- INFORMATION FOR THE EXISTING STRUCTURE HAS BEEN TAKEN FROM DRAWINGS AND HAS NOT BEEN FULLY VERIFIED IN THE FIELD. PRIOR TO CONSTRUCTION, REVIEW AS-BUILT DOCUMENTS. FIELD VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS.
- VERIFY SIZE AND LOCATION HATCH. DUE TO THE LOCATION OF THE HATCH AT THE INTERSECTION OF THE TWO WALLS (AT THE CORNER), ADDING ADDITION CONCRETE THICKNESS AT THIS LOCATION WILL HAMPER EGRESS. THE CONCRETE SURFACE IN THIS LOCATION WILL BE REMOVED, DOWN TO SOUND CONCRETE WITH THE APPROPRIATE CONCRETE PH. PLACE NEW CONCRETE, IN THIS LOCATION BACK TO THE ORIGINAL SURFACE. SEE SEQUENCE FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION SO AS NOT TO UNDERMINE, DISTURB, DAMAGE OR, IN ANY WAY, CAUSE UNDESIRABLE MOVEMENT, CRACKING, AND/OR SETTLEMENT OF THE ADJACENT STRUCTURES OR CONSTRUCTION.
- PROVIDE RE-ENTRY REINFORCING AT ALL RE-ENTRY CORNERS. CENTER RE-ENTRY BAR ON RE-ENTRY CORNER. IF RE-ENTRY BAR EXTENDS BEYOND CONCRETE, TERMINATE THAT END WITH STANDARD 90° OR 180° HOOK.
- DO NOT STORE MATERIAL ON THE TOP SLAB.

LIFT STATION VAULT MODIFICATION SEQUENCE:

- CLEAN AND DISINFECT THE LIFT STATION VAULT.
- DEMOLISH AND REMOVE CONCRETE FILLET AT THE BASE SLAB.
- PARTIAL DEPTH SAWCUT(S) AT ENTRY. AT THE OPENING IN THE TOP SLAB FOR THE ACCESS, AT THE WALL DIRECTLY UNDER THE OPENING, PROVIDE 1" DEEP VERTICAL SAWCUT AT EACH END OF THE OPENING. IF THE HATCH IS LOCATED IN THE CORNER, THE SAWCUTS WILL BE IN TWO DIFFERENT WALLS. THE SAWCUT WILL BE 4" BEYOND THE LIMIT OF THE OPENING AND EXTEND FROM THE TOP SLAB DOWN 3'-6". PROVIDE A HORIZONTAL SAWCUT TO CONNECT THE BOTTOM OF TWO VERTICAL SAWCUTS.
 - SAW CUTTING OF CONCRETE SHALL BE PERFORMED WITHOUT OVERCUTTING AT CORNERS. AT RE-ENTRY (INSIDE) CORNERS, SAW CUTS SHALL TERMINATE AT THE PERPENDICULAR SAWCUT LINE AND SHALL NOT EXTEND BEYOND THE INTERSECTION. OVERCUTS BEYOND CORNER INTERSECTIONS ARE NOT PERMITTED. AT RE-ENTRY, DRILL OR CORNER SAW CORNER.
 - WHEN CONCRETE IS PLACED, THE WALL(S), UNDER AND ADJACENT TO THE SLAB OPENING, WILL MAINTAIN THE ORIGINAL WALL THICKNESS. TOP OF SURFACE WILL MATCH ORIGINAL, THIS AREA WILL HAVE TO BE BLOCKED OUT OF THE TYPICAL WALL CONCRETE PLACEMENT. WALLS BEYOND THE TOP SLAB OPENING WILL BE 8" THICKER.
- REMOVE DELETERIOUS MATERIALS, LOOSE CONCRETE AND/OR DECOMPOSED CONCRETE FROM THE WALLS AND THE UNDERSIDE OF THE TOP SLAB WITH LOW-IMPACT METHODS UNTIL A SOUND SUBSTRATE IS REACHED. DO NOT USE METHODS THAT WILL CAUSE CRACKING OR MICROCRACKS IN THE REMAINING CONCRETE SUBSTRATE. DO NOT CHIP DEEPER THAN 3/4 OF THE CONCRETE MEMBER THICKNESS WITHOUT APPROVAL OF THE ENGINEER.
 - APPROVED LOW-IMPACT CONCRETE SURFACE REMOVAL METHODS:
 - HIGH-PRESSURE WATER OR ULTRA-HIGH-PRESSURE WATER JETTING.
 - CONTROLLED HAND CHIPPING WITH SMALL CHIPPING HAMMERS. USING 14 LBS. OR SMALLER CHIPPING HAMMERS, ACI 562 COMPLIANT. DO NOT USE CHIPPING HAMMERS LARGER THAN 15 LBS. FOR THIS WORK.
 - LOW-ENERGY GRINDING/SCARIFYING.
 - NOT APPROVE HIGH-IMPACT SURFACE REMOVAL METHODS, HEAVY MECHANICAL IMPACT CONCRETE REMOVAL:
 - JACKHAMMERS > 20 LBS
 - HYDRAULIC BREAKERS.
 - DROP HAMMERS.
 - PERCUSSIVE MECHANICAL MILLING.
 - SANDBLASTING.
 - SHOTBLASTING.
- REMOVE CONCRETE WITHIN THE SAWCUT AREA, FROM THE TOP SLAB TO THE SAWCUT.
- PRESSURE WASH ALL SURFACES WITH CLEAN, POTABLE WATER TO REMOVE ALL SOLUBLE SALTS, AND RINSE WELL.
- ACCEPTABLE SURFACE PREPARATION MUST PRODUCE A CONCRETE SURFACE PH OF AT LEAST 10.0. IF CONCRETE SURFACE DOES NOT ATTAIN ACCEPTABLE PH LIMITS, USE CHIPPING OR ABRASIVE BLAST UNTIL THE REQUIRED SURFACE PH HAS BEEN ATTAINED. PH CHANGE MAY REQUIRE 1/16" TO 1/8" OF REMOVAL DEPENDING.
 - TEST FOR PH AT THE SURFACE OF A CONCRETE SLAB. USE WIDE RANGE PH PAPER, THE PH PAPER ASSOCIATED PH CHART, AND DISTILLED OR DEIONIZED WATER.
 - DAMPEN CONCRETE SURFACE WITH DEIONIZED WATER ON A CLEAN SURFACE OF CONCRETE.
 - ALLOW THE DEIONIZED WATER TO SET FOR 60+/5 SECONDS, THEN DIP THE PH PAPER INTO THE WATER.
 - REMOVE IMMEDIATELY, AND COMPARE TO CHART TO DETERMINE PH READING.
 - PH PENCILS OR PH METERS MAY BE USED TO MEASURE CONCRETE SURFACE PH.
 - REFER TO THE PH PAPER, PH PENCIL, OR PH METERS MANUFACTURER'S WRITTEN INSTRUCTIONS FOR ACCEPTABLE TESTING METHODS.
- SOUND ALL CONCRETE SURFACES TO ENSURE THERE ARE NO ADDITIONAL DEBONDED AREAS. REMOVE ANY DEBONDED AREAS IF FOUND. NONDESTRUCTIVE VERIFICATION WITH HAMMER SOUNDINGS, GPR, UT, OR CHAIN DRAG SHOULD BE USED TO ENSURE THE SUBSTRATE IS SOUND AND THAT REMOVAL DID NOT CAUSE MICROCRACKING.
- FINAL CONCRETE SURFACE PROFILE SHALL BE ROUGHENED TO 3/8" AMPLITUDE OR CONFORM TO ICRI CSP 6 TO CSP 9 PROFILE TO MAXIMIZE CONCRETE BONDING.
- EXPOSED STEEL REINFORCING SHALL BE CLEANED TO SSPC SP6/NACE 3.
- COAT ALL SURFACES WITH LONG-OPEN-TIME (EXTENDED WORKING TIME) EPOXY BONDING AGENTS (SIKA ARMATEC 110 EPOCEM). TYPICAL EPOXY BONDING AGENTS REQUIRE WET-ON-WET PLACEMENT OR MANDATE RE-COATING IF TACK IS LOST. REFER TO THE BONDING AGENT MANUFACTURER'S APPLICATION INSTRUCTIONS.
- INSTALL ADHESIVE ANCHOR DOWELS INTO EXISTING WALLS AND CEILING. INSTALL #4 DOWELS @ 48" OC, EACH DIRECTION WITH 3 1/2" EMBEDMENT. LOCATE DOWELS 48" FROM CORNERS OR WALL/SLAB EDGES.
 - AT THE ENTRY LOCATION, THE BLOCKOUT AREA OF THE NEW 8" THICK TYPICAL CONCRETE SHALL MATCH THE WIDTH OF THE SLAB OPENING ABOVE AND EXTEND DOWN 3'-0" FROM BELOW THE SLAB.
 - THIS WILL ALLOW FOR A 4" OVERLAP OF THE CONCRETE AT THE SIDES AND A 6" OVERLAP AT THE BOTTOM.
 - PROVIDE (2) ADHESIVE ANCHORED DOWELS AT EACH LOCATION OF THE OVERLAP, EQUALLY SPACE BARS ALONG THE LENGTH.
 - PROVIDE (2) ROWS OR (2) ADHESIVE ANCHORED DOWELS AT EACH LOCATION OF THE BLOCKOUT, EQUALLY SPACE BARS WITHIN THE BLOCKOUT.
- INSTALL REINFORCING, FORMS AND CAST WALL SECTIONS.
 - AT THE TRANSITION BETWEEN THE 8" WALL AND THE BLOCKOUT AREA AT THE TOP SLAB OPENING. BLOCKOUT AREA SHALL MATCH WIDTH OF OPENING IN TOP SLAB AND EXTEND DOWN 3'-0" BELOW BOTTOM OF TOP SLAB.
 - PROVIDE A CONTINUOUS 3/4" CHAMFER TO THE CONCRETE CORNER.
 - AT THE HORIZONTAL LEDGE FORMED AT THE BOTTOM OF THE BLOCKOUT, SLOPE CONCRETE TO SHED WATER WITH A 1:8± SLOPE.
- INSTALL ADHESIVE ANCHOR STAINLESS STEEL THREADED RODS, NEEDED FOR MECHANICAL OR ELECTRICAL BRACING, INTO EXISTING WALLS AND CEILING. FOR THREADED RODS OVER 3/8" AND UP TO 5/8" DIAMETER PROVIDE A MINIMUM EMBEDMENT OF 3". FOR THREADED RODS 3/8" DIAMETER PROVIDE A MINIMUM EMBEDMENT OF 1.5".
- PREPARE AND APPLY ALL INTERIOR CONCRETE SURFACES FOR A HIGH-PERFORMANCE, CHEMICALLY RESISTANT PROTECTIVE COATING SYSTEM DESIGNED FOR WASTEWATER ENVIRONMENTS SUBJECTED TO HYDROGEN SULFIDE AND BIOGENIC SULFURIC ACID. THE COATING SYSTEM SHALL BE SUITABLE FOR USE ON CONCRETE SURFACES DIRECTLY EXPOSED TO SANITARY EFFLUENT AND THE HEADSPACE AND SHALL PROVIDE LONG-TERM PROTECTION AGAINST MICROBIAL-INDUCED CORROSION, ACIDIC CONDENSATE, AND ABRASIVE WASTEWATER FLOWS. ACCEPTABLE SYSTEMS INCLUDE HIGH-BUILD EPOXY, ADVANCED RESIN-BASED CHEMICAL-RESISTANT MEMBRANES, OR NOVOLAC VINYL ESTER LININGS, INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR SURFACE PREPARATION, FILM THICKNESS, CURING, AND ENVIRONMENTAL CONTROLS. ACCEPTABLE PRODUCTS ARE SHERWIN-WILLIAMS DURA-PLATE 6100/6000, SIKKA SIKAGARD-7000 CR, TNEPEC VINYL ESTER SYSTEMS (SERIES 1436, 1438), OR EQUAL. COORDINATE WITH COATING MANUFACTURE REPRESENTATIVE AND COATING MANUFACTURE DETAILS FOR TREATMENT (PREP AND FINISH) AT ALL PENETRATIONS.



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(440) 851-9000

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					9/2/2026	BAS	CAS	BAS

CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OHIO
OTTAWA COUNTY
LIFT STATION - 10 SERIES - STRUCTURAL
LIFT STATION PROPOSED CONDITIONS

PROJECT NO:

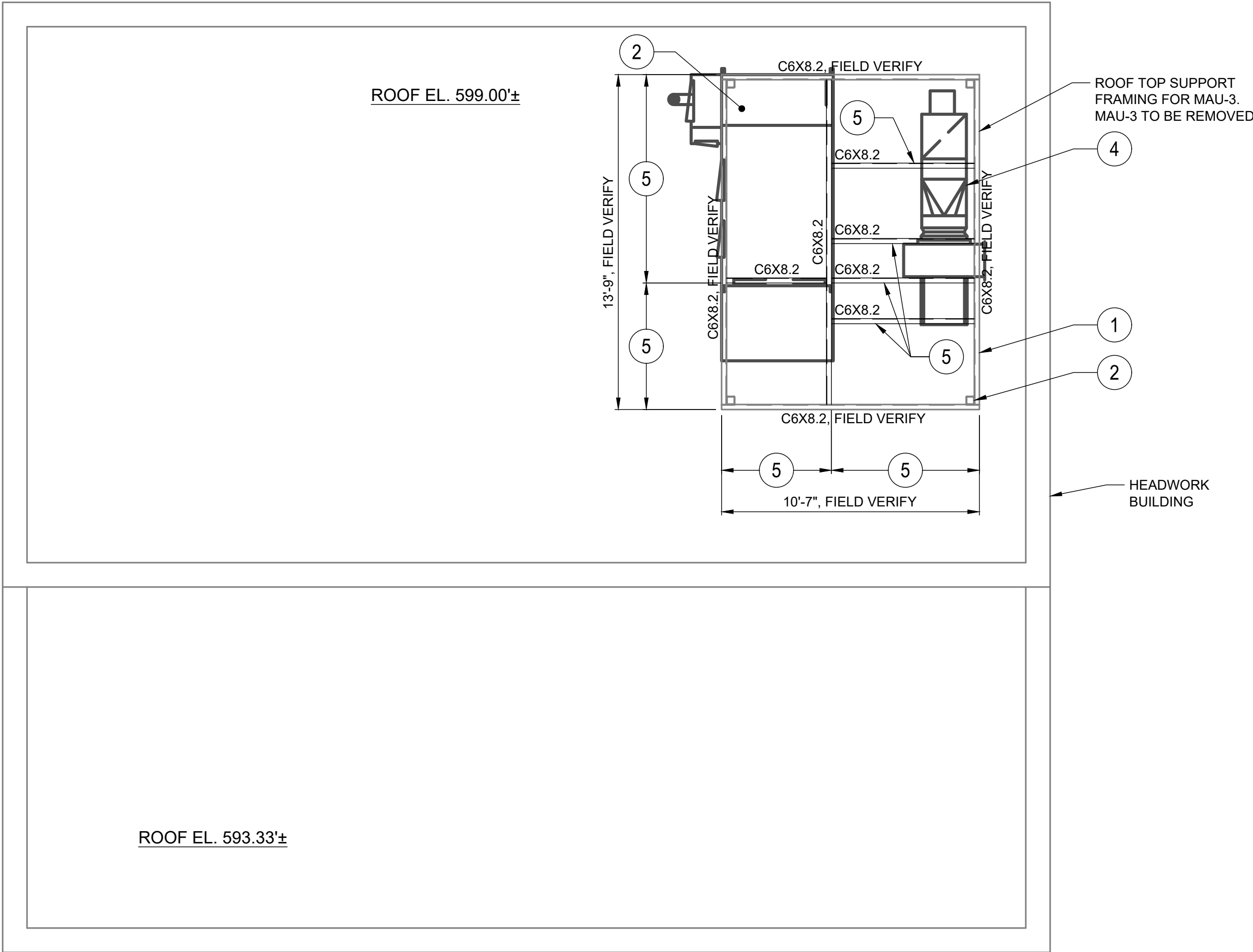
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DRAWING NAME

10S-02

SHEET OF

12 31



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

CODED NOTES:

- EXISTING RTU FRAMING: VERIFY THE SIZE, LOCATION, AND ORIENTATION OF ALL EXISTING FRAMING MEMBERS. VERIFY MEMBER SIZES IN THE FIELD PRIOR TO FABRICATION. REMOVE EXISTING FRAMING MEMBERS WITHIN THE RTU PERIMETER THAT INTERFERE WITH THE PROPOSED FRAMING.
- EXISTING RTU SUPPORT POSTS/COLUMNS: VERIFY THE SIZE, QUANTITY, AND LOCATION OF ALL EXISTING SUPPORT POSTS/COLUMNS. IF MORE THAN FOUR (4) SUPPORT POSTS ARE PRESENT, OR IF ANY SUPPORT POST IS LOCATED WITHIN THE AREA OF THE PROPOSED FRAMING MODIFICATIONS, IMMEDIATELY NOTIFY THE ENGINEER FOR REVIEW.
- NEW MUA-4: COORDINATE WITH THE EQUIPMENT MANUFACTURER TO DETERMINE ALL REQUIRED BEARING LOCATIONS. LOCATE NEW FRAMING MEMBERS SUCH THAT EQUIPMENT BEARING POINTS ARE CENTERED OVER SUPPORTING FRAMING MEMBERS.
- NEW EF-1: INSTALL EQUIPMENT AT THE LOCATION SHOWN ON THE DRAWINGS. COORDINATE ALL SUPPORT REQUIREMENTS WITH THE EQUIPMENT MANUFACTURER.
- NEW FRAMING MEMBER (MUA-4 SUPPORT): PROVIDE NEW FRAMING MEMBERS MATCHING THE SIZE AND MATERIAL OF THE EXISTING FRAMING UNLESS NOTED OTHERWISE. LOCATE FRAMING MEMBERS DIRECTLY BENEATH AND CENTERED AT THE MUA-4 BEARING LOCATIONS.
- NEW FRAMING MEMBER (EF-1 SUPPORT): PROVIDE NEW FRAMING MEMBERS MATCHING THE SIZE AND MATERIAL OF THE EXISTING FRAMING UNLESS NOTED OTHERWISE. LOCATE FRAMING MEMBERS BENEATH EF-1 AT THE LOCATIONS SHOWN ON THE DRAWINGS.

NOTE:
ROOF PLAN IS PROVIDED FOR STRUCTURAL FRAMING MODIFICATIONS ONLY. ONLY THOSE EXISTING AND PROPOSED STRUCTURAL MEMBERS REQUIRED FOR THE RTU/MUA/EF SUPPORT MODIFICATIONS ARE SHOWN. OTHER ROOF-MOUNTED EQUIPMENT, DUCTWORK, PIPING, CONDUIT, ROOF PENETRATIONS, BRACING, AND STRUCTURAL ELEMENTS MAY EXIST BUT ARE NOT SHOWN. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.

PLAN NOTES:

- SEE SHEETS 5 THRU ## FOR GENERAL STRUCTURAL NOTES.
- SEE SHEET 6 FOR TYPICAL DETAILS.
- VERIFY ALL DIMENSIONS AND ELEVATIONS, SEE AS-BUILT DRAWINGS AND MECHANICAL DRAWINGS FOR ALL MEASUREMENTS AND ELEVATIONS. ALL DIMENSIONS SHALL CONFORM TO THE ARCHITECTURAL AND PROCESS DRAWINGS.
- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING WORK. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH FABRICATION OR INSTALLATION
- COORDINATE LOCATION AND SIZE OF PENETRATIONS AND OPENINGS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PROCESS AND SITE DRAWINGS.
- INFORMATION FOR THE EXISTING STRUCTURE HAS BEEN TAKEN FROM DRAWINGS AND HAS NOT BEEN FULLY VERIFIED IN THE FIELD. PRIOR TO CONSTRUCTION, REVIEW AS-BUILT DOCUMENTS. FIELD VERIFY ALL EXISTING ELEVATIONS AND DIMENSIONS.
- DESIGN AND PROVIDE ALL STEEL-TO-STEEL CONNECTIONS REQUIRED FOR THE FRAMING MODIFICATIONS. CONNECTIONS SHALL BE DESIGNED TO SHALL TRANSFER THE REQUIRED LOADS WHILE ACCOMMODATING ERECTION TOLERANCES AND DIFFERENTIAL MOVEMENT. EXISTING FRAMING CONSISTS OF C6X8.2 MEMBERS (CONTRACTOR TO FIELD VERIFY) CONNECTED WITH CLIP ANGLES. ACCEPTABLE CONNECTION TYPES MAY INCLUDE BOLTED CLIP-ANGLE CONNECTIONS, WELDED CLIP-ANGLE CONNECTIONS, OR A COMBINATION OF BOLTED AND WELDED CONNECTIONS. AT LEAST ONE CONNECTION AT EACH SUPPORTED MEMBER SHALL PROVIDE FOR LONGITUDINAL ADJUSTMENT TO FACILITATE FIELD FIT-UP. SLOTTED HOLES, SHORT-SLOTTED HOLES, OR OTHER APPROVED MEANS MAY BE USED TO ACCOMMODATE ADJUSTMENT. PLATES MAY BE USED IN LIEU OF CLIP ANGLES WHERE REQUIRED BY THE CONNECTION DESIGN. ALL WELDED CONNECTIONS SHALL COMPLY WITH AWS D1.1. WHERE WELDING IS PERFORMED ON EXISTING STRUCTURAL STEEL, PROVIDE PROPER WELD PROCEDURES AND PREHEATING AS REQUIRED BY AWS D1.1. SPECIAL INSPECTION OF WELDING SHALL BE PROVIDED WHERE REQUIRED BY THE GOVERNING BUILDING CODE AND PROJECT SPECIFICATIONS.
- DO NOT STORE MATERIAL ON THE ROOF DECK/TOP.

STATE OF OHIO
BART STROBEL
90274
REGISTERED PROFESSIONAL ENGINEER
EX-258726

verdantas

8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

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

HEADWORKS - 20 SERIES - STRUCTURAL
HEADWORKS BUILDING RTU FRAMING MODIFICATIONS

PROJECT NO:
33943

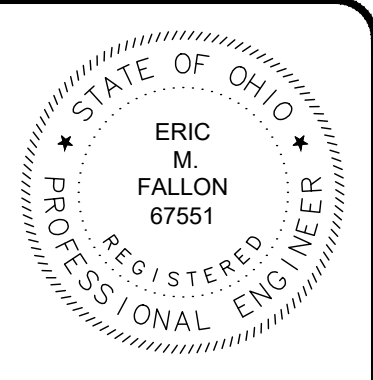
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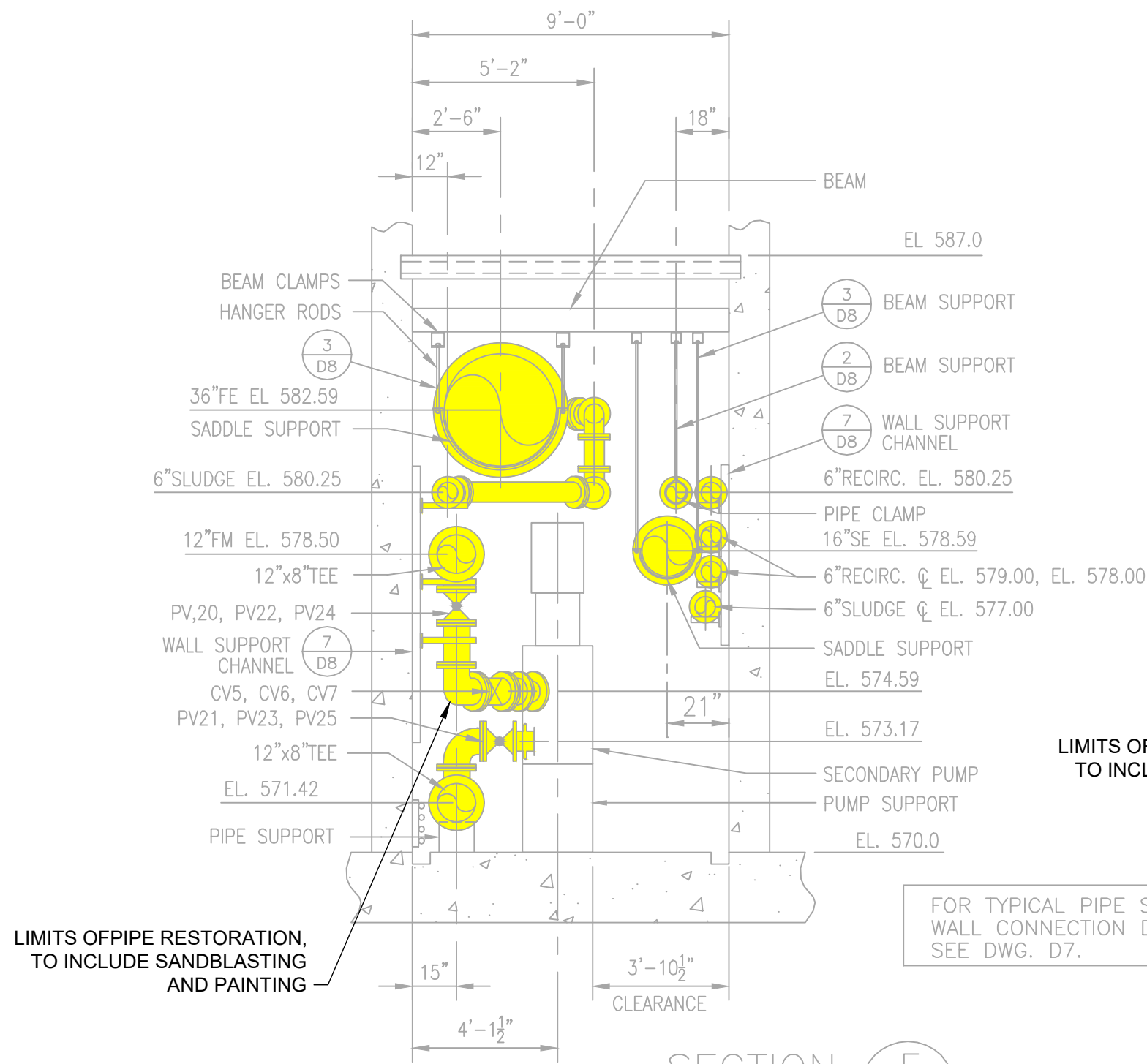
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GENERAL NOTES:
1. CONTRACTOR SHALL SANDBLAST AND PAINT PIPING PER SPECIFICATION 099700.

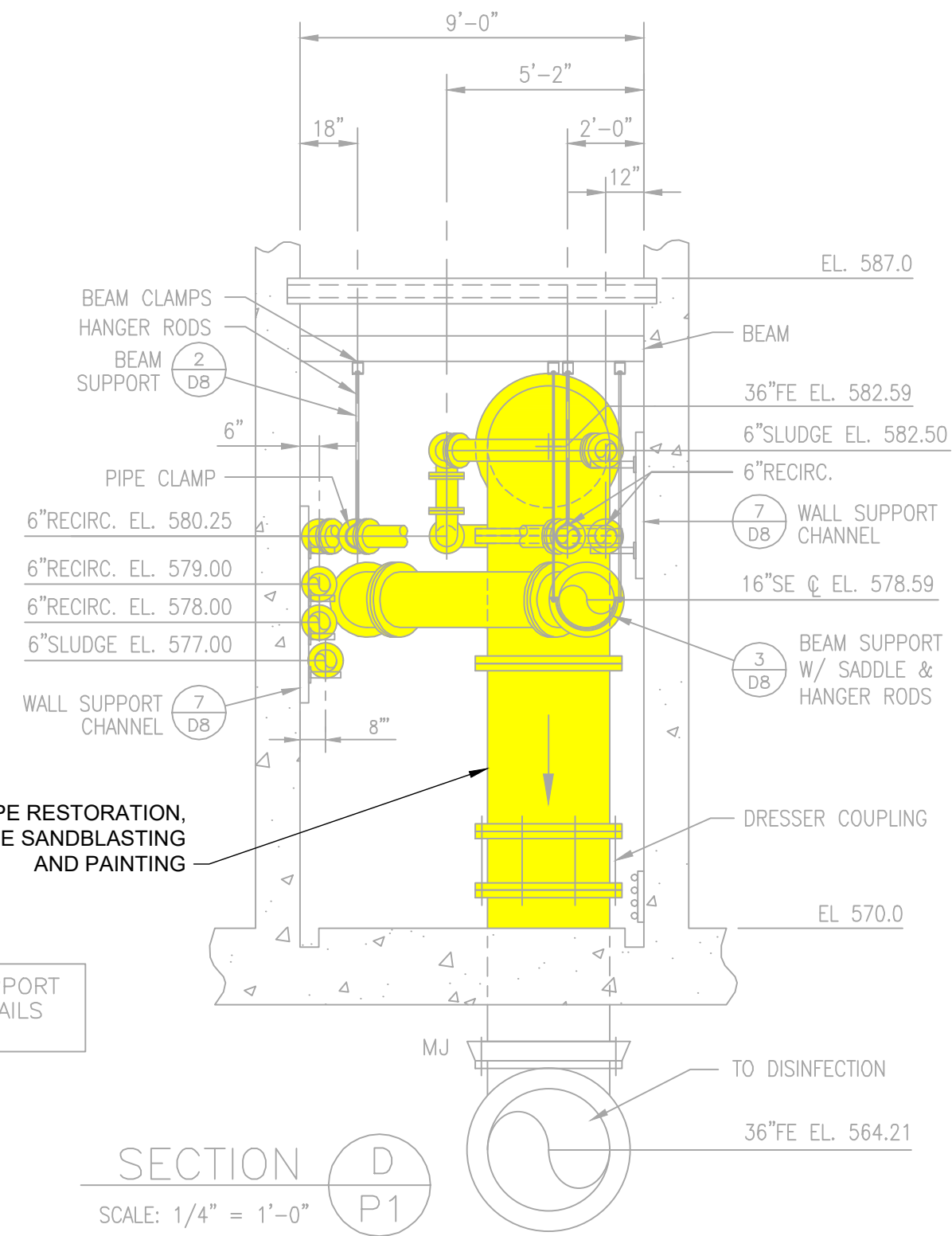


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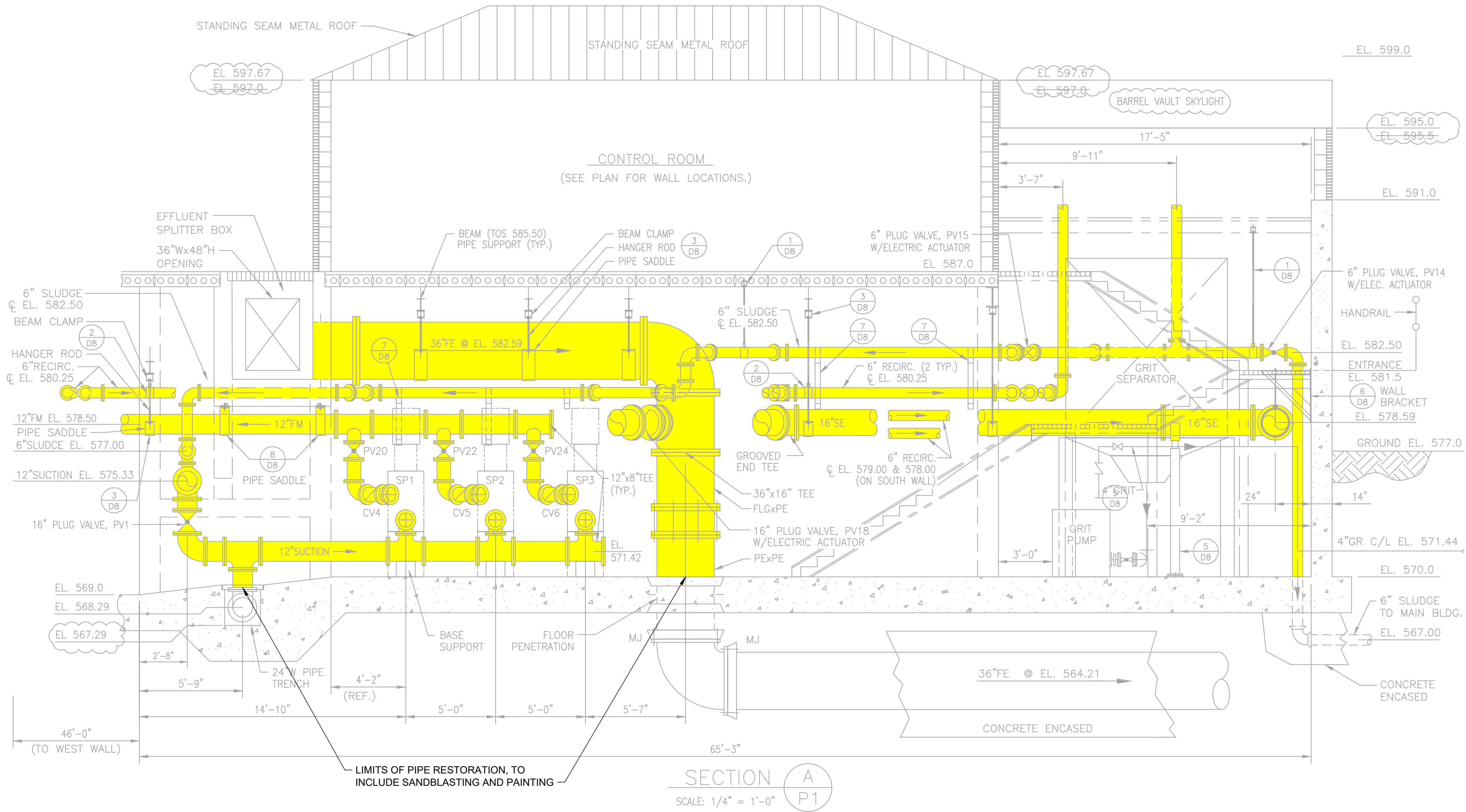


SECTION E
SCALE: 1/4" = 1'-0"



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

- NOTES:
- NOT ALL PIPE SUPPORTS ARE SHOWN. REFER TO SPECIFICATIONS FOR MAXIMUM SPACING BETWEEN SUPPORTS.
 - FOR PIPE PENETRATIONS, SEE DWG. D1.



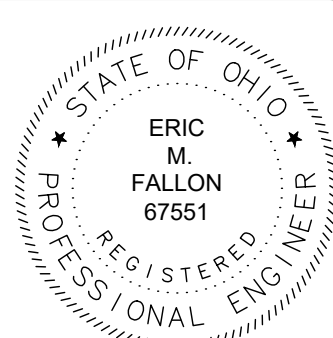
SECTION A
SCALE: 1/4" = 1'-0"

DATE	REVISION	NO	AS NOTED	DATE	DESIGNED BY:	DRAWN BY:	CHECKED BY:
				9/21/2026	EMF	CAS	EMF

CITY OF PORT CLINTON, OHIO
PORT CLINTON WWTP & LS IMPROVEMENTS
OTTAWA COUNTY
PRIMARY TREATMENT - 30 SERIES - PROCESS
PRIMARY TREATMENT BUILDING PIPE RESTORATION - 2

PROJECT NO:	33943
DRAWING NAME	30D-02
SHEET	OF
15	31

GENERAL NOTES:
1. CONTRACTOR SHALL SANDBLAST AND PAINT PIPING PER SPECIFICATION 099700.



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8150 STERLING COURT
MENTOR, OHIO 44060
(440) 851-9000

NO	DATE	REVISION

SCALE:	AS NOTED	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
		9/21/2026	EMF	CAS	EMF

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

OTTAWA COUNTY
PRIMARY TREATMENT - 30 SERIES - PROCESS

PRIMARY TREATMENT BUILDING PIPE RESTORATION - 3

PROJECT NO:

33943

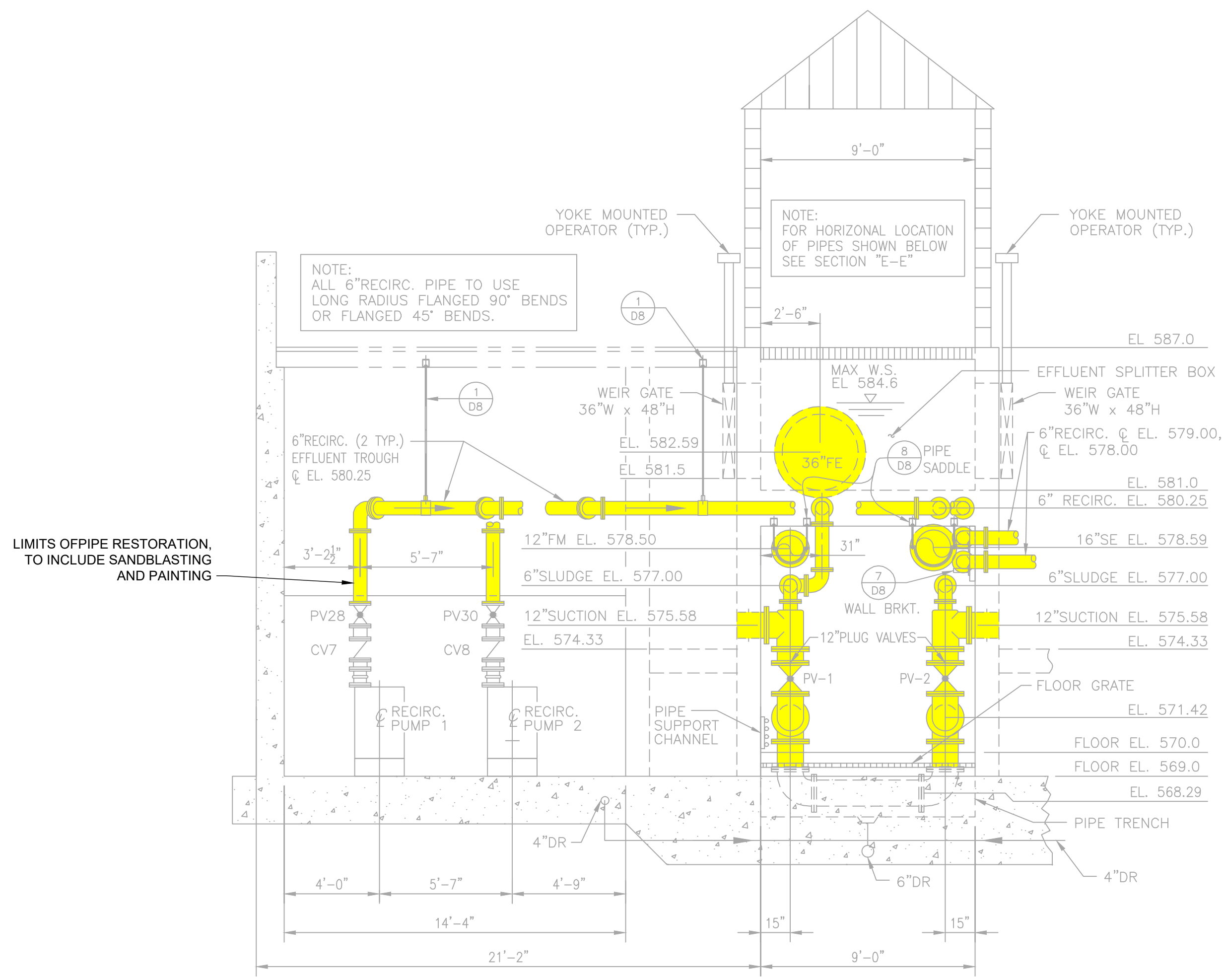
DRAWING NAME

30D-03

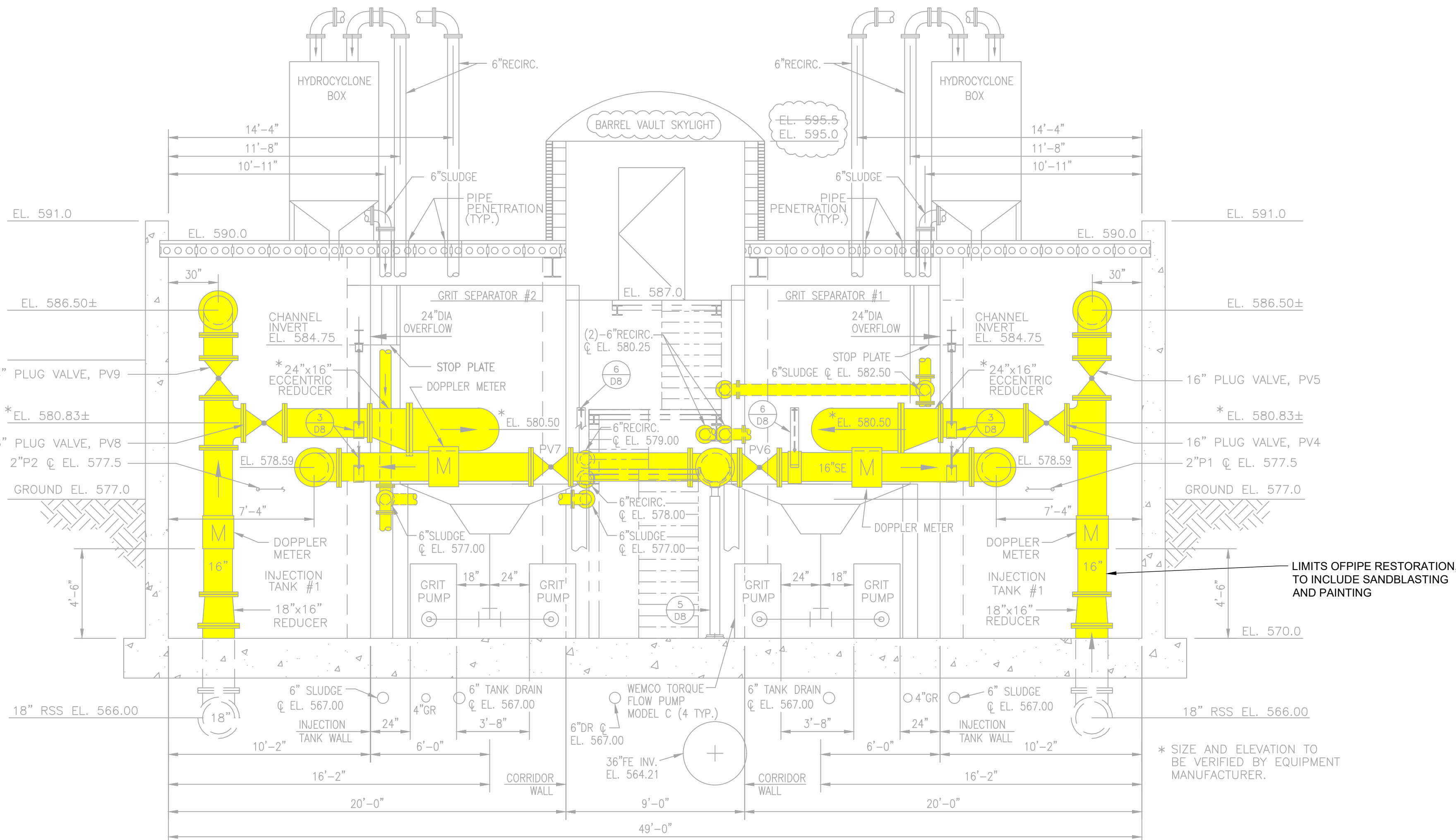
SHEET OF

16

31



SECTION B
SCALE: 1/4" = 1'-0"
P1



SECTION C
SCALE: 1/4" = 1'-0"
P1



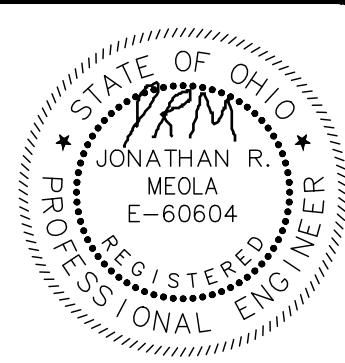
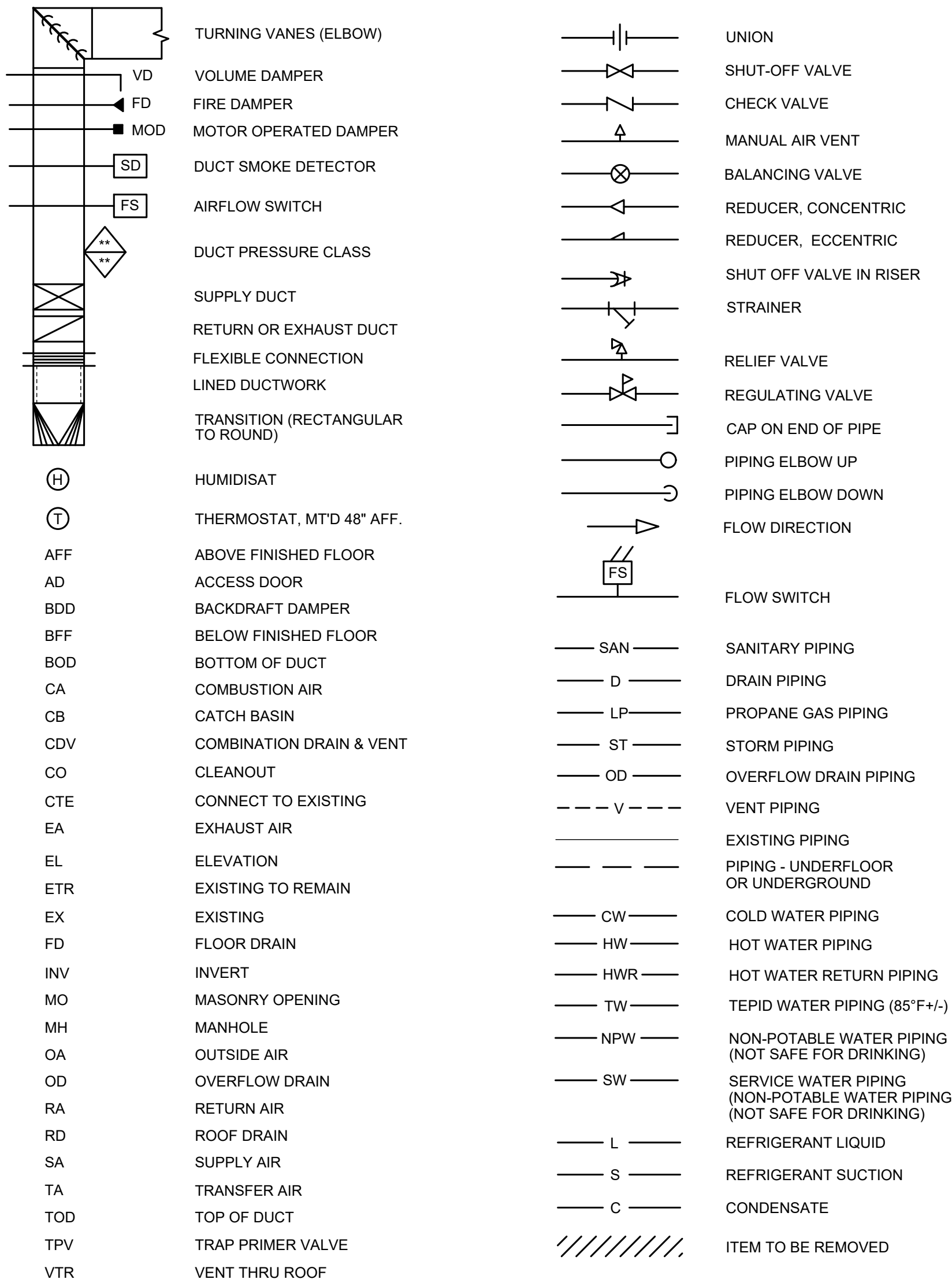
NOTES:

1. ANCHORS TO COMPLY WITH PRECAST HOLLOW CORE ROOF PLANK MANUFACTURER'S INSTALLATION GUIDELINES.
2. DUCT HANGING STRAPS, WIRES, ETC. NOT PERMITTED.

MECHANICAL GENERAL NOTES:

3. SEE DEMOLITION PLANS FOR EXISTING PIPING, EQUIPMENT, ETC.. NEW PLANS INDICATE NEW AND REVISED ELEMENTS OF WORK, BUT IT IS NOT FEASIBLE TO INDICATE ALL UNCHANGED EXISTING PIPING, EQUIPMENT, ETC..
2. ALL INTERIOR AND EXTERIOR HANGERS, RODS, SUPPORTS, CLAMPS, etc. TO BE CORROSION RESISTANT. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. COORDINATE EXACT LOCATIONS OF ALL PIPES, DUCTS AND EQUIPMENT, AS TO NOT INTERFERE WITH LIGHTS, OVERHEAD DOORS, PROCESS EQUIPMENT, PROCESS PIPING, ETC.
4. SEE STRUCTURAL DETAIL SHEETS FOR ADDITIONAL INFORMATION ON CONCRETE HOUSEKEEPING PADS, EXTERIOR FOUNDATIONS, ETC.
5. DEMOLITION OF PLUMBING EQUIPMENT AND PIPING TO INCLUDE ALL ANCILLARY HANGERS, SUPPORTS, ETC. DEMOLITION TO ALSO INCLUDE ASSOCIATED CONCRETE CURBS, AND CONTROL WIRING/CONDUITS.
6. INSTALL PERMANENT SIGN OF CORROSION RESISTANT MATERIALS, WITH PICTOGRAPH, AT ALL HOSE BIBS, THAT READS AS FOLLOWS:
"CAUTION: NONPOTABLE WATER - DO NOT DRINK."
7. WHERE EXISTING FOUNDATIONS, FLOORS, CONCRETE ROOFS, ETC. ARE PENETRATED FOR NEW PIPING, CORE DRILL AND PROVIDE SLEEVE ACCORDINGLY.
8. MAKE FINAL GAS CONNECTIONS WITH GAS VALVE, UNION, AND DIRT LEG.
9. ALL MOUNTING HEIGHTS ARE REFERENCED TO THE BOTTOM OF EQUIPMENT, UNLESS NOTED OTHERWISE.
10. COORDINATE ALL NEW WALL/ROOF OPENINGS. SEE ARCHITECTURAL AND STRUCTURAL PLANS AND ELEVATIONS.
11. DEMOLITION OF HVAC EQUIPMENT AND PIPING TO INCLUDE ALL ANCILLARY HANGERS, SUPPORTS, FLUE SYSTEMS, ASSOCIATED CONCRETE PADS, AND CONTROLS INCLUDING THERMOSTATS, SWITCHES, WIRING/CONDUITS, ETC.
12. WHERE EQUIPMENT, DUCTS, FLUES, ARE REMOVED THRU WALLS/ROOFS/FLOORS, ETC., COORDINATE PATCHING WITH APPROPRIATE CONTRACTORS. SEE ARCHITECTURAL AND STRUCTURAL PLANS AND ELEVATIONS. WHERE NEW PIPES, FLUES, ETC ARE SHOWN THROUGH EX. WALLS/ROOFS/FLOORS, ETC.; CORE DRILL, SLEEVE, AND SEAL ACCORDINGLY, UNLESS NOTED OTHERWISE.
13. WHERE NEW EQUIPMENT, FANS, LOUVERS, DUCTS, ETC. ARE INSTALLED IN OR OVER EXISTING WALL/ROOF OPENINGS, CONTRACTOR SHALL FIELD VERIFY EXACT OPENING DIMENSIONS PRIOR TO SUBMITTING/ORDERING NEW ITEMS. EXISTING OPENINGS SHALL BE MODIFIED AS NEEDED TO ACCOMMODATE NEW EQUIPMENT.
14. WHERE DUCTS PENETRATE ROOFS: PROVIDE PATE #PC-5 OR EQUAL, ROOF CURB (13.5" HIGH, FULLY WELDED, 1.5" INSULATION, WOOD NAILER, RAISED CANT).
SUPPORT ROOF MOUNTED DUCTS WITH PATE #DSS-5 OR EQUAL, DUCT SUPPORT SYSTEM (13.5" HIGH, FULLY WELDED, RAISED CANT, WITH ALL DUCT MOUNTING HARDWARE).
WHERE PIPING/CONDUITS PENETRATE ROOFS, PROVIDE PIPE CURB ASSEMBLY, PATE #PCA-5B WITH #PC-C1 CAP, OR EQUALS.
WHERE EQUIPMENT IS ROOF MOUNTED: PROVIDE PATE #ES-5B OR EQUAL, EQUIPMENT SUPPORTS (13.5" HIGH, FULLY WELDED, 1.5" INSULATION, WOOD NAILER, RAISED CANT).
15. LOCATE ROOFTOP EQUIPMENT 10-FT MINIMUM FROM ROOF EDGES. WHERE EQUIPMENT MUST BE LOCATED WITHIN 10-FT OF ROOF EDGES, THEN GUARD RAILS MUST BE PROVIDED. SEE ARCH PLANS FOR ADDITIONAL INFO.
16. SEE ELECTRICAL DRAWINGS FOR POWER, INTERLOCK, AND ALARM WIRING SYSTEMS.
17. PROVIDE CONTROL WIRING IN CONDUITS IN ACCORDANCE WITH DIV. 26 SPECIFICATIONS AND/OR DRAWING ELECTRICAL SPECIFICATIONS.

SYMBOL LEGEND



8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

SCALE:	NO	REVISION	DATE
	AS NOTED		
DATE:	9/21/2026		
DESIGNED BY:	JRM		
DRAWN BY:	JRM/CAS		
CHECKED BY:	JRM		

CITY OF PORT CLINTON, OHIO PORT CLINTON WWTP & LS IMPROVEMENTS	OHIO
OTTAWA COUNTY	
MECHANICAL - M SERIES	
MECHANICAL LEGEND AND GENERAL NOTES	

PROJECT NO:	
33943	
DRAWING NAME	
00M-01	
SHEET	OF
17	31

MECHANICAL EQUIPMENT SCHEDULE					
SYMBOL	QTY	AREA SERVED	DESCRIPTION	ACCESSORIES	ELEC. REQMT'S
MAU-1	1	HEADWORKS BLG.- SOUTH ROOM - GRIT DEWATERING	ENGINEERED AIR #DJS20/O/HRP/R MAKEUP AIR UNIT OUTDOOR, BASE MOUNTED, HORIZONTAL ARRANGEMENT, LEFT HAND CONFIG./ACCESS, HORIZ. INLET, DOWN DISCHARGE, NATURAL GAS, INDIRECT FIRED, 7" W.C. BURNERS. APPROX. DIMENSIONS: 138"L x 84"W x 40"H, APPROX. WEIGHT: 2,900 LBS. SUPPLY: 1800 CFM @ 1.0" ESP, 3.03" TSP, 9/9 FC FAN, 1953 RPM, 1.57 BHP, 3 HP. RETURN: 1800 CFM @ 1.0" ESP, 2.64" TSP, 9/9 FC FAN, 1821 RPM, 1.38 BHP, 2 HP. HEATING: 200,000 BTH INPUT, 162,000 BTH OUTPUT, 83°F RISE. ENERGY RECOVERY: 78.9 MBH, 58% S.A. EFF., S.A. EDB/LDB 0°/40.6°, E.A. EDB 70°.	SEE SPEC. #15562 FOR ADDITIONAL INFO. UNIT MOUNTED FUSED DISCONNECT SWITCH ENERGY RECOVERY SECTION: QDT HEAT PIPE DOUBLE-WALL CONSTRUCTION ALUMINIUM BASE FRAME INSULATED CASING INTAKE HOOD, EXHAUST LOUVER HINGED ACCESS DOORS STAINLESS STEEL HEAT EXCHANGERS SUPPLY & RETURN FILTERS: 2" PLEATED MERV-8 FILTERS CUSTOM REMOTE CONTROL PANEL MODULATING BURNERS WITH 15:1 TURNDOWN HIGH AND LOW TEMPERATURE SHUTDOWN MOTORS: TEFC, PREMIUM EFFICIENCY	460/3/60 9.1 MCA 15A MCB
MAU-2	1	HEADWORKS BLG.- UPPER LEVEL - NORTH ROOM	ENGINEERED AIR #DJS60/O/HRP/R MAKEUP AIR UNIT OUTDOOR, BASE MOUNTED, HORIZONTAL ARRANGEMENT, LEFT HAND CONFIG./ACCESS, HORIZ. INLET, DOWN DISCHARGE, NATURAL GAS, INDIRECT FIRED, 7" W.C. BURNERS. APPROX. DIMENSIONS: 150"L x 105"W x 56"H, APPROX. WEIGHT: 4,100 LBS. SUPPLY: 3200 CFM @ 1.0" ESP, 3.06" TSP, 122 AF FAN, 3124 RPM, 2.50 BHP, 5 HP. RETURN: 2700 CFM @ 0.75" ESP, 2.41" TSP, 10/10 FC FAN, 1515 RPM, 1.95 BHP, 3 HP. HEATING: 450,000 BTH INPUT, 364,500 BTH OUTPUT, 105°F RISE. ENERGY RECOVERY: 114.4 MBH, 60% S.A. EFF., S.A. EDB/LDB 0°/33.1°, E.A. EDB 70°.	SEE SPEC. #15562 FOR ADDITIONAL INFO. UNIT MOUNTED FUSED DISCONNECT SWITCH ENERGY RECOVERY SECTION: QDT HEAT PIPE DOUBLE-WALL CONSTRUCTION ALUMINIUM BASE FRAME INSULATED CASING TOP INTAKE HOOD, EXHAUST LOUVER HINGED ACCESS DOORS STAINLESS STEEL HEAT EXCHANGERS SUPPLY & RETURN FILTERS: 2" PLEATED MERV-8 FILTERS CUSTOM REMOTE CONTROL PANEL MODULATING BURNERS WITH 15:1 TURNDOWN HIGH AND LOW TEMPERATURE SHUTDOWN MOTORS: TEFC, PREMIUM EFFICIENCY	460/3/60 15.8 MCA 20A MCB
MAU-3	1	PRIMARY TREATMENT BUILDING	ENGINEERED AIR #DJS60/O/HRP/R MAKEUP AIR UNIT OUTDOOR, BASE MOUNTED, HORIZONTAL ARRANGEMENT, LEFT HAND CONFIG./ACCESS, HORIZ. INLET, DOWN DISCHARGE, NATURAL GAS, INDIRECT FIRED, 7" W.C. BURNERS. APPROX. DIMENSIONS: 168"L x 123"W x 54"H, APPROX. WEIGHT: 5,000 LBS. SUPPLY: 5400 CFM @ 0.50" ESP, 3.01" TSP, 15/15 FC FAN, 1130 RPM, 4.36 BHP, 5 HP. RETURN: 5050 CFM @ 1.25" ESP, 2.97" TSP, 15/15 FC FAN, 1049 RPM, 3.53 BHP, 5 HP. HEATING: 600,000 BTH INPUT, 486,000 BTH OUTPUT, 83°F RISE. ENERGY RECOVERY: 231 MBH, 56.6% S.A. EFF., S.A. EDB/LDB 0°/39.6°, E.A. EDB 70°.	SEE SPEC. #15562 FOR ADDITIONAL INFO. UNIT MOUNTED FUSED DISCONNECT SWITCH ENERGY RECOVERY SECTION: QDT HEAT PIPE DOUBLE-WALL CONSTRUCTION ALUMINIUM BASE FRAME INSULATED CASING INTAKE HOOD, EXHAUST LOUVER HINGED ACCESS DOORS STAINLESS STEEL HEAT EXCHANGERS SUPPLY & RETURN FILTERS: 2" PLEATED MERV-8 FILTERS CUSTOM REMOTE CONTROL PANEL MODULATING BURNERS WITH 15:1 TURNDOWN HIGH AND LOW TEMPERATURE SHUTDOWN MOTORS: TEFC, PREMIUM EFFICIENCY	460/3/60 18.3 MCA 25A MCB
MAU-4	1	HEADWORKS BLG.- LOWER LEVEL - SCREEN ROOM	ENGINEERED AIR #DJS40/O/R MAKEUP AIR UNIT OUTDOOR, BASE MOUNTED, HORIZONTAL ARRANGEMENT, LEFT HAND CONFIG./ACCESS, HORIZ. INLET, DOWN DISCHARGE, NATURAL GAS, INDIRECT FIRED, 7" W.C. BURNERS. APPROX. DIMENSIONS: 104"L x 55"W x 43"H, APPROX. WEIGHT: 2,250 LBS. SUPPLY: 2600 CFM @ 1.25" ESP, 3.24" TSP, 12/12 BI FAN, 2874 RPM, 1.98 BHP, 3 HP. HEATING: 300,000 BTH INPUT, 243,000 BTH OUTPUT, 87°F RISE.	SEE SPEC. #15562 FOR ADDITIONAL INFO. UNIT MOUNTED FUSED DISCONNECT SWITCH EXHAUST FAN STARTER (EF-1: 1 HP, 460/3) DOUBLE-WALL CONSTRUCTION ALUMINIUM BASE FRAME INSULATED CASING INSULATED/LINED FLOOR INTAKE HOOD HINGED ACCESS DOORS STAINLESS STEEL HEAT EXCHANGERS FILTERS: 2" PLEATED MERV-8 PRE-FILTERS 12" RIGID CARTRIDGE FINAL FILTERS (90-95%) CUSTOM REMOTE CONTROL PANEL MODULATING BURNERS WITH 15:1 TURNDOWN HIGH AND LOW TEMPERATURE SHUTDOWN MOTOR: TEFC, PREMIUM EFFICIENCY	460/3/60 10.0 MCA 15A MCB
EF-1	1	HEADWORKS BLG.- LOWER LEVEL - SCREEN ROOM	COOK #CPA-210 EXHAUST FAN VENT SET, CENTRIFUGAL, ALUMINUM WHEEL AND HOUSING, 21"Ø B.I. FLAT BLADE, BELT DRIVE, ARR. 10, CLASS 1, CLOCKWISE, TOP HORIZONTAL DISCHARGE, WEIGHT ~ 400 LBS. 3,100 CFM @ 1.0" S.P. 850 RPM, .76 BHP, 57/60 dBA @ 5-FT, 68/72 LwA.	NEMA-7 DISCONNECT SWITCH PREMIUM EFFICIENCY, X.P. MOTOR TYPE-A SPARK RESISTANT EPOXY POWDER COATING WITH UV TOPCOAT ALUMINUM RUB RING ACCESS DOOR DRAIN WITH PLUG FLANGED INLET, AND INLET COMPANION FLANGE ALUMINUM OUTLET SCREEN WEATHER COVER, OSHA BELT GUARD ISOLATION RAILS RESTRAINED SPRING ISOLATORS	460/3/60 1 HP
ACU-1	1	HEADWORKS BLG.- UPPER LEVEL MCC ROOM	MITSUBISHI AIR CONDITIONING UNIT LIGHT COMMERCIAL, COOLING ONLY, DUCTLESS SPLIT SYSTEM, HIGH WALL EVAPORATOR, POLYSTYRENE CABINET, 20 SEER, VARIABLE SPEED INVERTER-DRIVEN COMPRESSOR, R-454B REFRIGERANT, NOM. 3.0 TONS COOLING (13.2 MBH MIN., 36.0 MBH MAX.), 920 CFM; 36.0 MBH CAPACITY, 22.0 MBH SHC, 0.61 SENSIBLE HEAT FACTOR #PKA-AK36NL INDOOR UNIT, 208V/230/1 (WIRED FROM OUTDOOR UNIT), #PUY-AK36NL CONDENSING UNIT, 208V/230/1, 34 MCA, 35A CB	WIRED LOW VOLTAGE WALL THERMOSTAT CONDENSATE PUMP REFRIGERANT LINE SETS CONDENSER WALL MOUNTING BRACKETS: STAINLESS STEEL CONDENSER WIND BAFFLE; LOW AMB. COOLING	208/230/1/60 34 MCA, 35A CB
SD	4	MAU-1,2,3 - RETURN AIR DUCT EF-1 EXHAUST DUCT	SIMPLEX #4098-9687 DUCT SMOKE DETECTOR SYSTEM PHOTOELECTRIC DETECTOR, UL LISTED 268A, COMPLETE WITH HOUSING, SAMPLING TUBES, RELAY OUTPUT CONTACTS, ETC. DETECTOR TO BE COMPATIBLE WITH MAU-1,2,3,4 CONTROL PANELS.	DUCT SAMPLING TUBES #4098-9842 REMOTE TEST STATION	24/120/1
FS	2	MAU-3,4 - SUPPLY AIR DUCT	JOHNSON CONTROLS #F262KDH-01C AIRFLOW SWITCH PADDLE TYPE, POLYCARBONATE HOUSING, NEMA 3R, UL LISTED, SPDT, SWITCH TO BE COMPATIBLE WITH EXISTING PLC AND ALARM SYSTEMS (FIELD VERIFY).		115/230/1

- NOTES:**
- QUANTITIES ARE SHOWN FOR GENERAL REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL EQUIPMENT SHOWN ON PLANS AND DETAILS.
 - CHARACTERISTICS (RPM, HP, IMPELLERØ, PRESSURE DROP) SHALL NOT VARY BY MORE THAN 10% OF SPEC'D UNITS. SOUND VALUES SHALL NOT EXCEED THE VALUES INDICATED.

SEQUENCE OF OPERATION

1. MAU-1 MAKEUP AIR UNIT (HEADWORKS BUILDING - SOUTH ROOM - GRIT DEWATERING):
VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
VENTILATION SYSTEM PROVIDES APPROXIMATELY 14 AIR CHANGES PER HOUR (SIMILAR TO EXISTING).

MAU-1 SHALL BE PROVIDED WITH A REMOTE CONTROL PANEL.
REMOTE PANEL SHALL INCLUDE A DISCHARGE AIR SETPOINT DIAL. UPON A CALL FOR HEATING,
UNIT INTERNAL CONTROLS WILL MODULATE THE GAS HEATING. UNIT INTERNAL CONTROLS WILL MODULATE
THE ENERGY RECOVERY HEATPIPE TO REGULATE LEAVING AIR TEMPERATURE.

SEE ELECTRICAL DRAWINGS FOR INTERLOCK WIRING, MONITORING, AND ALARM PROVISIONS.
A RETURN AIR DUCT SMOKE DETECTOR SHALL DE-ENERGIZE MAU-1 UPON THE DETECTION OF SMOKE.
AN ALARM SIGNAL SHALL BE INITIATED SHOULD MAU-1 NOT BE OPERATING (LOW AIRFLOW SWITCH, ETC).

2. MAU-2 MAKEUP AIR UNIT (HEADWORKS BUILDING - UPPER LEVEL - NORTH ROOM):
VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
VENTILATION SYSTEM PROVIDES APPROXIMATELY 13 AIR CHANGES PER HOUR (SIMILAR TO EXISTING).

MAU-2 SHALL BE PROVIDED WITH A REMOTE CONTROL PANEL.
REMOTE PANEL SHALL INCLUDE A DISCHARGE AIR SETPOINT DIAL. UPON A CALL FOR HEATING,
UNIT INTERNAL CONTROLS WILL MODULATE THE GAS HEATING. UNIT INTERNAL CONTROLS WILL MODULATE
THE ENERGY RECOVERY HEATPIPE TO REGULATE LEAVING AIR TEMPERATURE.

SEE ELECTRICAL DRAWINGS FOR INTERLOCK WIRING, MONITORING, AND ALARM PROVISIONS.
A RETURN AIR DUCT SMOKE DETECTOR SHALL DE-ENERGIZE MAU-2 UPON THE DETECTION OF SMOKE.
AN ALARM SIGNAL SHALL BE INITIATED SHOULD MAU-2 NOT BE OPERATING (LOW AIRFLOW SWITCH, ETC).

3. MAU-3 MAKEUP AIR UNIT (PRIMARY TREATMENT BUILDING):
VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
VENTILATION SYSTEM PROVIDES APPROXIMATELY 4.7 AIR CHANGES PER HOUR (SIMILAR TO EXISTING).

MAU-3 SHALL BE PROVIDED WITH A REMOTE CONTROL PANEL.
REMOTE PANEL SHALL INCLUDE A DISCHARGE AIR SETPOINT DIAL. UPON A CALL FOR HEATING,
UNIT INTERNAL CONTROLS WILL MODULATE THE GAS HEATING. UNIT INTERNAL CONTROLS WILL MODULATE
THE ENERGY RECOVERY HEATPIPE TO REGULATE LEAVING AIR TEMPERATURE.

SEE ELECTRICAL DRAWINGS FOR INTERLOCK WIRING, MONITORING, AND ALARM PROVISIONS.
A RETURN AIR DUCT SMOKE DETECTOR SHALL DE-ENERGIZE MAU-3 UPON THE DETECTION OF SMOKE.
AN ALARM SIGNAL SHALL BE INITIATED SHOULD MAU-3 NOT BE OPERATING (LOW AIRFLOW SWITCH, ETC).

4. MAU-4 MAKEUP AIR UNIT (HEADWORKS BUILDING - LOWER LEVEL - SCREEN ROOM):
VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
VENTILATION SYSTEM PROVIDES APPROXIMATELY 12 AIR CHANGES PER HOUR (SIMILAR TO EXISTING).

MAU-4 SHALL BE PROVIDED WITH A REMOTE CONTROL PANEL.
REMOTE PANEL SHALL INCLUDE A DISCHARGE AIR SETPOINT DIAL. UPON A CALL FOR HEATING,
UNIT INTERNAL CONTROLS WILL MODULATE THE GAS HEATING.

SEE ELECTRICAL DRAWINGS FOR INTERLOCK WIRING, MONITORING, AND ALARM PROVISIONS.
MAU-4 SHALL CONTAIN AN ADDITIONAL INTEGRAL STARTER TO CONTROL NEW EF-1 EXHAUST FAN.
AN EXHAUST AIR DUCT SMOKE DETECTOR SHALL DE-ENERGIZE MAU-1 AND EF-1 UPON
THE DETECTION OF SMOKE.
AN ALARM SIGNAL SHALL BE INITIATED SHOULD MAU-1 OR EF-1 NOT BE OPERATING (LOW AIRFLOW SWITCH, ETC).

5. EF-1 EXHAUST FAN (HEADWORKS BUILDING - LOWER LEVEL - SCREEN ROOM):
SEE MAU-4 SEQUENCE OF OPERATION ABOVE.
6. ACU-1 AIR CONDITIONING UNIT (HEADWORKS BUILDING - UPPER LEVEL - MCC ROOM):
UNIT SHALL BE COOLING ONLY. UNIT SHALL BE PROVIDED WITH A WIRED WALL THERMOSTAT,
24V LOW VOLTAGE, TO ENERGIZE THE INDOOR FAN AND CONDENSING UNIT UPON A CALL FOR COOLING.

AIR GRILLE SCHEDULE

SYMBOL	DESCRIPTION
SR-1	TITUS 300FS-1 ALUMINUM SUPPLY REGISTER, SURFACE MOUNT, DOUBLE DEFLECTION, 3/4" BLADE SPACING, MILL FINISH, AG-15-AA ALUMINUM DAMPER.
ER-1	TITUS 350-ZFL-1 ALUMINUM EXHAUST REGISTER, SURFACE MOUNT, 0" BLADE DEFLECTION, 3/4" BLADE SPACING, MILL FINISH, AG-15-AA ALUMINUM DAMPER.

- NOTES:**
- SEE PLANS FOR SIZES, QUANTITIES, ETC.

GRILLE MARK * * NECK/DUCT SIZE
* CFM



verdantas

8150 STERLING COURT
MENTOR, OHIO 44060
(440) 851-9000

DATE	REVISION	NO

SCALE:	N/A
DATE:	9/17/2026
DESIGNED BY:	JRM
DRAWN BY:	JRM/CAS
CHECKED BY:	JRM

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

OHIO
OTTAWA COUNTY

MECHANICAL - M SERIES

MECHANICAL SCHEDULES AND SEQUENCE OF OPERATION

PROJECT NO:	
33943	
DRAWING NAME	
00M-02	
SHEET	OF
18	31



THESE PLANS WERE PREPARED USING SCANNED 2007 DRAWINGS PREPARED BY THE FLOYD BROWN GROUP.
IT IS NOT FEASIBLE TO ACCURATELY INDICATE EVERY EXISTING ITEM IN DETAIL.
CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, AS REQUIRED FOR DEMOLITION AND NEW WORK.

On Sheet M3 in the Upper Mechanical Plan, for MUA-3 CHANGE from "24/24 supply duct" to a "32/14 supply duct". Also for MUA-3, CHANGE from "26/24 supply duct drop" to a "32/14 supply duct drop".

19	31
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PROJECT NO:	
33943	
DRAWING NAME	
20M-02	
SHEET	OF
20	31



- LEGEND:

-  DENOTES VERDANTAS CONTRACTUAL NOTES.
ALL OTHER EXISTING WRITTEN NOTES & TEXT SHOWN ON
SCANNED PLANS ARE FOR EXISTING CONDITIONS.
-  DENOTES ITEM, EQUIPMENT, DUCT, PIPE, ETC. TO BE DEMOLISHED.

EXISTING DRAWING BACKGROUND NOTE:

THESE PLANS WERE PREPARED USING SCANNED 2007 DRAWINGS PREPARED BY THE FLOYD BROWN GROUP.
IT IS NOT FEASIBLE TO ACCURATELY INDICATE EVERY EXISTING ITEM IN DETAIL.
CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, AS REQUIRED FOR DEMOLITION AND NEW WORK.

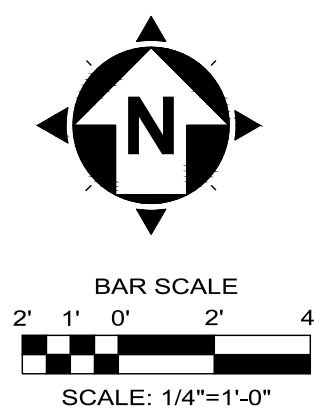




3. INSTALL NEW MAKEUP AIR UNIT IN SAME LOCATION AS EXISTING. INSTALL NEW UNIT ON EXISTING CURB. INSPECT EX. CURB AND REPLACE/REPAIR ANY COMPONENTS REQUIRED FOR STRUCTURAL INTEGRITY. PROVIDE NEW NEOPRENE PAD AND MFR'S FLASHING (Z-BAR) PER MFR'S INSTALLATION INSTRUCTIONS. REPLACE EXISTING S.A. AND R.A. DUCT TRANSITIONS BETWEEN TOP OF CURB AND BOTTOM OF ROOF. RECONNECT NATURAL GAS.
2. PROVIDE NEW SMOKE DETECTOR AT EXISTING RETURN AIR DUCT (MAU-1.2), AND NEW EF-1 EXHAUST AIR DUCT. PROVIDE NEW TEST STATION, AND LOCATE NEAR REMOTE CONTROL PANEL.
3. PROVIDE NEW MAKEUP AIR UNIT REMOTE CONTROL PANEL, AND LOCATE NEAR EXISTING. PROVIDE NEW CONTROL WIRING TO SUIT ALL UNIT FUNCTIONS.
4. RE-BALANCE EXISTING SUPPLY AND RETURN/EXHAUST AIR TO MATCH ORIGINAL DESIGN.
5. FIELD VERIFY EX. QUANTITY OF R.A. REGISTERS SERVING MAU-2.
REBALANCE FOR 2,700 CFM TOTAL R.A. (7 AT 385 CFM/EAF, ETC).
6. FIELD VERIFY EX. QUANTITY OF S.A. REGISTERS SERVING MAU-2.
REBALANCE FOR 3,200 CFM TOTAL S.A. (5 AT 620 CFM/EAF, 1 AT 100 CFM, ETC).
7. PROVIDE REFRIGERANT SUCTION/LIQUID PIPING BETWEEN INTERIOR EVAPORATOR UNIT AND EXTERIOR CONDENSING UNIT, INSULATED, SIZED PER MANUFACTURER'S INSTALLATION GUIDELINES. PROVIDE PVC CONDENSATE PIPING FROM EVAPORATOR UNIT, OVERHEAD = 10-FT± AFF, DOWN ALONG ALL TO MOP SINK.
8. FIELD VERIFY LOCATION, CONDITION, AND OPERATION OF EXISTING AIRFLOW SWITCH.
9. PROVIDE NEW AIRFLOW SWITCH IN NEW SUPPLY AIR DUCT.
10. ROUTE NEW S.A. AND E.A. DUCT MAINS THRU EXISTING ROOF OPENINGS. ROUTE NEW DUCTS SIMILAR TO EXISTING, EXCEPT WHERE SHOWN DIFFERING. OFFSET DUCTS TO ACCOMMODATE EXISTING ELEMENTS/CONDITIONS. TRANSITION DUCTS AS REQUIRED. MAINTAIN MAXIMUM CLEAR HEADROOM. FIELD VERIFY ALL.
11. INSTALL NEW MAU-4 MAKEUP AIR UNIT ON EXISTING/MODIFIED STRUCTURAL STEEL FRAME/PLATFORM. LINE UP LEFT FRONT CORNER OF MAU-4 WITH LEFT FRONT CORNER OF STEEL FRAME/PLATFORM. TRANSITION -48/12 S.A. FROM MAU-4 TO 36/12 ABOVE ROOF. RECONNECT NATURAL GAS.
12. INSTALL NEW EF-1 EXHAUST FAN ON EXISTING/MODIFIED STRUCTURAL STEEL FRAME/PLATFORM. TRANSITION 36/12 E.A. ABOVE ROOF TO 22/22, AND THEN TO 22'0"± TO SUIT FAN INLET.
13. APPROXIMATE OUTLINE OF EXISTING STRUCTURAL STEEL FRAME/PLATFORM.
SEE STRUCTURAL DRAWINGS/DETAILS FOR NEW INTERMEDIATE STEEL SUPPORT MEMBERS TO ACCOMMODATE REVISED DIMENSIONS OF MAU-4 MAKEUP AIR UNIT, AND NEW EF-1 EXHAUST FAN.
14. APPROXIMATE OUTLINE OF EXISTING ROOF PENETRATION.
SEE GENERAL NOTES FOR DUCT, CURB, ETC. INFORMATION.
15. CAREFULLY DISMANTLE EXISTING IM-3 IONIZATION MODULE ASSEMBLY.
RECONSTRUCT -32/14/96 IN SIMILAR CONFIGURATION TO EXISTING, AND REINSTALL IONIZATION MODULES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUPPORT MODULES ACCORDINGLY. TRANSITION 32/14 DUCT TO 26/14 S.A. TO LOWER LEVEL.
16. RELOCATE EX. SIDEWALL REGISTER AS SHOWN TO ACCOMMODATE NEW S.A. DUCT FOR MAU-4. PROVIDE NEW 8"Ø S.A. DUCT TO EX. REGISTER AT MCC ROOM.
17. PROVIDE STAINLESS STEEL GUY WIRES AT EF-1 EXHAUST FAN.

○ DENOTES VERDANTAS CONTRACTUAL NOTES.
- ALL OTHER EXISTING WRITTEN NOTES & TEXT SHOWN ON
SCANNED PLANS ARE FOR EXISTING CONDITIONS.

THESE PLANS WERE PREPARED USING SCANNED 2007 DRAWINGS PREPARED BY THE FLOYD BROWN GROUP.
IT IS NOT FEASIBLE TO ACCURATELY INDICATE EVERY EXISTING ITEM IN DETAIL.
CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, AS REQUIRED FOR DEMOLITION AND NEW WORK.



8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

[illegible]

SCALE:	AS NOTED
DATE:	9/21/2026
DESIGNED BY:	JRM
DRAWN BY:	JRM/CAS
CHECKED BY:	JRM

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

MECHANICAL - M SERIES

HEADWORKS BUILDING MECHANICAL PLANS

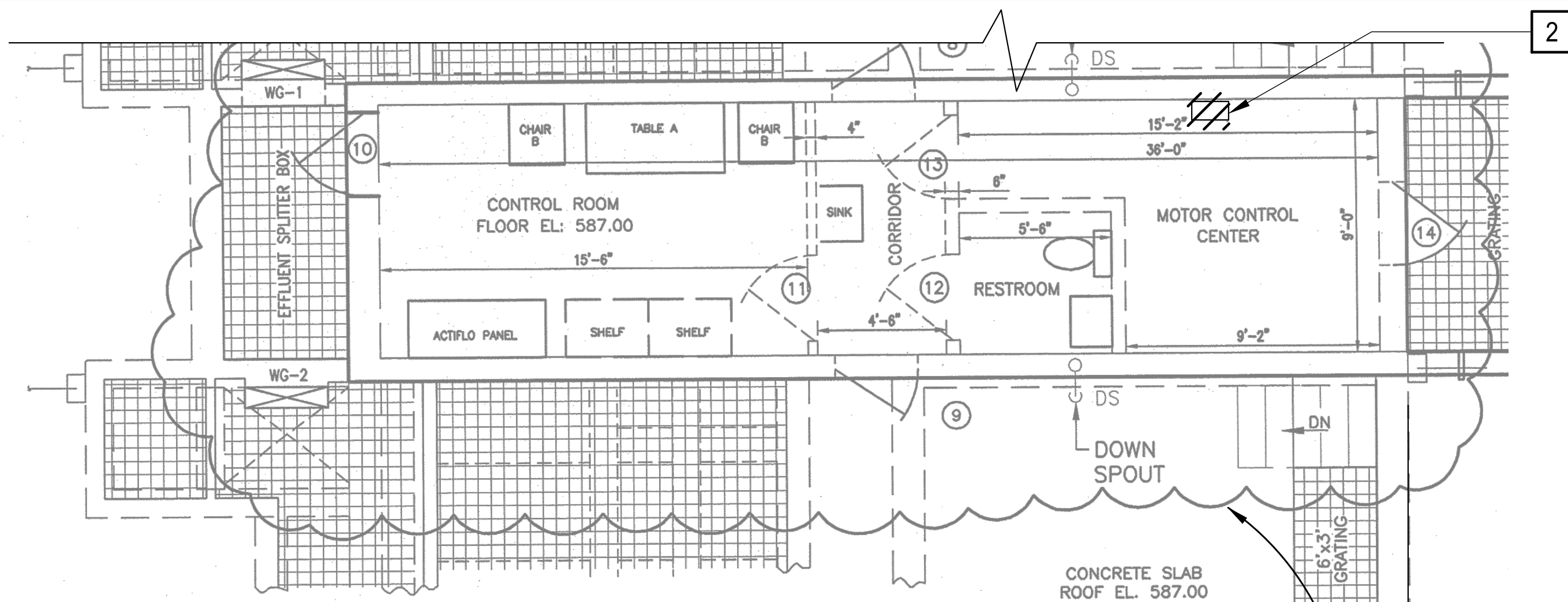
PROJECT NO:

33943

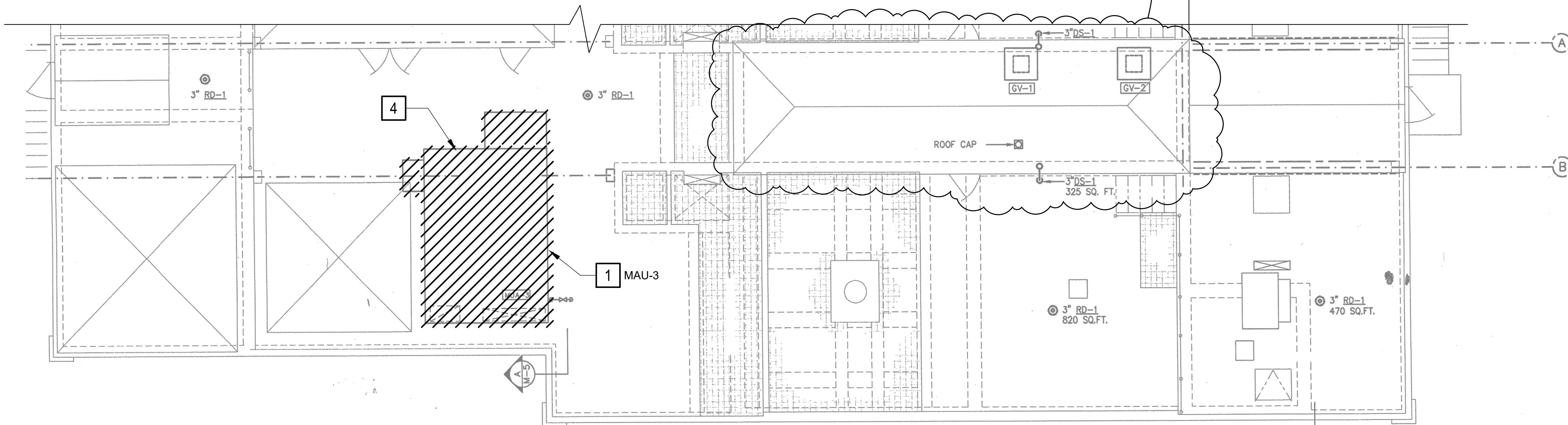
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20M-03

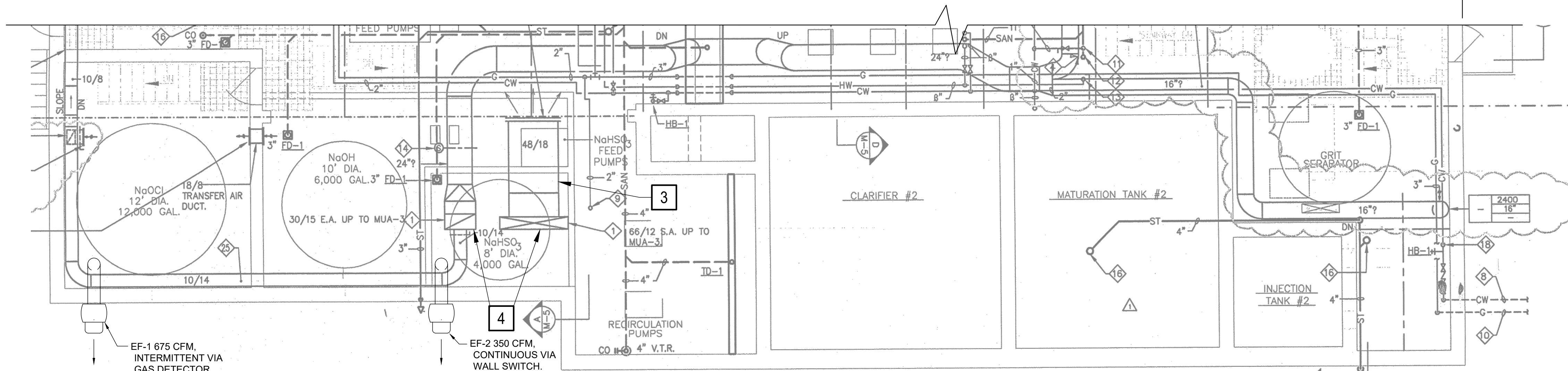
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INTERIOR BUILDING PLAN VIEW
SCALE: 1/4"=1'-0"



ROOF PLAN
3/16" = 1'-0"



PRIMARY TREATMENT BUILDING FLOOR PLAN EL.581.50
3/16" = 1'-0"

LEGEND:

- DENOTES VERDANTAS CONTRACTUAL NOTES. ALL OTHER EXISTING WRITTEN NOTES & TEXT SHOWN ON SCANNED PLANS ARE FOR EXISTING CONDITIONS.
- /// DENOTES ITEM, EQUIPMENT, DUCT, PIPE, ETC. TO BE DEMOLISHED.

EXISTING DRAWING BACKGROUND NOTE:

THESE PLANS WERE PREPARED USING SCANNED 2002 DRAWINGS PREPARED BY GGJ CONSULTING ENGINEERS. IT IS NOT FEASIBLE TO ACCURATELY INDICATE EVERY EXISTING ITEM IN DETAIL. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, AS REQUIRED FOR DEMOLITION AND NEW WORK.

MECHANICAL DEMOLITION PLANS
NOT TO SCALE

DEMOLITION CODED NOTES:

1. REMOVE AND REPLACE MAKEUP AIR UNIT. DISCONNECT NATURAL GAS.
2. REMOVE AND REPLACE MAKEUP AIR UNIT REMOTE CONTROL PANEL.
3. REMOVE SUPPLY AIR DUCT SMOKE DETECTOR (IF PRESENT). FIELD VERIFY. PROVIDE NEW SMOKE DETECTOR ON RETURN AIR DUCT.
4. MAU-3 AND MAIN DUCTS ARE NOT DEPICTED ACCURATELY ON THE 2002 DRAWINGS. THE UNIT AND MAIN DUCTS ARE ROTATED 90 DEGREES CLOCKWISE. OUTSIDE AIR HOOD AND EXHAUST AIR HOOD REPLACED WITH LOUVERS. FIELD VERIFY EXACT LOCATIONS, CONFIGURATIONS, SIZES, ETC.



verdantas

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					9/21/2026	JRM	JRM/CAS	JRM

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

OHIO
OTTAWA COUNTY
MECHANICAL - M SERIES

PRIMARY TREATMENT FACILITY DEMOLITION PLANS

PROJECT NO:	33943
DRAWING NAME	30M-01
SHEET	22
OF	31



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CHECKED BY:	IBM

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

PROJECT NO:	
33943	
DRAWING NAME	
30M-02	
SHEET	OF
23	31

○ DENOTES VERDANTAS CONTRACTUAL NOTES.
ALL OTHER EXISTING WRITTEN NOTES & TEXT SHOWN ON
SCANNED PLANS ARE FOR EXISTING CONDITIONS

THESE PLANS WERE PREPARED USING SCANNED 2002 DRAWINGS PREPARED BY GGJ CONSULTING ENGINEERS.
IT IS NOT FEASIBLE TO ACCURATELY INDICATE EVERY EXISTING ITEM IN DETAIL.
CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, AS REQUIRED FOR DEMOLITION AND NEW WORK.



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



SCALE: 3/16" = 1'-0"±



SCALE: 3/16" = 1'-0"

1. SCOPE OF WORK

1.1 THE WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THESE GENERAL NOTES, CONSTRUCTION DRAWINGS AND CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, TOOLS, LABOR, SUPERVISION AND ANY OTHER MISCELLANEOUS ITEMS REQUIRED TO INSTALL THE EQUIPMENT AND/OR DEVICES AS SPECIFIED HEREIN AND SHOWN ON THE DRAWINGS, UNLESS SPECIFICALLY EXCLUDED. THE EQUIPMENT OR DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC, THE MFR'S INSTRUCTIONS AND ACCORDING TO PLANS AND DRAWINGS PROVIDED. WRITTEN APPROVAL FROM THE AUTHORIZED COMPANY REPRESENTATIVE SHALL BE OBTAINED PRIOR TO MAKING ANY DEVIATION FROM THE DRAWINGS OR ANY SUBSTITUTION OF MATERIALS. IF SUCH PRIOR APPROVAL HAS NOT BEEN OBTAINED, IT WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CHANGE, WITHOUT ADDITIONAL COMPENSATION, ANY ITEMS SUBSEQUENTLY DISCOVERED TO BE UNACCEPTABLE.

1.2 THE CONTRACTOR SHALL PROVIDE THE INSTALLATION, INTERCONNECTION AND TESTING OF COMPLETE AND OPERABLE SYSTEMS.

1.3 INCLUDED IN THIS WORK IS THE FURNISHING, BY THE CONTRACTOR, OF OFFICE MATERIAL, EQUIPMENT STORAGE AND SHOP FACILITIES FOR THE CONSTRUCTION WORK DURING THE ENTIRE CONSTRUCTION PERIOD. CAPACITY, ARRANGEMENTS AND LOCATION OF THESE FACILITIES ARE SUBJECT TO APPROVAL BY THE CONSTRUCTION MANAGER AND SHALL COMPLY WITH APPLICABLE CODES AND REGULATIONS.

1.4 TO ENABLE ORDERLY REVIEW DURING PROGRESS OF THE WORK, AND TO PROVIDE FOR SYSTEMATIC DISCUSSION OF PROBLEMS, THE CONSTRUCTION MANAGER WILL CONDUCT PROJECT MEETINGS THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR WILL BE EXPECTED TO ATTEND THESE MEETINGS.

1.5 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ON THE PROJECT REQUIRED TO BE PERFORMED BY ELECTRICIANS, INCLUDING THAT DUE TO JURISDICTION AND/OR LOCAL PRACTICES.

1.6 THE CONTRACTOR SHALL EMPLOY QUALIFIED ELECTRICAL WORKERS, AND LABORERS TO PERFORM THE WORK TO BE DONE.

1.7 THE CONTRACTOR SHALL PROVIDE ALL TOOLS, CONSTRUCTION EQUIPMENT, TEST EQUIPMENT, AND TESTING FACILITIES AND SHALL MAKE TESTS AND KEEP RECORDS AS SPECIFIED HEREIN.

1.8 THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH ALL OTHER TRADES, PERMANENT FACILITY PERSONNEL, AND THE CONSTRUCTION MANAGER. COORDINATION SHALL ALLOW WORK TO BE INSTALLED IN THE MOST DIRECT MANNER AND SO INTERFERENCE BETWEEN CONDUITS, PIPING, DUCTS, EQUIPMENT, AND STRUCTURAL FEATURES WILL BE AVOIDED.

1.9 CABLE TRAY AND RACEWAY ROUTING.

1.9.a EQUIPMENT, INSTRUMENTS, DEVICES, PANELS AND JUNCTION BOXES LOCATIONS ARE SHOWN ON THE ELECTRICAL LAYOUT DRAWINGS.

1.9.b ONLY THE GENERAL CABLE OR RACEWAY TRAY ROUTING PLANS ARE SHOWN ON THE ELECTRICAL LAYOUT DRAWINGS. THE ROUTING FROM INDIVIDUAL ITEMS IS NOT DEPICTED ON THE DRAWINGS.

1.9.c THE DIFFERENT WIRING CLASSES AND WIRE ASSIGNED TO THEM (MEDIUM VOLTAGE POWER, LOW VOLTAGE POWER, CONTROL, INSTRUMENTATION) ARE ALL INDICATED ON THE DRAWING OR IN THE CABLE, CONDUIT AND WIRE SCHEDULE.

1.9.d IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE BEST CABLE TRAY OR RACEWAY ROUTING FOR ALL WIRES NOT SPECIFICALLY ROUTED, WHILE MAINTAINING THE WIRE CLASS SEGREGATION REQUIREMENTS OF THE NEC.

1.9.e THE CONTRACTOR SHALL PRESENT THE ROUTING PLAN TO THE CONSTRUCTION MANAGER FOR APPROVAL BEFORE PROCEEDING.

1.10 RUNS FROM OUTLETS REFERRED TO AS "HOME RUNS" MAY BE USED ON CONTRACTOR'S CONSTRUCTION DRAWINGS. THEY ARE INDICATED BY POINTING IN THE GENERAL DIRECTION OF PANELS. CONTRACTOR SHALL BE RESPONSIBLE TO CONTINUE SUCH CIRCUITS TO THE PANELS AS THOUGH THE ROUTES WERE COMPLETELY INDICATED. HOME RUNS SHALL BE INSTALLED FROM OUTLETS AS SHOWN ON CONTRACTOR'S DRAWINGS.

1.11 THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL DETAILS OF THE WORK AND VERIFY ALL DIMENSIONS IN THE FIELD SO THAT THE OUTLETS AND EQUIPMENT WILL BE PROPERLY LOCATED AND READILY ACCESSIBLE. LIGHTING FIXTURES, OUTLETS, AND OTHER EQUIPMENT AND MATERIALS SHALL BE LOCATED TO AVOID INTERFERENCE WITH CABINETS, MECHANICAL OR STRUCTURAL FEATURES. DEVIATIONS FROM DRAWINGS REQUIRED TO MAKE WORK OF THIS CONTRACT CONFORM TO BUILDING AS CONSTRUCTED, OR AS TO WORK OF OTHER CONTRACTORS, SHALL BE MADE BY THE CONTRACTOR AT THEIR EXPENSE. THE ENGINEER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF EQUIPMENT AND OUTLETS PRIOR TO INSTALLATION WITHOUT ADDITIONAL CHARGES.

2. CONTRACT DOCUMENTS

2.1 THE CONTRACT DOCUMENTS SHALL CONSIST OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS ISSUED BY THE ENGINEER. EACH DOCUMENT IS COMPLEMENTARY, AND THE REQUIREMENTS SHOWN, WRITTEN OR REASONABLY INFERABLE THERE FROM ONE DOCUMENT IS CONSIDERED AS WRITTEN, SHOWN OR IMPLIED IN ALL.

2.2 THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH ALL OF THE PLANS INCLUDING ARCHITECTURAL, LAYOUT, PIPING AND MECHANICAL PLANS. HE SHALL PERFORM ALL WORK AND PROVIDE ALL MATERIAL REQUIRED BY THE ELECTRICAL CONTRACTOR SHOWN UNDER THESE AND ALL OTHER SECTIONS OF THE PLANS AND SPECIFICATIONS.

2.3 THE CONTRACTOR SHALL MAINTAIN AN UP TO DATE SET OF AS-BUILT DRAWINGS NEATLY MARKED WITH ALL CHANGES (RED LINED) FROM THE ORIGINAL DESIGN. THESE DRAWINGS SHALL BE DELIVERED TO THE CONSTRUCTION MANAGER AT THE COMPLETION OF THE PROJECT PRIOR TO RECEIVING FINAL PAYMENT.

3. CODES AND STANDARDS

3.1 THE ELECTRICAL EQUIPMENT, MATERIALS AND INSTALLATION PROVIDED FOR THIS PROJECT SHALL CONFORM IN DESIGN, FABRICATION, TESTING AND PERFORMANCE, TO THE LATEST EDITION OF STANDARDS AND GUIDELINES PUBLISHED BY THE FOLLOWING ORGANIZATIONS WHERE APPLICABLE. THE LATEST EDITION OF THE STANDARDS, DOCUMENTS, AND PUBLICATIONS, REFERENCED HEREIN BY BASIC DESIGNATION SHALL BECOME PART OF THESE SPECIFICATIONS TO THE EXTENT REFERENCED.

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE	
FM FACTORY MUTUAL FM STANDARDS	
IEEE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS	
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS
NFPA 70	NATIONAL ELECTRIC CODE
NFPA 70E	STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE
NFPA 72	NATIONAL FIRE ALARM CODE
NEMA	NATIONAL ELECTRICAL MFR'S ASSOCIATION
UL	UNDERWRITERS' LABORATORIES, INC.
ICEA	INSULATED CABLE ENGINEERS ASSOCIATION
IPCEA	INSULATED POWER CABLE ENGINEERS ASSOCIATION STANDARDS
ISA	INSTRUMENT SOCIETY OF AMERICA STANDARDS

3.2 ALL LOCAL, STATE AND FEDERAL CODES, STANDARDS AND REGULATIONS IN EFFECT HAVING JURISDICTION IN THE AREA WHERE THE EQUIPMENT WILL BE INSTALLED, ANY CONFLICT BETWEEN THE ABOVE MENTIONED DOCUMENTS AND THIS SPECIFICATION SHALL BE REFERRED TO THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE FABRICATION OF THE AFFECTED PARTS.

4. CODES AND PERMITS

4.1 THE INSTALLATION AND MATERIALS SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL INSTALLATION IN EFFECT, WITH THE REGULATIONS OF THE NEC WHERE SUCH REGULATIONS DO NOT CONFLICT WITH LAWS IN EFFECT, AND WITH THE REGULATIONS OF THE PUBLIC UTILITY COMPANY FURNISHING THE SERVICE.

5. GUARANTEE

5.1 THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, WORKMANSHIP AND THE SUCCESSFUL OPERATION OF ALL EQUIPMENT AND APPARATUS UNDER THIS CONTRACT FOR A PERIOD OF (18) EIGHTEEN MONTHS FROM THE DATE OF FINAL ACCEPTANCE OF THE WHOLE WORK. CONTRACTOR SHALL GUARANTEE TO REPAIR OR REPLACE AT HIS OWN EXPENSE ANY PART OF THE APPARATUS WHICH MAY SHOW DEFECT DURING THAT TIME PROVIDED SUCH DEFECT IS DUE TO IMPROPER MATERIALS OR WORKMANSHIP AND NOT TO CARELESSNESS OR IMPROPER USE BY THE OWNER. BY DEFAULT, OWNER MAY HAVE SUCH WORK DONE AND CHARGED TO THE CONTRACTOR.

6. CONSTRUCTION, SHOP DRAWINGS AND MATERIALS

6.1 CONTRACTOR SHALL SUBMIT AN ELECTRONIC SET OF SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCING ELECTRICAL CONSTRUCTION AND/OR PURCHASE OF EQUIPMENT INCLUDED THEREIN.

6.1.a THE FOLLOWING IS THE MINIMUM EXPECTATION OF SHOP DRAWINGS THAT WILL BE REQUIRED FOR THE PROJECT:

- A. TRANSFORMERS
- B. SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, MOTOR CONTROLLERS
- C. DISCONNECT SWITCHES AND ASSOCIATED FUSES
- D. RACEWAYS: CONDUIT, CABLE TRAY AND WIREWAY
- E. WIRE, CABLE INCLUDING GROUND SYSTEM
- F. LIGHTING FIXTURES
- G. CONTROL PANELS
- H. ALL PREFABRICATED CONCRETE: MANHOLES, VAULTS, POLE BASES

6.2 RECEIPT OR APPROVAL OF SHOP DRAWINGS BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLYING WITH CONTRACT DOCUMENTS.

6.3 ALL MATERIAL SHALL BE UL LISTED UNLESS OTHERWISE REQUIRED.

6.4 CONTRACTOR SHALL MAKE PROVISIONS FOR TIMELY AND SAFE DELIVERY AND SAFE STORAGE OF MATERIALS.

6.5 MFRS' NAMES ARE LISTED TO ESTABLISH FUNCTION AND QUALITY OF MATERIAL OR EQUIPMENT. MATERIALS SO LISTED SHALL BE BID AS SPECIFIED UNLESS WRITTEN APPROVAL IS OBTAINED TO SUBSTITUTE MATERIALS OF EQUAL QUALITY BY OTHER MFRS. LETTERS REQUESTING APPROVAL AND INCLUDING COMPLETE ENGINEERING INFORMATION DESCRIBING PERFORMANCE AND SHOWING DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER AT LEAST 5 WORKING DAYS PRIOR TO BID OPENING.

7. FIELD DEVICES & WIRING:

7.1 ALL MOTORS AND INSTRUMENTS SHALL BE HAVE AN EQUIPMENT IDENTIFYING TAG AS INDICTED HEREIN, ON PLANS OR IN SPECIFICATIONS SECTION 26.

7.2 TERMINAL BLOCKS SHALL BE LABELED AS INDICATED HEREIN, ON PLANS OR IN SPECIFICATIONS SECTION 26.

7.3 POWER CABLES ARE TO BE COLOR CODED BY PHASE AS INDICATED HEREIN.

8. EXCAVATION AND BACKFILLING:

8.1 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILLING WORK, AND REMOVE ALL DEBRIS IN CONNECTION WITH THIER WORK. BACKFILLING SHALL BE DONE WITH MATERIALS ACCEPTABLE TO THE CONSTRUCTION MANAGER AND THOROUGHLY COMPACTED. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND PROPERLY INSTALLED TO ELIMINATE ANY SETTLEMENT.

9. WORKMANSHIP

9.1 THE CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR THE PROPER INSTALLATION OF THEIR WORK. THEY SHALL ARRANGE WITH THE PROPER CONTRACTORS FOR THE BUILDING IN OF ANCHORS, ETC., AND FOR THE LEAVING OF REQUIRED CHASES, OPENINGS, ETC., AND SHALL DO ALL CUTTING AND PATCHING MADE NECESSARY BY THEIR FAILURE OR NEGLECT TO MAKE SUCH ARRANGEMENTS WITH OTHERS. ANY CUTTING OR PATCHING DONE BY THIS CONTRACTOR SHALL BE SUBJECT TO THE DIRECTIONS OF THE CONSTRUCTION MANAGER AND SHALL NOT BE STARTED UNTIL APPROVAL HAS BEEN OBTAINED.

9.2 ALL CUTTING, WELDING OR DRILLING OF CONCRETE OR STRUCTURAL MEMBERS SHALL BE PROPERLY REINFORCED AND PATCHED TO MATCH AS NEARLY AS POSSIBLE THE SURROUNDING WORK. BEFORE CUTTING, WELDING OR DRILLING ANY CONCRETE OR STRUCTURAL MEMBER, THE CONTRACTOR SHALL SECURE THE APPROVAL OF THE CONSTRUCTION MANAGER.

9.3 THE CONTRACTOR SHALL ASSIGN PERSONS IN DIRECT CHARGE OF WORK WHO ARE THOROUGHLY EXPERIENCED IN THE CLASS OF CONSTRUCTION WORK SPECIFIED HEREIN. ALL LABOR SHALL BE PERFORMED IN A WORKMANLIKE MANNER BY SKILLED WORKERS UNDER THE SUPERVISION OF COMPETENT SUPERVISORS.

9.4 THE CONTRACTOR SHALL PERIODICALLY REMOVE ALL DEBRIS AND WASTE IN ORDER TO MAINTAIN SAFE WORKING AND OPERATING CONDITIONS, AND SHALL DISPOSE OF THE SAME IN AN APPROVED MANNER. AT THE COMPLETION OF WORK, THEY SHALL REMOVE ALL THEIR RUBBISH, TOOLS, SCAFFOLDS AND SURPLUS MATERIALS FROM AND ABOUT THE SITE, LEAVING THEIR WORK CLEAN AND THE AREAS READY FOR OCCUPANCY.

10. PERFORMANCE AND QUALITY ASSURANCE TESTING

10.1 UPON COMPLETION, THE COMPANY SHALL REVIEW AND APPROVE THE INSTALLATION TO ENSURE THAT THE WORK WAS DONE IN ACCORDANCE WITH THE DESIGN DRAWINGS AND CODE REQUIREMENTS, WITH ANY REQUIRED CORRECTIVE ACTIONS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CERTIFICATES, PERMITS OR INSPECTIONS BY THE AUTHORITIES HAVING JURISDICTION.

10.2 THE INSTALLATION SHALL BE TESTED FREE FROM ALL GROUNDS AND SHORT CIRCUITS. ALL EQUIPMENT FURNISHED SHALL BE DEMONSTRATED TO OPERATE IN ACCORDANCE WITH THE REQUIREMENTS OF THESE SPECIFICATIONS AND PLANS. CONSULT WITH THE OWNER'S REPRESENTATIVE PRIOR TO TESTING AND ADJUSTING TO DETERMINE INTENDED FUNCTION. PERFORM SUCH TESTS AND MAKE NECESSARY ADJUSTMENTS TO ENSURE THAT DESIGN FUNCTION IS OBTAINED. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE CONSTRUCTION MANAGER OR THEIR AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY ALL THOSE WHO ARE REQUIRED TO BE PRESENT DURING THE TESTS (SUCH AS THE FIRE MARSHAL FOR THE TESTING OF THE FIRE ALARM SYSTEM AND EMERGENCY EXIT LIGHTING SYSTEM). NOTIFICATION OF A TEST SHALL BE MADE TO PERSONS THAT ARE TO ATTEND AS REQUIRED BY THEIR DEPARTMENT AT LEAST 7 DAYS IN ADVANCE.

10.3 NORMAL FEEDERS, CIRCUITS, AND SERVICE ENTRANCE CONDUCTORS WITH WIRE SIZE #2 AND LARGER SHALL BE TESTED FOR LEAKAGE PHASE-TO-GROUND AND PHASE-TO-PHASE PRIOR TO ENERGIZATION OF THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL SUBMIT A WRITTEN REPORT TO THE CONSTRUCTION MANAGER SHOWING METHODS AND READINGS TAKEN.

11. MATERIALS AND INSTALLATION

11.1 CONDUIT

11.1.a MATERIALS: EXTERIOR - ALL CONDUITS SHALL BE PVC (BELOW GRADE) AND RIGID STEEL ABOVE GRADE (UON ON PLANS). TRANSITION FROM PVC TO STEEL CONDUIT BELOW GRADE WITH PVC COATED RIGID SWEEPS. INTERIOR - ALL CONDUITS SHALL BE STEEL PER PLANS. ANY INTERIOR AREAS SUBJECT TO POTENTIAL IMPACT WITH CONDUIT (IE STORAGE AREAS, FORKLIFT PATHWAYS) SHALL BE PROTECTED.

11.1.b CONDUITS MUST USE EXPANSION JOINTS AS PER NEC.

11.1.c BEFORE INSTALLATION, THE INTERIOR AND EXTERIOR OF ALL CONDUIT AND FITTINGS SHALL BE INSPECTED AND CLEANED OF ALL DIRT, CUTTINGS AND OTHER FOREIGN MATERIALS.

11.1.d WHEN CONDUIT IS INSTALLED WHERE NO LOCATION DIMENSIONS ARE GIVEN ON THE DRAWINGS, APPROVAL OF THE LOCATIONS OF THESE

CONDUITS SHALL BE OBTAINED FROM THE COMPANY REPRESENTATIVE PRIOR TO INSTALLATION.

11.1.e CONDUITS SHALL NOT BE FASTENED TO REMOVABLE MEMBERS SUCH AS PIPING. CONDUIT HANGERS SHALL BE SUPPORTED FROM BUILDINGS AND STRUCTURES, NOT FROM EQUIPMENT.

11.1.f CONNECTIONS TO INTERIOR BOXES, PANELS, EQUIPMENT AND RELATED ITEMS SHALL BE MADE WITH DOUBLE LOCKNUTS, ONE INSIDE AND ONE OUTSIDE, WITH AN INSULATING BUSHING ON EACH END OF THE CONDUIT IN ADDITION TO LOCKNUTS. OUTDOOR CONNECTIONS SHALL BE MADE WITH "MYERS" HUBS OR APPROVED EQUAL.

11.1.g ALL CONDUITS SHALL HAVE THEIR ENDS PLUGGED BY CAPS, COUPLINGS W/ PLUGS OR OTHER APPROVED MEANS DURING CONSTRUCTION WORK.

11.1.h ALL CONDUIT SUPPORTS SHALL BE ALUMINUM. THE USE OF PERFORATED STRAP OR PLUMBERS STRAP IS NOT PERMITTED.

11.1.i IN CROSSING OF PIPING, THE CONDUIT SHOULD CLEAR THE PIPE BY A MINIMUM OF 6 INCHES.

11.1.j EXPOSED CONDUITS IN BUILDINGS, UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, SHALL BE SUBJECT TO THE FOLLOWING REQUIREMENTS:

- A. ALL CONDUITS SHOULD RUN PARALLEL OR PERPENDICULAR TO WALLS, CEILINGS, BEAMS AND COLUMNS.
- B. ALL CONDUIT RUNS SHALL CLEAR ALL CRANE SYSTEMS, DOORS, WINDOWS, ACCESS WALLS AND OPENINGS.
- C. PARALLEL RUNS SHOULD BE GROUPED IN NEATLY ALIGNED BANKS WHERE POSSIBLE WITH MINIMUM 1" CLEARANCE BETWEEN CONDUITS.
- D. CONDUITS TERMINATING AT CABLE TRAYS SHALL ATTACH TO TRAY AND SHALL BE ELECTRICALLY BONDED TO EDGE OF TRAY OR TO THE GND WIRE IN CABLE TRAY.

11.1.k CONDUITS SHALL BE INSTALLED, WHEREVER POSSIBLE, IN SUCH MANNER AS TO AVOID THE COLLECTION OF CONDENSED MOISTURE IN THE CONDUIT. DRAINS SHALL BE INSTALLED AT LOW POINTS IN EXPOSED CONDUIT RUNS.

11.1.l PULL POINTS SHALL BE PROVIDED IN EACH CONDUIT RUN TO CONFORM WITH THE REQUIREMENTS OF THE NEC OR CABLE MFR'S RECOMMENDATION.

11.1.m CONDUIT RUNS SHALL BE IDENTIFIED AT TERMINATIONS AND PULL POINTS WITH STAMPED ALUMINUM BANDS.

11.1.n EACH CONDUIT SHALL BE CLEARED OF ALL OBSTRUCTION BY PULLING A MANDREL THROUGH THE ENTIRE LENGTH OF RUN PRIOR TO PULLING WIRE OR CABLE IN CONDUIT.

11.1.o CONDUIT SEALING AND DRAINING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC. SEALING METHODS SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SEAL MFR.

11.1.p CONDUIT UNIONS SHALL BE INSTALLED IN ALL CONDUITS CONNECTED TO TAPPED EQUIPMENT SO THAT THE EQUIPMENT CAN BE REMOVED WITHOUT DISTURBING THE CONDUIT (OR SEAL).

11.1.q ALL BOLTS, NUTS & WASHERS SHALL BE CADMIUM PLATED.

11.1.r ALL CONDUITS ROUTED TO EXTERIOR CABLE TRAYS SHALL ENTER THROUGH THE BOTTOM OF THE CABLE TRAY UON.

11.2 CONDUIT BENDS

11.2.a ALL BENDS SHALL HAVE RADIUS NOT LESS THAN SHOWN IN THE NEC OR SHALL BE MADE UP OF SCREW-JOINTED CONDUIT FITTINGS. NOT MORE THAN THE EQUIVALENT OF FOUR (4) 90° BENDS SHALL BE USED IN ANY RUN BETWEEN TERMINALS AND CABINETS, OR BETWEEN OUTLETS AND JUNCTION OR PULL BOXES.

11.2.b A GROUP OF EXPOSED CONDUITS THAT CHANGE DIRECTION UTILIZING BENDS SHALL HAVE THE MINIMUM BENDING RADIUS OF THE LARGEST CONDUIT IN THE GROUP FOR VERTICAL CHANGES AND SHALL HAVE THE SAME BEND RADIUS POINT FOR A HORIZONTAL CHANGE.

11.2.c BENDS SHALL BE FREE FROM CRACKS, CRIMPS OR OTHER DAMAGE TO THE CONDUIT OR ITS COATING. THE CONDUIT AFTER BENDING SHALL BE TRUE AND ROUND WITH FULL INSIDE AREAS FOR THE LENGTH OF THE BEND. CONDUIT BENDS SHALL COMPLY WITH NEC.

11.3 CONDUIT JOINTS

11.3.a ALL JOINTS IN ALUMINUM SHALL BE THREADED OR ALUMINUM PUSH FITTINGS. ALL CUT THREADS AND ANY WRENCH MARKS SHALL BE COATED WITH COLD SEALING COMPOUND. ALL THREADED JOINTS SHALL BE MADE UP TIGHT WITH A MINIMUM OF FIVE (5) FULL THREADS.

11.4 CABLE TRAY

11.4.a MATERIALS: TRAYS SHALL BE THE BRAND/MODEL INDICATED ON PLANS OR AS DESCRIBED IF NO SPECIFIC BRAND/MODEL IS GIVEN. SUBSTITUTIONS MUST BE APPROVED BY ENGINEER.

11.4.b CABLE TRAY AND TRAY SUPPORT MATERIALS, WHEN ASSEMBLED AND MOUNTED SHALL SUPPORT THE FULL CABLE LOAD WITH A MAXIMUM OF 2" DEFLECTION WITHOUT PERMANENT DEFORMATION.

11.4.c TRAY FITTINGS, SUCH AS BRANCHES, REDUCERS, FLAT ELBOWS, TEES AND CROSSES, SHALL BE USED FOR CHANGES IN DIRECTION. THE DIMENSIONS OF TRAY FITTINGS SHALL PROVIDE AMPLE BENDING RADIUS FOR THE CABLES CONTAINED IN THE TRAY. THE TERMINATION SHALL BE PROVIDED WITH A PROTECTOR GUARD TO PREVENT DAMAGE TO THE CABLES. AS REQUIRED, PROVIDE ADDITIONAL SUPPORTS FOR INDIVIDUAL CABLES WHERE THE CABLE LEAVES THE CABLE TRAY FOR FINAL TERMINATION.

11.4.d TRAYS SHALL BE CAREFULLY ALIGNED, LEVELED AND PLUMBED. TRAY SECTIONS AND FITTINGS SHALL BE ASSEMBLED ON THEIR SUPPORTS AND JOINTED TOGETHER, USING MFR'S STANDARD CONNECTOR UNITS.

11.4.e POWDER COATED STEEL ANGLES, TRAPEZE HANGERS, CHANNELS, BOLTING, AND MISCELLANEOUS MATERIALS REQUIRED FOR THE SUPPORT OF TRAYS FROM THE BUILDING STRUCTURE, SHALL BE ALUMINUM AND SUPPLIED AND INSTALLED BY THE CONTRACTOR.

11.4.f ALL EXTERIOR CABLE TRAYS TO BE SUPPLIED WITH COVERS, INSTALLED BY THE CONTRACTOR AFTER ALL CABLES ARE INSTALLED.

11.5 JUNCTION AND PULL BOXES

11.5.a MATERIALS: BOXES SHALL BE THE BRAND/MODEL INDICATED ON PLANS OR AS DESCRIBED IF NO SPECIFIC BRAND/MODEL IS GIVEN. ALL BOXES SHALL BE UL/FM RATED FOR LOCATION. SUBSTITUTIONS MUST BE APPROVED BY ENGINEER.

11.5.b BOXES FOR INDOOR INSTALLATION SHALL CONFORM TO THE FOLLOWING:

- A. BE HEAVY DUTY POWDER COATED METAL OR ALUMINUM, WITH ALUMINUM COVERS AND BRONZE OR CADMIUM PLATED SCREWS OR BOLTS UNLESS OTHERWISE PERMITTED OR SPECIFIED.
- B. BE NEMA 12 IN NON-HAZARDOUS AREAS OR AS SHOWN ON DRAWINGS AND HAVE GASKETED COVERS ON BOXES CONTAINING TERMINAL BLOCKS.
- C. HAVE PIANO HINGED COVER AND INTERIOR MOUNTING PANEL WHERE USED FOR ENCLOSING TERMINAL BLOCKS AND CONTROL RELAYS.

11.5.c BOXES FOR OUTDOOR INSTALLATION SHALL CONFORM TO THE FOLLOWING:

- A. BE HEAVY DUTY STAINLESS STEEL WITH STAINLESS STEEL COVERS. SCREWS OR BOLTS UNLESS OTHERWISE NOTED.
- B. HAVE THREADED CONDUIT ENTRANCES SUCH AS "MYERS" HUBS, OR APPROVED EQUAL AND HAVE RUBBER OR NEOPRENE COVER GASKETS.
- C. BE NEMA 4 WATERTIGHT IN OUTDOOR NON-HAZARDOUS AREAS AND HAVE A DRIP LIP AND OTHER FEATURES REQUIRED FOR RAIN TIGHT CONSTRUCTION; UNLESS OTHERWISE NOTED.
- D. HAVE PIANO HINGED COVER AND INTERIOR MOUNTING PANELS WHEN USED FOR ENCLOSING TERMINAL BLOCKS, CONTROL RELAYS, ETC AND HAVE A DRAIN FITTING INSTALLED IN THE BOTTOM OF THE BOX.

11.5.d IDENTIFICATION: NAMEPLATES, WITH TITLE AND TAG NO., FABRICATED FROM PLASTIC WITH BLACK LETTERS ON WHITE BACKGROUND SHALL BE PERMANENTLY AFFIXED TO ALL JUNCTION BOXES.



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DATE	REVISION	NO	SCALE	DATE	DESIGNED BY:	DRAWN BY:	CHECKED BY:
			N/A	9/21/2026	PSM	PSM	CJZ

CITY OF PORT CLINTON, OHIO PORT CLINTON WWTP & LS IMPROVEMENTS OTTAWA COUNTY	OHIO	ELECTRICAL - E SERIES	ELECTRICAL SPECIFICATIONS - 1

PROJECT NO:	
33943	
DRAWING NAME	
00E-01	
SHEET	OF
24	31

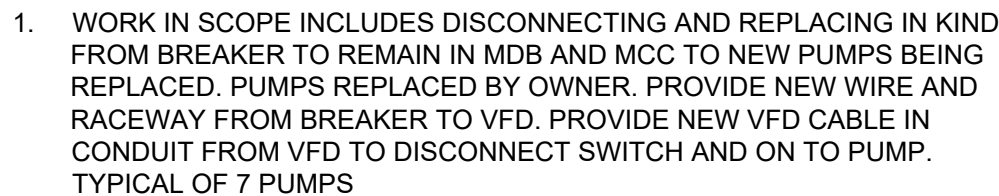
ABBREVIATIONS			PLAN SYMBOLS			SINGLE LINE AND SCHEMATIC DIAGRAM SYMBOLS		
27	UNDER VOLTAGE RELAY		POWER			TERMINAL		
2SFVNR	2 SPEED FULL VOLTAGE NONREVERSING		EQUIPMENT SHOWN WITH SCHEDULE SEQUENCE NUMBER AND/OR CIRCUIT NO.			LOCATION		
AFF	ABOVE FINISHED FLOOR		COMMON EQUIPMENT TAG SUFFIX:					
AFG	ABOVE FINISHED GRADE		P	POWER				
AWG	AMERICAN WIRE GAUGE		C	CONTROL				
AMP	AMP FRAME		I	INSTRUMENTATION				
AM	AMMETER		COM	COMMUNICATION				
AT	AMP TRIP		FO	FIBER OPTIC				
ATS	AUTOMATIC TRANSFER SWITCH		LSX	LIGHT SWITCH (X = SEQ. #)				
BFF	BELOW FINISHED FLOOR		RECX	RECEPTACLE (X = SEQ. #)				
BFG	BELOW FINISHED GRADE		WP	WEATHERPROOF				
CA	AC CONDUIT							
CB	CIRCUIT BREAKER							
CB	COMPRESSOR BUILDING							
CD	DC AND COMMON CONDUIT							
CDP	CONTROLS DISTRIBUTION PANEL							
C	CONDUIT							
CLG	CEILING							
CT	CURRENT TRANSFORMER							
CU, Cu	COPPER							
EC	ELECTRICAL CONTRACTOR							
ETR	EXISTING TO REMAIN							
FD	FIELD DETERMINE							
FLA	FULL LOAD AMPS							
FM	FREQUENCY METER							
FMC	FLEXIBLE METAL CONDUIT							
FO	FIBER OPTIC							
FVC	FULL VOLTAGE CONTACTOR							
FVNR	FULL VOLTAGE NON REVERSING							
GC	GENERAL CONTRACTOR							
GFCI, GFI	GROUND FAULT CIRCUIT INTERRUPTING							
GND	GROUND							
HD	HEAVY DUTY RATED							
HP	HORSE POWER							
HSS	HOLLOW STRUCTURAL STEEL							
I/O	INPUT / OUTPUT							
J, JB	JUNCTION BOX							
KAIC	KILO AMPERE INTERRUPT CAPACITY							
KVA	KILO VOLT AMPERE							
KW	KILOWATT							
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT							
LRA	LOCKED ROTOR AMPS							
MC	MECHANICAL CONTRACTOR							
MCB	MAIN CIRCUIT BREAKER							
MCC	MOTOR CONTROL CENTER							
MCP	MOTOR CIRCUIT PROTECTOR							
MDP	MAIN DISTRIBUTION PANEL							
MFR'S	MANUFACTURER'S							
MLO	MAIN LUGS ONLY							
MPF	MOTOR PROTECTION FILTER							
MPR	MOTOR PROTECTIVE RELAY							
MS	MOTOR STARTER							
OL	OVERLOAD							
PB	PULL BOX							
PF	POWER FACTOR							
PT	POTENTIAL TRANSFORMER							
QTY	QUANTITY							
RGS	RIGID GALVANIZED STEEL							
RO	REVERSE OSMOSIS							
RPM	REVOLUTIONS PER MINUTE							
RTD	RESISTANCE TEMPERATURE DETECTOR							
SCH	SCHEDULE							
ST	SHUNT TRIP							
TRNSFMR	TRANSFORMER							
TYP	TYPICAL							
UGE	UNDERGROUND ELECTRIC							
UON	UNLESS OTHERWISE NOTED							
UPS	UNINTERRUPTIBLE POWER SUPPLY							
V, VAC	VOLT ALTERNATING CURRENT							
VDC	VOLT DIRECT CURRENT							
VAR	VOLT AMP REACTANCE							
VFD	VARIABLE FREQUENCY DRIVE							
VM	VOLT METER							
WHM	WATT HOUR METER							
WM	WATT METER							
XFMR	TRANSFORMER							
			AREA CLASSIFICATION					
			INTRUMENTATION/CONTROLS TRANSMITTERS					
			CABLE ID TAG AND MATRIX					
			CONDUIT & CABLE					
			LIGHTING					
			GROUNDING & LIGHTNING PROTECTION					
			HEAT TRACE					
			ANCILLARY SYSTEMS					
			ELECTRICAL - E SERIES					
			ELECTRICAL LEGEND					



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

27 31

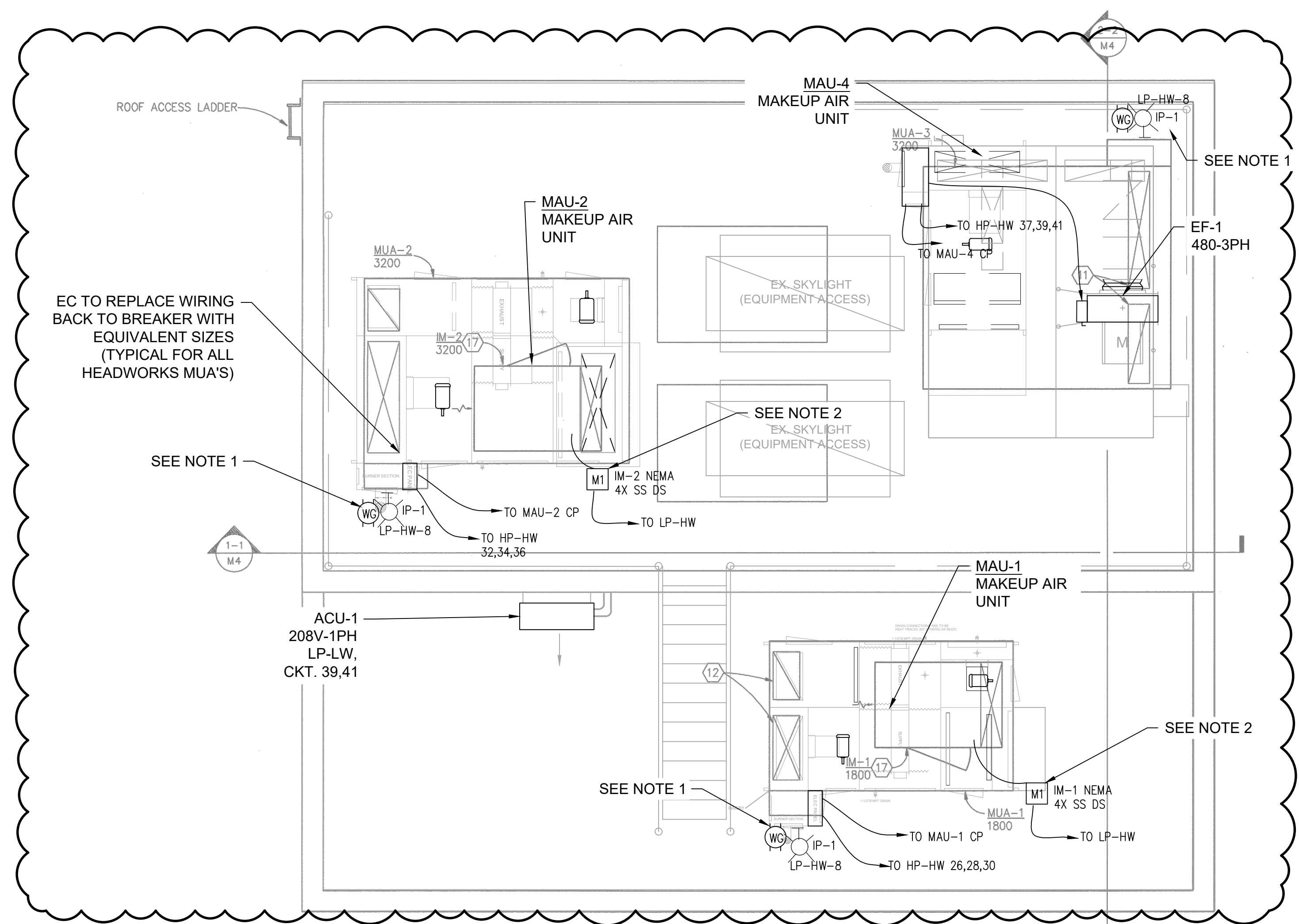
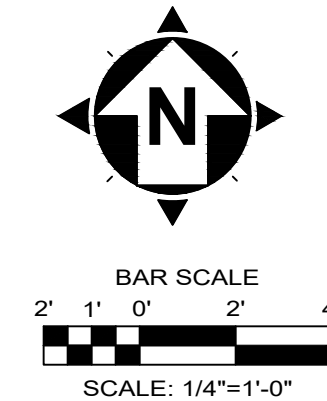


Z:\PROJECT FILES\04-P2\PORT CLINTON\33043 - PORT CLINTON WWT & LS IMPROVEMENTS\CAD\SHEETS AND PLANS\E 33043 ELECTRICAL HEADWORKS PLAN.DWG - 28 ELECTRICAL HEADWORKS PLAN - 9/25/2026 11:37:28 AM - STEVE MINY



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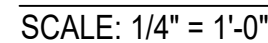
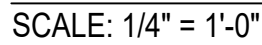
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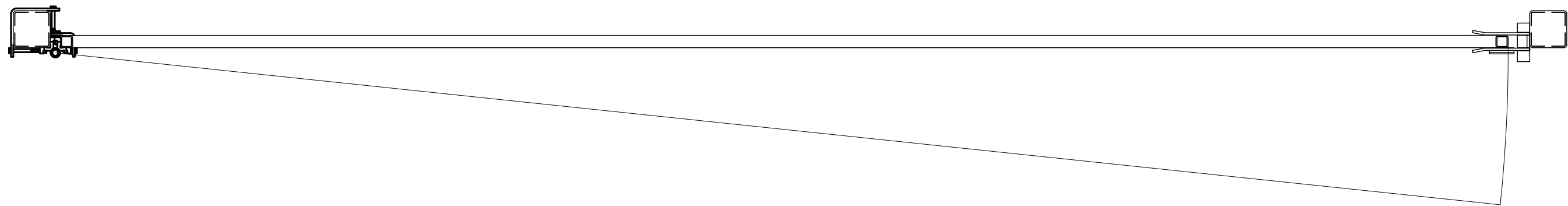
ROOF ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

PANELBOARD: 'PANEL LP-LW EXISTING'										PANELBOARD: 'PANEL HP-HW EXISTING'																			
MCB RATING: 200A										MCB RATING: 200A																			
MAINS RATING: 200A										MAINS RATING: 200A																			
LOCATION: HEADWORKS BLDG										LOCATION: HEADWORKS BLDG																			
VOLTS: 208/120V										VOLTS: 480/277V																			
PHASE: 3										PHASE: 3																			
MOUNTING: SURFACE										MOUNTING: SURFACE																			
WIRES: 4										WIRES: 4																			
NEMA 3R ENCLOSURE										NEMA 3R ENCLOSURE																			
CKT	CIRCUIT DESCRIPTION	WIRE	G.	C.	TRIP	POLE	A	B	C	POLE	TRIP	C.	G.	WIRE	CIRCUIT DESCRIPTION	CKT													
1	1ST FLOOR RECEPTS				20	1	0.0	0.0		1	20				OVERHEAD DOOR	2													
3	SPARE				20	1			0.0	0.0					INCIDENT PUMP RELAY	4													
5	WET WELL RECEPTS				20	1				0.0	0.0		1	20	SPARE	6													
7	HW-PLC				20	1	0.0	0.0		1	20	3/4"	12	#12	ROOFTOP RECEPT & PHOTO-EYE	8													
9	SAMPLE PUMP				20	1			0.0	0.0					SPARE	10													
11	SPARE				20	1				0.0	0.0				SPARE	12													
13	NORTH GATE				20	1	0.0	0.0		2	20				SPARE	14													
15	SOUTH GATE				20	1			0.0	0.0		1	20		SPARE	16													
17	SPARE				20	1				0.0	0.0		1	20	SPARE	18													
19	MUA-3 IONIZATION				20	1	0.0	0.0		1	20				LIT TRANSMITTER	20													
21	SPARE				20	1			0.0	0.0					SPARE	22													
23	SPARE				20	1				0.0	0.0		2	20		SPARE	24												
25	SPARE				20	1	0.0	0.0							WATER BOOSTER PUMP	26													
27	SPARE				20	1			0.0	0.0		2	20			SPARE	28												
29	SPARE				20	1				0.0	0.0		2	20	SOUTH OVERHEAD DOOR	30													
31	SPARE				20	1	0.0	0.0							SPARE	32													
33	SPARE				20	1			0.0	0.0		1	20		SPARE	34													
35	SPARE				20	1				0.0	0.0		1	20	AIT TRANSMITTER	36													
37	SPARE				20	1	0.0	0.0						20	SPARE	38													
39	ACU-1				35	2			6.0	0.0				20	SPARE	40													
41									6.0	0.0																			
TOTAL LOAD							0.0	6.0	0.0								PANEL TOTALS												
IN KVA							A	B	C								TOTAL CONNECTED LOAD (KVA)							6.0					
																	TOTAL DEMAND LOAD (KVA)							24					
REMARKS:																													

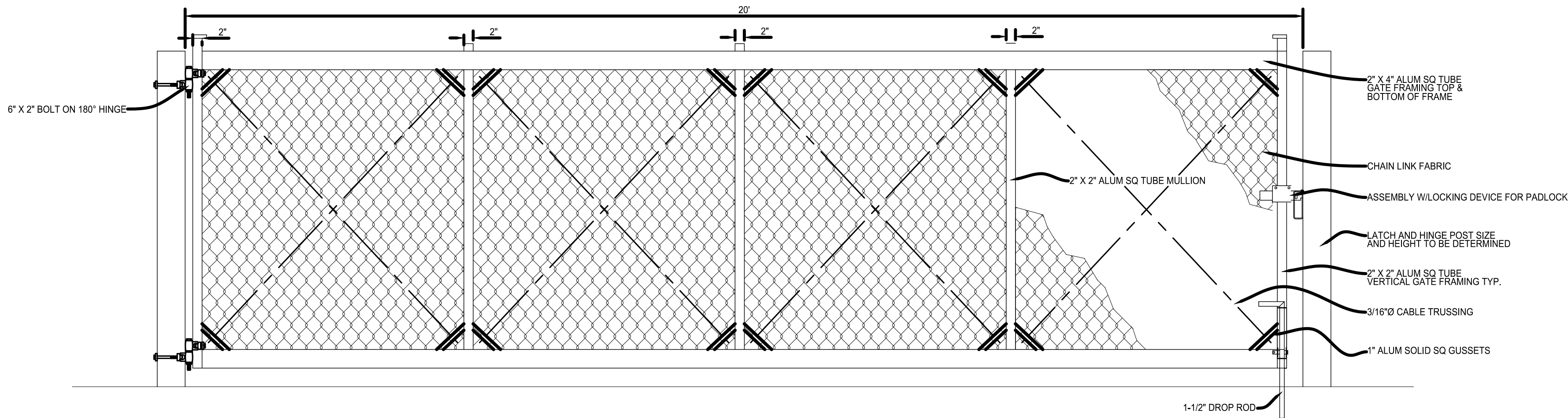
PANELBOARD: 'PANEL HP-HW EXISTING'										PANELBOARD: 'PANEL HP-HW EXISTING'									
MCB RATING: 200A										MCB RATING: 200A									
MAINS RATING: 200A										MAINS RATING: 200A									
LOCATION: HEADWORKS BLDG										LOCATION: HEADWORKS BLDG									
VOLTS: 480/277V										VOLTS: 480/277V									
PHASE: 3										PHASE: 3									
MOUNTING: SURFACE										MOUNTING: SURFACE									
WIRES: 4										WIRES: 4									
NEMA 3R ENCLOSURE										NEMA 3R ENCLOSURE									
CKT	CIRCUIT DESCRIPTION	WIRE	G.	C.	TRIP	POLE	A	B	C	POLE	TRIP	C.	G.	WIRE	CIRCUIT DESCRIPTION	CKT			
1	HDW BLDG ADD LIGHTS				20	1	0.0	0.0								2			
3	WET WELL LIGHTS				20	1		0.0	0.0						MONORAIL HOIST	4			
5	1ST FLOOR LIGHTS				20	1				0.0	0.0					6			
7	POLE LIGHTS				20	1	0.0	0.0								8			
9	EXTERIOR WALL LIGHTS				20	1			0.0	0.0					SLIDE GATES 1, 2	10			
11										0.0	0.0					12			
13	SCREEN SCREW				20	3	0.0	0.0								14			
15								0.0	0.0						JIB HOIST	16			
17										0.0	0.0					18			
19	SPARE				20	3	0.0	0.0								20			
21									0.0	0.0						22			
23										0.0	0.0				GRIT CLASSIFIER	24			
25	SPARE				20	3	0.0	2.5								26			
27								0.0	2.5							28			
29										0.0	2.5					30			
31	SCREEN SCREW				20	3	0.0	4.4								32			
33								0.0	4.4							34			
35	EXTERIOR WALL LIGHTS				20	1				0.0	4.4					36			
37		#10					5.1	0.0								38			
39	NEW MUA-4	#10	10	3/4"	25	3			5.1	0.0						40			
41		#10								5.1	0.0					42			
TOTAL LOAD IN KVA							11.9	12.0	6.9										
							A	B	C										
REMARKS:															PANEL TOTALS				
															TOTAL CONNECTED LOAD (KVA)		0		
															TOTAL DEMAND LOAD (KVA)		112		

REMARKS:REMARKS:

1. WORK IN SCOPE INCLUDES DISCONNECTING AND REPLACING IN KIND FROM BREAKER TO REMAIN IN MCC TO NEW PUMPS BEING REPLACED. 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 3 SECONDARY PUMPS)
2. MAU-3 COMES WITH DUCT DETECTORS THAT WILL BE CONTROLLED TO SHUT UNIT DOWN UPON SMOKE DETECTION. COORDINATE WITH OWNERS FIRE ALARM VENDOR IF THE S IS TO BE MONITORED. SEE MECHANICAL DWG.S FOR DETECTOR LOCATIONS.
3. MAU-3 DUCT SYSTEM WILL HAVE AN AIRFLOW SWITCH TO VERIFY OPERATION. FIELD VERIFY EXISTING CONDITIONS AND PROVIDE WIRING/CONNECTION TO SCADA SYSTEM ACCORDINGLY. SEE MECHANICAL DWG.S FOR AIRFLOW SWITCH LOCATION.
4. CONTRACTOR TO REMOVE AND REINSTALL SERVICE LIGHT AND RECEPTACLE ASSEMBLY.



PLAN VIEW



ELEVATION VIEW ALUMINUM SWING GATE

NOTES:

1.

POSTS SHALL BE SMOOTH, WATER TIGHT, AND FREE OF BURRS AND SHARP PROJECTIONS FABRICATED FROM SCH. 40 STEEL PIPE PER ASTM A-53.
2.

GALVANIZE ALL PIPES AFTER FABRICATION PER ASTM A-123. RE-GALVANIZE AREAS WHERE COATING IS DAMAGED.
3.

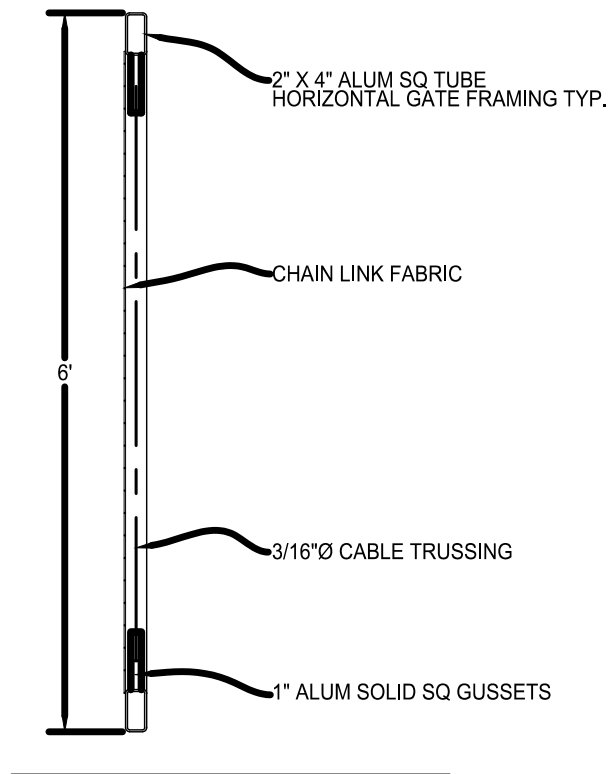
ALL HARDWARE, CONNECTORS, BOLTS, NUTS, WASHERS, ETC. SHALL BE HOT-DIPPED ZINC COATED GALVANIZED STEEL PER ASTM A653.
4.

PLACE FABRIC ON OUTSIDE OF SERVICE AREA.
5.

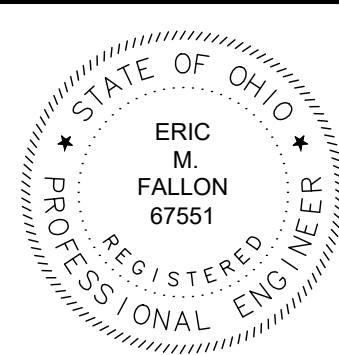
CONTRACTOR SHALL SUPPLY LOCK AND LOCK HASP (COORDINATE WITH OWNER THE TYPE).
6.

THIS DETAIL IS FOR REFERENCE AND GENERAL DIMENSION CONTROL ONLY; SEE MANUFACTURER'S SPECIFICATIONS FOR ACTUAL DIMENSIONS, CONFIGURATION, PARTS LIST, ETC.
7.

GATE TO BE SUPPLIED BY AMERICA'S GATE OR APPROVED EQUAL.



SIDE VIEW GATE SECTION TYP.



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(440) 851-9000

REVISION		DATE
NO		
SCALE:	NOT TO SCALE	
DATE:	9/21/2026	
DESIGNED BY:	EMF	
DRAWN BY:	CAS	
CHECKED BY:	EMF	

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

OTTAWA COUNTY
OHIO

STANDARD DETAILS - SD SERIES

STANDARD DETAILS

PROJECT NO:	
33943	
DRAWING NAME	
SD-01	
SHEET	OF
31	31