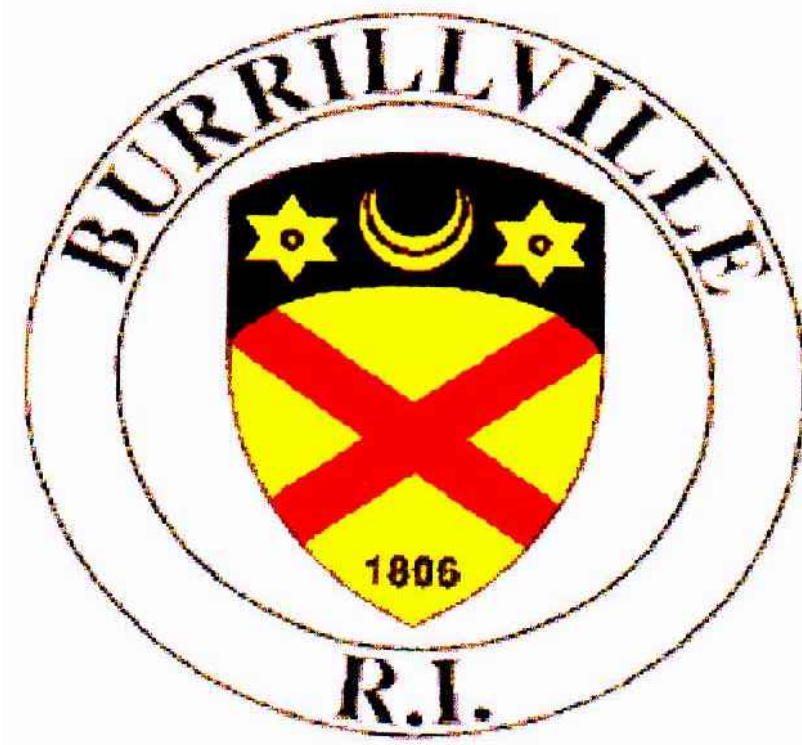


TOWN OF BURRILLVILLE, RI BURRILLVILLE SEWER COMMISSION WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS, CONTRACT NO. ##### JANUARY 2023



BURRILLVILLE SEWER COMMISSION

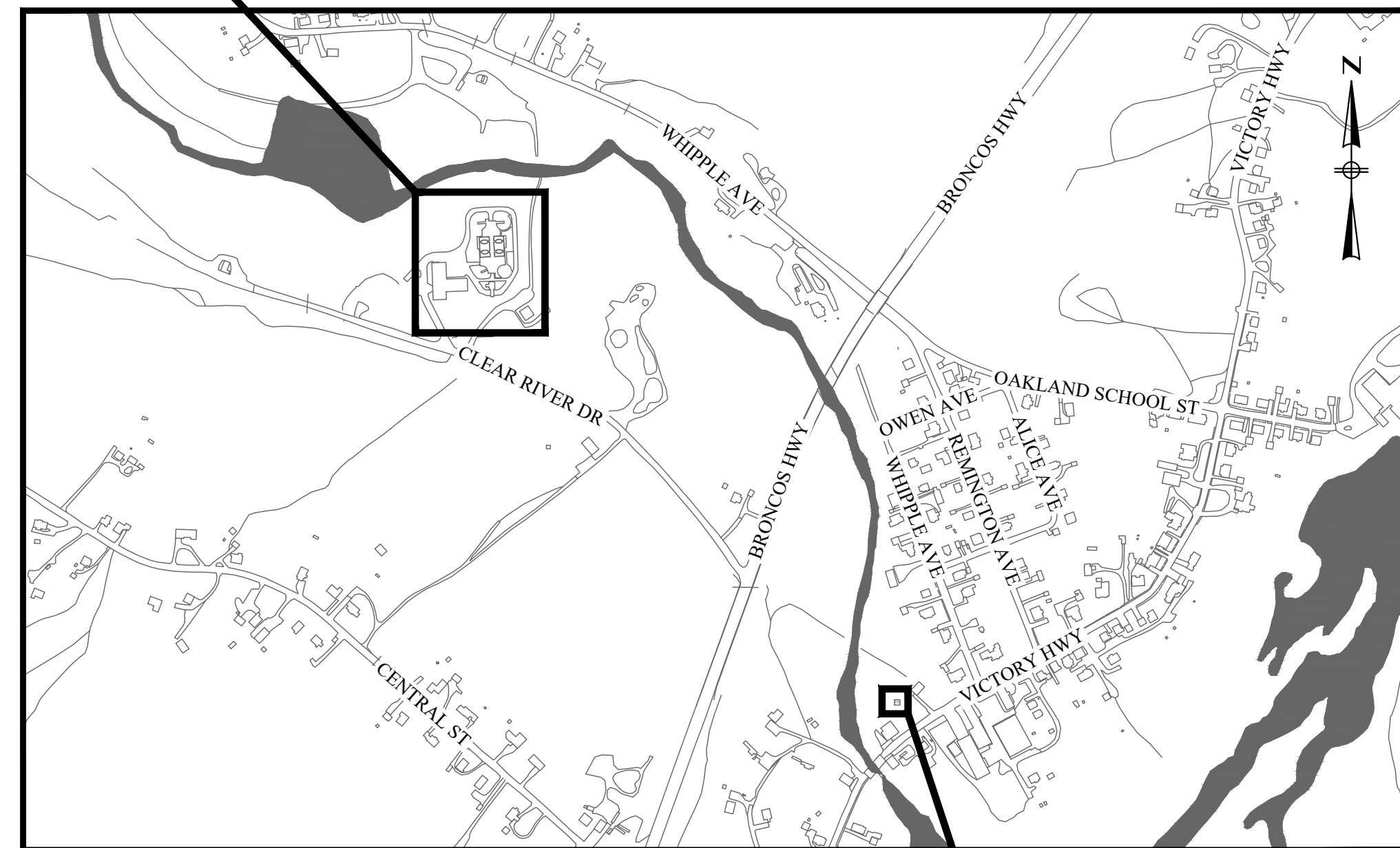
WILLIAM ANDREWS
RICHARD NOLAN
RUSSELL FONTAINE
GARY ROULEAU
DANIEL JOUBERT

MICHAEL EMOND

CHAIRMAN
VICE CHAIRMAN
SECRETARY
MEMBER
MEMBER

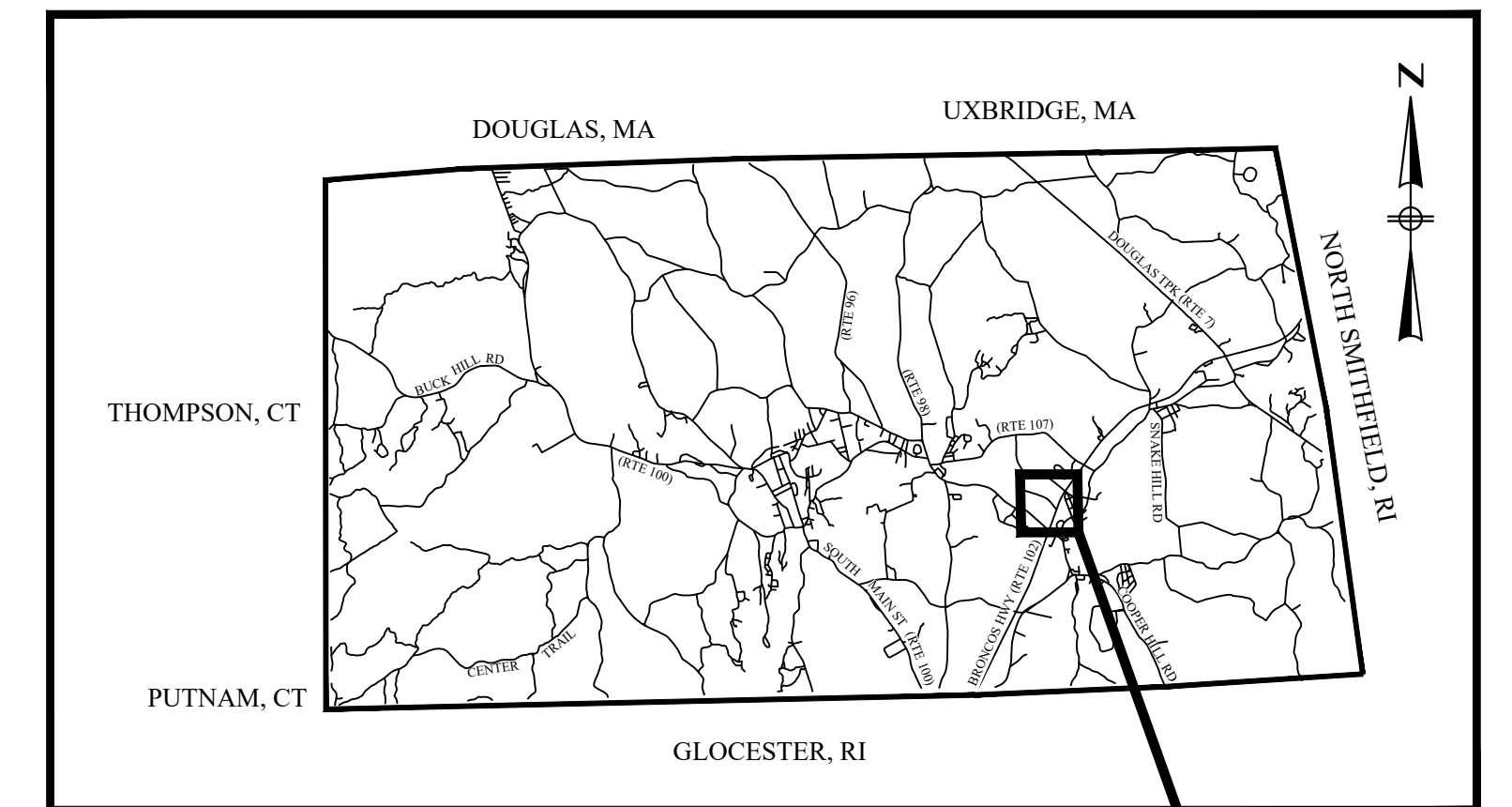
WWTF SUPERINTENDENT

Burrillville
WWTF



LOCUS MAP
NOT TO SCALE

Oakland Pump Station



LOCATION MAP
NOT TO SCALE

Project
Location

SUBMISSION
FOR PERMITTING
REVIEW

PREPARED BY:



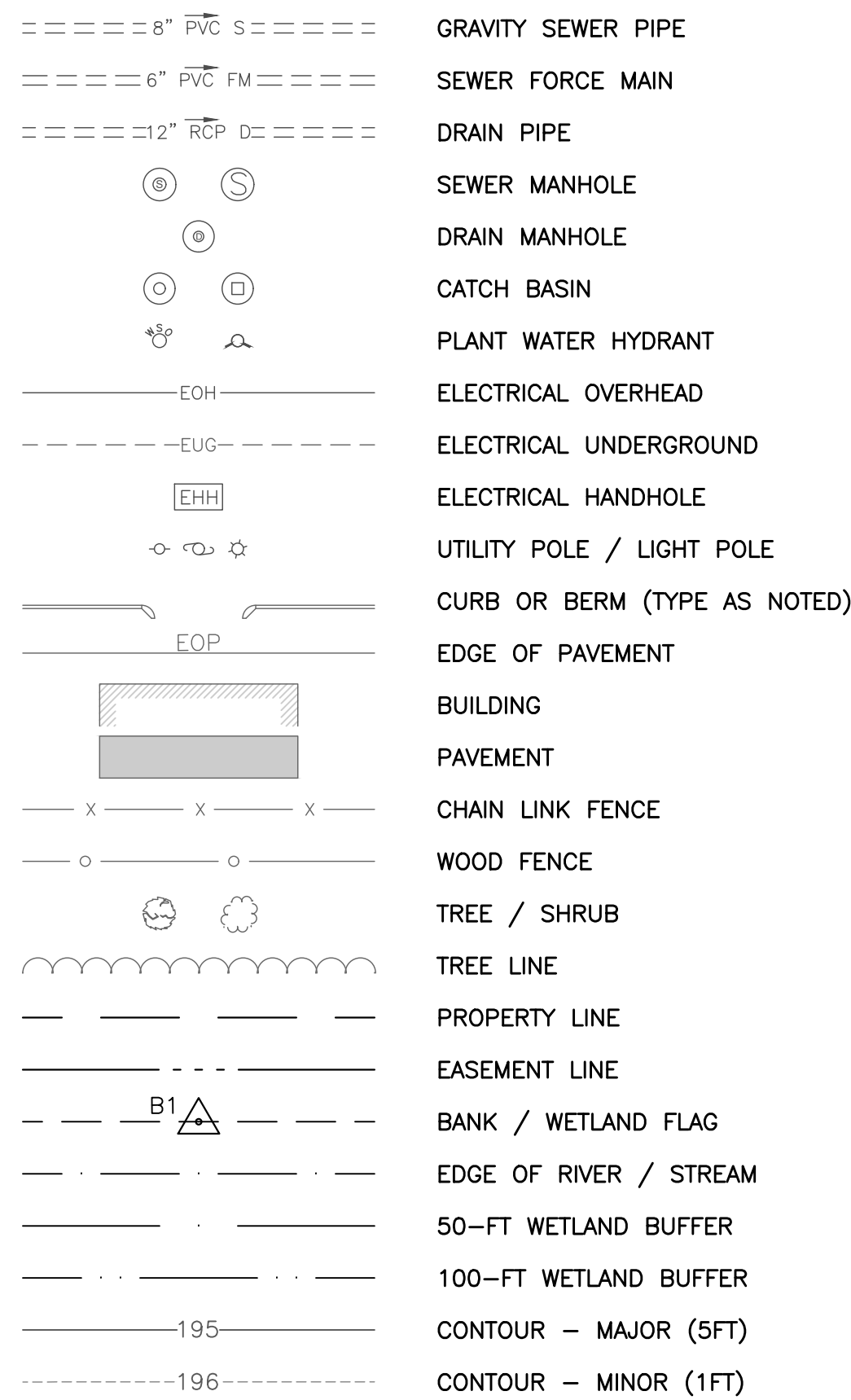
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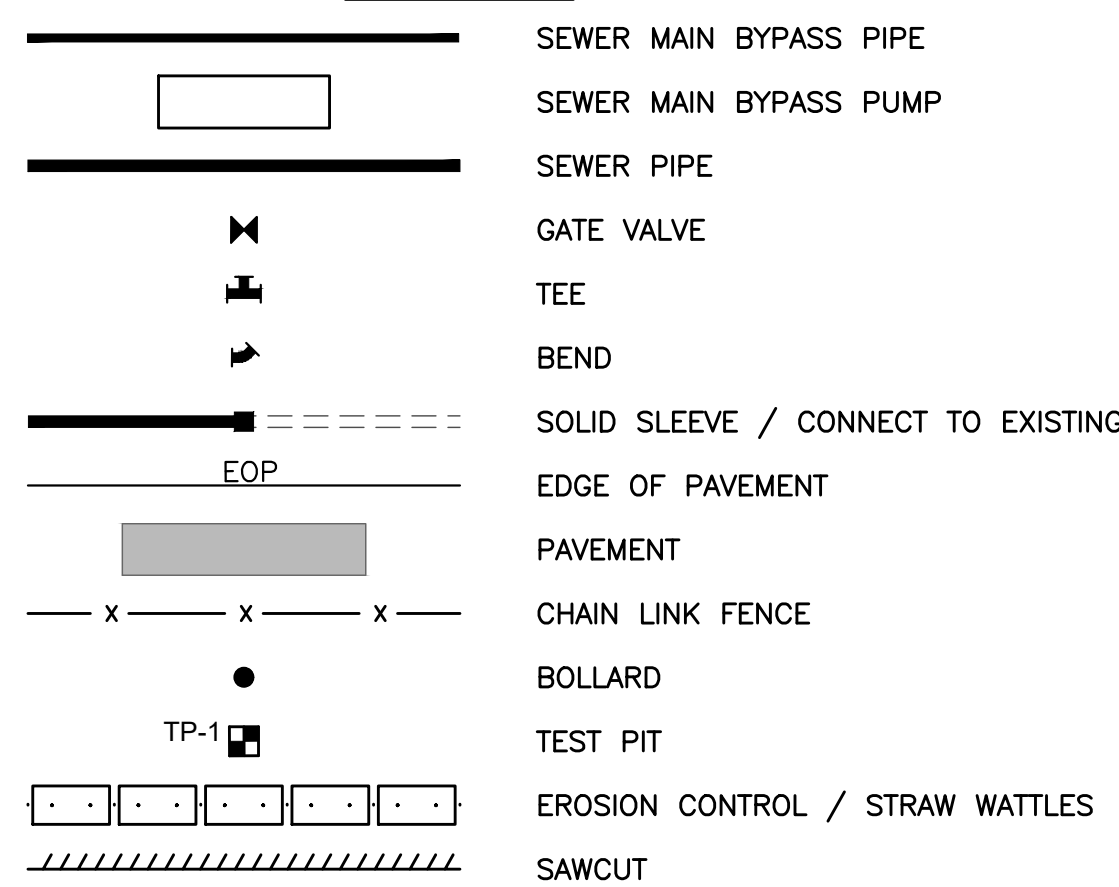
DATE

LEGEND

EXISTING



PROPOSED



GENERAL NOTES

- 1. VERTICAL DATUM = NAVD 88 AND HORIZONTAL COORDINATES ARE IN RHODE ISLAND STATE PLANE COORDINATE SYSTEM (NAD 83).
2. FEMA MAP NUMBER 44007C0135G EFFECTIVE MARCH 2, 2009 INDICATES THE TREATMENT PLANT IS LOCATED IN A ZONE AE FLOOD PLAIN WITH BASE FLOOD ELEVATION OF 315.60 (NAVD 88) AND THE OAKLAND PUMP STATION IS LOCATED IN A ZONE AE FLOOD PLAIN WITH BASE FLOOD ELEVATION OF 313.0 (NAVD 88).
3. THE MOST CURRENT VERSION OF THE BURRILLVILLE SEWER COMMISSION'S CONSTRUCTION STANDARDS SHALL CONTROL, EXCEPT WHERE OTHERWISE SPECIFIED OR SHOWN IN THE CONTRACT DOCUMENTS.
4. EXISTING BUILDING CONDITIONS AT THE TREATMENT PLANT DIGITIZED/SCANNED FROM 'WASTEWATER TREATMENT FACILITIES' RECORD DRAWINGS, 1977 (METCALF & EDDY, INC.), A SURVEY BY MARC N. NYBERG ASSOCIATES, INC. DATED MAY 20, 2014, RHODE ISLAND GIS INFORMATION, AND FIELD EDITS BY BETA GROUP, INC.
5. EXISTING BUILDING CONDITIONS AT THE OAKLAND PUMP STATION DIGITIZED/SCANNED FROM 'SANITARY SEWERS, PUMP STATIONS AND APPURTENANCES WORK FOR OAKLAND / MAPLEVILLE' RECORD DRAWINGS, 1992 (BETA ENGINEERING, INC.), RHODE ISLAND GIS INFORMATION, AND FIELD EDITS BY BETA GROUP, INC.
6. THE LIMIT OF WORK SHOWN AT THE TREATMENT PLANT IS WITHIN PROPERTY OWNED BY THE TOWN OF BURRILLVILLE, RI, ASSESSOR'S PARCEL 161-040. THE LIMIT OF WORK SHOWN AT OAKLAND PUMP STATION IS WITHIN PROPERTY OWNED BY THE TOWN OF BURRILLVILLE, RI, ASSESSOR'S PARCEL 179-116 AND THE TEMPORARY CONSTRUCTION EASEMENT. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED PERMITS AND/OR FEES ASSOCIATED WITH WORK. CONTRACTOR SHALL NOT WORK OUTSIDE LIMITS OF PROPOSED WORK WITHOUT WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE TOWN.
7. EXISTING UTILITIES HAVE BEEN PLOTTED FROM THE BEST AVAILABLE DATA AND AS APPROXIMATE ONLY. THE CONTRACTOR MUST NOTIFY DIG SAFE PRIOR TO ANY EXCAVATION, DEMOLITION WORK IN PUBLIC OR PRIVATE WAYS OR UTILITY COMPANY RIGHT OF WAY OR EASEMENT (PUBLIC AND PRIVATE). THE LOCATION, SIZE, AND MATERIAL OF EXISTING PIPES, DUCTS, CONDUITS AND OTHER UNDERGROUND STRUCTURES AND/OR UTILITIES SHOWN ON THESE PLANS ARE FROM THE BEST SOURCES AVAILABLE AT PRESENT AND ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES, UTILITIES OR STRUCTURES ARE SHOWN. EXACT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
8. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
9. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY STRUCTURES AS NECESSARY FOR THE CHANGES IN GRADE, AND RESET ALL WATER, AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO RHODE ISLAND STANDARDS, OR APPROVED ALTERNATE MATERIAL.
10. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CABLE TV, FIRE ALARM AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION OR BETTER AT THE CONTRACTOR'S EXPENSE.
12. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
13. WHERE EXISTING MATERIALS ARE ENCOUNTERED WHICH, IN THE OPINION OF THE OWNER/ENGINEER ARE UNSUITABLE FOR BEDDING, BACK FILLING OR OTHER INTENDED USE, SUCH MATERIALS SHALL BE REMOVED AS DIRECTED AND REPLACED BY THE CONTRACTOR WITH SUITABLE CRUSHED STONE OR BORROW, AS DIRECTED BY THE OWNER/ENGINEER.
14. JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
15. CATCH BASIN AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES AND THE GRADE OF THE ROADWAY.
16. CONTRACTOR SHALL VERIFY EXISTING GRADE ELEVATIONS. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND SEEK THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.
17. EXCEPT WHERE NOTED BY PROPOSED CONTOUR LINES AND/OR SPOT GRADES, ALL FINAL CONTOUR LINE ELEVATIONS SHALL BE THE SAME AS EXISTING CONTOUR LINE ELEVATIONS.

CONSTRUCTION NOTES

- 1. THE INSTALLATION, TESTING, FUEL, AND MAINTENANCE OF THE BYPASS PUMPING SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION OPERATIONS AND MAINTENANCE ACTIVITIES ASSOCIATED WITH THE BYPASS AND BYPASS CONTROLS WITH THE OWNER. THE BYPASS SYSTEM DEPICTED ON THE CONTRACT PLANS IS FOR GENERAL INFORMATION ONLY. THE DESIGN AND LAYOUT IS THE RESPONSIBILITY OF THE CONTRACTOR. SUBMIT DETAILED SHOP DRAWINGS OF THE SPECIFIED BYPASS PUMPS, PIPING, FLOW METER, AND APPURTENANCES FOR THE BYPASS PUMPING SYSTEM IN ACCORDANCE WITH SECTION 01300 - SUBMITTALS AND SECTION 02149 - MAINTAINING EXISTING FLOW. INCLUDE CAPAOWNER DATA AND CONTROL SYSTEM DESCRIPTION FOR THE PUMPS.
2. CONTRACTOR SHALL SUBMIT DESCRIPTIONS OF THE PROCEDURES FOR INSTALLING THE BYPASS SYSTEM AND FOR OPERATING THE BYPASS PUMPING ARRANGEMENT. REFER TO SPECIFICATION SECTION 02149. THE OWNER, ENGINEER, AND CONTRACTOR SHALL BE PRESENT FOR TESTING AND CUT OVER OF BYPASS CONTROLS AND BYPASS PUMPING.
3. THE BYPASS SYSTEM, INCLUDING PUMPS, PIPING, AUTOMATIC LEVEL CONTROL AND ALARM ANNUNCIATION, SHALL BE IN PLACE, TESTED, AUTOMATICALLY OPERATED FOR UP TO THREE DAYS AND APPROVED BY THE OWNER PRIOR TO COMMENCING WORK IN THE STATION.
4. ALL TOWN OF BURRILLVILLE OWNED VALVES AND EQUIPMENT ARE TO BE OPERATED BY TOWN OF BURRILLVILLE PERSONNEL ONLY. ENGINEER TO COORDINATE WITH BURRILLVILLE DPW FOR ALL VALVE OPERATIONS.
8. THROUGHOUT BYPASS PUMPING, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING EXISTING FLOWS, OPERATING AND MAINTAINING THEIR BYPASS SYSTEM.
9. DISTURBED AREAS SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER.
10. DISTURBED GRASSED AREAS SHALL BE RESTORED IN ACCORDANCE WITH SPECIFICATION SECTION 02930.
11. DISTURBED PAVED AREAS SHALL BE RESTORED IN ACCORDANCE WITH SPECIFICATION SECTION 02500 AND DETAIL SHOWN ON CD-3.
12. THE CONTRACTOR SHALL PROTECT EXISTING MONITORING WELLS PRESENT ON THE SITE. DAMAGED MONITORING WELLS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

ENVIRONMENTAL NOTES

- 1. SEE SPECIFICATION SECTION 02055 - REMOVAL AND DISPOSAL OF UNDERGROUND STORAGE TANKS AND 02075 - REMOVAL AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL FOR REQUIREMENTS.

YARD PIPING NOTES

- 1. INVERTS AND DIRECTIONS OF PIPES AND CONDUITS ARE SHOWN FOR THE PURPOSE OF INDICATING THE BASIC PARAMETERS USED DURING THE DESIGN. HOWEVER, MINOR CHANGES IN HORIZONTAL AND VERTICAL LOCATIONS MAY BE REQUIRED DURING CONSTRUCTION AS FIELD CONDITIONS WARRANT. FINAL LOCATIONS OF OTHER PIPES AND/OR CONDUITS SHALL BE DETERMINED IN THE FIELD. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER.
2. CONTRACTOR SHALL CONDUCT TEST PITS AS SHOWN AND AS REQUIRED IN ORDER TO ASCERTAIN THE EXACT LOCATION OF EXISTING UNDERGROUND UTILITIES, TO FIELD VERIFY THE EXACT SIZE, MATERIAL, LOCATION, INVERT ELEVATION AND ALIGNMENT (VERTICAL AND HORIZONTAL) OF EXISTING UNDERGROUND UTILITIES, PIPES, AND STRUCTURES.
3. UNLESS OTHERWISE NOTED, MINIMUM COVER FOR PIPES AND/OR DUCTS SHALL BE AS FOLLOWS: WATER 5'-0"; SEWER 4'-0"; GAS 3'-6"; ELECTRIC 2'-6". ANY PIPE AND/OR DUCT WITH LESS THAN 2'-0" OF COVER SHALL HAVE AN ADDITIONAL 6" OF CONCRETE ENCASEMENT ON THE UPPER PORTION.
4. EXISTING PIPES RETAINED, BUT WHICH MUST BE REMOVED IN ORDER TO INSTALL NEW PIPES, SHALL BE REINSTALLED OR REPLACED IN KIND.
5. ALL PIPING SHALL BE PROVIDED WITH FLEXIBLE DRESSER STYLE CONNECTIONS WHERE EXITING OR ENTERING STRUCTURES AND BUILDINGS. FLEXIBLE DRESSER STYLE CONNECTIONS SHALL BE COORDINATED WITH PIPE MANUFACTURER AND APPROVED BY THE ENGINEER.
6. ALL NEW PIPING REQUIRED TO BE INSTALLED UNDER THIS CONTRACT IS SHOWN IN BOLD LINES. ALL EXISTING PIPING IS SCREENED.
7. ALL NEW AND EXISTING PIPING BEING INSTALLED SHALL BE SUITABLY SUPPORTED AND BRACED AT ALL TIMES BY THE CONTRACTOR.
8. THE CONTRACTOR SHALL PROVIDE CONCRETE THRUST BLOCKS FOR ALL UNDERGROUND PIPING, BENDS AND TEES IN PRESSURE LINES AS DETAILED AND SPECIFIED.
9. CONCRETE CLOSURE COLLARS, FIELD FABRICATED ELBOWS AND/OR SPECIAL BENDS ROTATED AS NECESSARY SHALL BE INSTALLED TO ALIGN NEW PIPING WITH EXISTING PIPING
10. PROVIDE SEPARATION BETWEEN SEWER/DRAIN/WATER TO THE MAXIMUM EXTENT FEASIBLE IN ACCORDANCE WITH THE TOWN OF BURRILLVILLE'S CONSTRUCTION STANDARDS.

PLAN INDEX

Table with columns SHEET NO. and DESCRIPTION. Lists sheets G-1 through E-3.1 covering various plans like COVER, LEGEND, GENERAL NOTES, & INDEX; CIVIL; STRUCTURAL; MECHANICAL; HVAC; PLUMBING; and ELECTRICAL.

ABBREVIATIONS

Table of abbreviations and their full names, including AIR, FERROUS SULFATE, SHEET, SECONDARY SCUM, etc.

PREPARED BY



REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

BURRILLVILLE, RI

TITLE

LEGEND, GENERAL NOTES, & INDEX

Table with columns NO., REVISIONS, and DATE. Shows a table with multiple empty rows for revisions.

DRAWN BY: CJM

DESIGNED BY: AJG

CHECKED BY: JRD

ISSUE DATE: JANUARY 2023

BETA JOB NO.: 6861-105

SCALE

NONE

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SHEET NO.

G-1


**BURRILLVILLE WWTF
 HEADWORKS &
 OAKLAND PUMP
 STATION
 IMPROVEMENTS**

BURRILLVILLE, RI

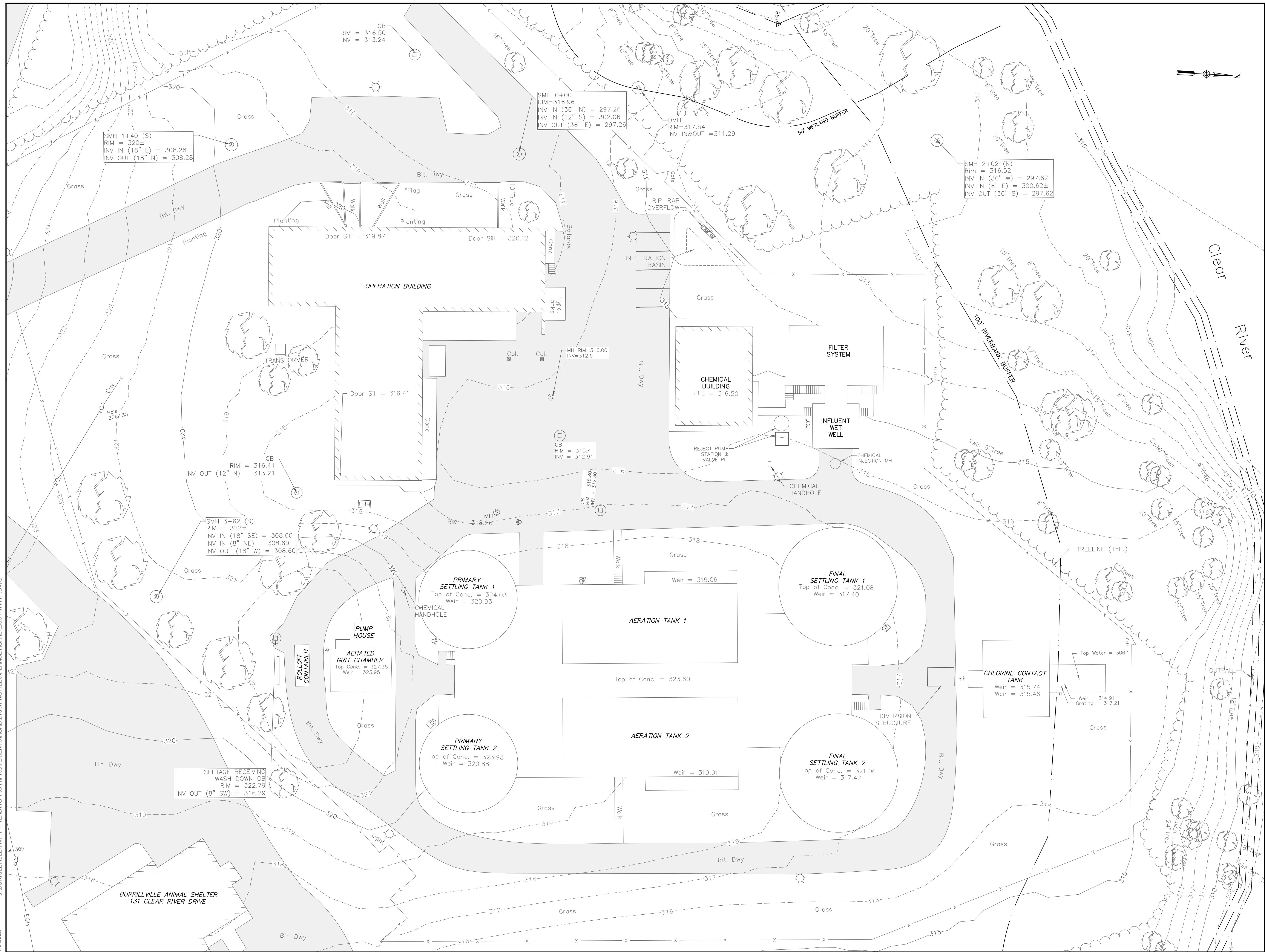
**WWTF -
 EXISTING
 SITE PLAN**

NO.	REVISIONS	DATE

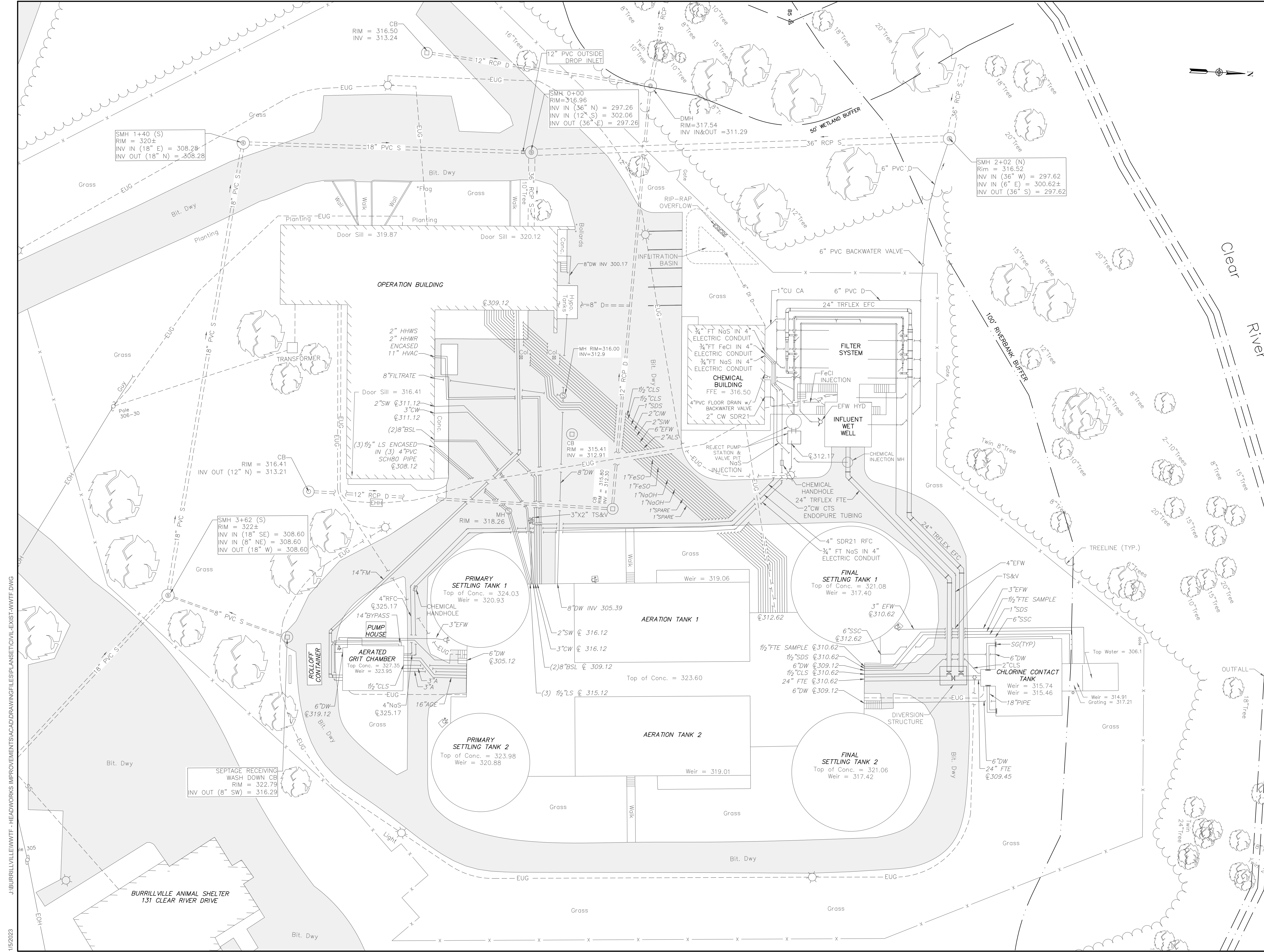
DRAWN BY: CJM
 DESIGNED BY: AJG
 CHECKED BY: JRD
 ISSUE DATE: JANUARY 2023
 BETA JOB NO.: 6861-105

SCALE

 SCALE IN FEET: 1"=20'

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BETA JOB NO.:	6861-105

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PROJECT

BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

BURRILLVILLE, RI

TITLE

WWTF - PROPOSED BYPASS PLAN

NO.	REVISIONS	DATE

DRAWN BY: CJM

DESIGNED BY: AJG

CHECKED BY: JRD

ISSUE DATE: JANUARY 2023

BETA JOB NO: 6861-105

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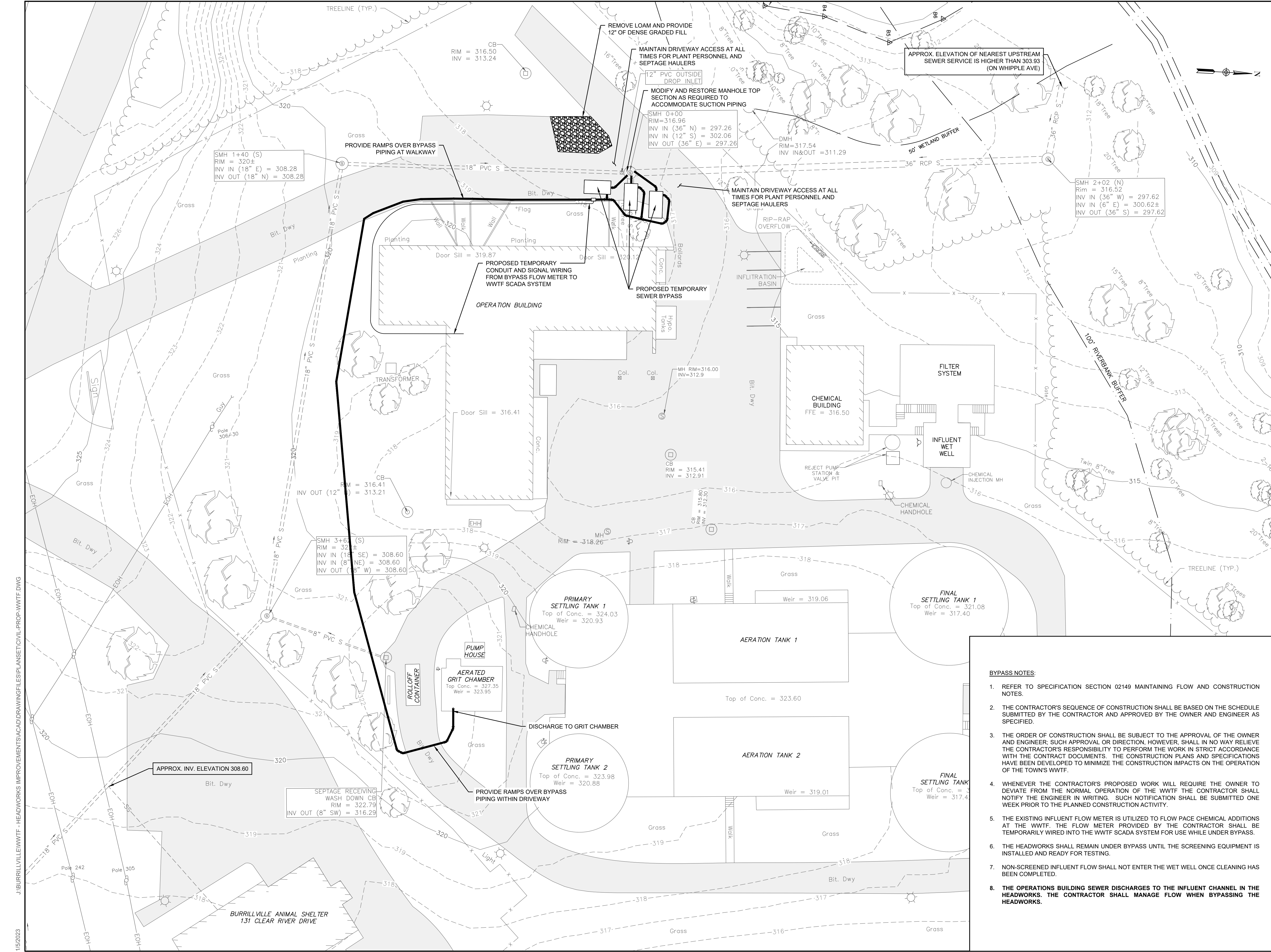


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SHEET NO.

C-1.3



SMH 1+40 (S)
 RIM = 320±
 INV IN (18" E) = 308.28
 INV OUT (18" N) = 308.28

SMH 3+60 (S)
 RIM = 32±
 INV IN (18" SE) = 308.60
 INV IN (8" NE) = 308.60
 INV OUT (18" W) = 308.60

SMH 0+00
 RIM = 316.96
 INV IN (36" N) = 297.26
 INV IN (12" S) = 302.06
 INV OUT (36" E) = 297.26

SMH 2+02 (N)
 RIM = 316.52
 INV IN (36" W) = 297.62
 INV IN (6" E) = 300.62±
 INV OUT (36" S) = 297.62

SEPTAGE RECEIVING
 WASH DOWN CB
 RIM = 322.79
 INV OUT (8" SW) = 316.29

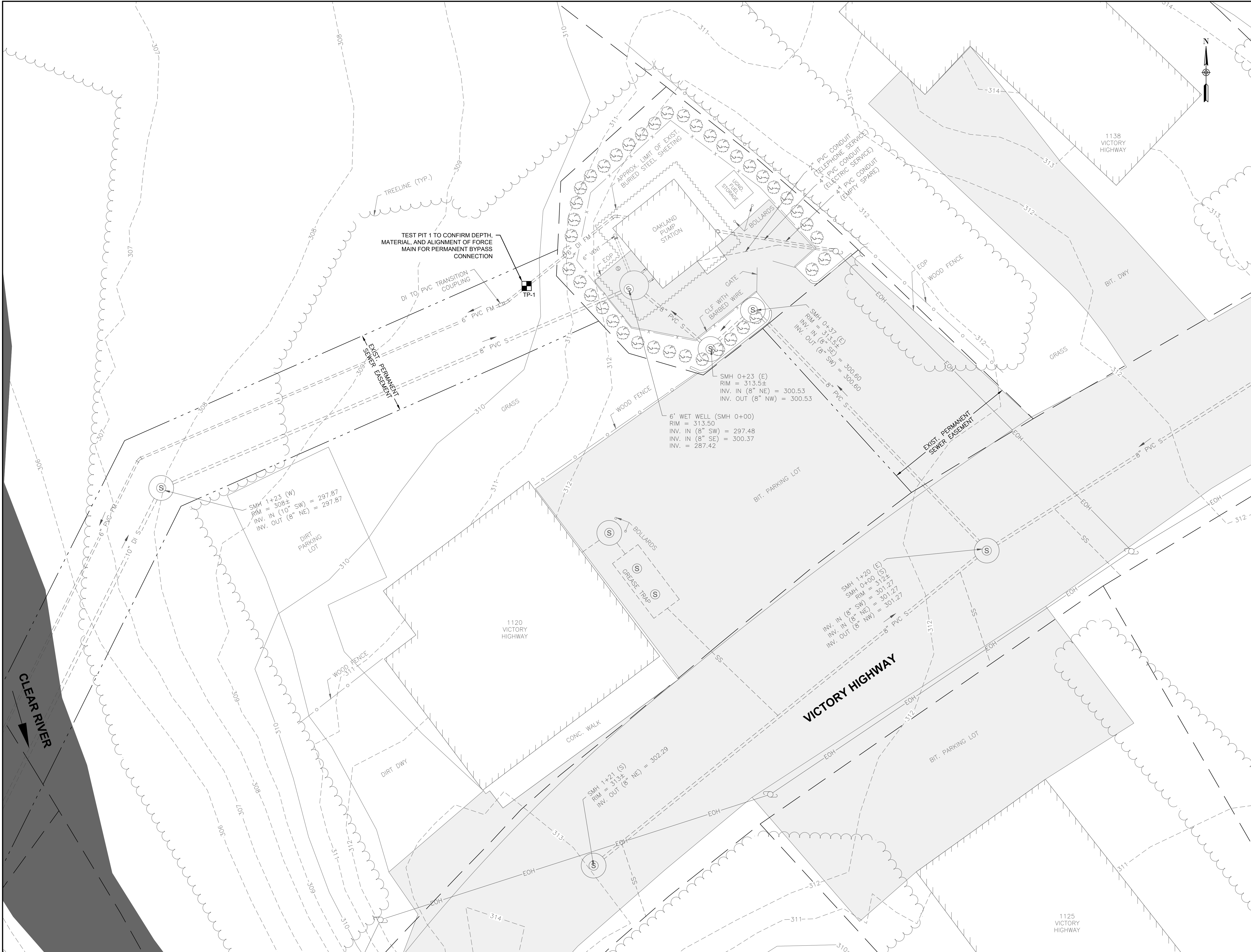
BYPASS NOTES:

1. REFER TO SPECIFICATION SECTION 02149 MAINTAINING FLOW AND CONSTRUCTION NOTES.
2. THE CONTRACTOR'S SEQUENCE OF CONSTRUCTION SHALL BE BASED ON THE SCHEDULE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE OWNER AND ENGINEER AS SPECIFIED.
3. THE ORDER OF CONSTRUCTION SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER AND ENGINEER; SUCH APPROVAL OR DIRECTION, HOWEVER, SHALL IN NO WAY RELIEVE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE WORK IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONSTRUCTION PLANS AND SPECIFICATIONS HAVE BEEN DEVELOPED TO MINIMIZE THE CONSTRUCTION IMPACTS ON THE OPERATION OF THE TOWN'S WWTF.
4. WHENEVER THE CONTRACTOR'S PROPOSED WORK WILL REQUIRE THE OWNER TO DEVIATE FROM THE NORMAL OPERATION OF THE WWTF THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING. SUCH NOTIFICATION SHALL BE SUBMITTED ONE WEEK PRIOR TO THE PLANNED CONSTRUCTION ACTIVITY.
5. THE EXISTING INFLUENT FLOW METER IS UTILIZED TO FLOW PACE CHEMICAL ADDITIONS AT THE WWTF. THE FLOW METER PROVIDED BY THE CONTRACTOR SHALL BE TEMPORARILY WIRED INTO THE WWTF SCADA SYSTEM FOR USE WHILE UNDER BYPASS.
6. THE HEADWORKS SHALL REMAIN UNDER BYPASS UNTIL THE SCREENING EQUIPMENT IS INSTALLED AND READY FOR TESTING.
7. NON-SCREENED INFLUENT FLOW SHALL NOT ENTER THE WET WELL ONCE CLEANING HAS BEEN COMPLETED.
8. THE OPERATIONS BUILDING SEWER DISCHARGES TO THE INFLUENT CHANNEL IN THE HEADWORKS. THE CONTRACTOR SHALL MANAGE FLOW WHEN BYPASSING THE HEADWORKS.

J:\BURRILLVILLE\WWTF - HEADWORKS IMPROVEMENTS\CADD\DRAWINGFILES\PLANS\SETCIVIL-PROP-WWTF.DWG 1/5/2023

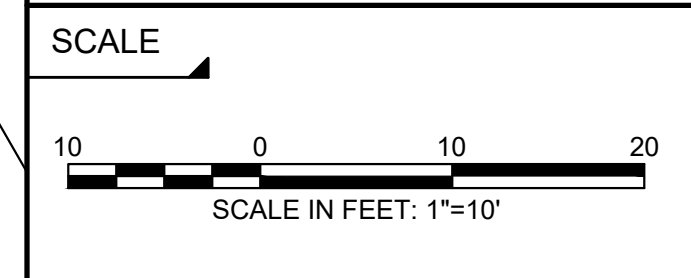
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1/5/2023

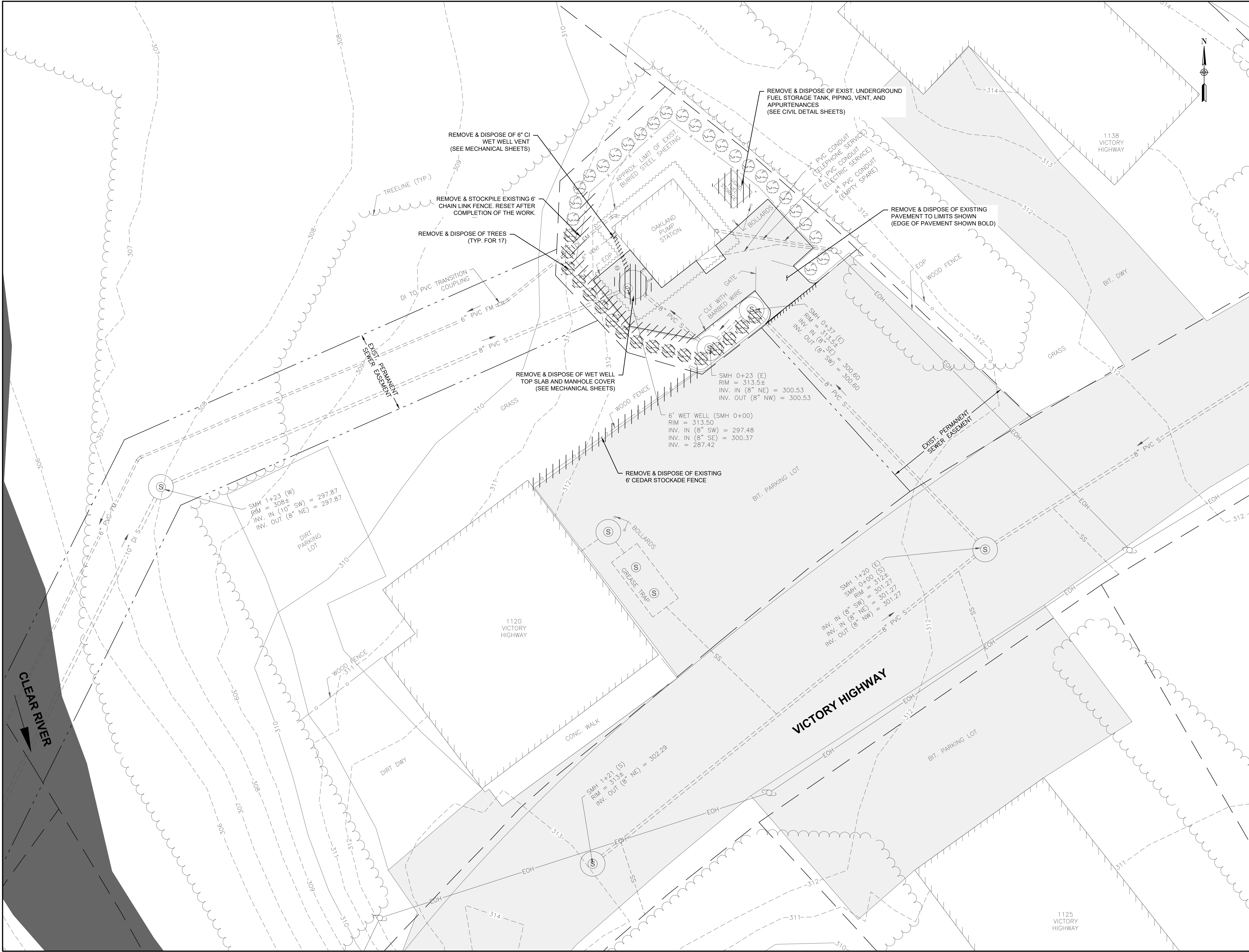


NO.	REVISIONS	DATE

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DESIGNED BY:	AJG
CHECKED BY:	JRD
ISSUE DATE:	JANUARY 2023
BETA JOB NO.:	6861-105



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SUBCONSULTANT

PROJECT
**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE
**OAKLAND PS -
DEMOLITION
SITE PLAN**

NO.	REVISIONS	DATE


DRAWN BY: CJM
DESIGNED BY: AJG
CHECKED BY: JRD
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

SCALE
10 0 10 20
SCALE IN FEET: 1"=10'
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For Review Only
SHEET NO.
C-2.2

NO.	REVISIONS	DATE

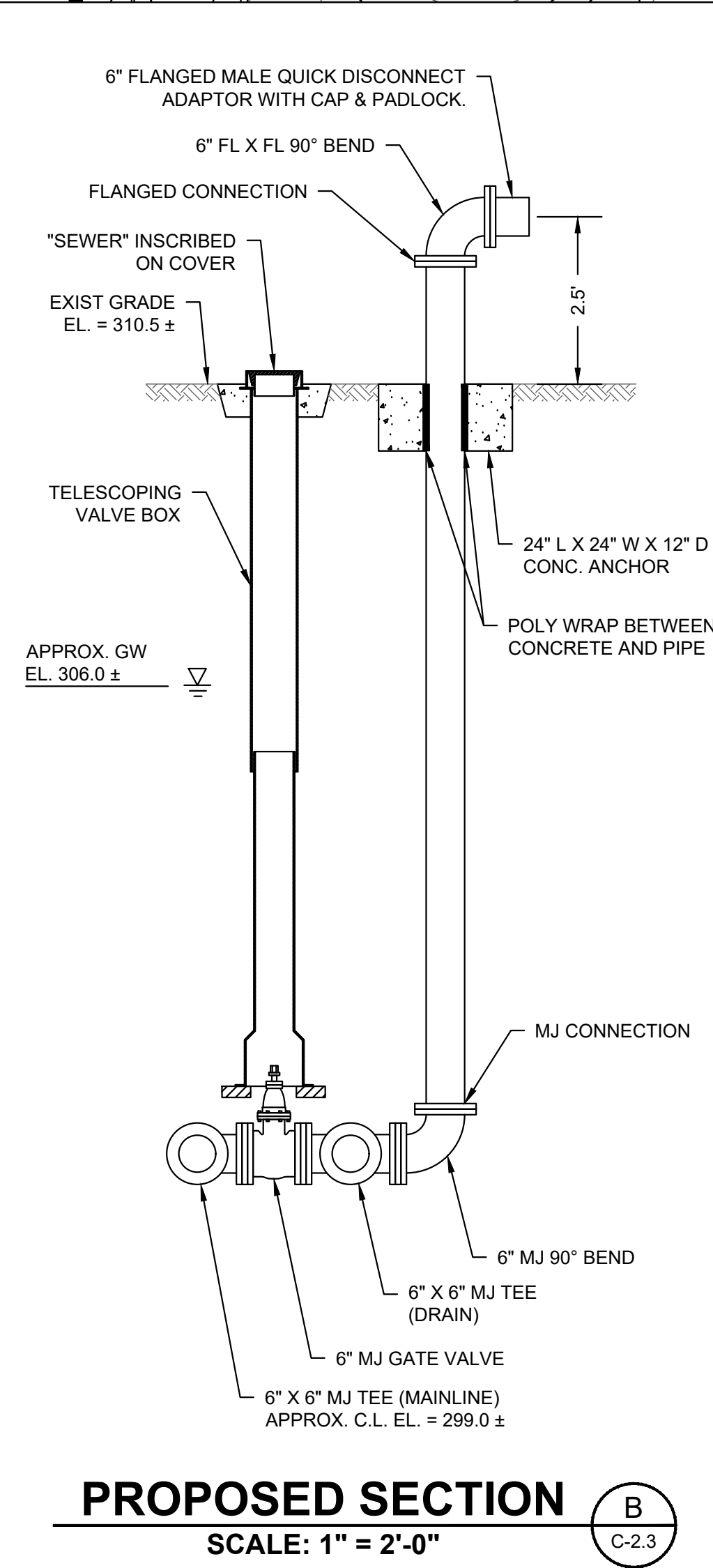
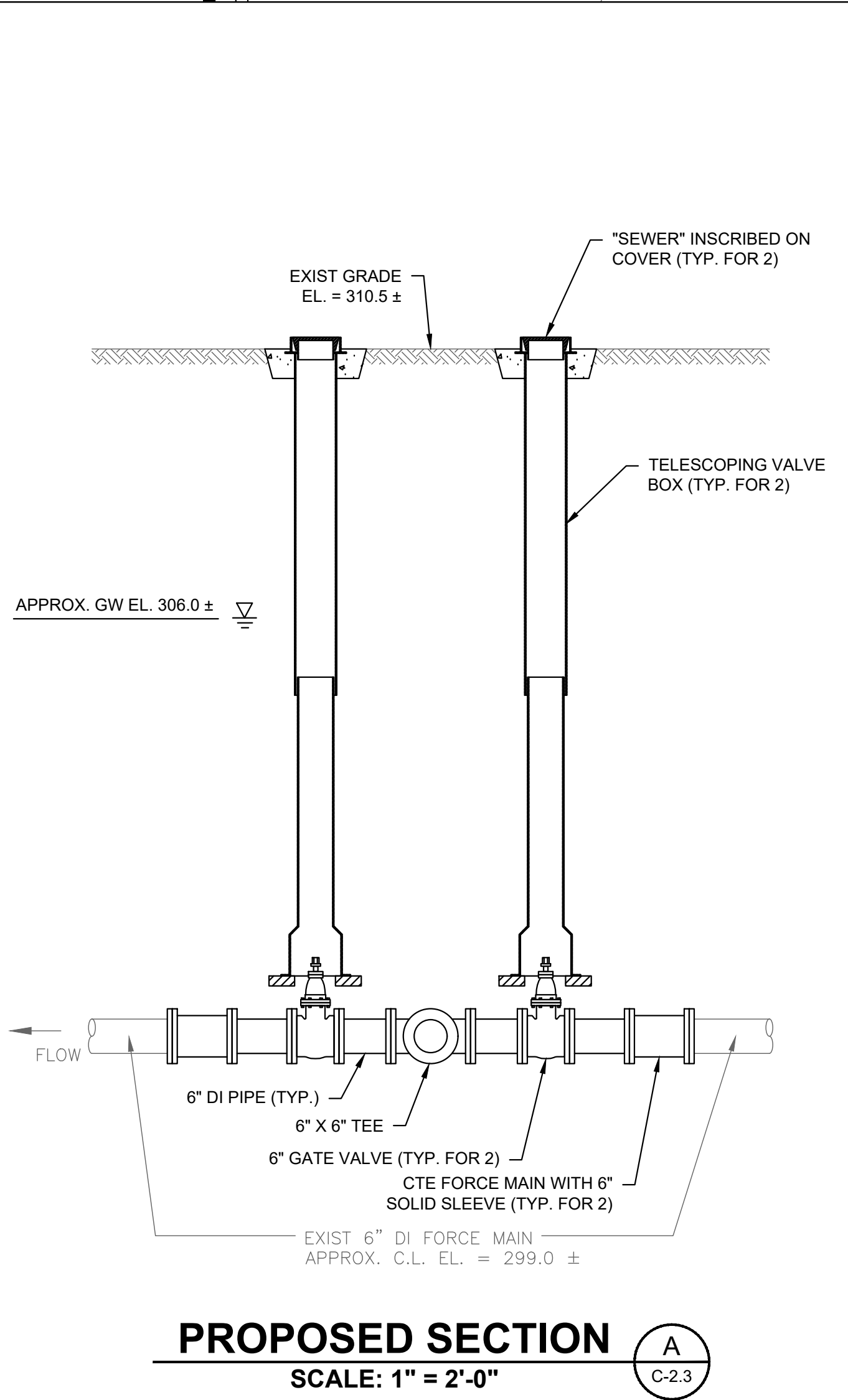
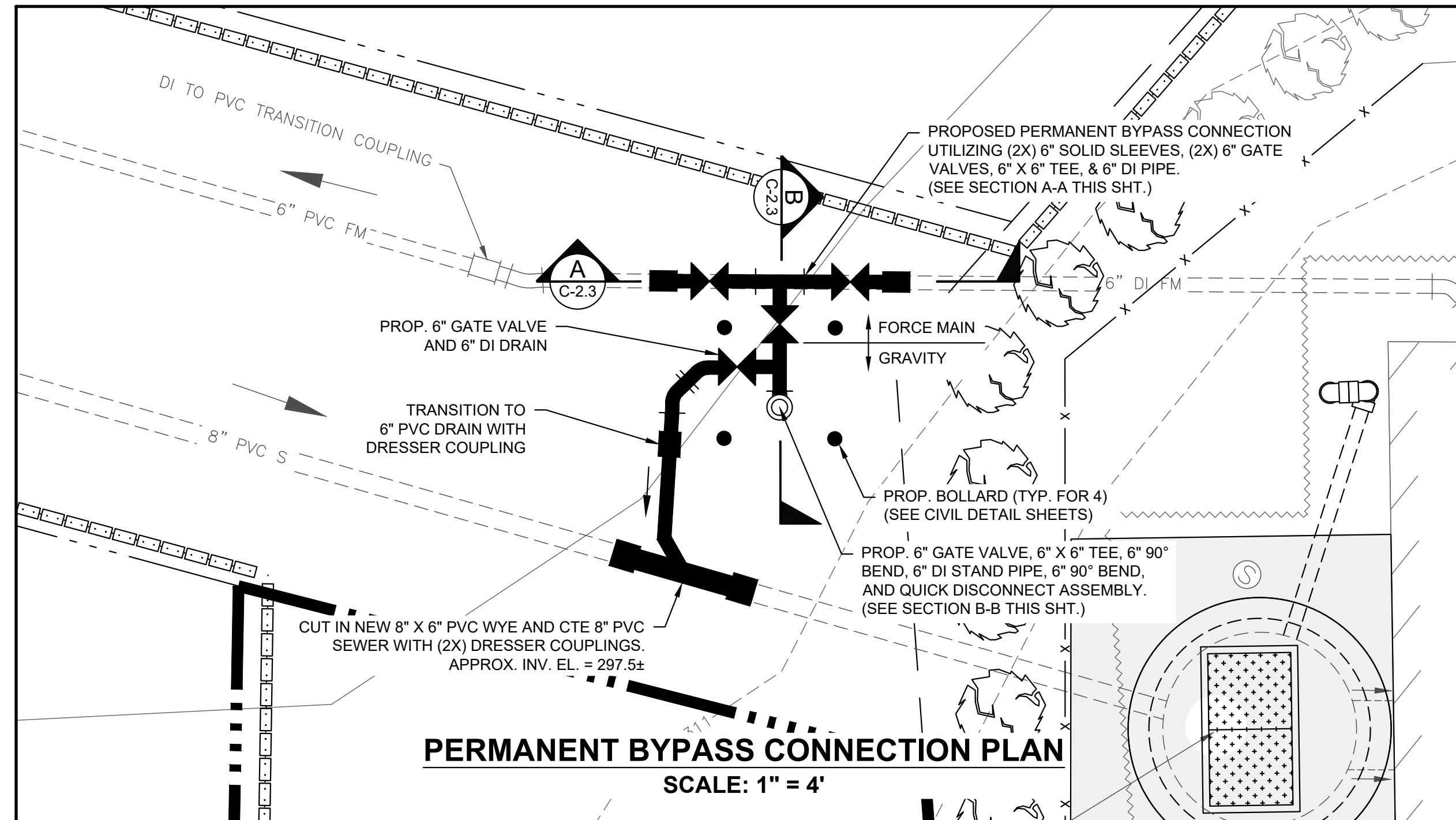
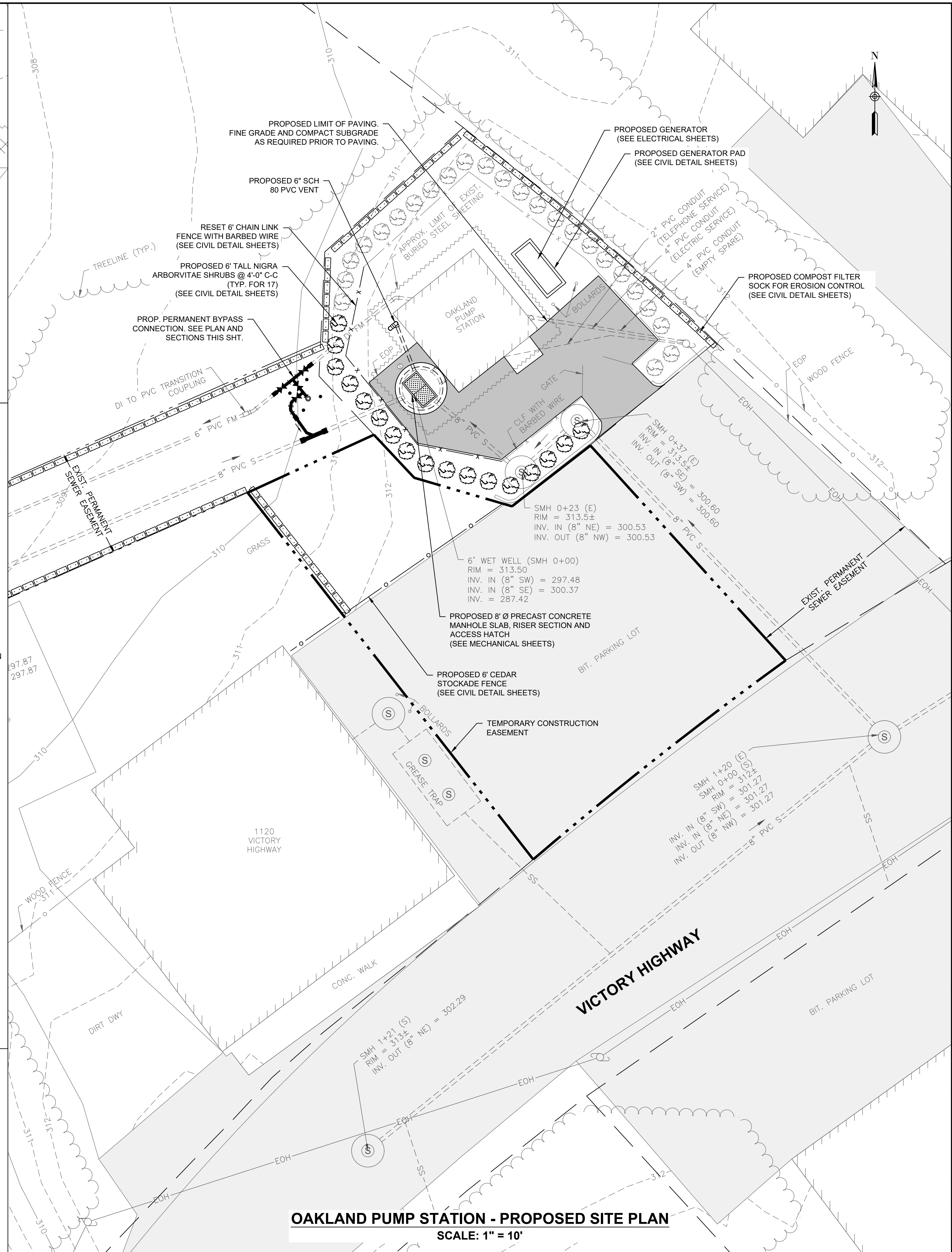
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 BETA JOB NO.: 6861-105

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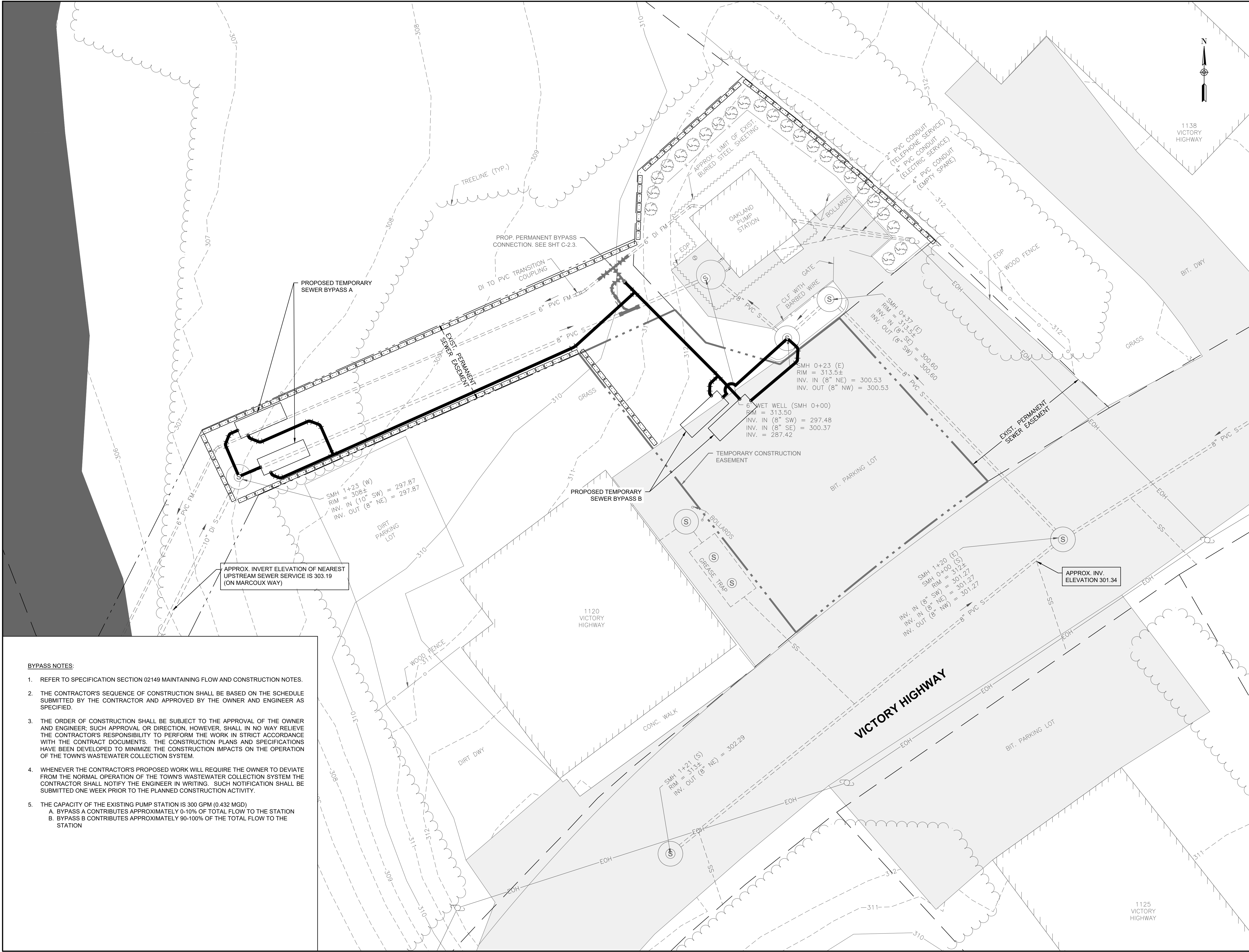
SHEET NO.

C-2.3



- BYPASS NOTES:**
- VOLUME OF EXISTING 6" FORCE MAIN IS APPROXIMATELY 2,200 GALLONS.
 - GRAVITY SANITARY SEWER PIPING AND FITTINGS SHALL BE EPOXY COATED WITH PROTECTO 401 BY INDURALL.

J:\BURRILLVILLE\WTF-HEADWORKS IMPROVEMENTS\CADD\DRAWINGFILES\PLANSET\CIVIL-PROP-OAKLAND.DWG
1/5/2023



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PROJECT
BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS
BURRILLVILLE, RI

TITLE
OAKLAND PS - PROPOSED BYPASS PLAN

NO.	REVISIONS	DATE

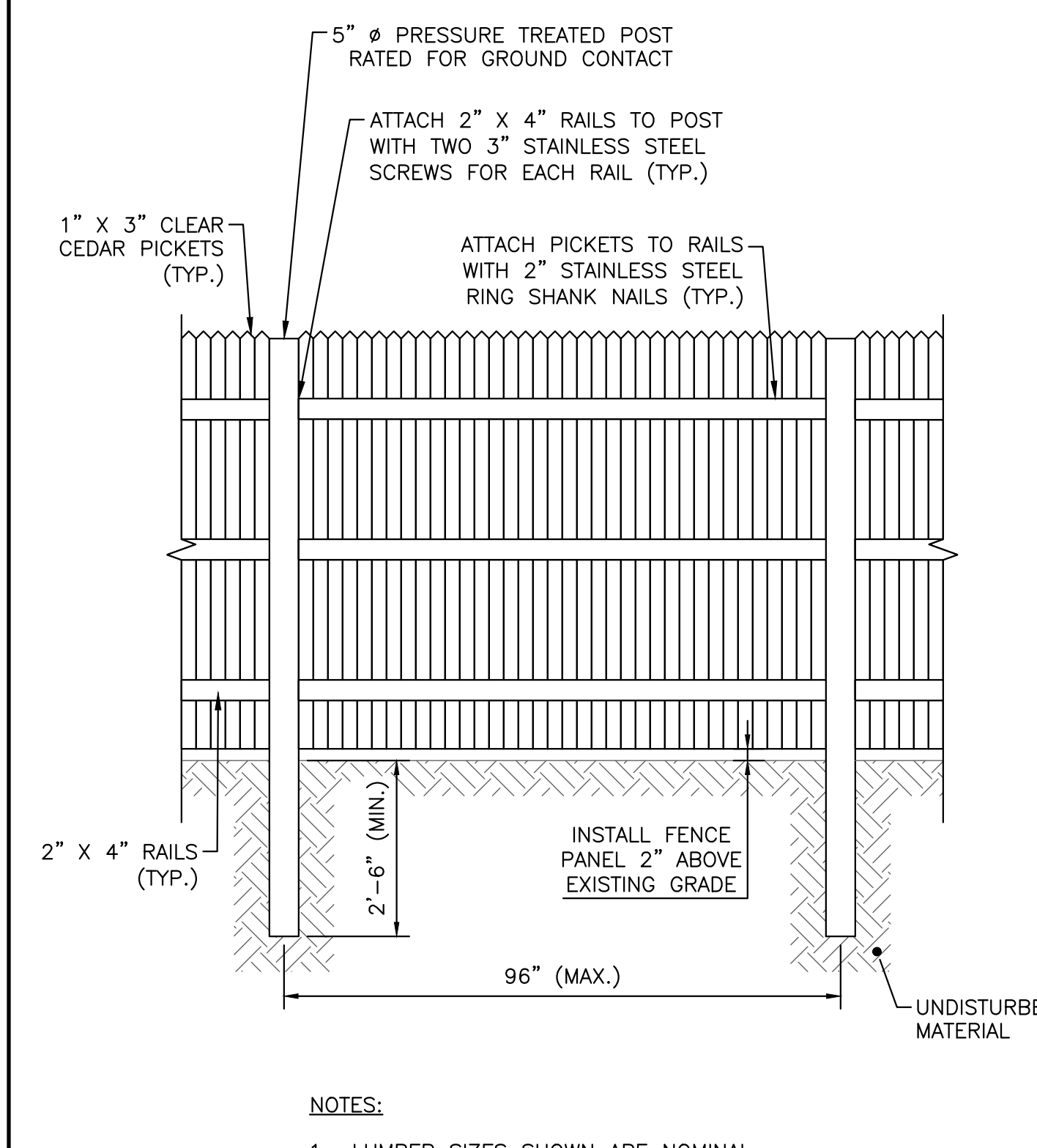
DRAWN BY: CJM
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ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

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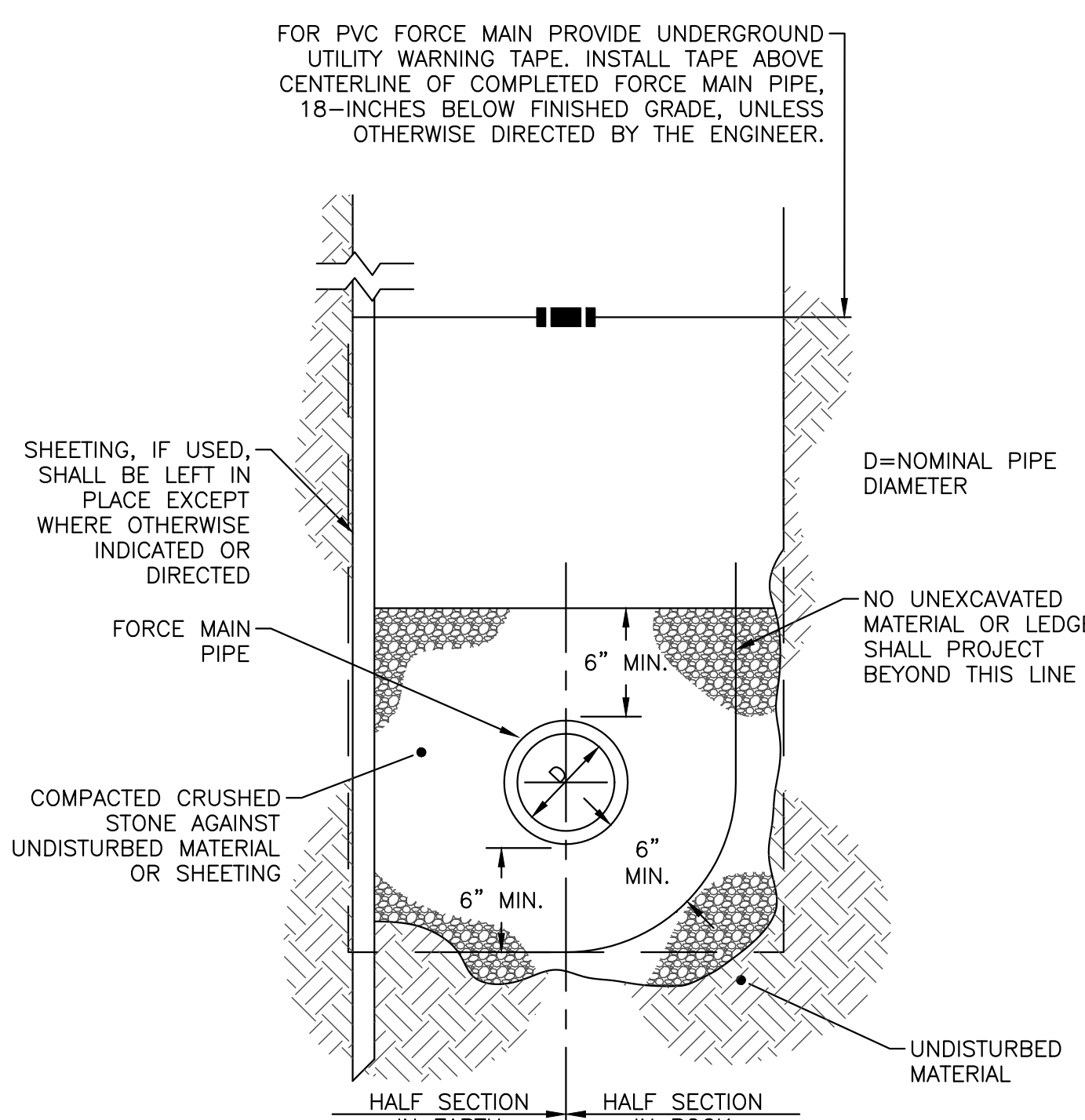
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SHEET NO.
C-2.4

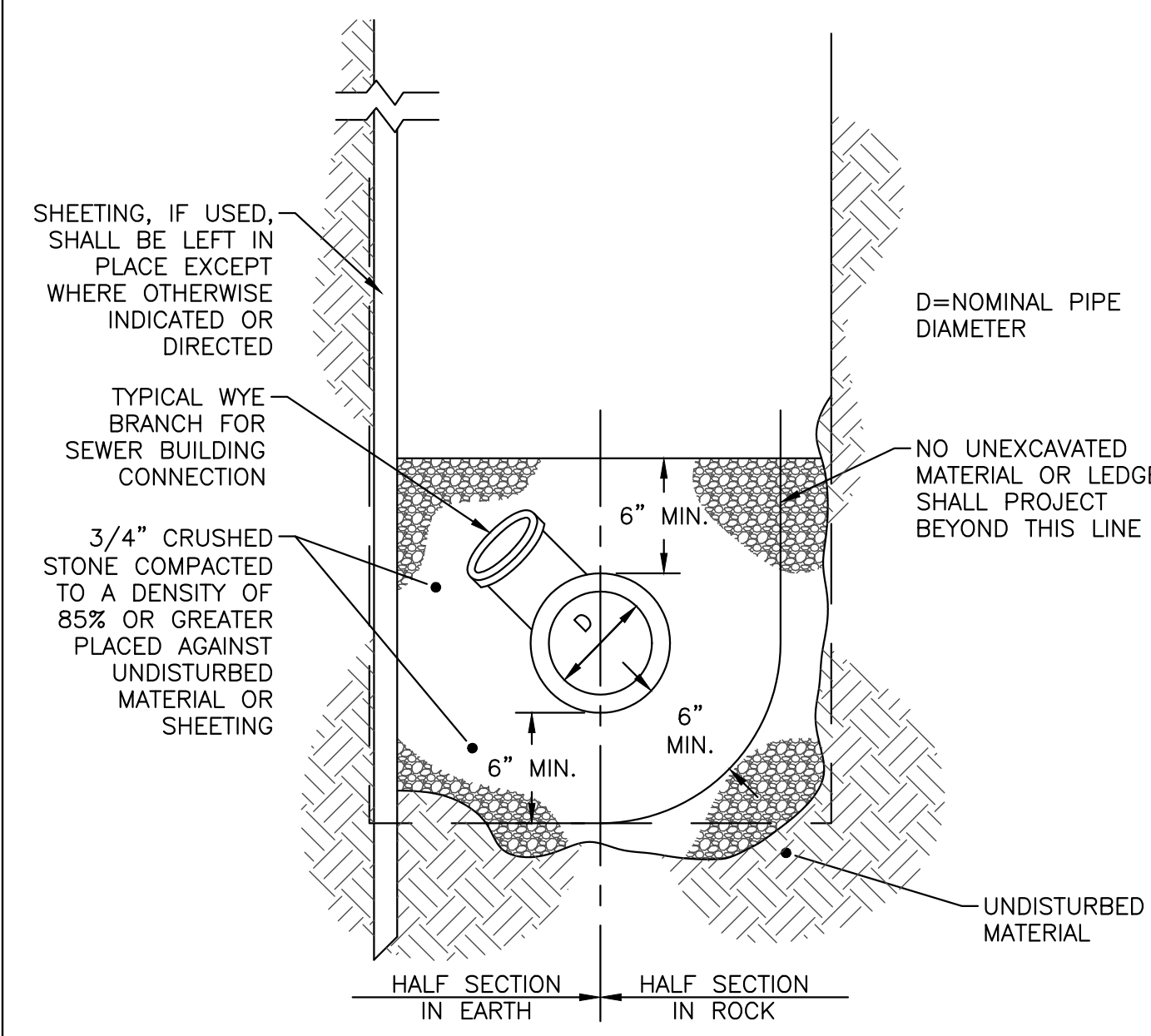
- BYPASS NOTES:**
- REFER TO SPECIFICATION SECTION 02149 MAINTAINING FLOW AND CONSTRUCTION NOTES.
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 - WHenever the contractor's proposed work will require the owner to deviate from the normal operation of the town's wastewater collection system the contractor shall notify the engineer in writing. Such notification shall be submitted one week prior to the planned construction activity.
 - THE CAPACITY OF THE EXISTING PUMP STATION IS 300 GPM (0.432 MGD)
A. BYPASS A CONTRIBUTES APPROXIMATELY 0-10% OF TOTAL FLOW TO THE STATION
B. BYPASS B CONTRIBUTES APPROXIMATELY 90-100% OF THE TOTAL FLOW TO THE STATION



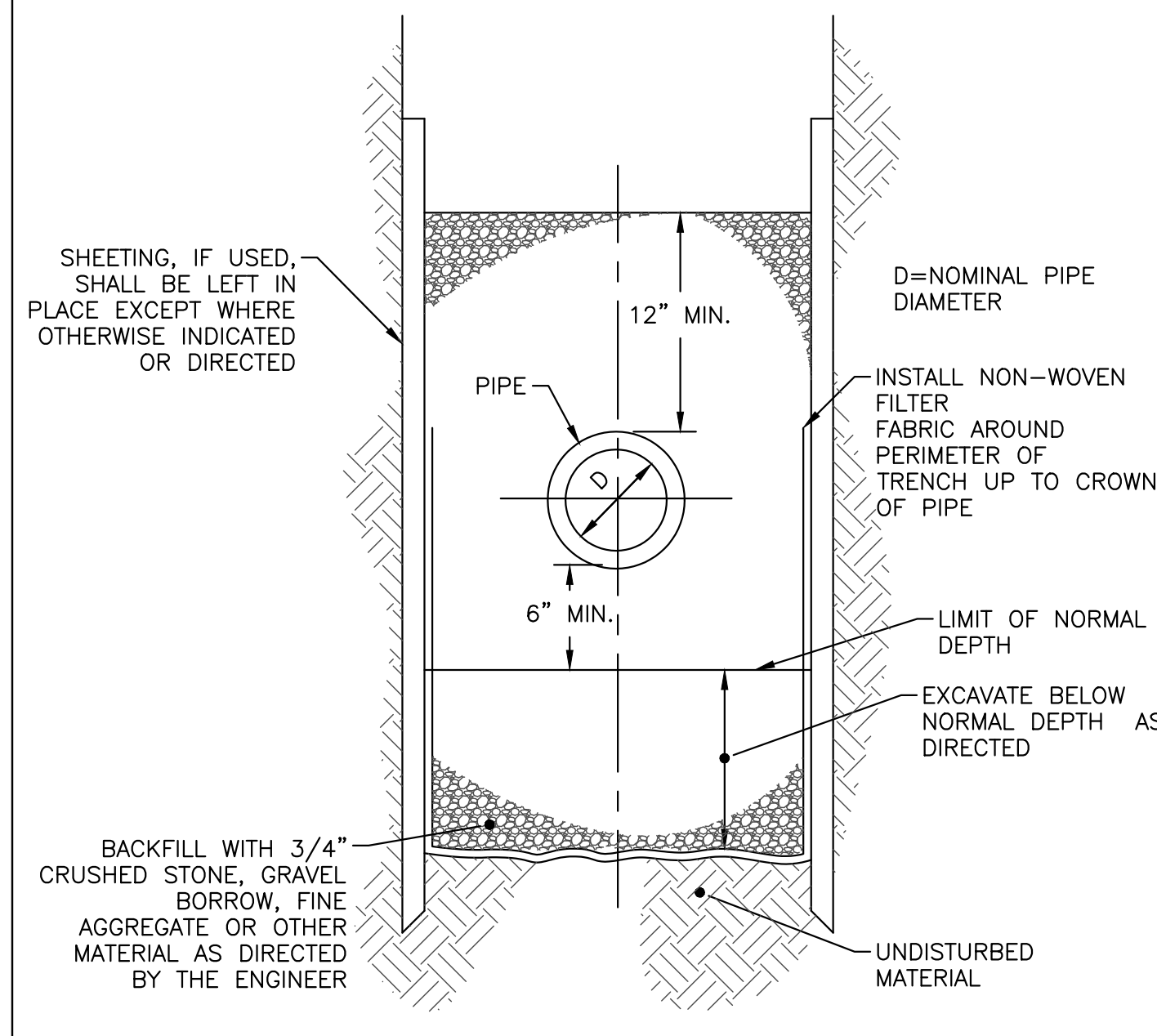
WOOD FENCE DETAIL
 NOT TO SCALE



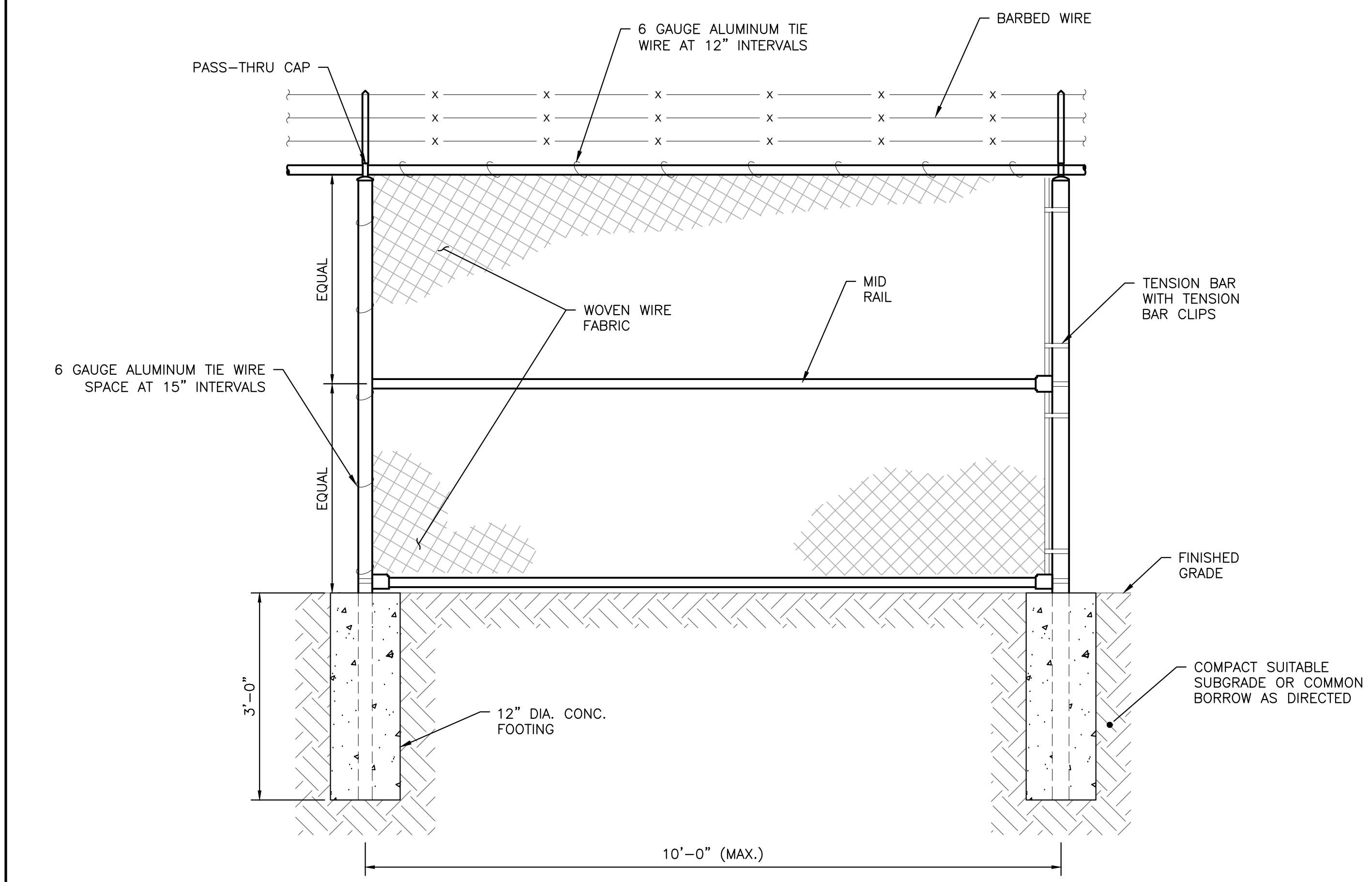
FORCE MAIN TRENCH SECTION
 NOT TO SCALE



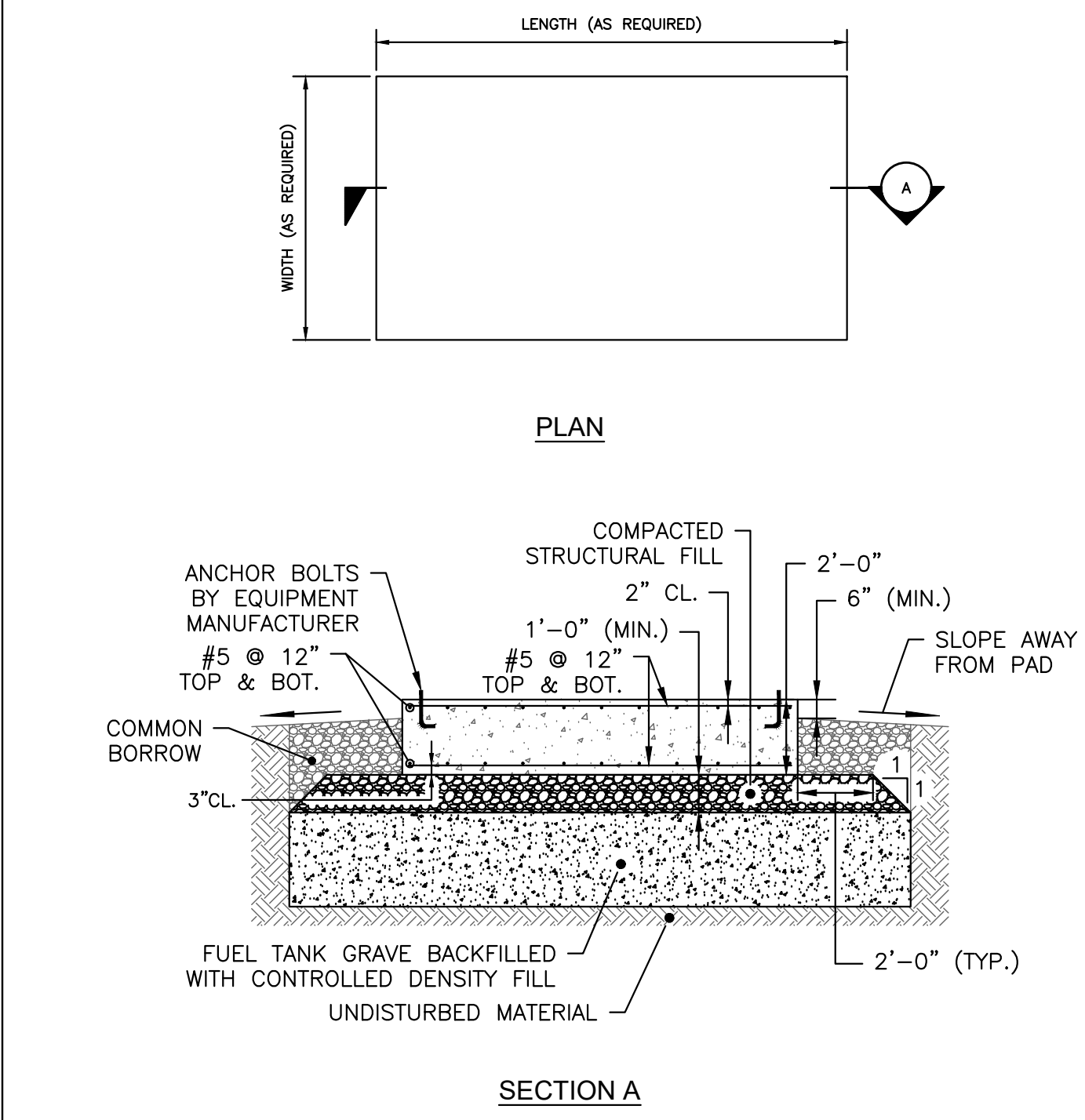
**GRAVITY SEWER TRENCH SECTION FOR 4" DIA.
 OR GREATER PVC PIPE**
 NOT TO SCALE



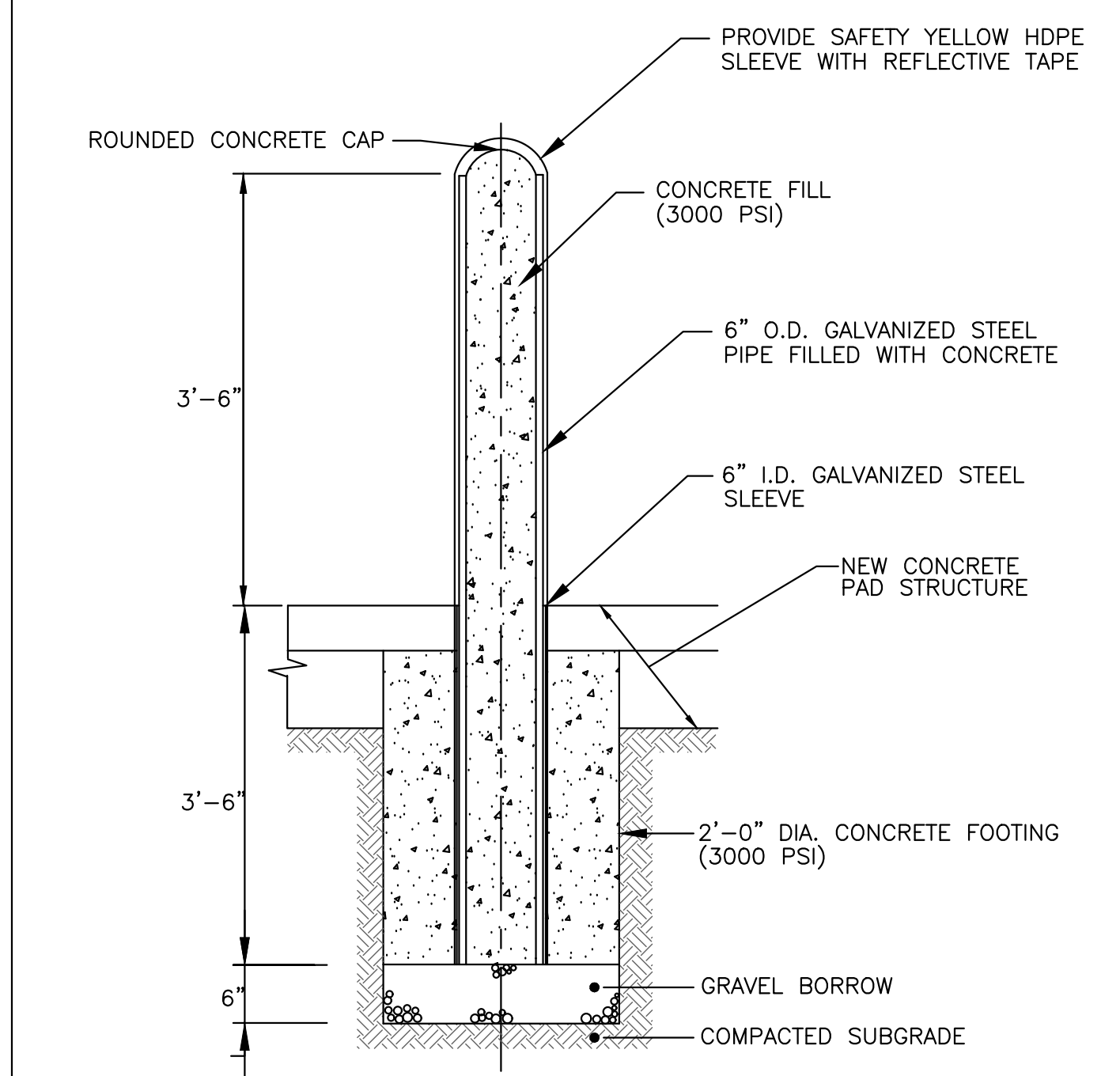
**TRENCH SECTION (TO BE USED WHERE UNSUITABLE
 FOUNDATION MATERIAL EXISTS BELOW NORMAL DEPTH)**
 NOT TO SCALE



CHAIN LINK FENCE DETAIL
 NOT TO SCALE



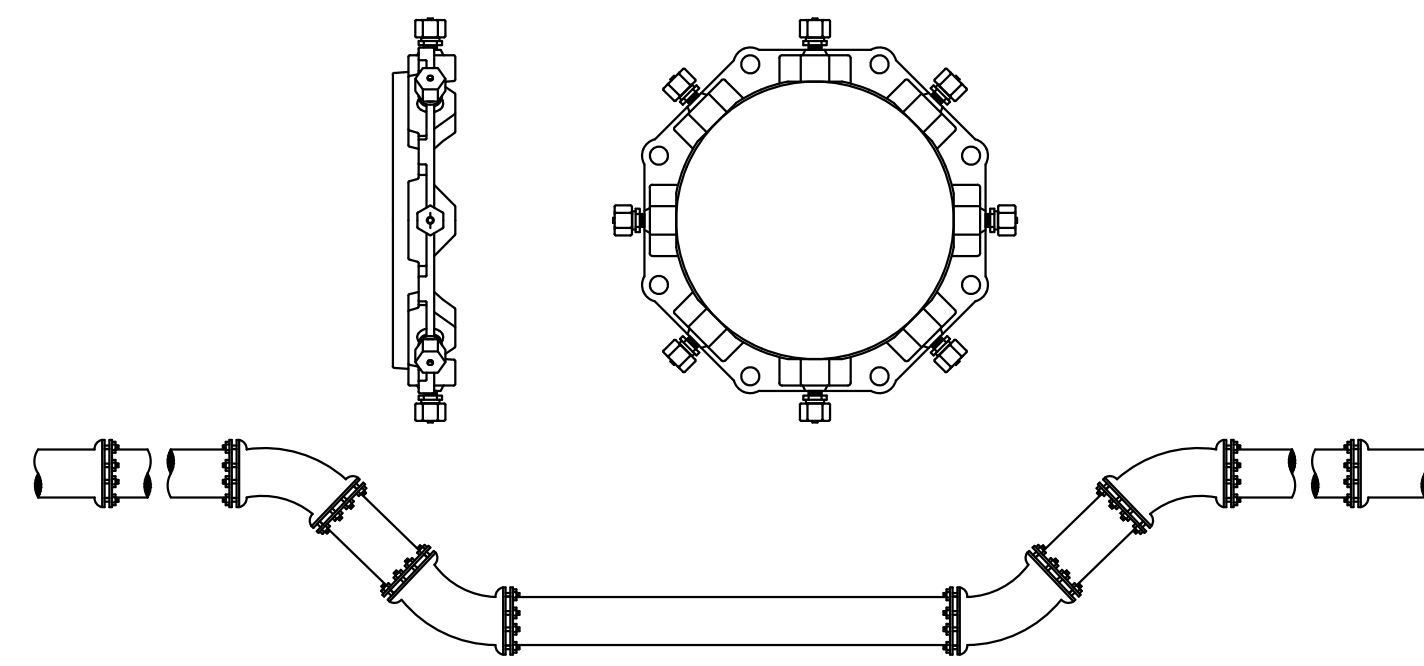
GENERATOR PAD DETAIL
 NOT TO SCALE



CONCRETE-FILLED STEEL BOLLARD
 NOT TO SCALE

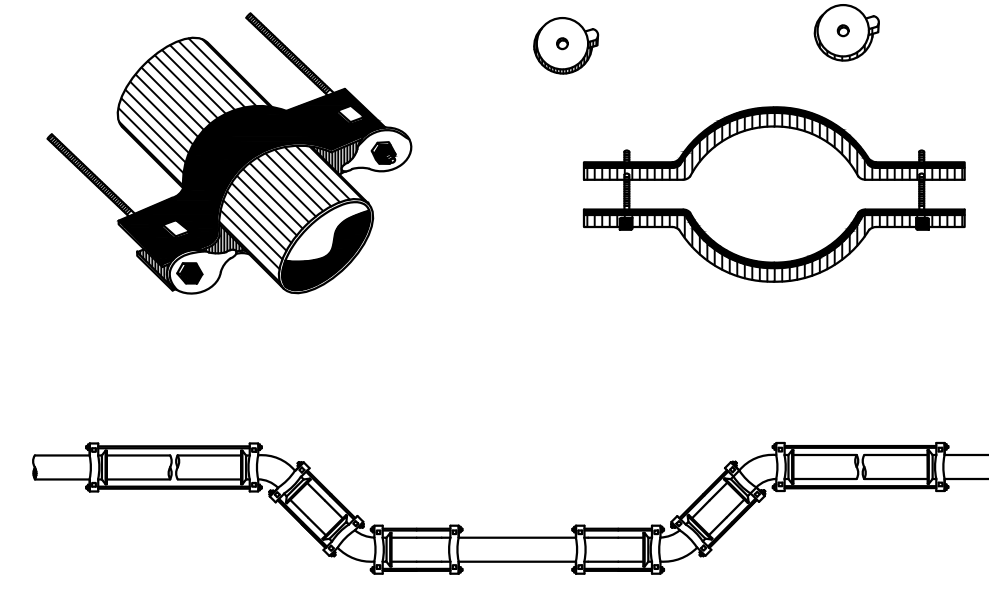
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 1/5/2023

1/5/2023 J:\BURRILLVILLE\WTF - HEADWORKS IMPROVEMENTS\CADD\DRAWINGFILES\PLANS\CIVIL-DETAILS.DWG



- NOTES:**
1. DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
 2. RESTRAINED JOINT LENGTHS TO BE IN ACCORDANCE WITH SPECIFICATION SECTION 02618.

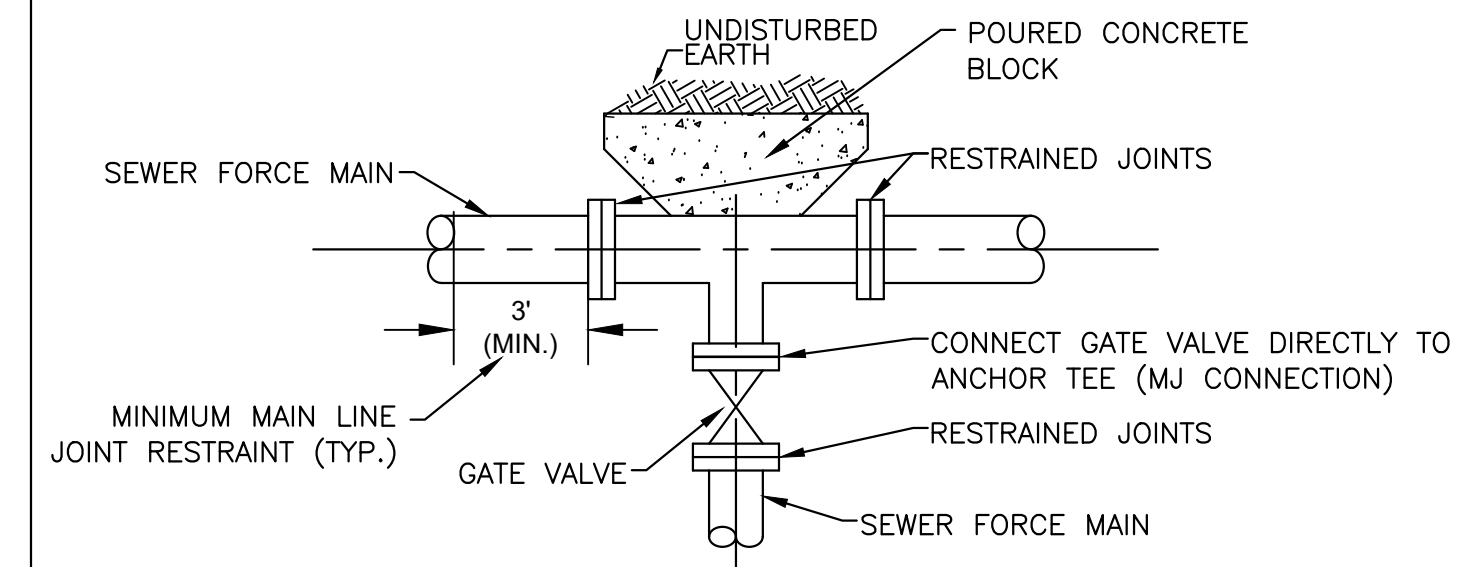
TYPICAL THRUST RESTRAINT WEDGE ACTION TYPE JOINTS
NOT TO SCALE



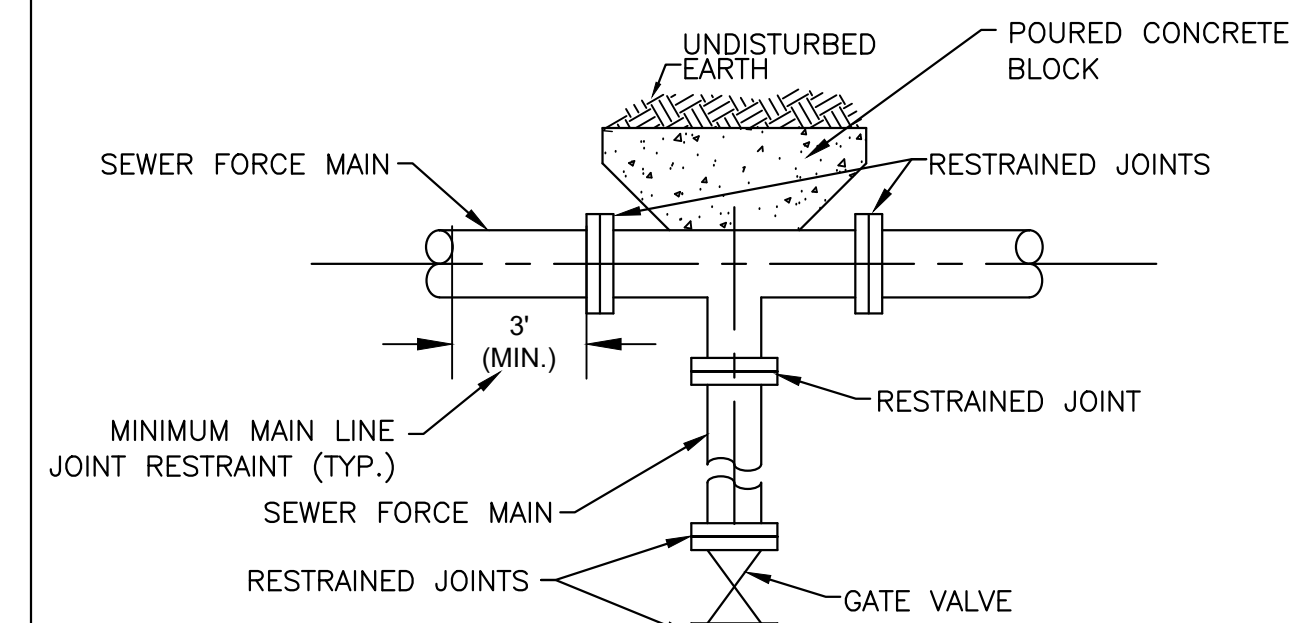
SCHEDULE OF TIE RODS		
PIPE SIZE	NUMBER OF RODS PER FITTING	DIAMETER OF RODS
4"-12"	2	3/4"

- NOTES:**
1. DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
 2. RESTRAINED JOINT LENGTHS TO BE IN ACCORDANCE WITH SPECIFICATION SECTION 02618.

TYPICAL THRUST RESTRAINT USING TIE RODS AND FRICTION CLAMPS
NOT TO SCALE



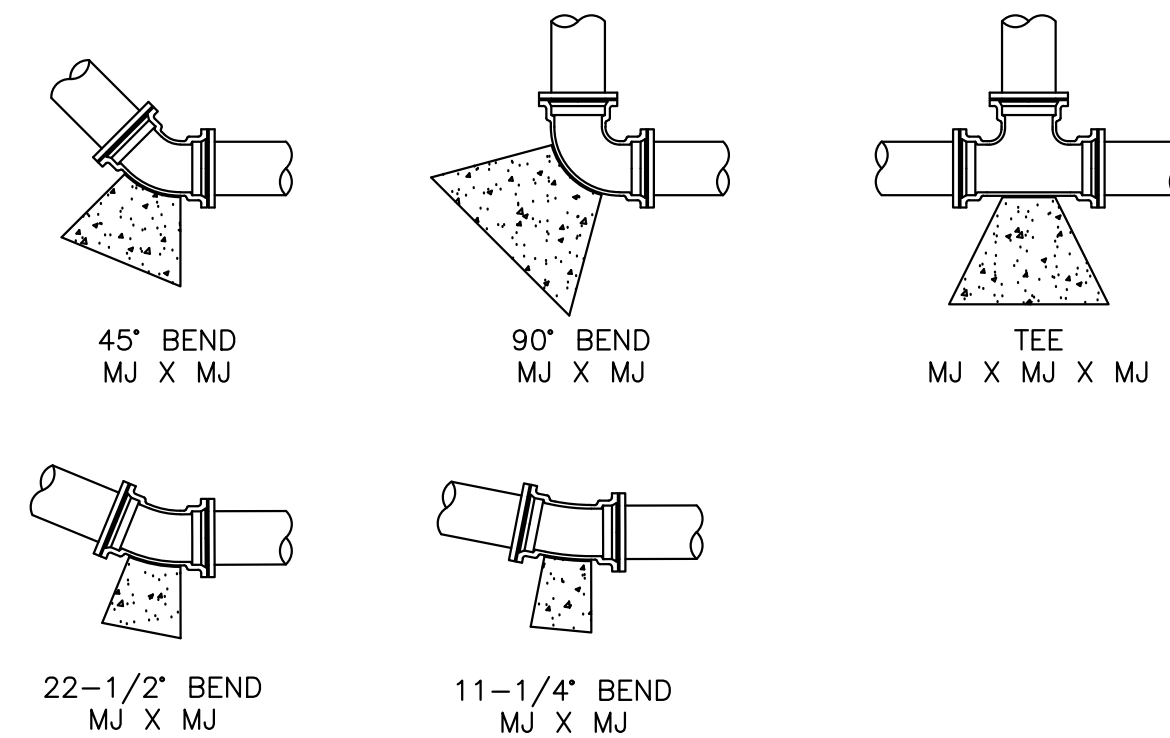
ANCHOR TEE BRANCH



STANDARD BRANCH

- NOTES:**
1. ALL FITTING AND VALVES SHALL BE "ALL-BELL" FITTINGS.
 2. ALL CONNECTIONS SHALL BE RESTRAINED MECHANICAL JOINT (MJ) CONNECTIONS.
 3. MAIN LINE TO BE RESTRAINED A MINIMUM OF THREE FEET ON EITHER SIDE OF TEE.
 4. SEE RESTRAINT TABLES FOR BRANCH LINE RESTRAINT REQUIREMENTS.

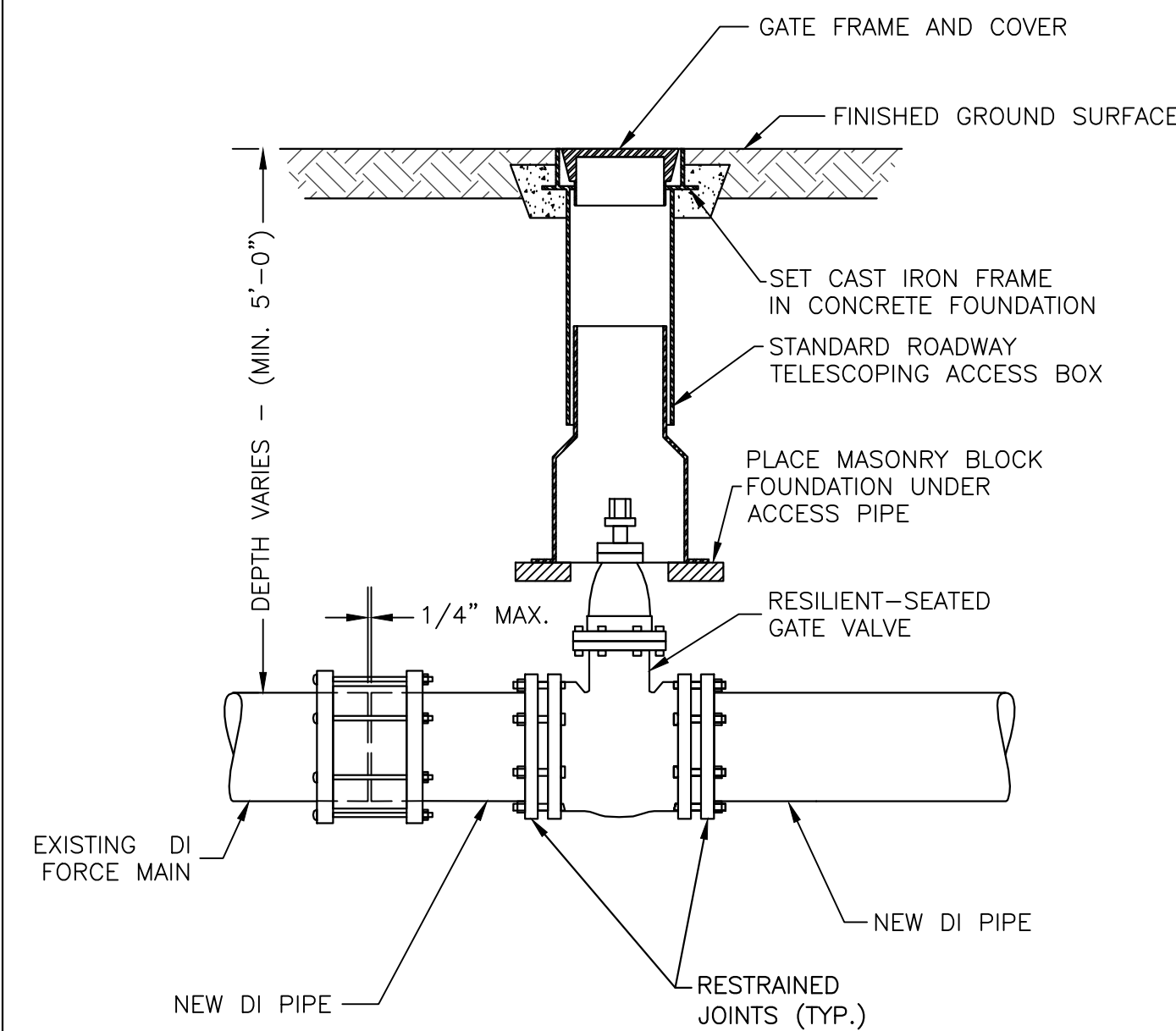
TYPICAL DUCTILE IRON FORCE MAIN BRANCHES
NOT TO SCALE



PIPE SIZE	MINIMUM SURFACE AREA (S.F.) OF CONCRETE AGAINST UNDISTURBED EARTH				
	11 1/4°	22 1/2°	45°	90°	TEE
6"	0.5	1.1	2.1	3.9	2.8
8"	0.9	1.8	3.6	6.6	4.7

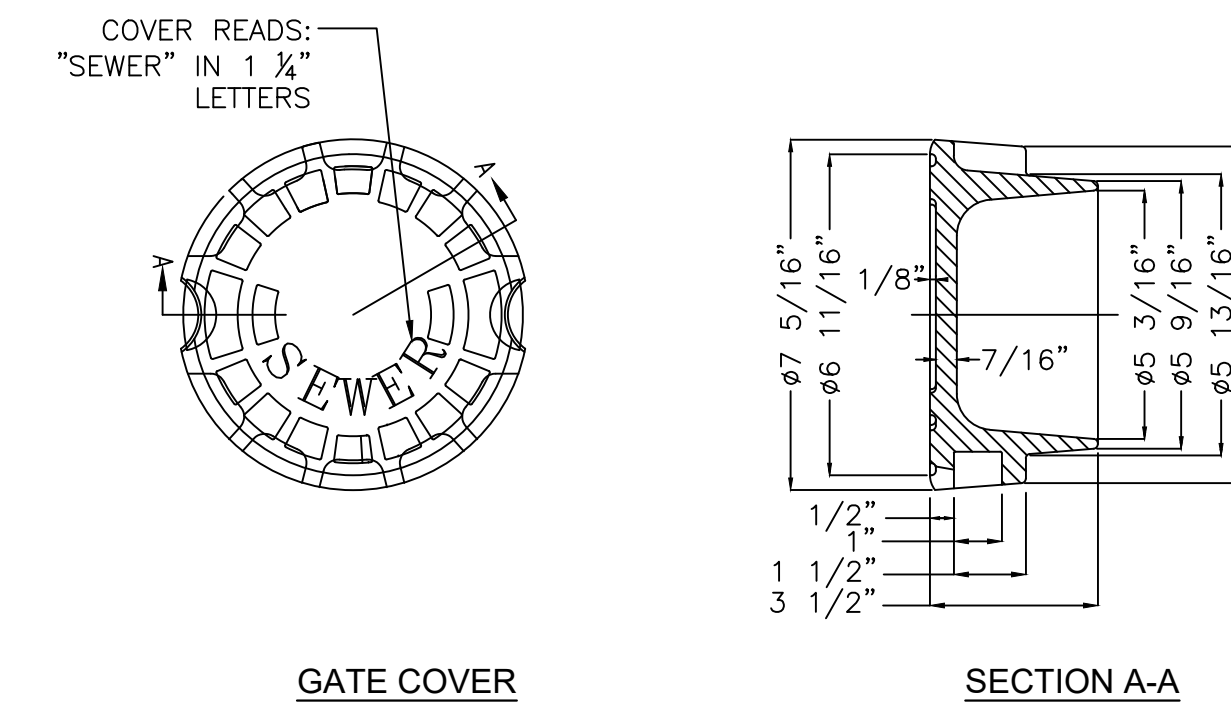
- NOTES:**
1. PORTLAND TYPE II CEMENT CONCRETE MEETING SPECIFICATION SECTION 03300 AND SHALL BE PLACED SO AS TO NOT INTERFERE WITH THE JOINTS OF THE FITTING. CONCRETE SHALL BE 4000 PSI.
 2. POLYPROPYLENE SHEETING SHALL BE PLACED AROUND FITTINGS PRIOR TO POURING CONCRETE IN ACCORDANCE WITH AWWA C105.
 3. ALL JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH SPECIFICATION SECTION 02618.

THRUST BLOCK BEARING AREAS
NOT TO SCALE



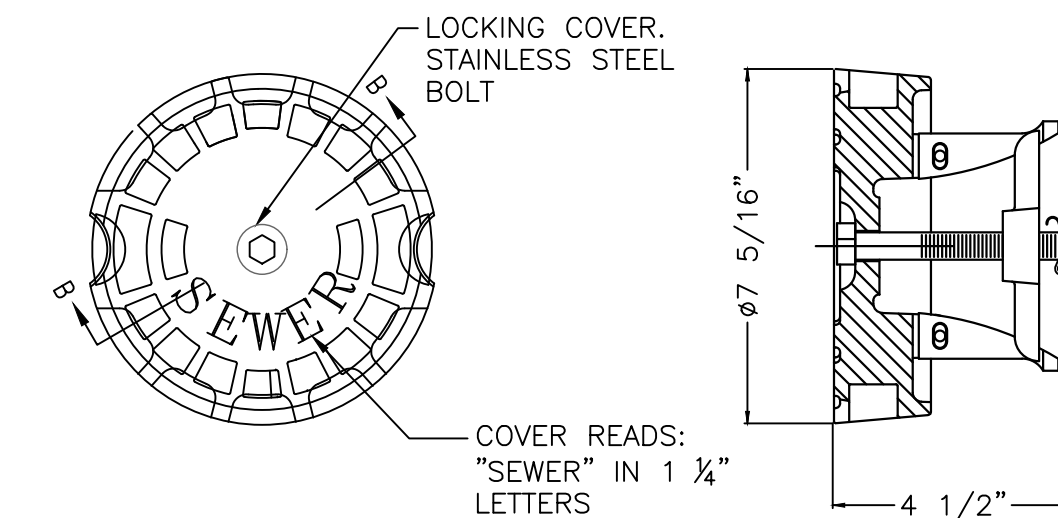
- NOTES:**
1. ALL EXCAVATION, BACKFILLING AND PAVING SHALL BE IN ACCORDANCE WITH THE TOWN OF BURRILLVILLE REQUIREMENTS.

GATE VALVE
NOT TO SCALE



GATE COVER

SECTION A-A



DIVISION GATE COVER

SECTION B-B

- NOTES:**
1. GATE COVER SHALL HAVE A MINIMUM HEIGHT OF 3.5 INCHES AND MINIMUM WEIGHT OF 13 POUNDS, BRAND NAME BIBBY-STE-CROIX OR EQUAL.

GATE VALVE COVERS
NOT TO SCALE

PREPARED BY



REGISTERED PROFESSIONAL

SUBCONSULTANT

PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

CIVIL DETAILS - II

NO.	REVISIONS	DATE

DRAWN BY: CJM

DESIGNED BY: AJG

CHECKED BY: JRD

ISSUE DATE: JANUARY 2023

BETA JOB NO.: 6861-105

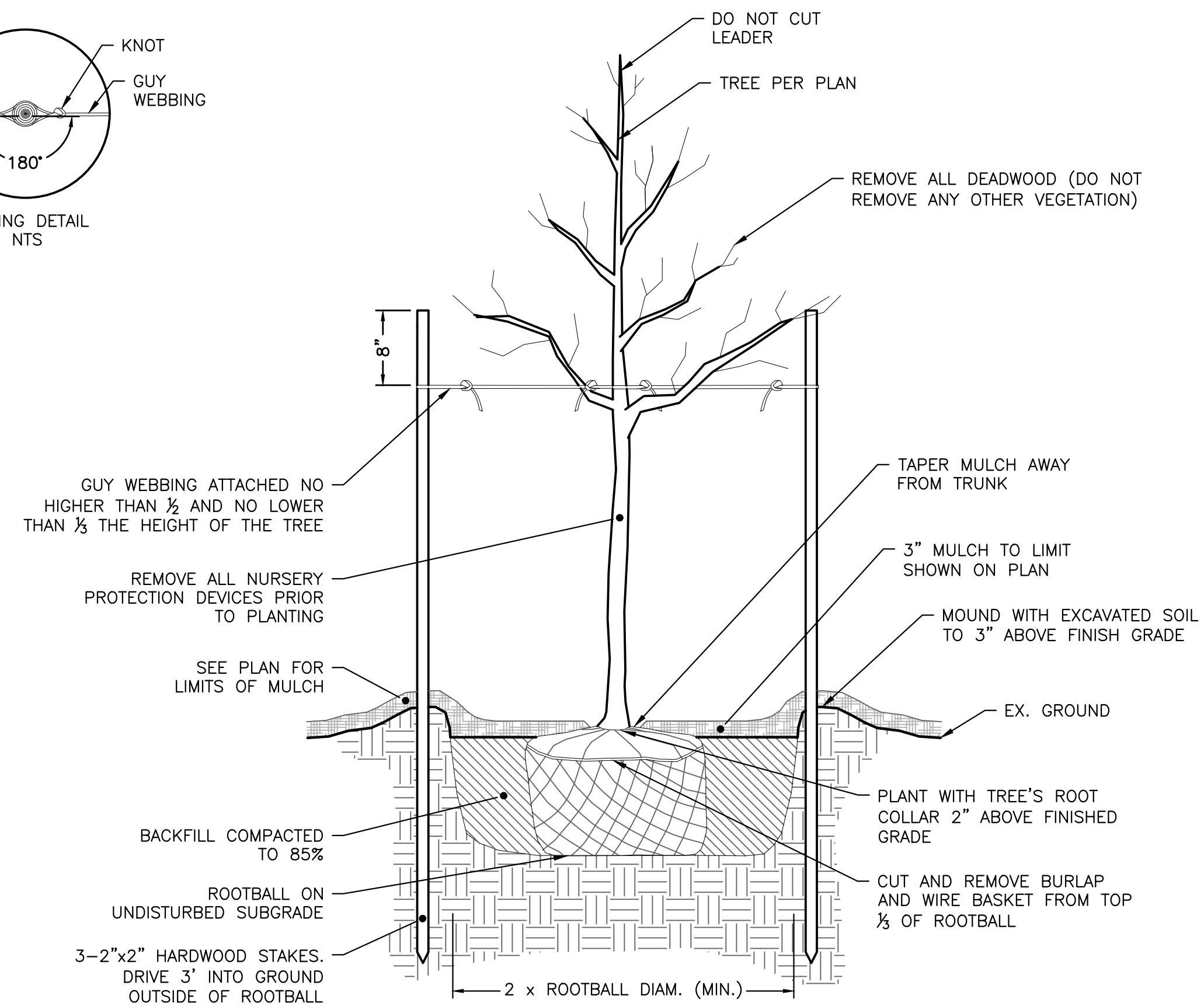
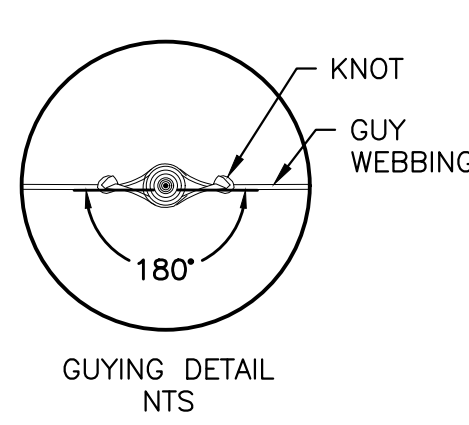
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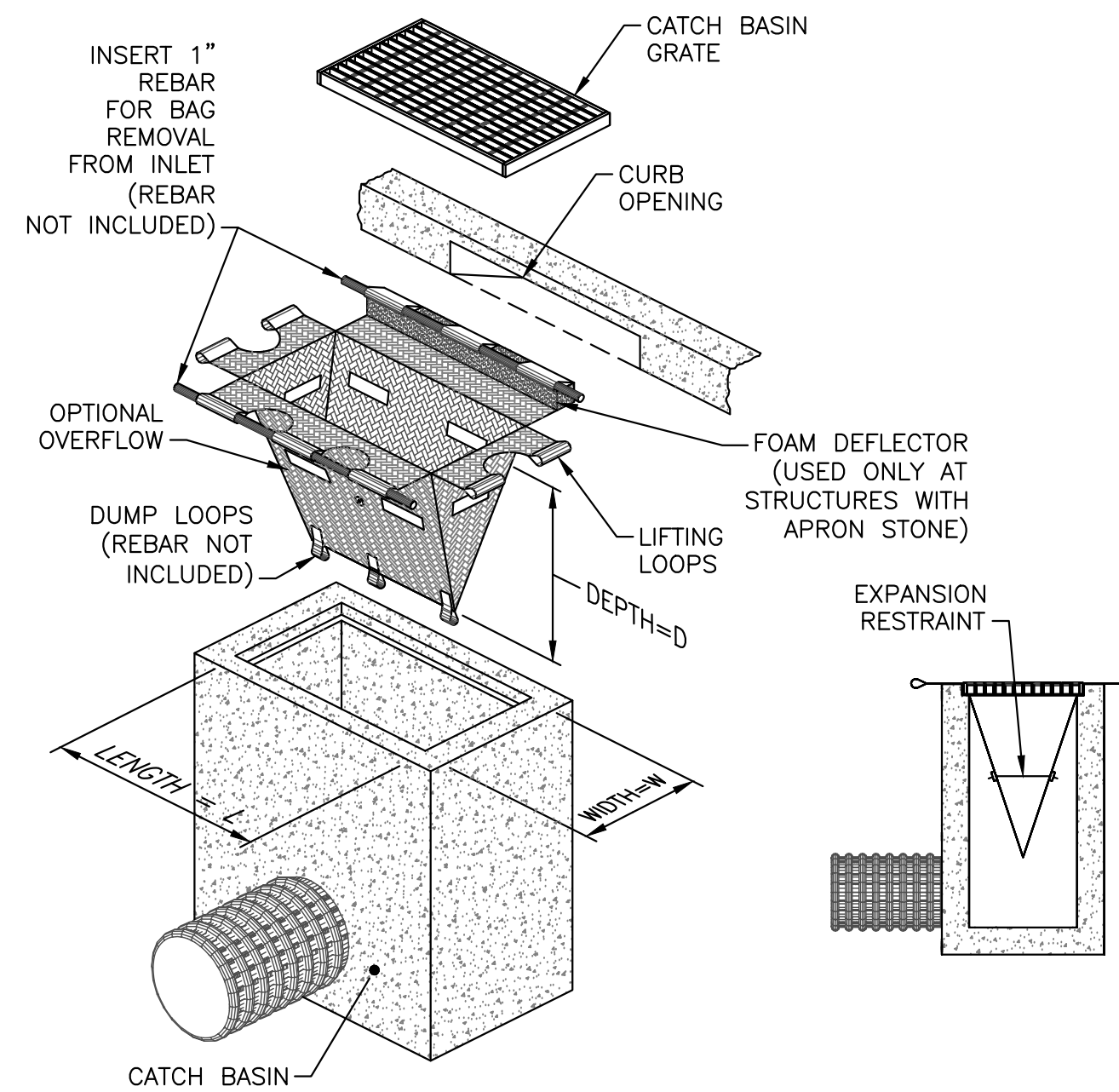
CD-2



DECIDUOUS TREE STAKING & PLANTING
NOT TO SCALE

NOTES:

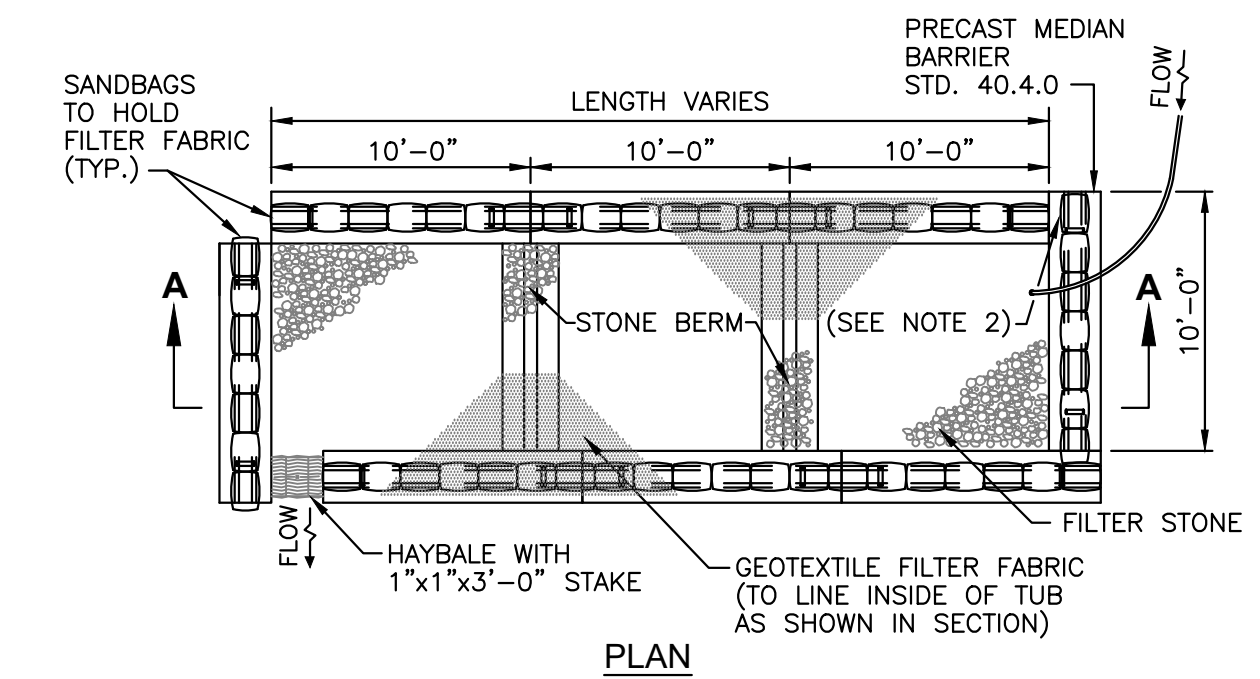
1. AFTER THE GUARANTEE PERIOD, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF STAKES AND GUY WEBBING.



NOTES:

1. CONTRACTOR SHALL MAINTAIN ALL SILT SACK SEDIMENT CONTROL DEVICE INSTALLATIONS AND REPLACE WHEN SATURATED WITH SEDIMENT BASED ON MANUFACTURER RECOMMENDATIONS. SILT SACK SHALL BE INSPECTED AFTER EVERY RAIN EVENT BUT NO LONGER THAN EVERY TWO WEEKS.
2. SILT SACK SHALL BE DOUBLE NEEDLE SEWN POLYPROPYLENE GEOTEXTILE FABRIC AND RATED FOR HIGH FLOW UNLESS OTHERWISE DIRECTED.
3. CONTRACTOR SHALL PROVIDE CURB OPENING DEFLECTOR AT ALL CATCH BASINS AS NECESSARY.

INLET SEDIMENT CONTROL DEVICE (SILT SACK) (WITH OPTIONAL CURB DEFLECTOR)
NOT TO SCALE



SECTION

NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.
2. PROVIDE ADDITIONAL SAND BAGS AS REQUIRED TO FILL SPACE BETWEEN ADJACENT BARRIERS.

DEWATERING BASIN
NOT TO SCALE

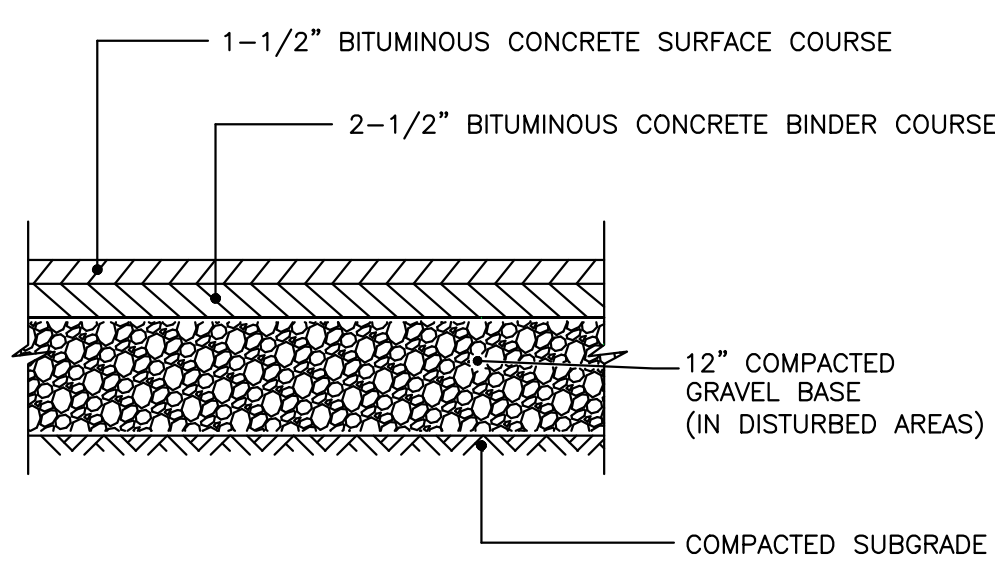
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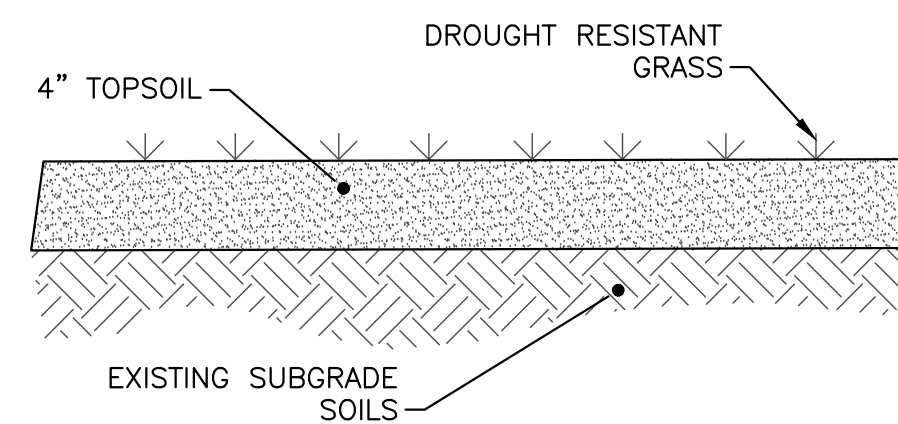
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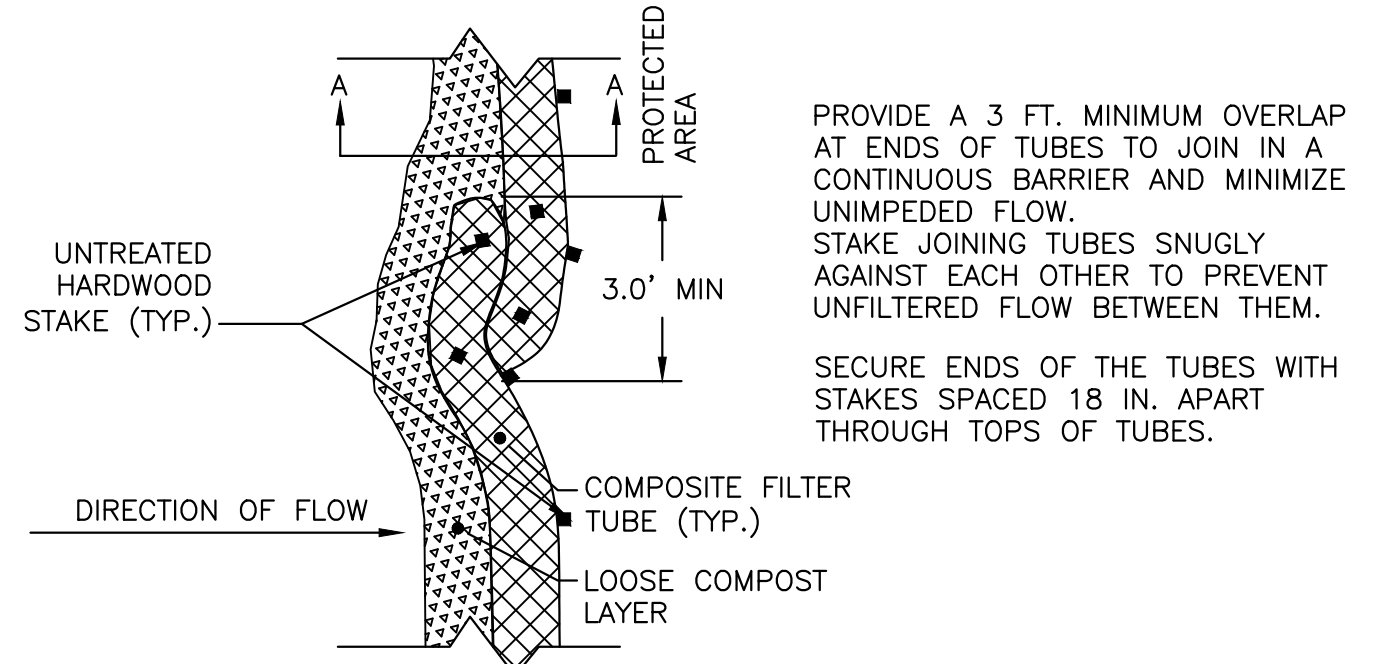
SHEET NO.
CD-3



TYPICAL PAVEMENT DETAIL
NOT TO SCALE



GROUND COVER DETAIL
NOT TO SCALE



PLAN VIEW - JOIN DETAIL

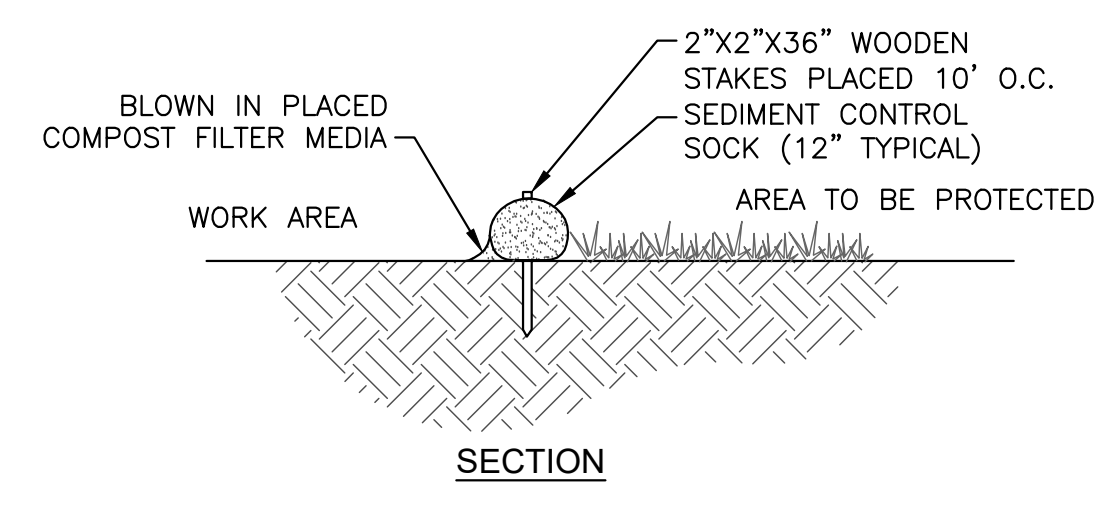
SECTION A-A

COMPOST FILTER TUBE - FOR EROSION CONTROL
NOT TO SCALE

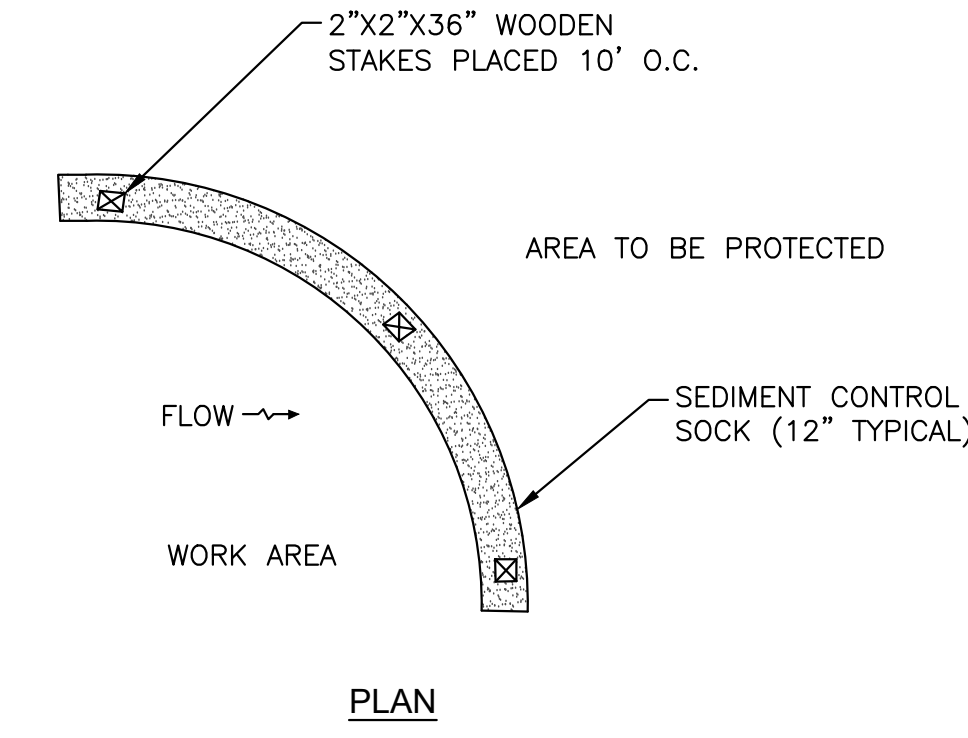
PROVIDE A 3 FT. MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER AND MINIMIZE UNIMPEDED FLOW. STAKE JOINING TUBES SNUGLY AGAINST EACH OTHER TO PREVENT UNFILTERED FLOW BETWEEN THEM. SECURE ENDS OF THE TUBES WITH STAKES SPACED 18 IN. APART THROUGH TOPS OF TUBES.

COMPOSITE FILTER TUBE. MINIMUM 12 IN. DIA. WITH AN EFFECTIVE HEIGHT OF 9.5 INCHES. TUBES FOR COMPOSITE FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER. TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE.

2 INCH X 2 INCH X 3 FEET UNTREATED HARDWOOD STAKES, UP TO 5 FT. APART OR AS REQUIRED TO SECURE TUBES IN PLACE. WHEN STAKING IS NOT POSSIBLE, SUCH AS WHEN TUBES MUST BE PLACED ON PAVEMENT, HEAVY CONCRETE OR CINDER BLOCKS CAN BE USED BEHIND TUBES UP TO 5 FT. APART OR AS REQUIRED TO SECURE TUBES IN PLACE.



SECTION



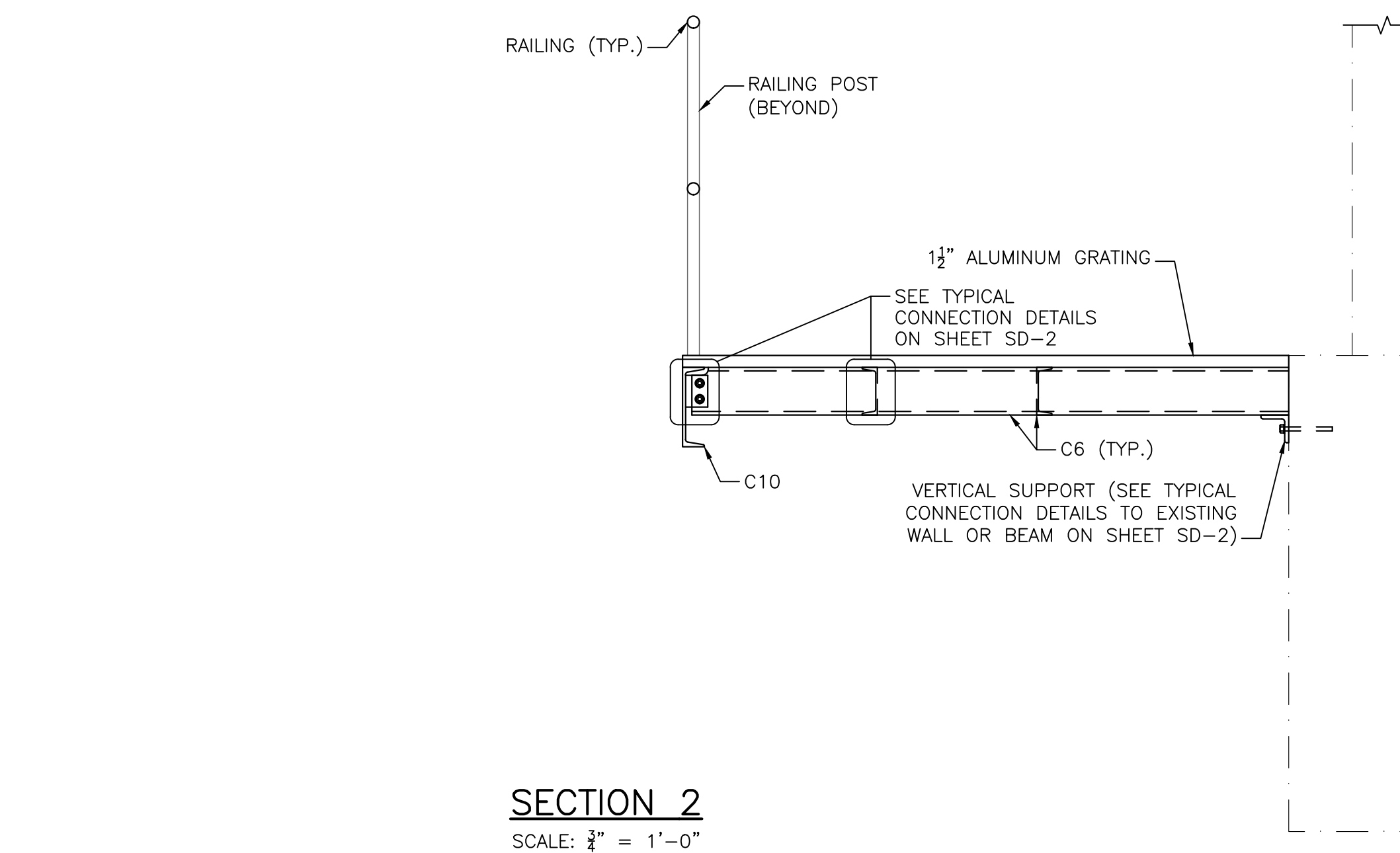
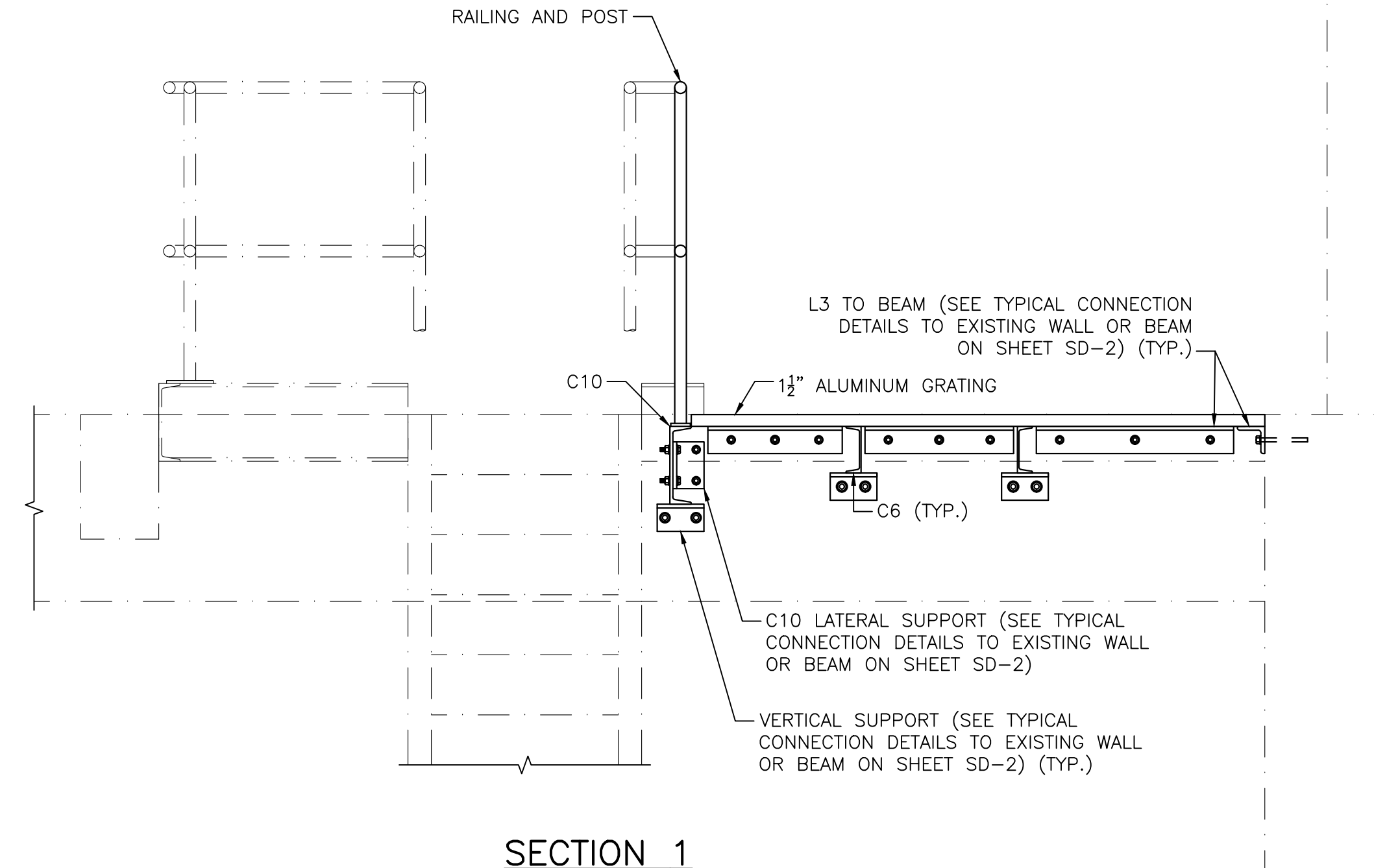
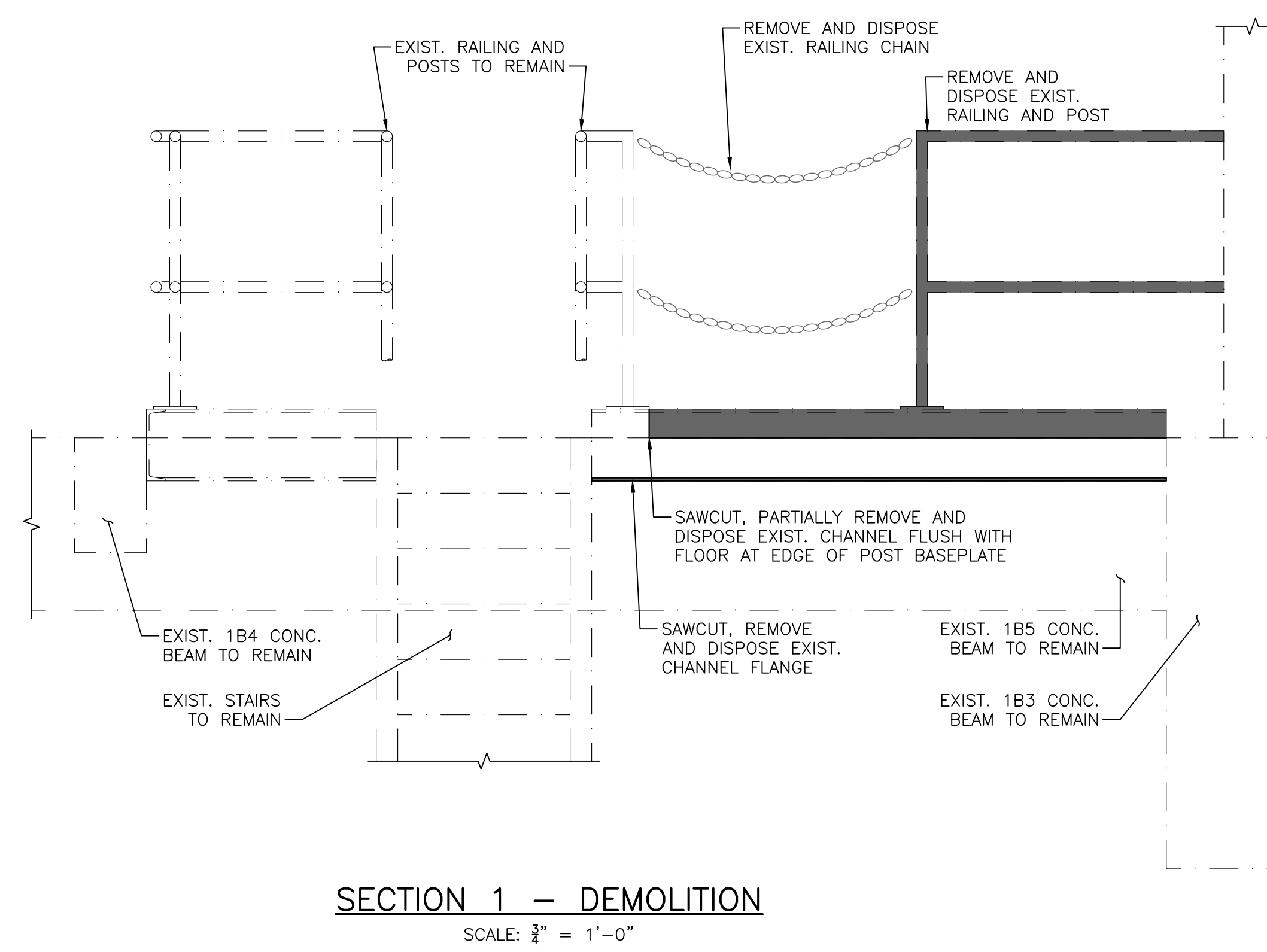
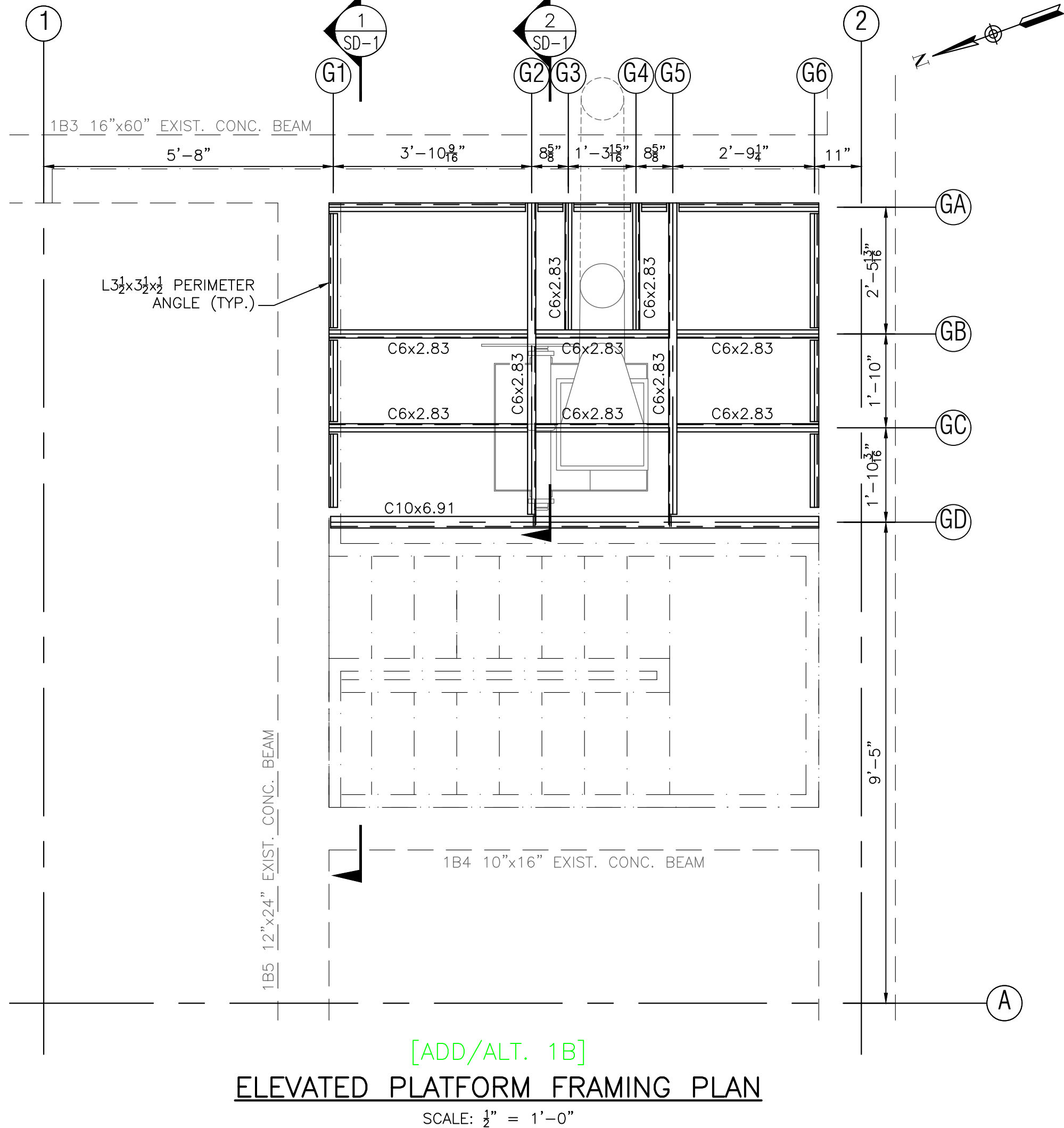
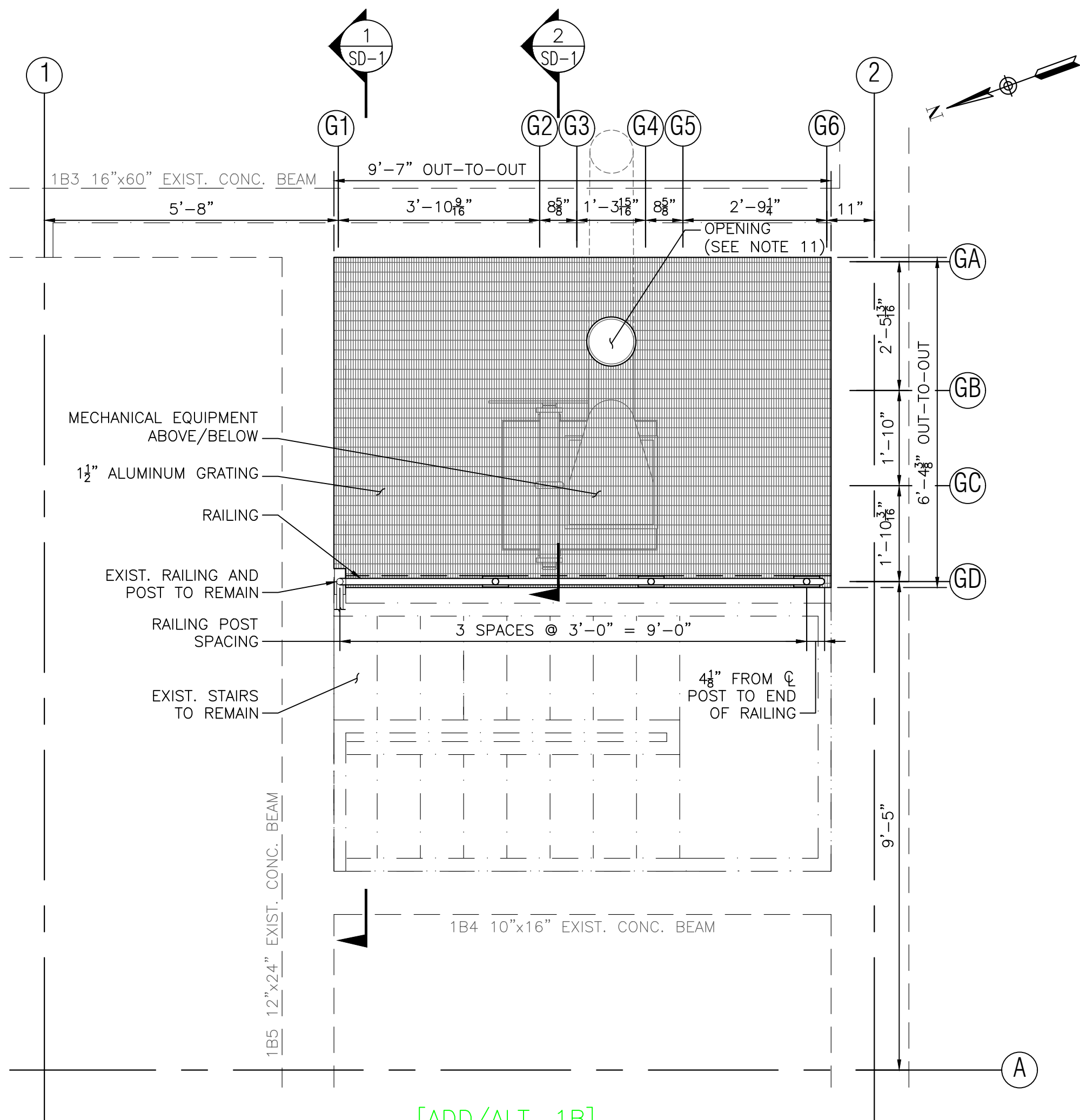
PLAN

NOTES:

1. SOCKS SHALL BE PLACED IN A ROW WITH ENDS OVERLAPPING THE ADJACENT SOCK.
2. SOCKS SHALL BE SECURELY ANCHORED IN PLACE BY STAKES DRIVEN THROUGH THE SOCKS.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. SOCKS SHALL BE REMOVED WHEN WORK IS COMPLETE AND THE AREA HAS STABILIZED.

SEDIMENT CONTROL "COMPOST SOCK"
NOT TO SCALE

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GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO THE START OF CONSTRUCTION.
2. LOAD CRITERIA:
UNIFORM LIVE LOAD = 150 PSF

METAL GRATING NOTES:

1. GRATING, COVER PLATES, ANGLE FRAMES AND SUPPORTS SHALL BE ALL ALUMINIUM CONSTRUCTION UNLESS OTHERWISE NOTED. COVER PLATES SHALL BE DIAMOND PLATE ALUMINIUM ALLOY 6061-T6. GRATING SHALL BE ALUMINIUM ALLOY 6063-T6.
2. FASTENERS, ANCHORS, BOLTS, NUTS AND WASHERS FOR GRATING, COVER PLATES AND SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL.
3. FIELD VERIFY GRATING SUPPORT LOCATIONS BEFORE FABRICATING GRATING, AT TRENCHES 12" OR LESS PROVIDE 1 $\frac{1}{4}$ " GRATING WITH SUPPORTS AT 3'-0" ON CENTER. PLATE SUPPORTS WITH EXTREME CARE TO PROVIDE TOLERANCES SHOWN OR SPECIFIED.
4. GRATING PANEL LAYOUT SHALL PROVIDE FOR THE REMOVAL OF GRATING AROUND PIPE AND OTHER GRATING PENETRATIONS.
5. BAND ALL GRATING ALONG EDGES AND AROUND OPENINGS WITH CONTINUOUS BAR SAME DEPTH & THICKNESS AS BEARING BARS.
6. ALL ANGLE FRAMES FOR GRATING AND COVER PLATES ARE TO BE MITERED AND WELDED AT CORNERS.
7. ALL GRATING IS TO BE SECURELY FASTENED TO SUPPORTS, UNLESS OTHERWISE NOTED.
8. ALL COVER PLATES SHALL BE SECURELY FASTENED TO SUPPORTS WITH $\frac{3}{8}$ " STAINLESS STEEL FLAT-HEAD MACHINE SCREWS AT 2'-0" ON CENTER, UNLESS OTHERWISE NOTED.
9. ANY ADDITIONAL GRATING SUPPORTS SHALL BE ALUMINIUM, DESIGNED BY THE CONTRACTOR AND SHOWN ON THE GRATING PANEL LAYOUT.
10. COAT ALL ALUMINIUM IN DIRECT CONTACT WITH CONCRETE WITH A BITUMASTIC COATING.
11. CONTRACTOR TO COORDINATE OPENINGS WITH THE EQUIPMENT MANUFACTURER.

ALUMINIUM FRAMING NOTES:

1. ALL ALUMINIUM STOCK SHALL BE 6061-T6.
2. WELDS SHALL USE 5556 FILLER ALLOY.
3. BOLTS, NUTS, AND WASHERS SHALL BE 316 STAINLESS STEEL.

PREPARED BY



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PROJECT

BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

BURRILLVILLE, RI

TITLE

STRUCTURAL DETAILS - I

NO.	REVISIONS	DATE

DRAWN BY:	DW
DESIGNED BY:	PJK/DW
CHECKED BY:	CWJ
ISSUE DATE:	JANUARY 2023
BETA JOB NO.:	6861-105

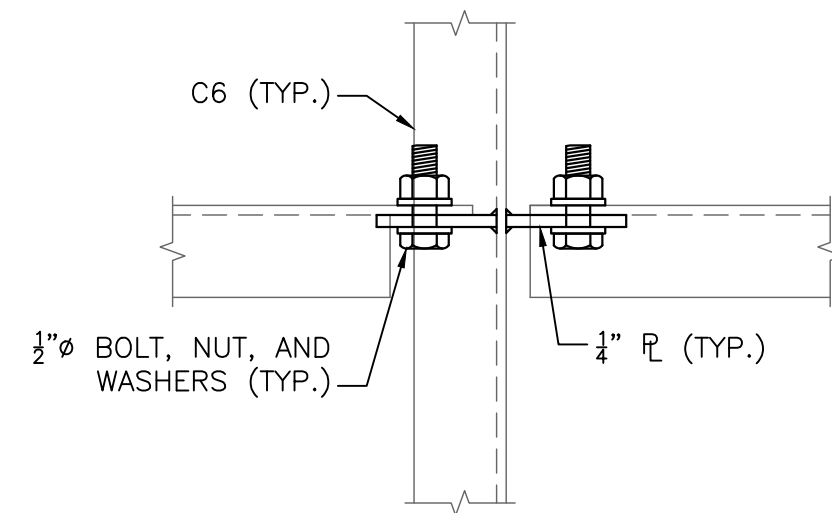
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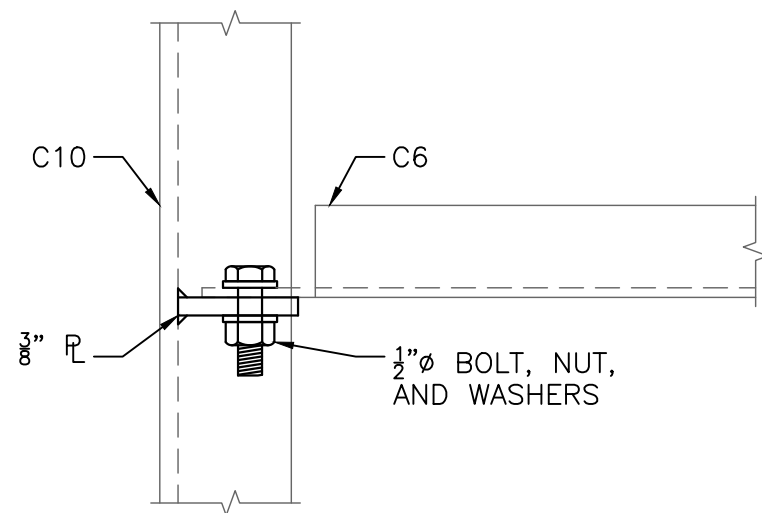
SHEET NO.
SD-1

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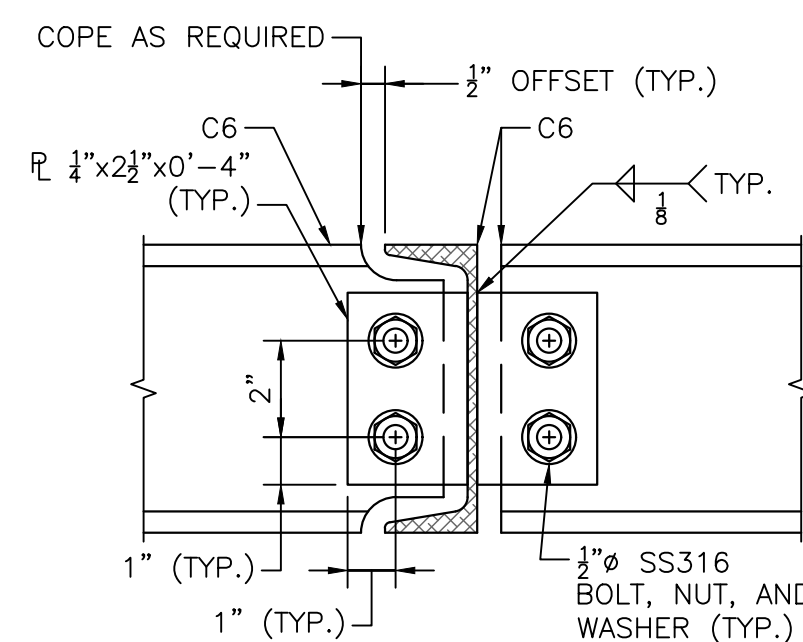
NOTE:
CROSS MEMBERS SCREENED FOR CLARITY.

TOP VIEW

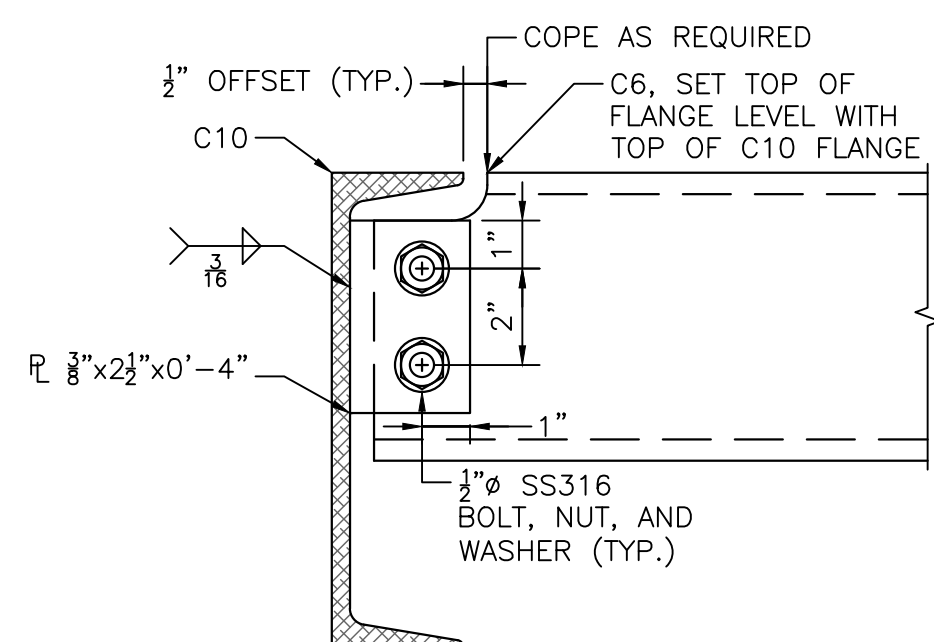


NOTE:
CROSS MEMBERS SCREENED FOR CLARITY.

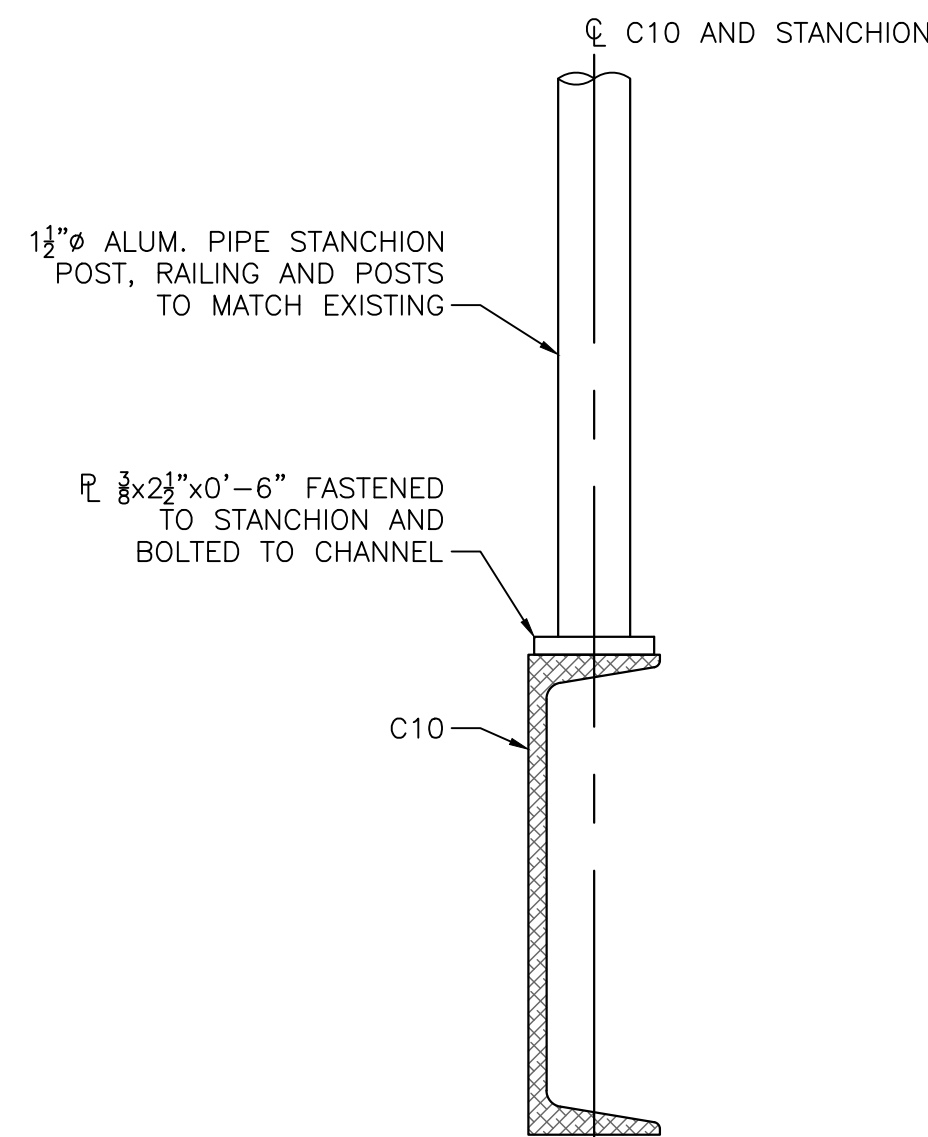
TOP VIEW



SIDE VIEW
[C6 TO C6]



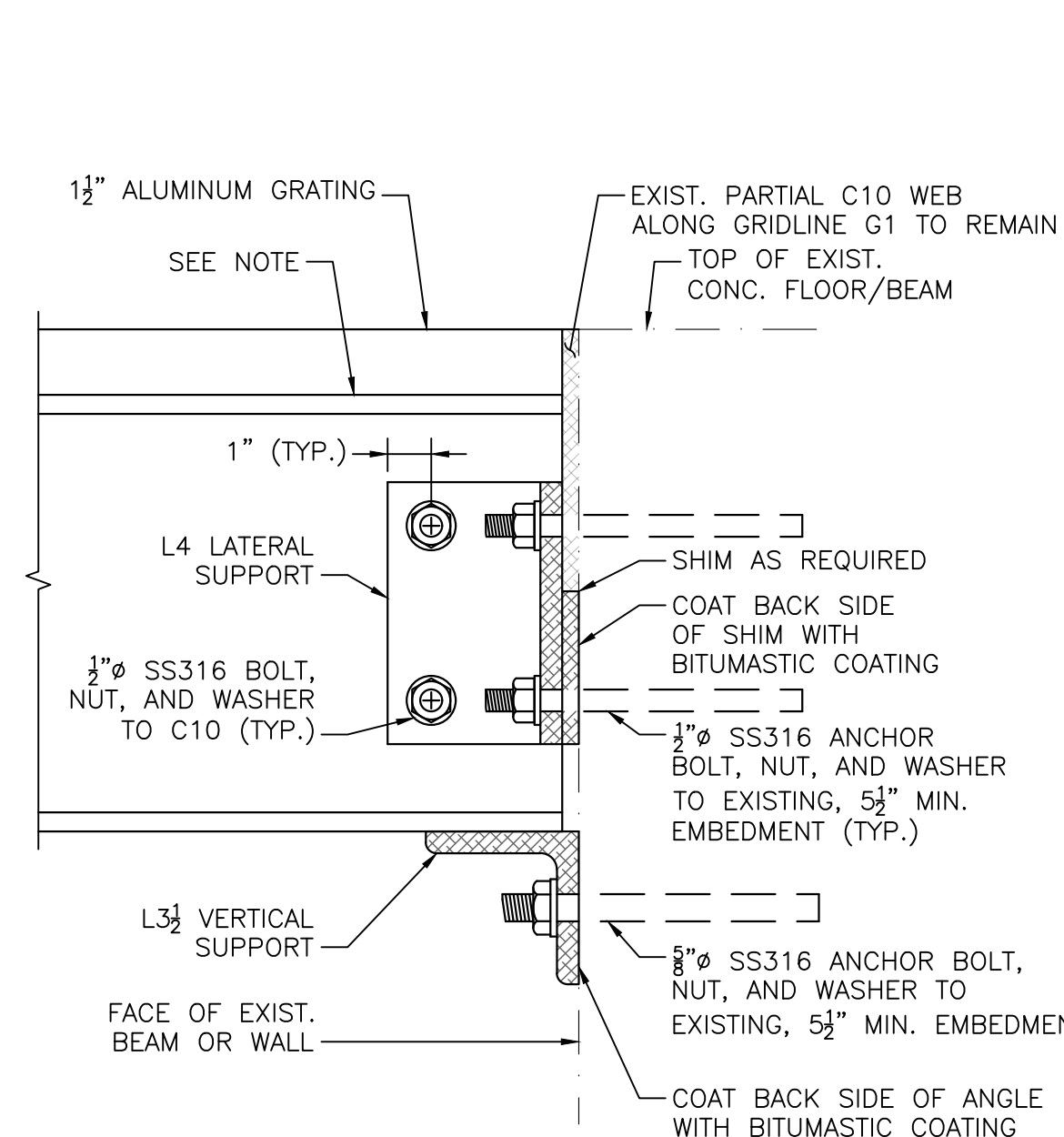
SIDE VIEW
[C6 TO C10]



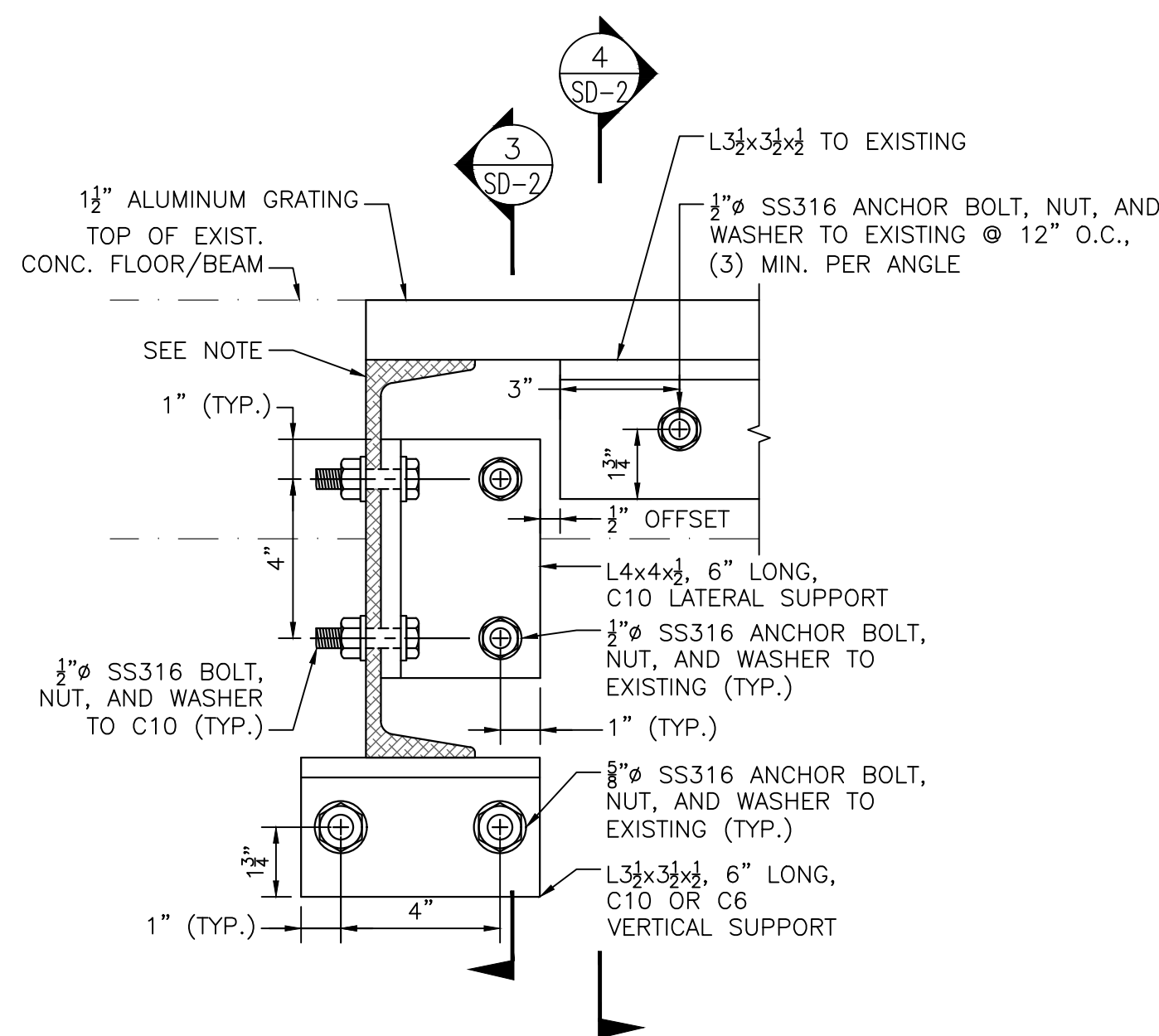
SIDE VIEW
[RAILING POST TO C10]

TYPICAL CONNECTION DETAILS

SCALE: 3" = 1'-0"



SECTION 3
[VERTICAL AND LATERAL SUPPORTS]

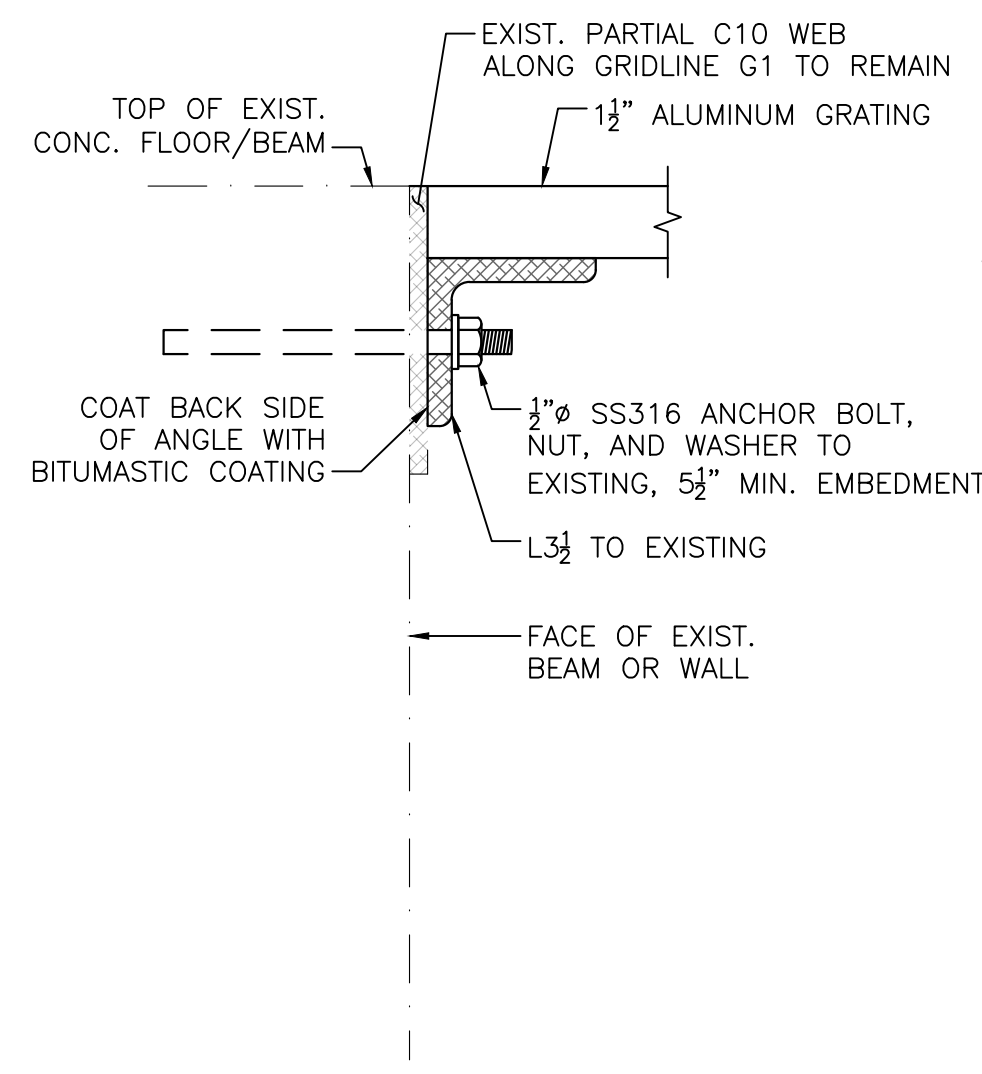


SECTION 4
[GENERAL]

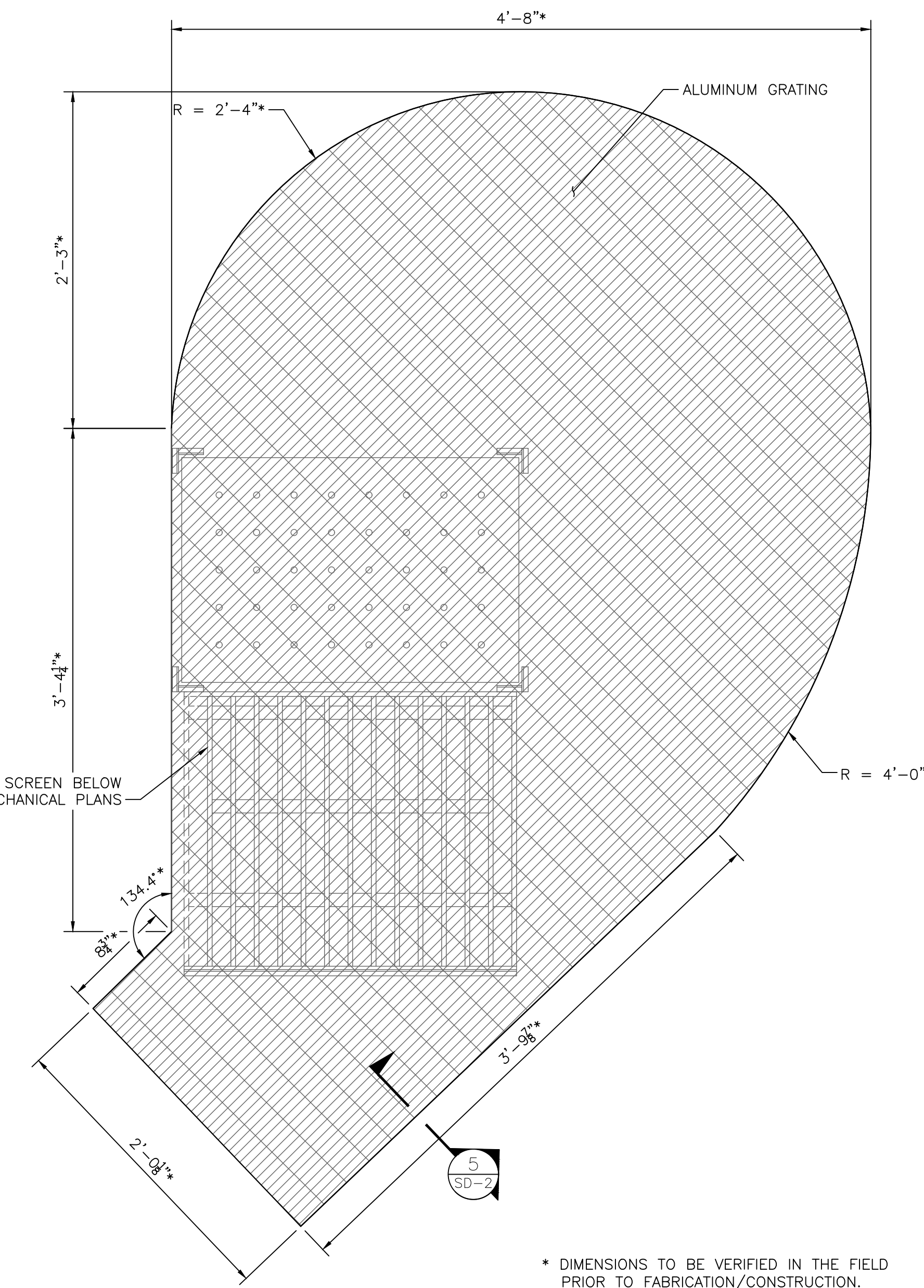
NOTE:
C10 SHOWN, C6 SIMILAR. OMIT LATERAL SUPPORT AT C6.

TYPICAL CONNECTION DETAILS TO EXISTING BEAM OR WALL

SCALE: 3" = 1'-0"



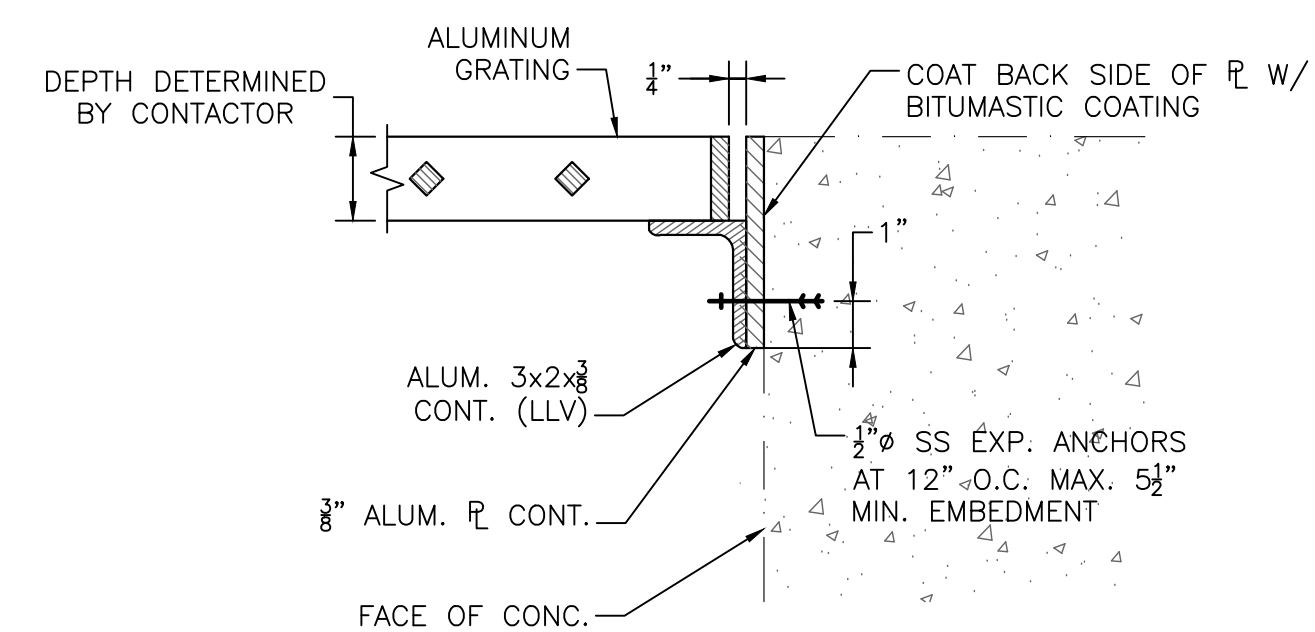
SECTION 5
[L3 TO BEAM OR WALL]



BAR RACK GRATING

SCALE: 1 1/2" = 1'-0"

* DIMENSIONS TO BE VERIFIED IN THE FIELD
PRIOR TO FABRICATION/CONSTRUCTION.



SECTION 5
NOT TO SCALE

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REGISTERED PROFESSIONAL

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**STRUCTURAL
DETAILS - II**

NO.	REVISIONS	DATE

DRAWN BY: DW
DESIGNED BY: PJK/DW
CHECKED BY: CWJ
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

SCALE

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SHEET NO.

SD-2

MECHANICAL DEMOLITION NOTES:

1. ALL DEMOLITION AND REMOVAL OF EXISTING CONSTRUCTION, UTILITIES EQUIPMENT, AND APPURTENANCES SHALL BE ACCOMPLISHED WITHOUT DAMAGING THE INTEGRITY OF EXISTING STRUCTURES, EQUIPMENT, AND APPURTENANCES THAT ARE TO REMAIN. EQUIPMENT DESIGNATED BY THE OWNER TO BE SALVAGED SHALL BE REMOVED AND DELIVERED BY THE CONTRACTOR TO AN AREA AT THE TREATMENT FACILITY, INDICATED BY THE ENGINEER. REFER TO SPECIFICATION SECTION 02050-DEMOLITION.
2. ALL DEMOLITION MATERIAL INCLUDING CONCRETE, PIPE, AND BRICK THAT WAS IN CONTACT WITH SEWAGE SHALL BE CLEANED IN ACCORDANCE WITH RIDEM REQUIREMENTS AND DISPOSED OF ACCORDINGLY. ONCE CLEANED, DEMOLITION MATERIALS SHALL NOT BE CONSIDERED SPECIAL WASTE.
3. MATERIALS TO BE REMOVED THAT ARE NOT DESIGNATED TO BE SALVAGED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED OFF-SITE AND DISPOSED OF AT THE CONTRACTORS' EXPENSE.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE LEGAL AND PROPER DISPOSAL OF ALL DEMOLITION MATERIAL ACCORDING TO ANY RELEVANT LAWS OF THE STATE OF RHODE ISLAND.
5. ADDITIONAL DEMOLITION WORK IS SHOWN ON THE STRUCTURAL, PLUMBING, H&V, I&C, AND ELECTRICAL DRAWINGS.
6. ALL REQUIRED DEMOLITION WORK SHALL BE DONE ACCORDING TO THE SEQUENCE OF OPERATIONS PLAN SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
7. PLANS OF THE EXISTING HEADWORKS FACILITY WERE BASED ON THE EXISTING DRAWINGS. THE DRAWINGS SHOW OVERALL DIMENSIONS OF THE STRUCTURE, AND THE LOCATION OF MAJOR EQUIPMENT AND PIPING. MISCELLANEOUS EQUIPMENT, PIPING, CONCRETE EQUIPMENT PADS, PIPE SUPPORTS, AND MATERIALS ARE NOT NECESSARILY SHOWN BUT ARE INCLUDED IN THE DEMOLITION. THE CONTRACTOR SHALL INSPECT THE HEADWORKS FACILITY DURING THE BIDDING PHASE OF THE PROJECT TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF THE DEMOLITION WORK REQUIRED.

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HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
DEMOLITION
PLANS - I**

NO.	REVISIONS	DATE

DRAWN BY:	CJM
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DESIGNED BY:	AJG
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CHECKED BY:	JRD
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ISSUE DATE:	JANUARY 2023
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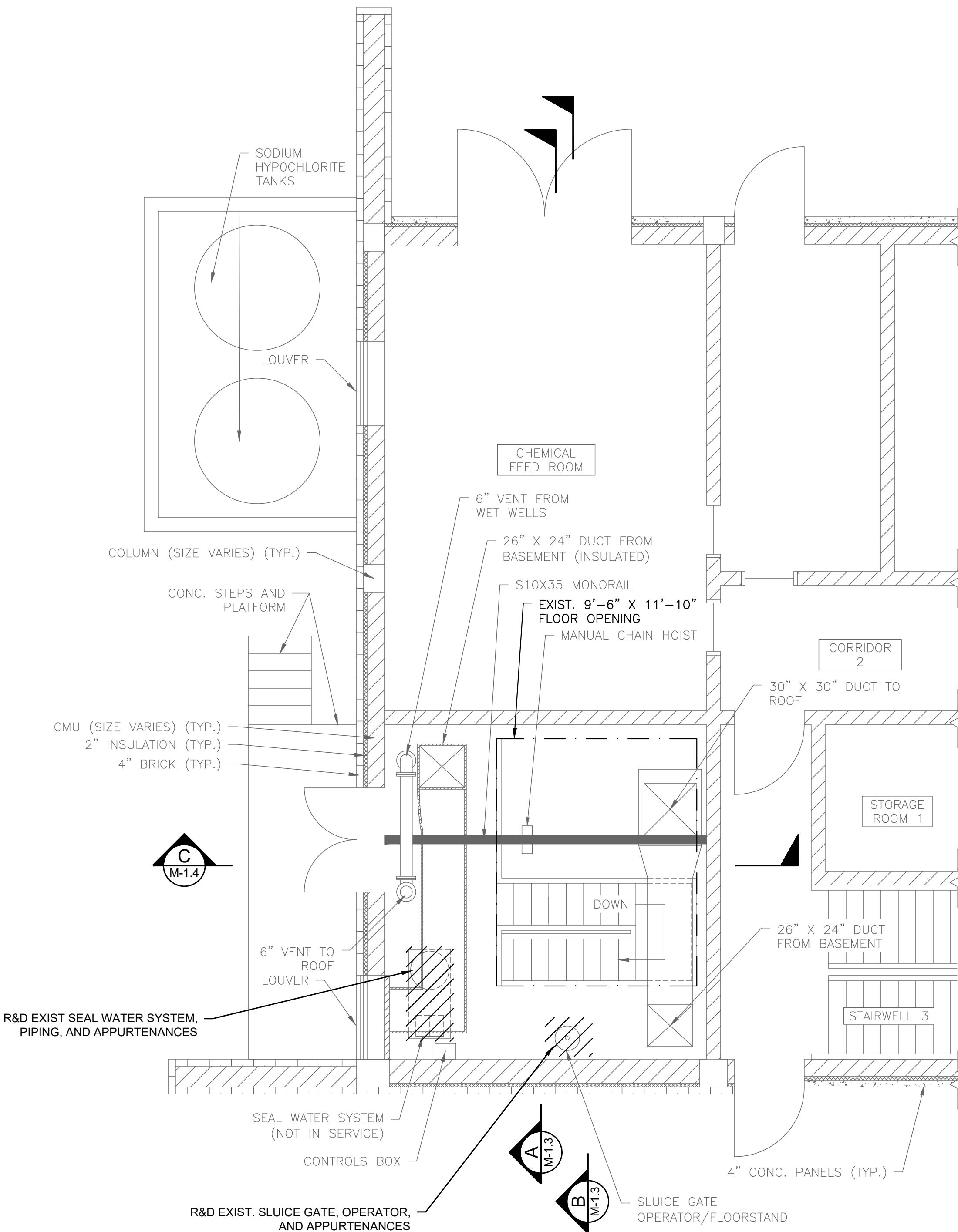
BETA JOB NO.:	6861-105
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SCALE	4 0 4 8 SCALE IN FEET: 1"=4'
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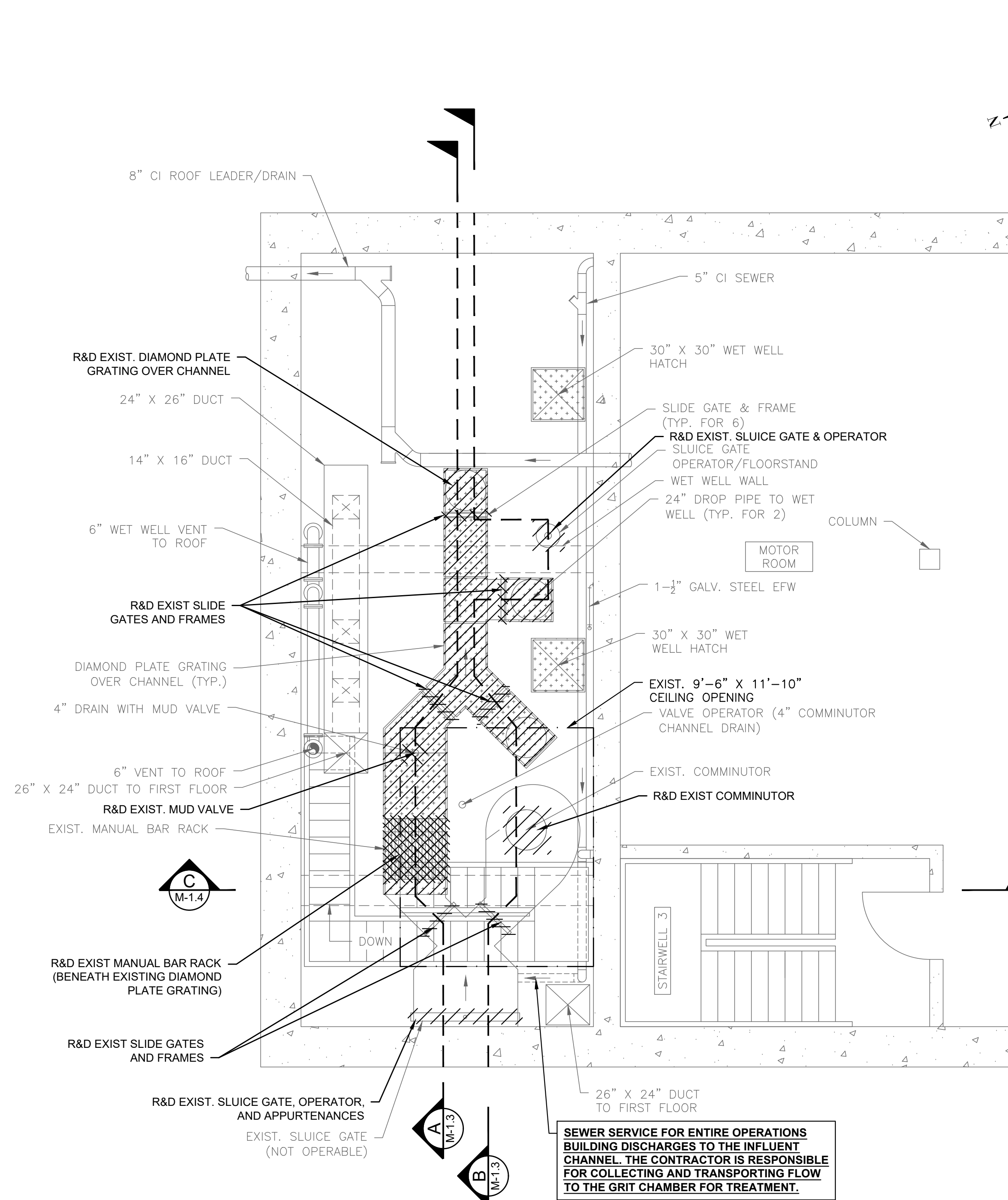
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M-1.1



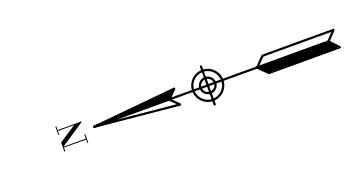
FIRST FLOOR PLAN - DEMOLITION
SCALE: 1/4" = 1'-0"




BASEMENT PLAN - DEMOLITION
SCALE: 1/4" = 1'-0"

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 HEADWORKS &
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 IMPROVEMENTS**

BURRILLVILLE, RI

TITLE
**HEADWORKS -
 DEMOLITION
 PLANS - II**

NO.	REVISIONS	DATE

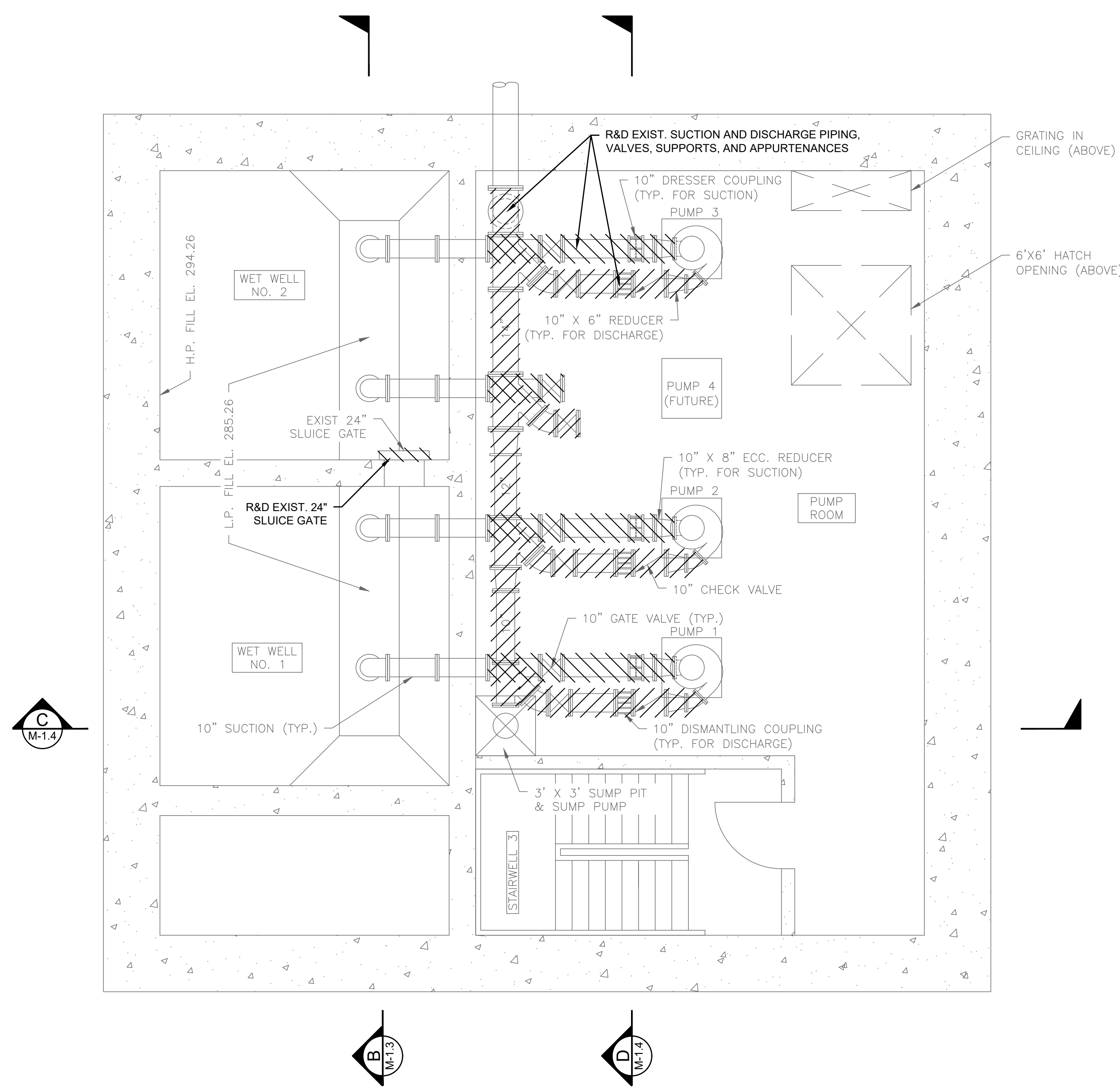
DRAWN BY: CJM
 DESIGNED BY: AJG
 CHECKED BY: JRD
 ISSUE DATE: JANUARY 2023
 BETA JOB NO.: 6861-105

SCALE

 SCALE IN FEET: 1"=4'

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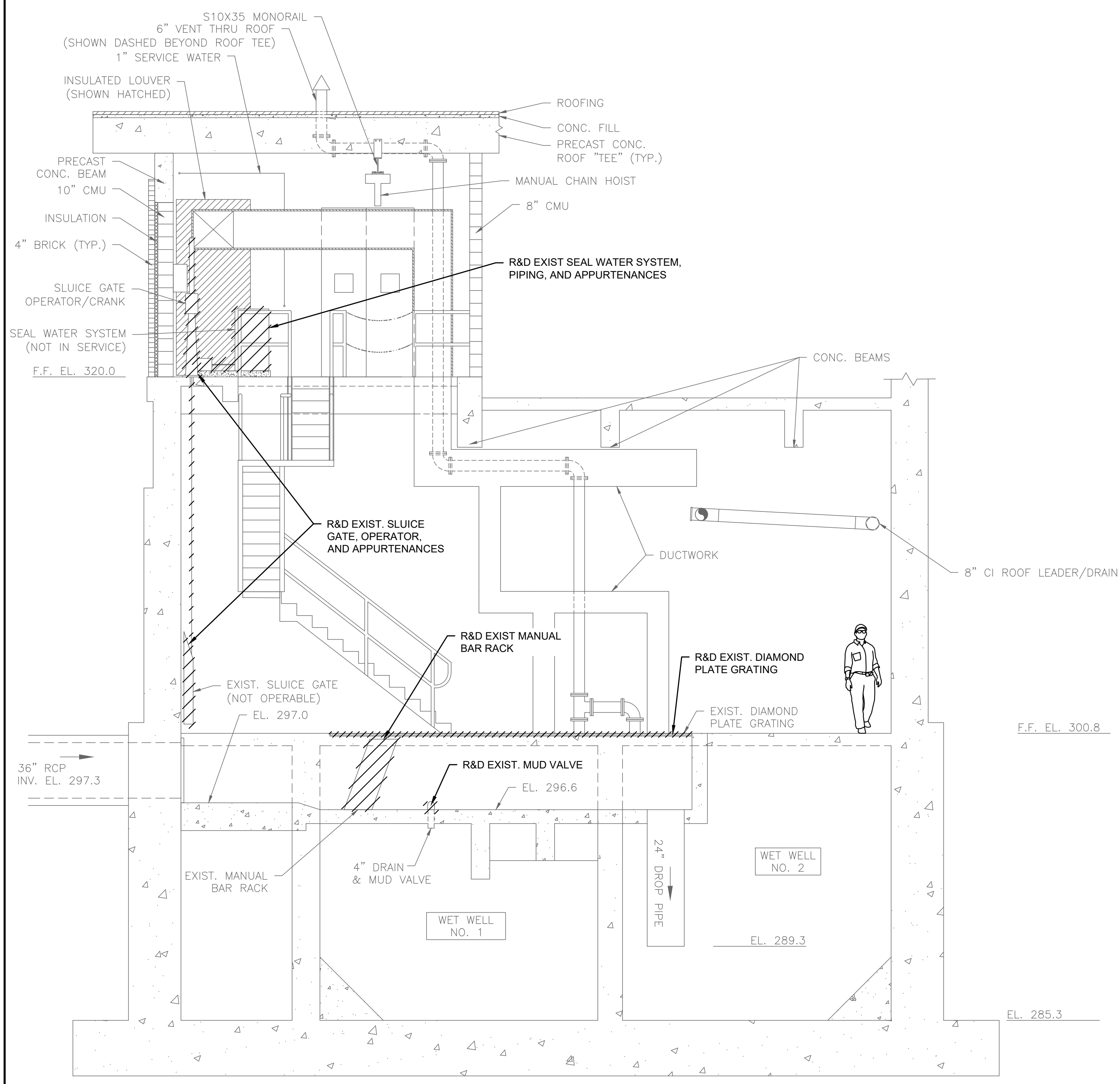
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M-1.2

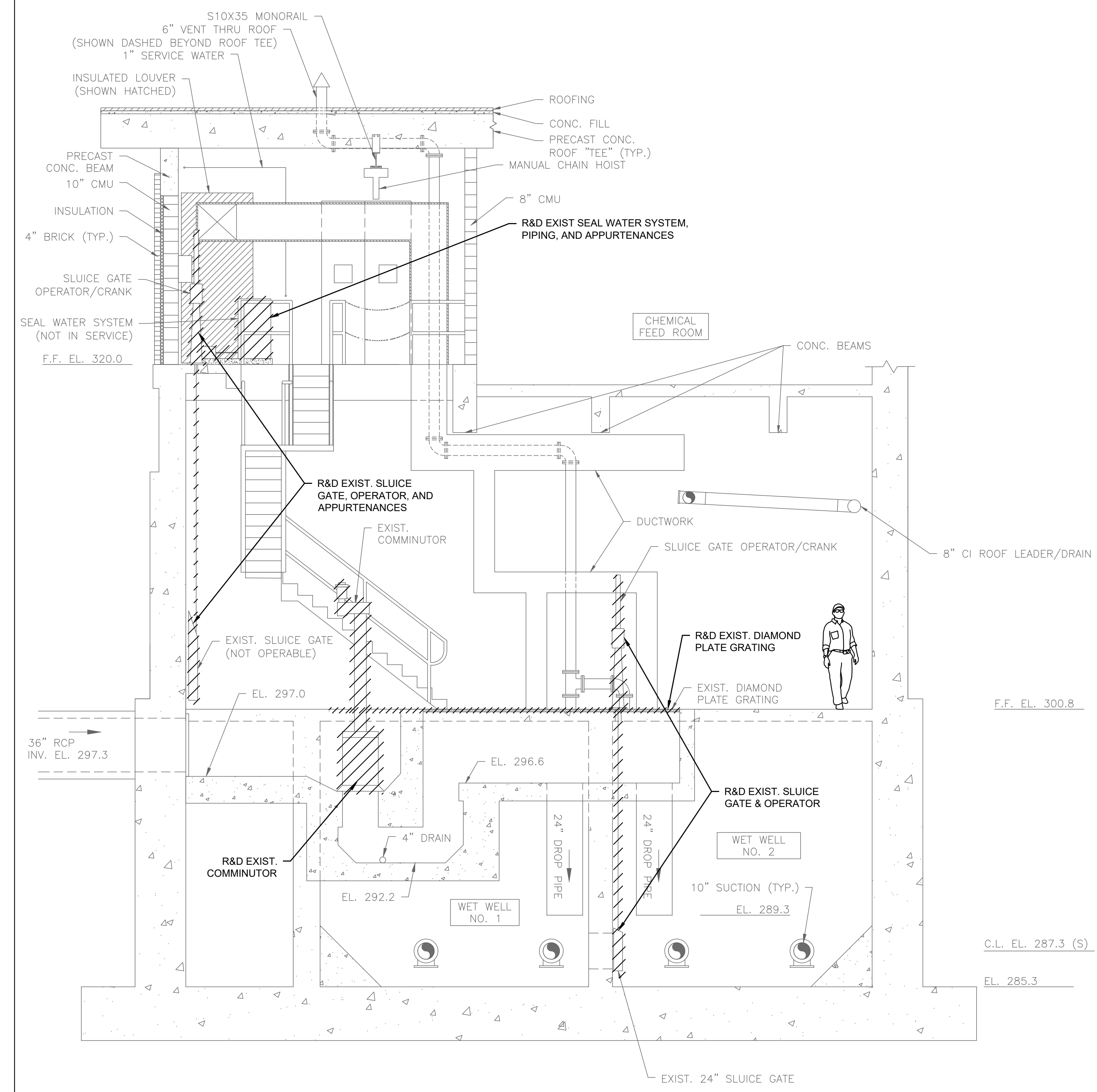


SUB-BASEMENT PLAN - DEMOLITION
 SCALE: 1/4" = 1'-0"

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1/5/2023



DEMOLITION SECTION A
SCALE: 1/4" = 1'-0" (M-1.1)



DEMOLITION SECTION B
SCALE: 1/4" = 1'-0" (M-1.1)

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PROJECT
**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE
**HEADWORKS -
DEMOLITION
SECTIONS - I**

NO.	REVISIONS	DATE

DRAWN BY: CJM
DESIGNED BY: AJG
CHECKED BY: JRD
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

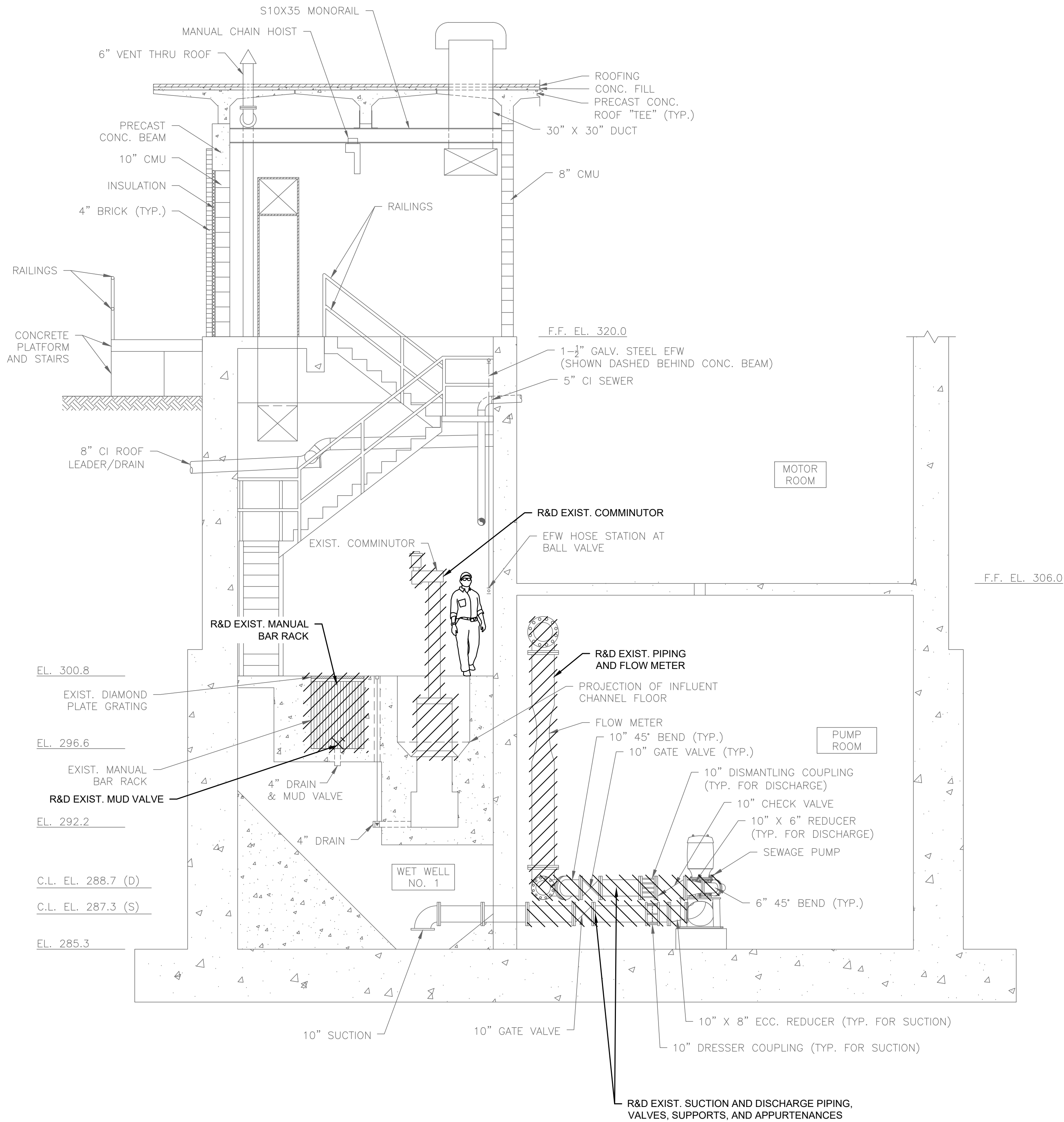
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SCALE IN FEET: 1"=4'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

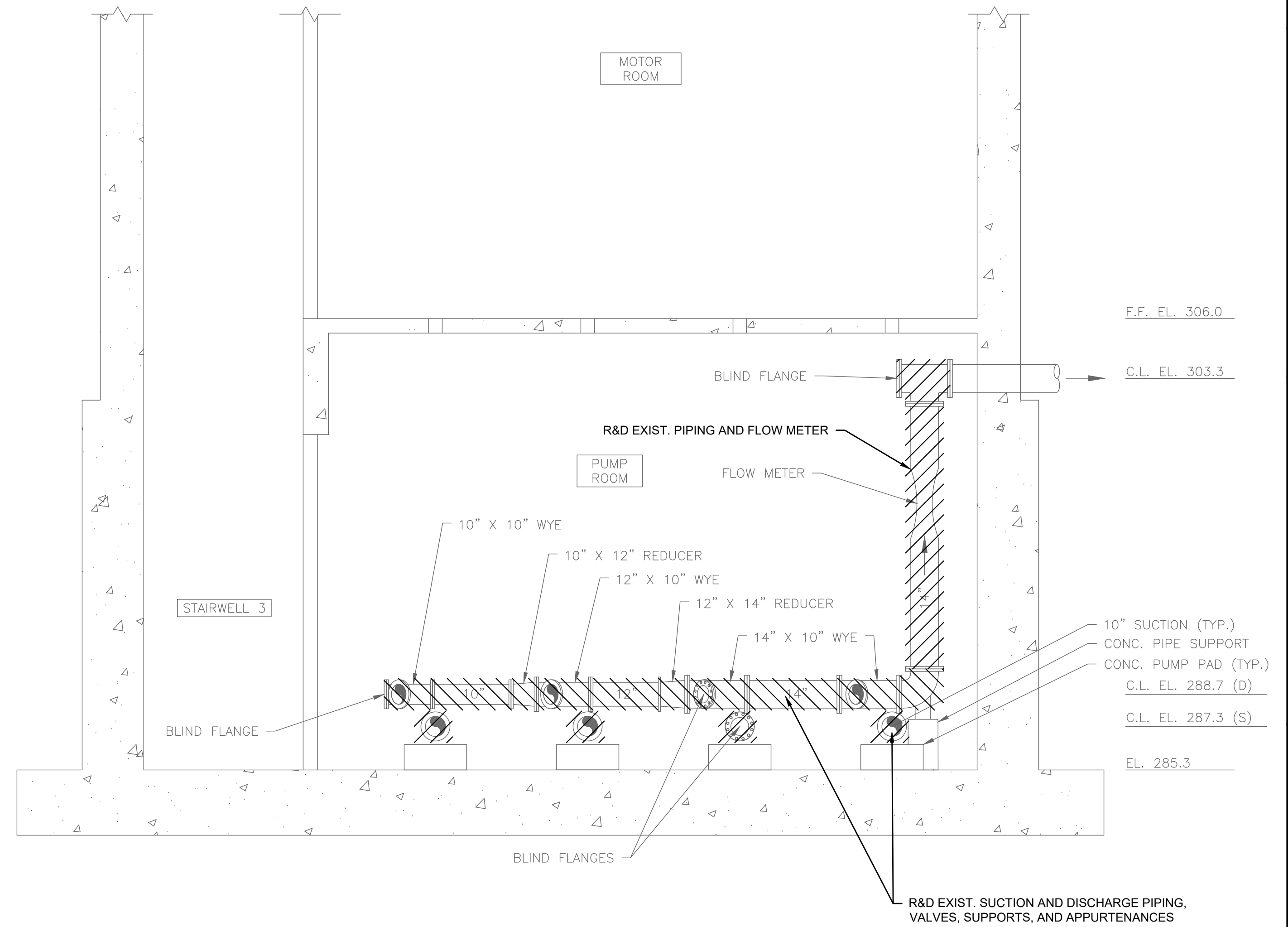
For Review Only

SHEET NO. M-1.3

1/5/2023 J:\BURRILLVILLE\WTF - HEADWORKS IMPROVEMENTS\CAD\DRAWINGFILES\PLAN\METMECHANICAL-EXIST-HEADWORKS.DWG



DEMOLITION SECTION C
SCALE: 1/4" = 1'-0"
M-1.1



DEMOLITION SECTION D
SCALE: 1/4" = 1'-0"
M-1.2

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**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
DEMOLITION
SECTIONS - II**

NO.	REVISIONS	DATE

DRAWN BY: CJM

DESIGNED BY: AJG

CHECKED BY: JRD

ISSUE DATE: JANUARY 2023

BETA JOB NO.: 6861-105

SCALE



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SHEET NO.

M-1.4

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1/5/2023

GENERAL NOTES:

INSTALLATION OF NEW EQUIPMENT WITHIN THE HEADWORKS BUILDING IS BROKEN DOWN INTO THE FOLLOWING BASE BID WITH ADD/ALTERNATES:

- 1. **BASE BID ITEM 1:** INSTALL THE PROPOSED MANUAL BAR RACK, SLUICE GATES, NEW GRATING AND GRATING MODIFICATIONS, DEBRIS BIN, NEW FLOW METER AND PIPING, ALL OTHER APPURTENANT WORK, AND THE INFLUENT FINE SCREEN WITH SCREENINGS DISCHARGED TO THE LOWER LEVEL.
 - 1.1. PROPOSED WORK UNDER THE BASE BID ITEM IS SHOWN BOLD THIS SHEET.
- 2. **ADD/ALTERNATE 1A:** REMOVE AND DISPOSE OF THE EXISTING MANUAL CHAIN HOIST AND INSTALL THE PROPOSED ELECTRIC HOIST.
 - 2.1. PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS SHOWN WITH A REV CLOUD.
- 3. **ADD/ALTERNATE 1B:** INSTALL THE PROPOSED VERTICAL CONVEYOR WITH SCREENINGS DISCHARGED TO THE UPPER LEVEL AND THE PROPOSED UPPER LEVEL PLATFORM.
 - 3.1. PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS NOT SHOWN THIS SHEET.

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BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

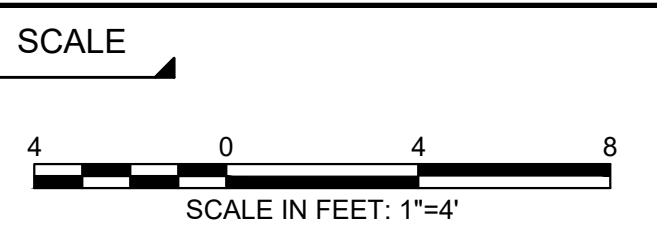
BURRILLVILLE, RI

TITLE

HEADWORKS - PROPOSED PLANS - I

NO.	REVISIONS	DATE

DRAWN BY:	CJM
DESIGNED BY:	AJG
CHECKED BY:	JRD
ISSUE DATE:	JANUARY 2023
BETA JOB NO.:	6861-105

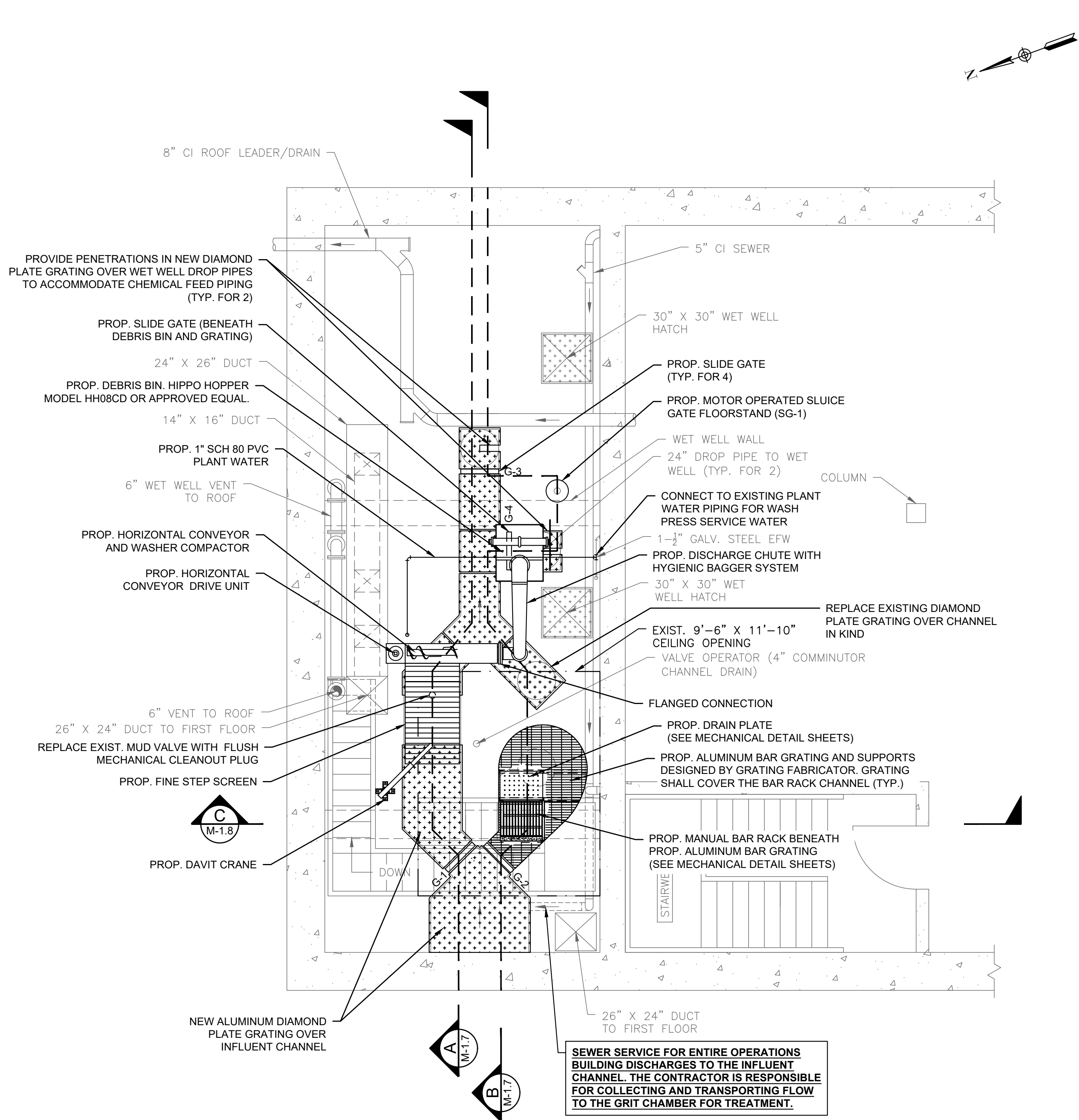
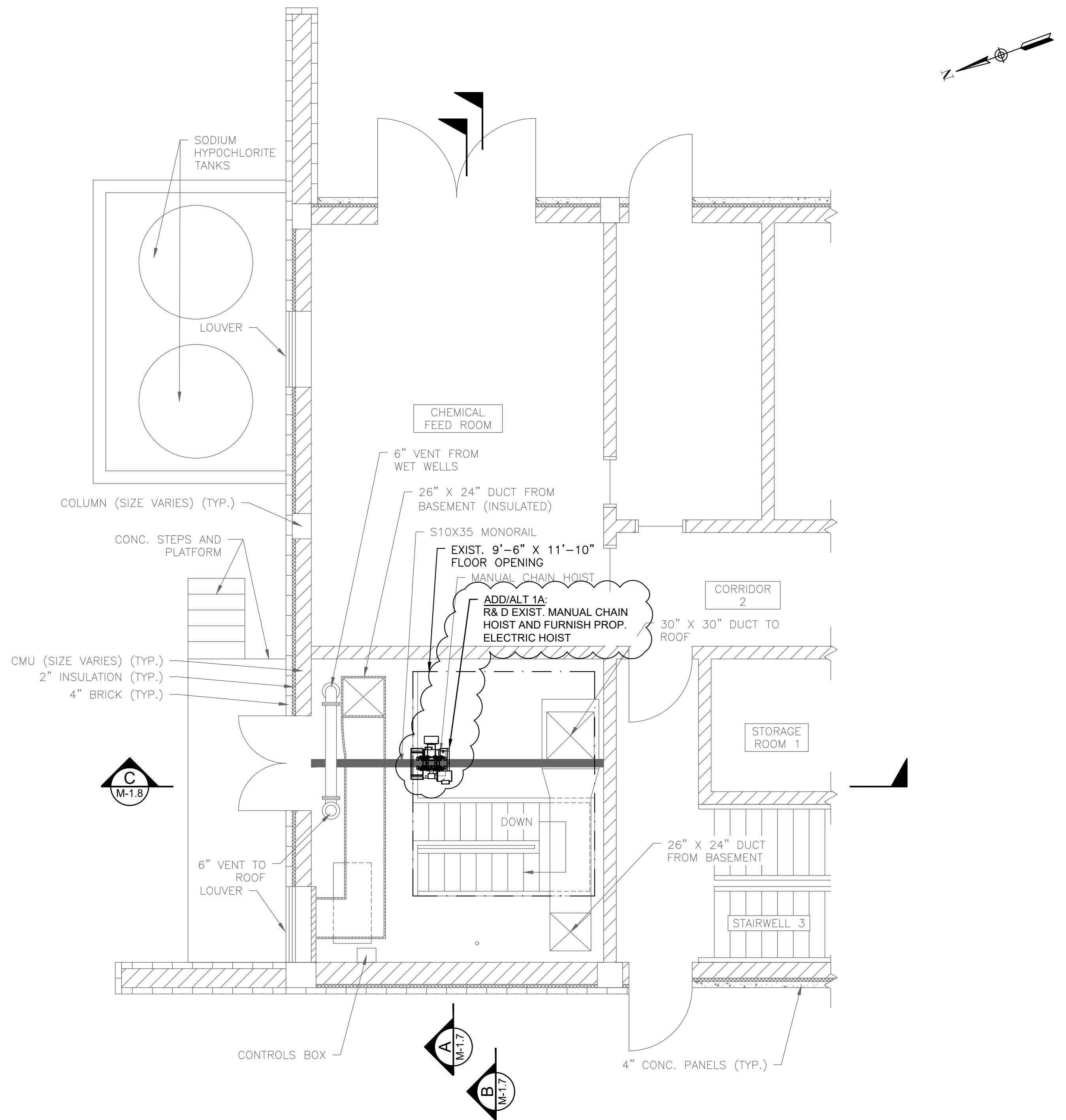


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SHEET NO.

M-1.5



- NOTES:
- 1. SEE MECHANICAL DETAIL SHEETS FOR ALL WORK INVOLVING THE MANUAL BAR RACK CHANNEL.

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BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

BURRILLVILLE, RI

TITLE

HEADWORKS - PROPOSED PLANS - II

NO.	REVISIONS	DATE

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SCALE



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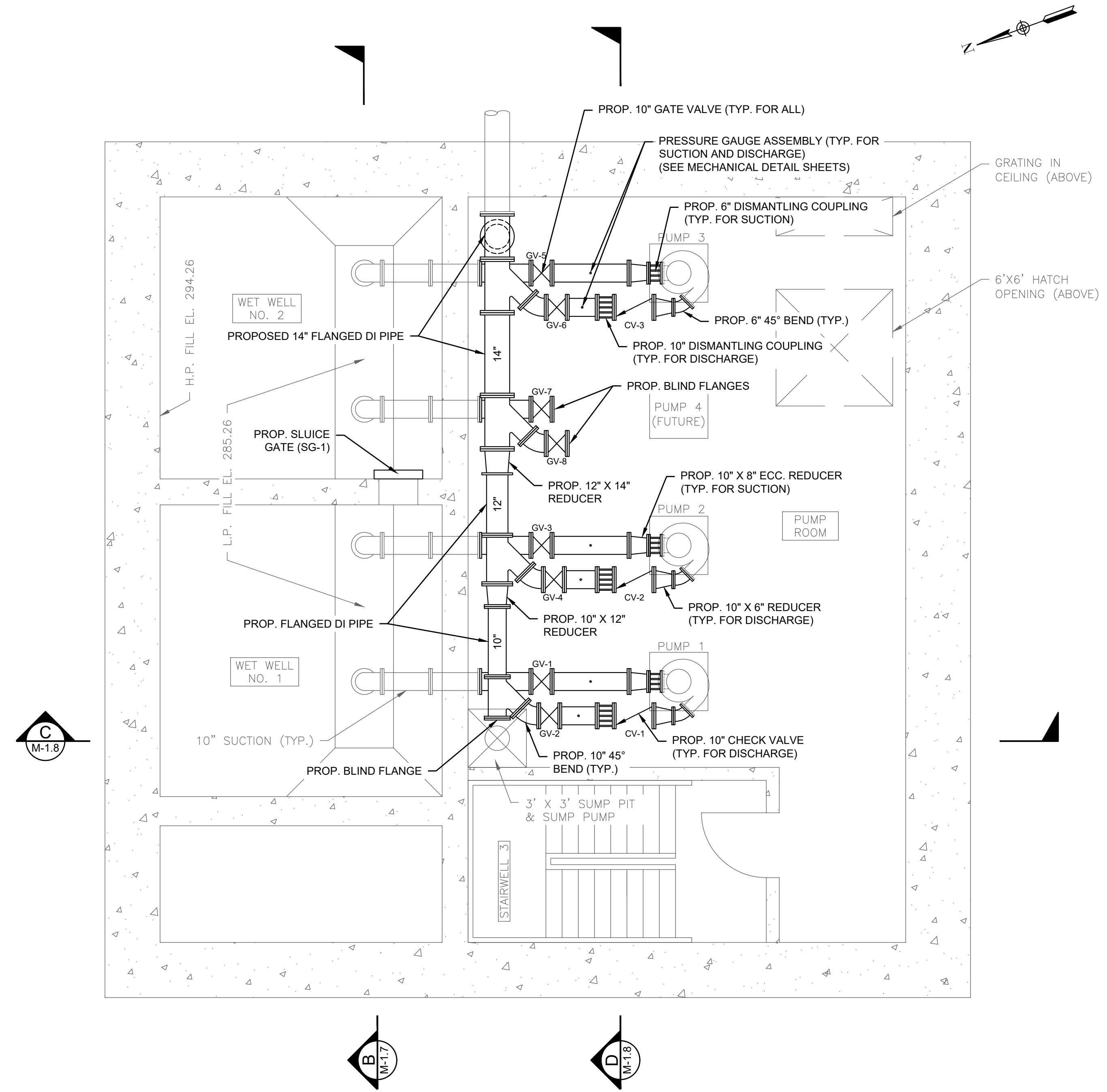
SHEET NO.

M-1.6

GENERAL NOTES:

INSTALLATION OF NEW EQUIPMENT WITHIN THE HEADWORKS BUILDING IS BROKEN DOWN INTO THE FOLLOWING BASE BID WITH ADD/ALTERNATES:

- BASE BID ITEM 1:** INSTALL THE PROPOSED MANUAL BAR RACK, SLUICE GATES, NEW GRATING AND GRATING MODIFICATIONS, DEBRIS BIN, NEW FLOW METER AND PIPING, ALL OTHER APPURTENANT WORK, AND THE INFLUENT FINE SCREEN WITH SCREENINGS DISCHARGED TO THE LOWER LEVEL.
 - PROPOSED WORK UNDER THE BASE BID ITEM IS SHOWN BOLD THIS SHEET.
- ADD/ALTERNATE 1A:** REMOVE AND DISPOSE OF THE EXISTING MANUAL CHAIN HOIST AND INSTALL THE PROPOSED ELECTRIC HOIST.
 - PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS NOT SHOWN THIS SHEET.
- ADD/ALTERNATE 1B:** INSTALL THE PROPOSED VERTICAL CONVEYOR WITH SCREENINGS DISCHARGED TO THE UPPER LEVEL AND THE PROPOSED UPPER LEVEL PLATFORM.
 - PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS NOT SHOWN THIS SHEET.



SUB-BASEMENT PLAN - PROPOSED

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

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GENERAL NOTES:

INSTALLATION OF NEW EQUIPMENT WITHIN THE HEADWORKS BUILDING IS BROKEN DOWN INTO THE FOLLOWING BASE BID WITH ADD/ALTERNATES:

- 1. BASE BID ITEM 1:** INSTALL THE PROPOSED MANUAL BAR RACK, SLUICE GATES, NEW GRATING AND GRATING MODIFICATIONS, DEBRIS BIN, NEW FLOW METER AND PIPING, ALL OTHER APPURTENANT WORK, AND THE INFLUENT FINE SCREEN WITH SCREENINGS DISCHARGED TO THE LOWER LEVEL.
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- 3. ADD/ALTERNATE 1B:** INSTALL THE PROPOSED VERTICAL CONVEYOR WITH SCREENINGS DISCHARGED TO THE UPPER LEVEL AND THE PROPOSED UPPER LEVEL PLATFORM.
 - 3.1. PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS NOT SHOWN THIS SHEET.

PREPARED BY



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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
PROPOSED
SECTIONS - I**

NO.	REVISIONS	DATE

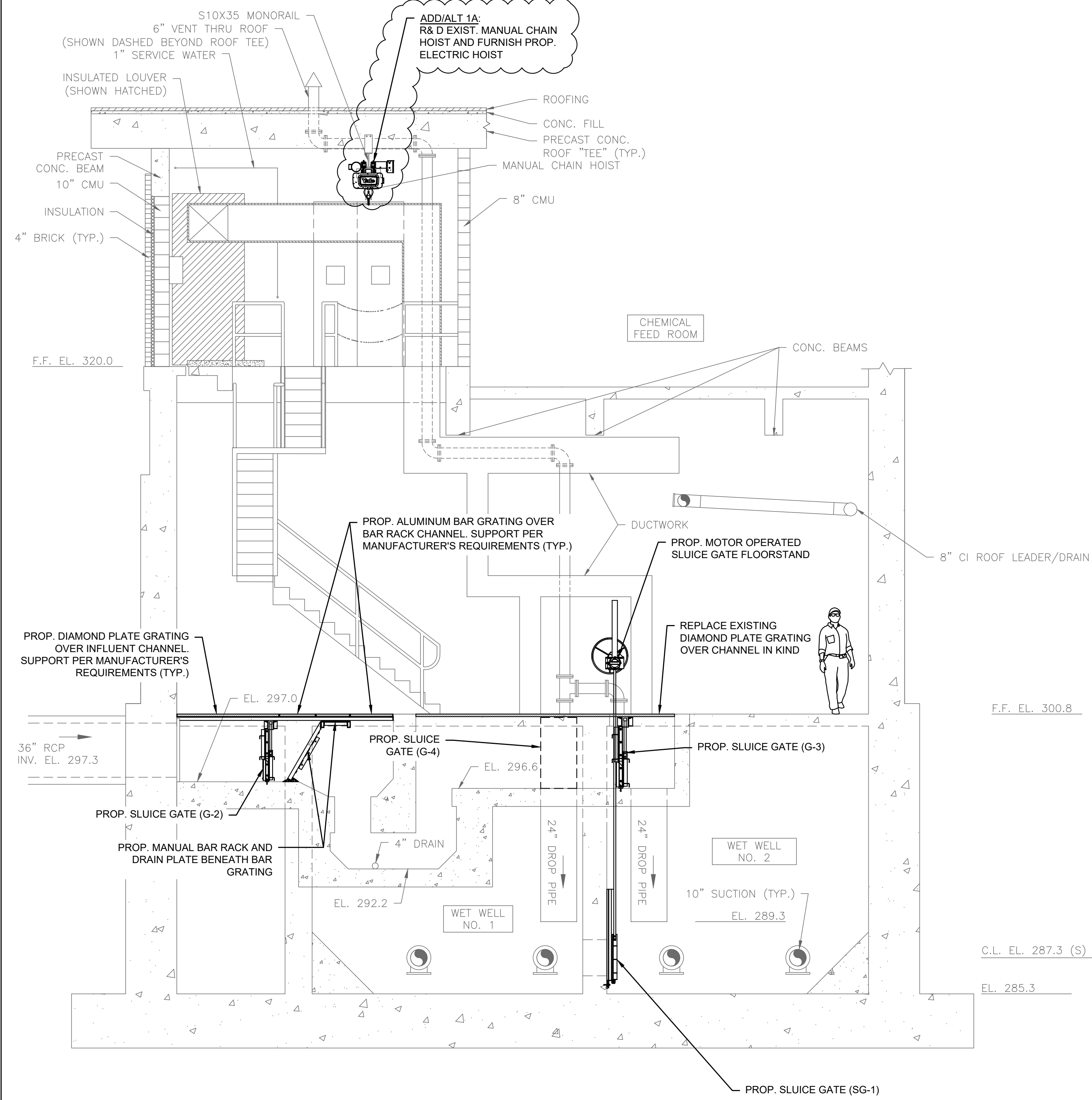
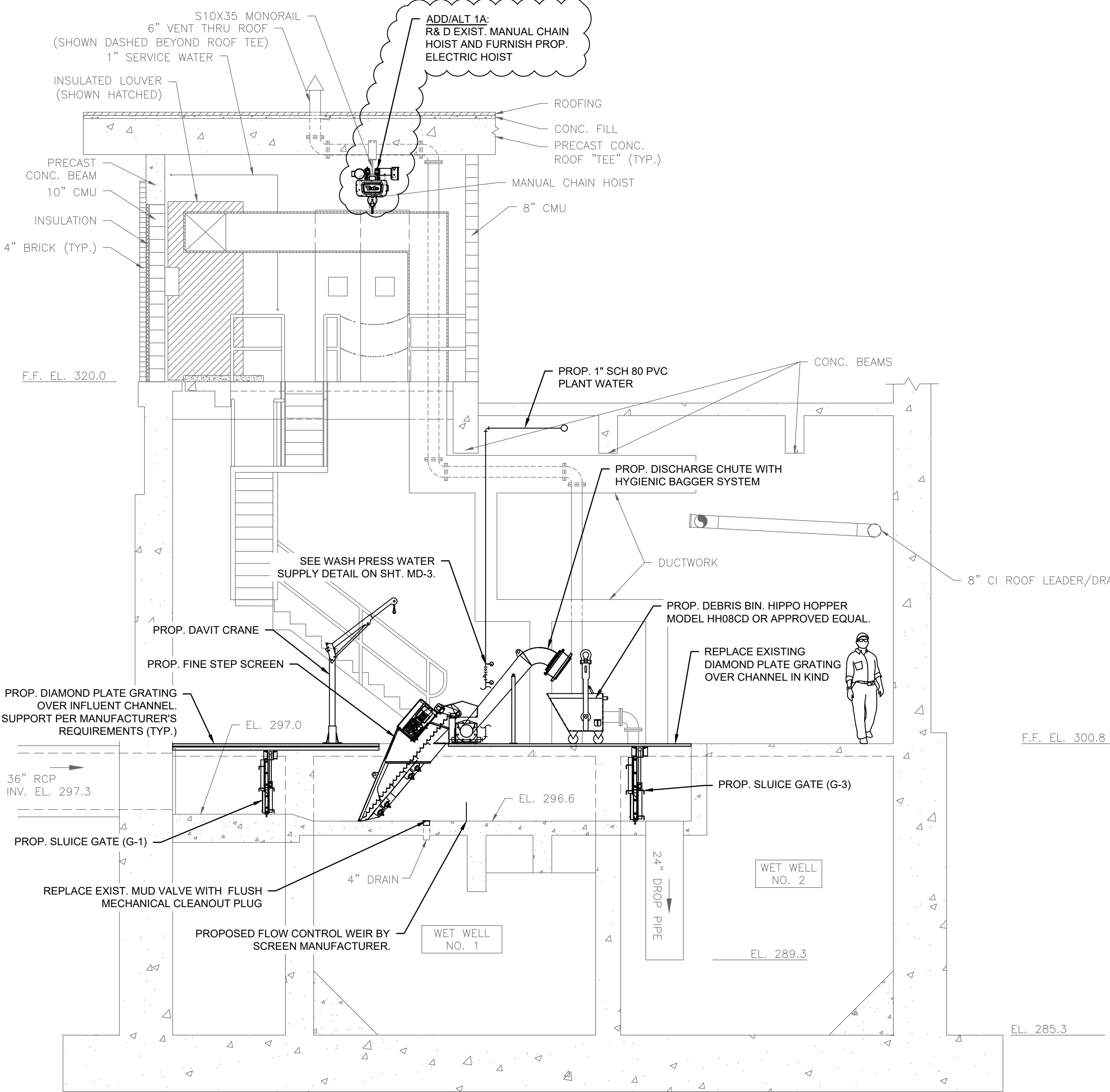
DRAWN BY:	CJM
DESIGNED BY:	AJG
CHECKED BY:	JRD
ISSUE DATE:	JANUARY 2023
BETA JOB NO.:	6861-105
SCALE	<p>SCALE IN FEET: 1"=4'</p>

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SHEET NO.

M-1.7



NOTES:

1. SEE MECHANICAL DETAIL SHEETS FOR ALL WORK INVOLVING THE MANUAL BAR RACK CHANNEL.
2. PROPOSED INFLUENT SCREEN, CONVEYOR, AND PLANT WATER PIPING NOT SHOWN FOR CLARITY.

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**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
PROPOSED
SECTIONS - II**

NO.	REVISIONS	DATE

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SCALE



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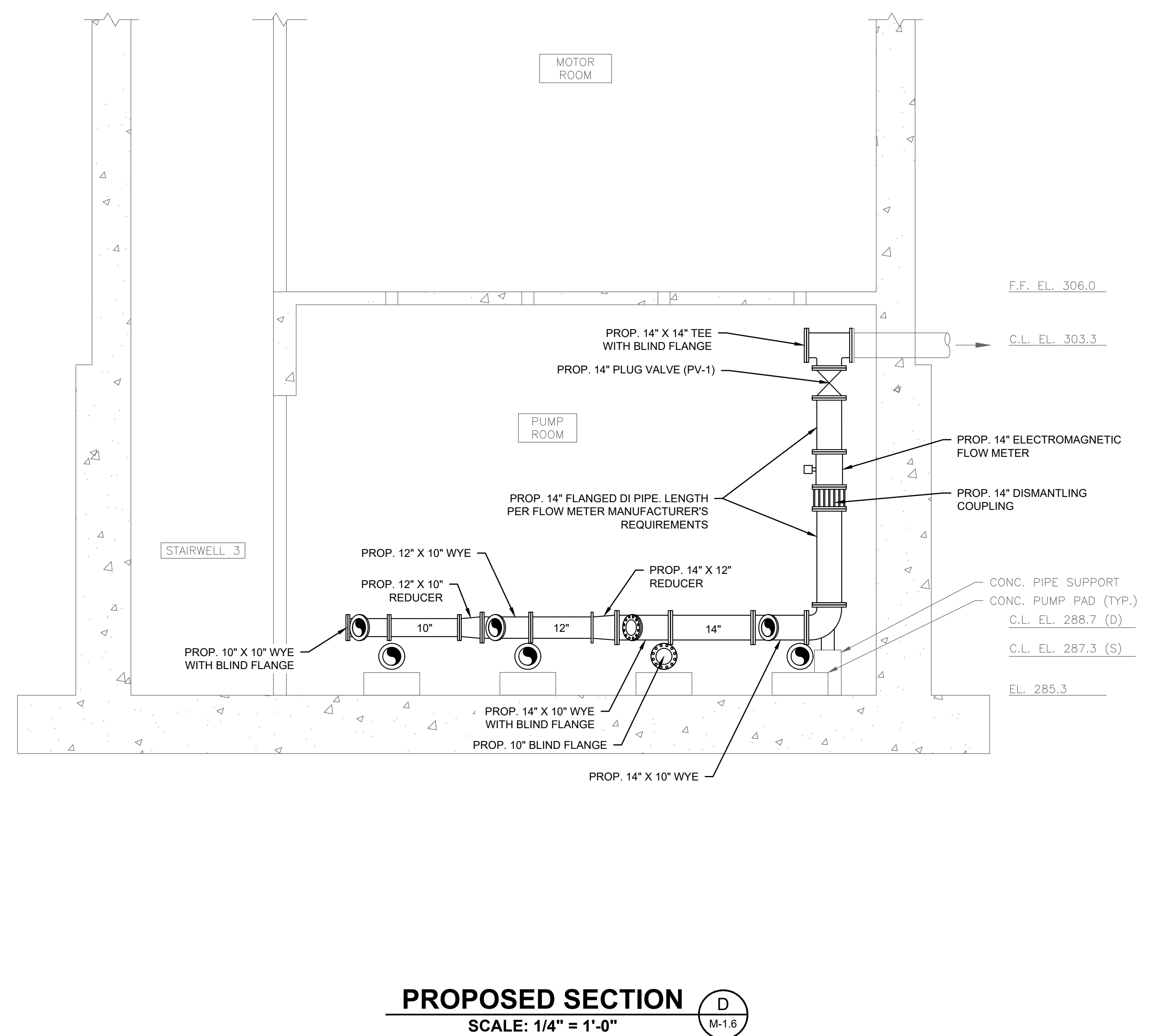
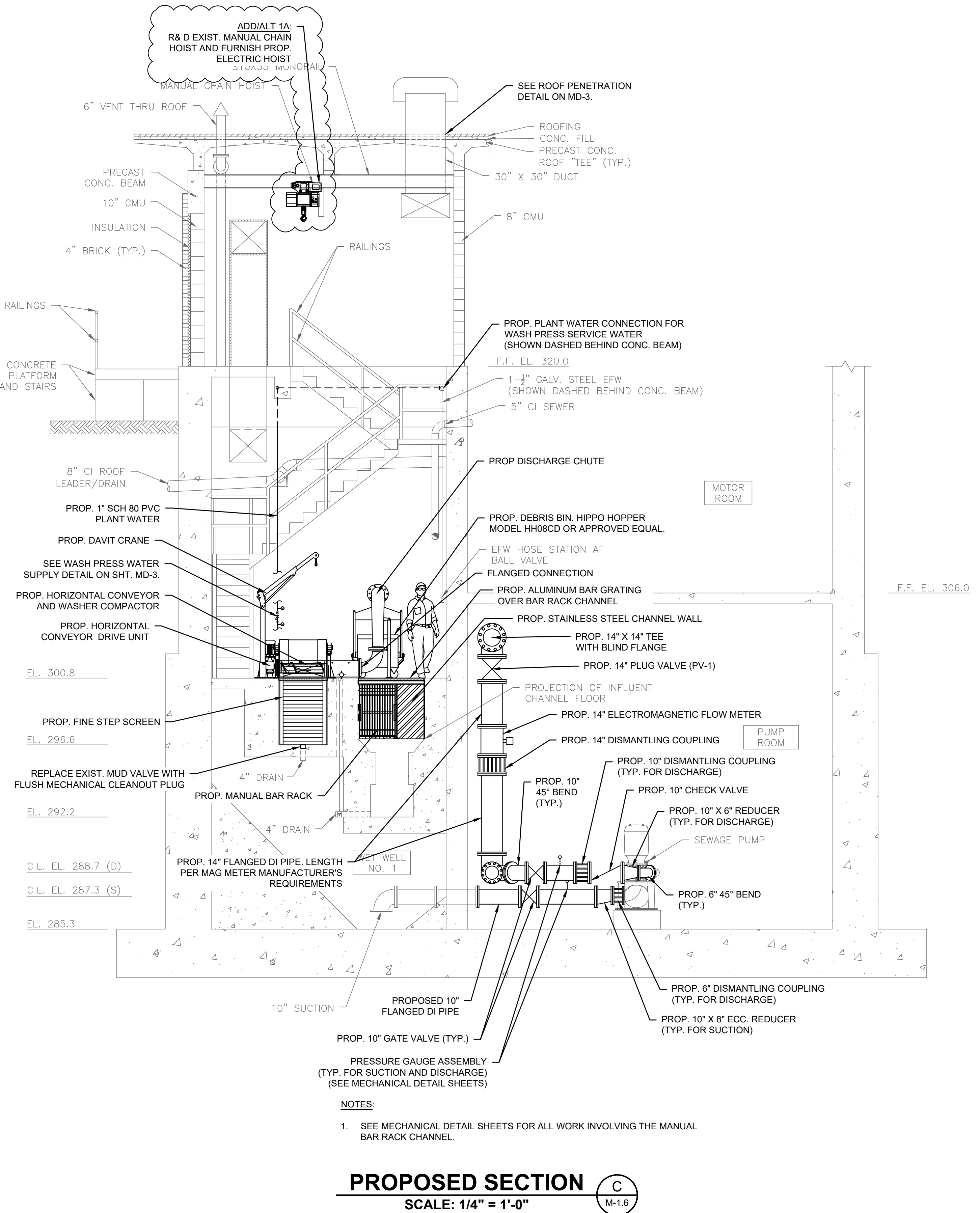
SHEET NO.

M-1.8

GENERAL NOTES:

INSTALLATION OF NEW EQUIPMENT WITHIN THE HEADWORKS BUILDING IS BROKEN DOWN INTO THE FOLLOWING BASE BID WITH ADD/ALTERNATES:

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 - 3.1. PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS NOT SHOWN THIS SHEET.



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GENERAL NOTES:

INSTALLATION OF NEW EQUIPMENT WITHIN THE HEADWORKS BUILDING IS BROKEN DOWN INTO THE FOLLOWING BASE BID WITH ADD/ALTERNATES:

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**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
PROPOSED PLANS
(ADD/ALT. 1B)**

NO.	REVISIONS	DATE

DRAWN BY: CJM

DESIGNED BY: AJG

CHECKED BY: JRD

ISSUE DATE: JANUARY 2023

BETA JOB NO.: 6861-105

SCALE



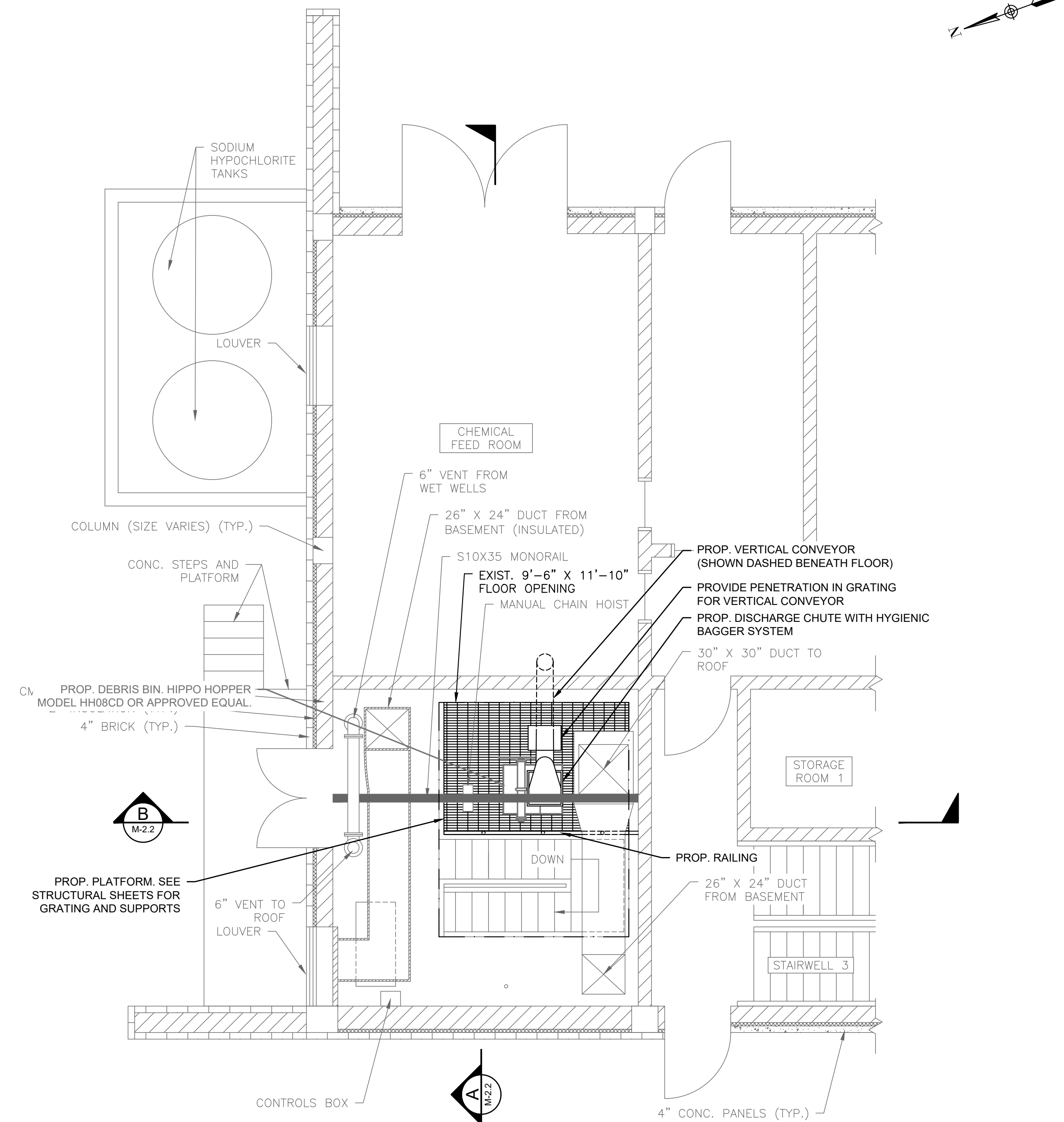
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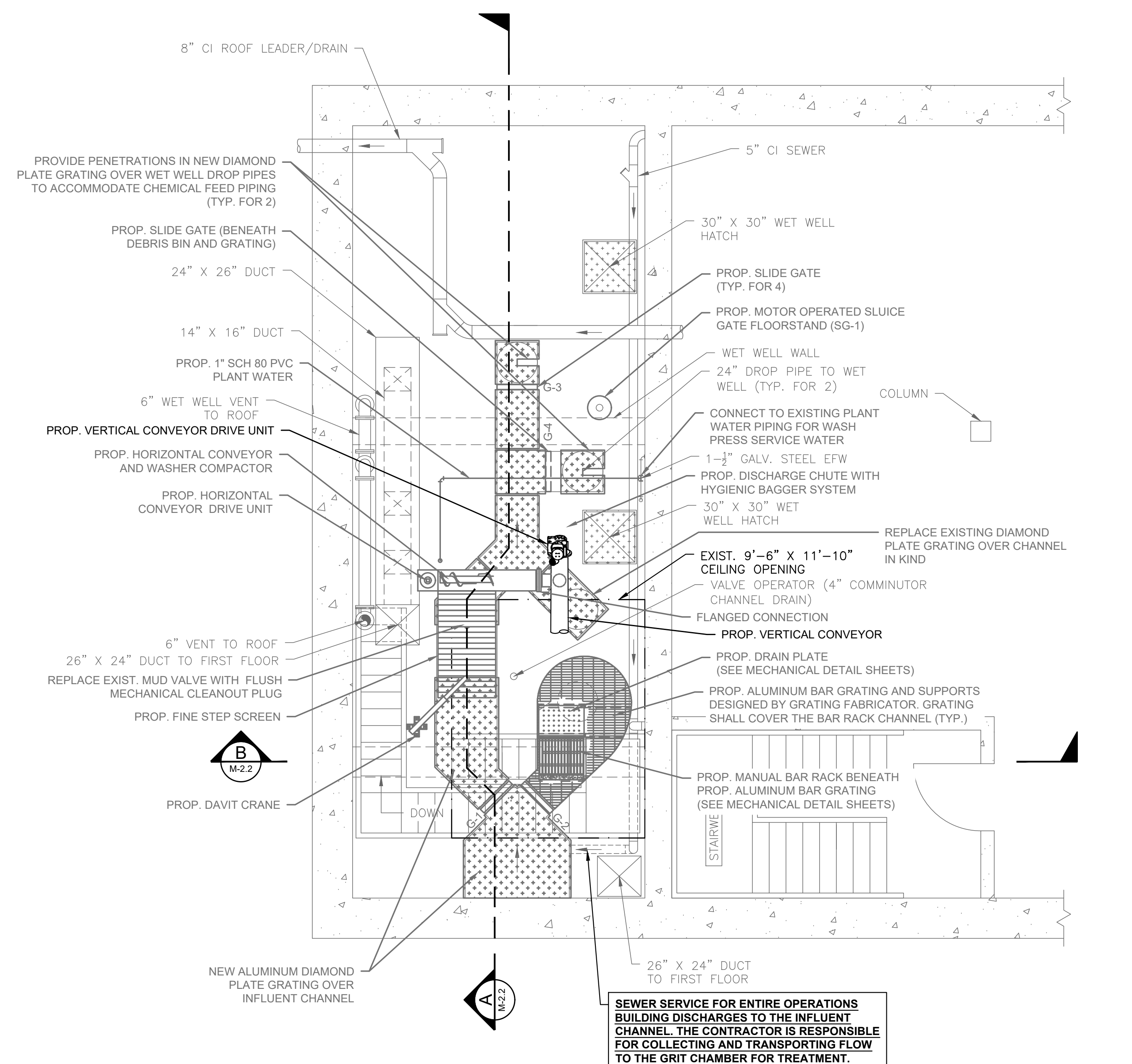
SHEET NO.

M-2.1



FIRST FLOOR PLAN - PROPOSED

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



BASEMENT PLAN - PROPOSED

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

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1/5/2023

GENERAL NOTES:

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 - 3.1. PROPOSED WORK UNDER THIS ADD/ALTERNATE ITEM IS SHOWN BOLD THIS SHEET.

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**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**HEADWORKS -
PROPOSED
SECTIONS
(ADD/ALT. 1B)**

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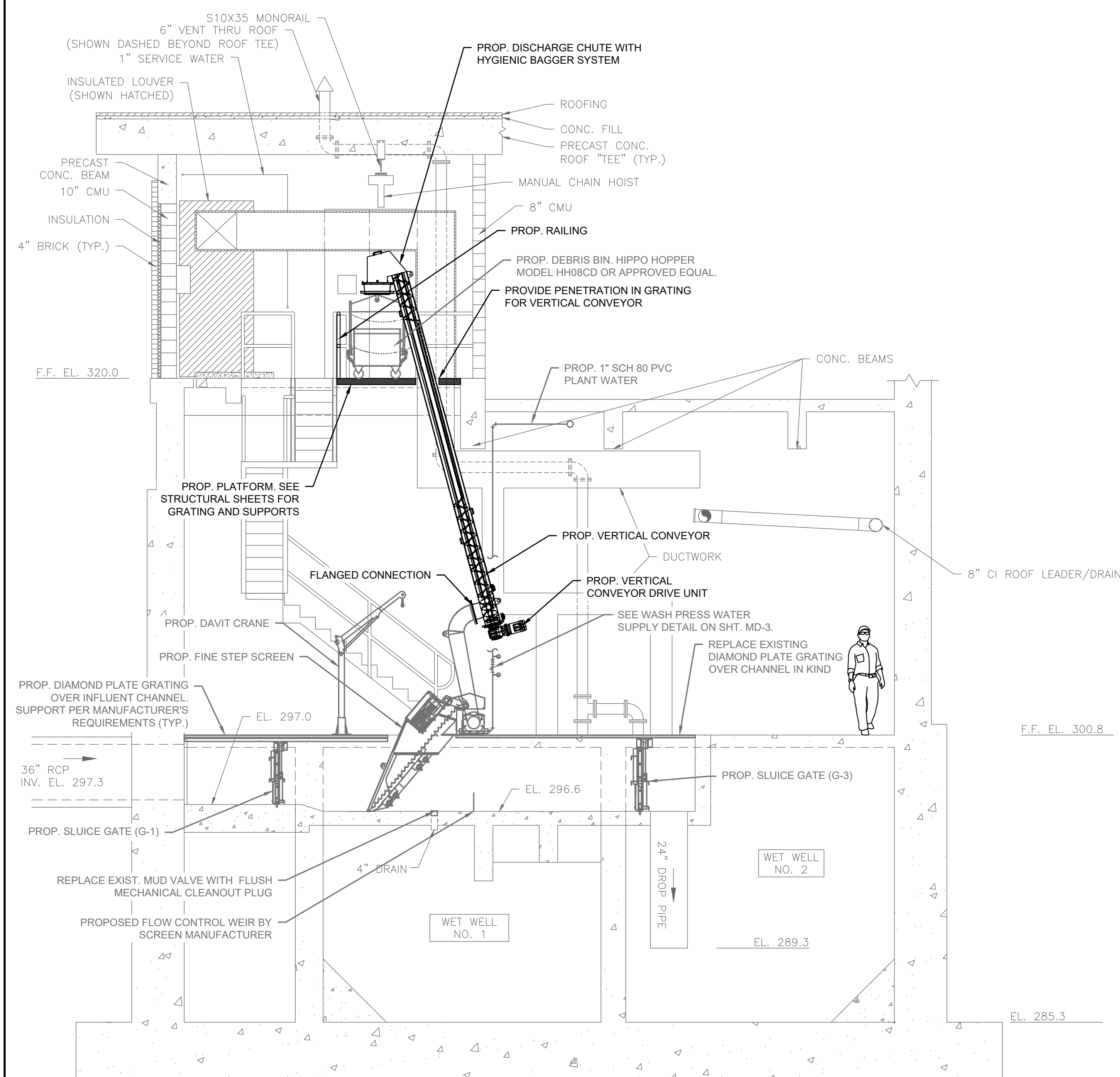
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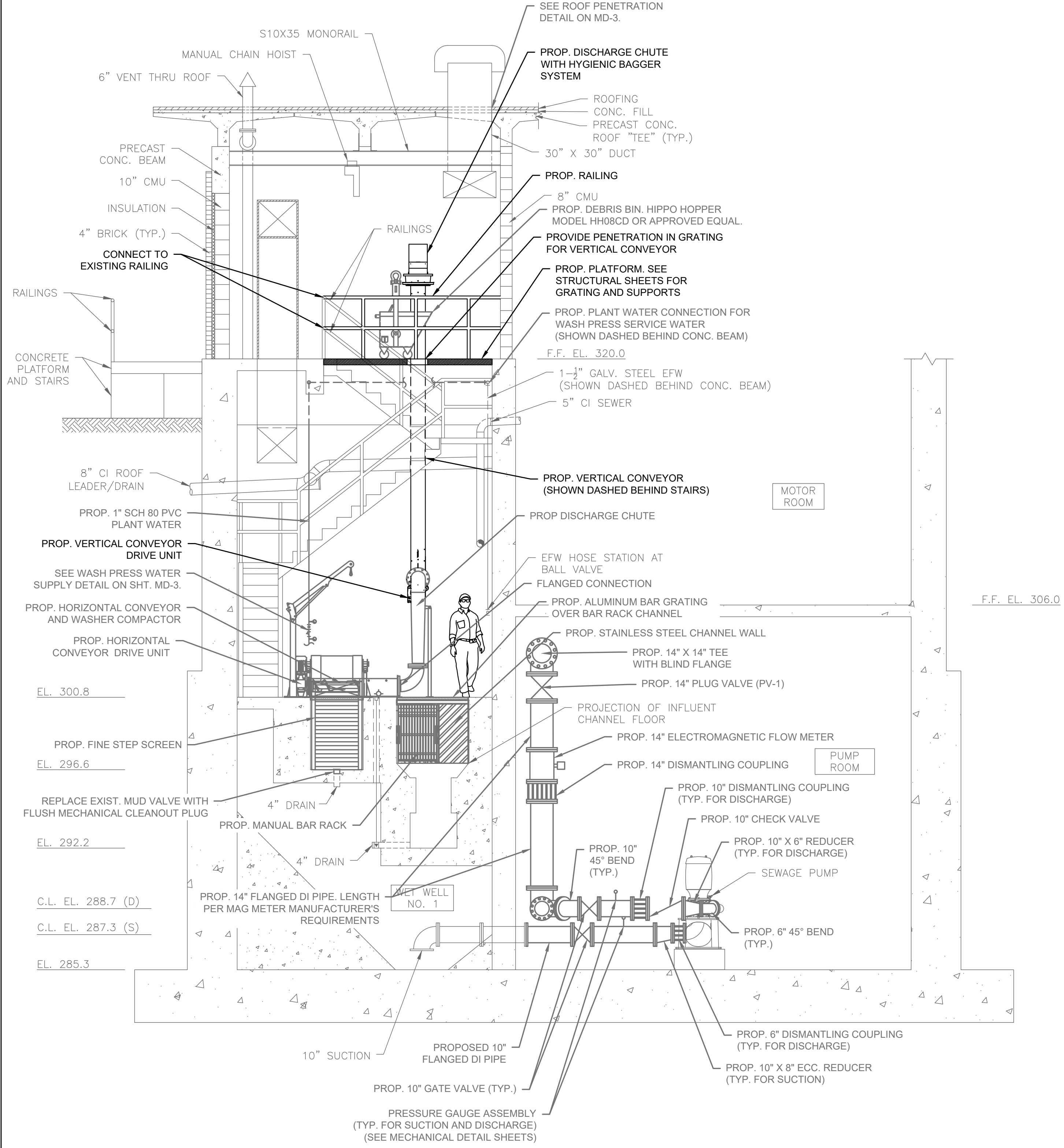
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M-2.2

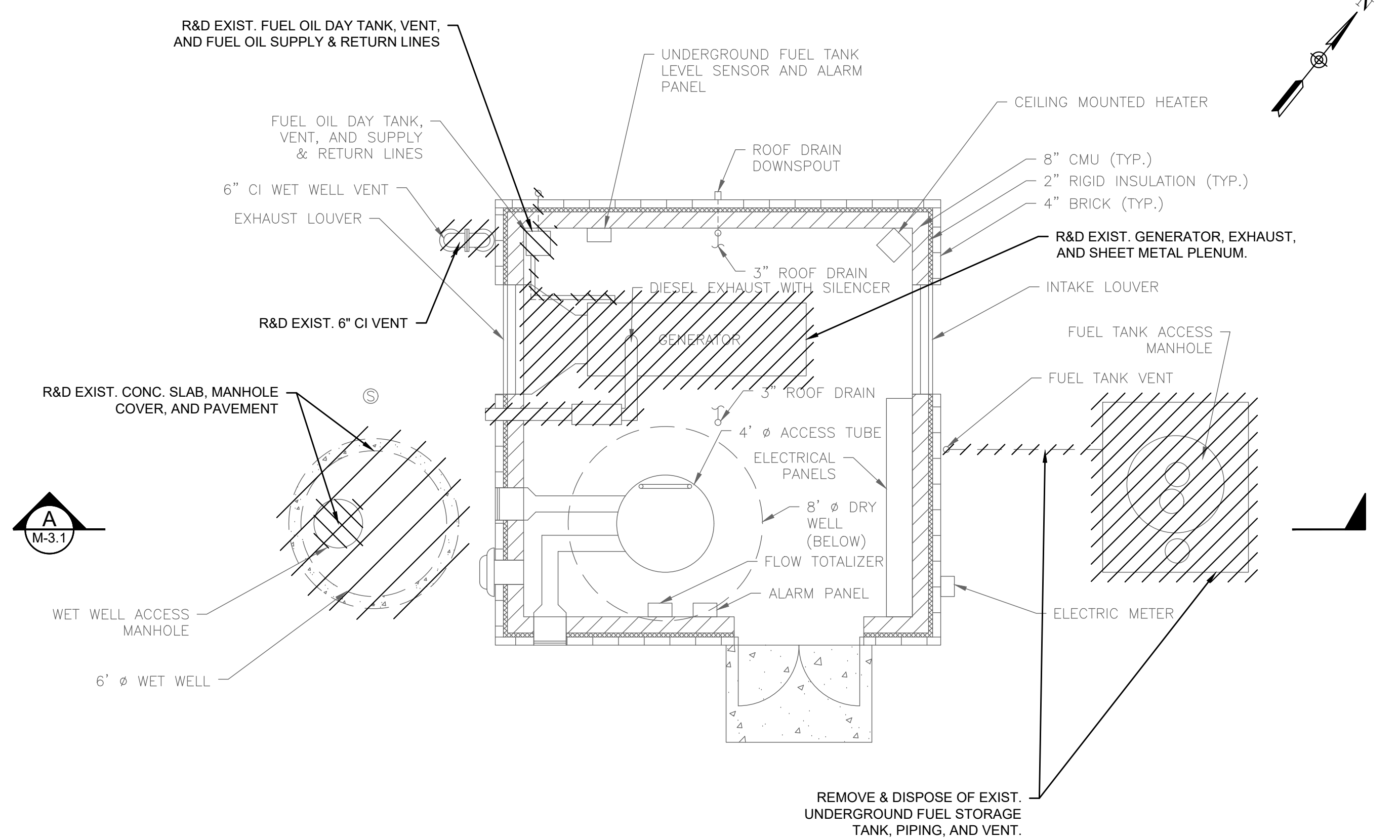
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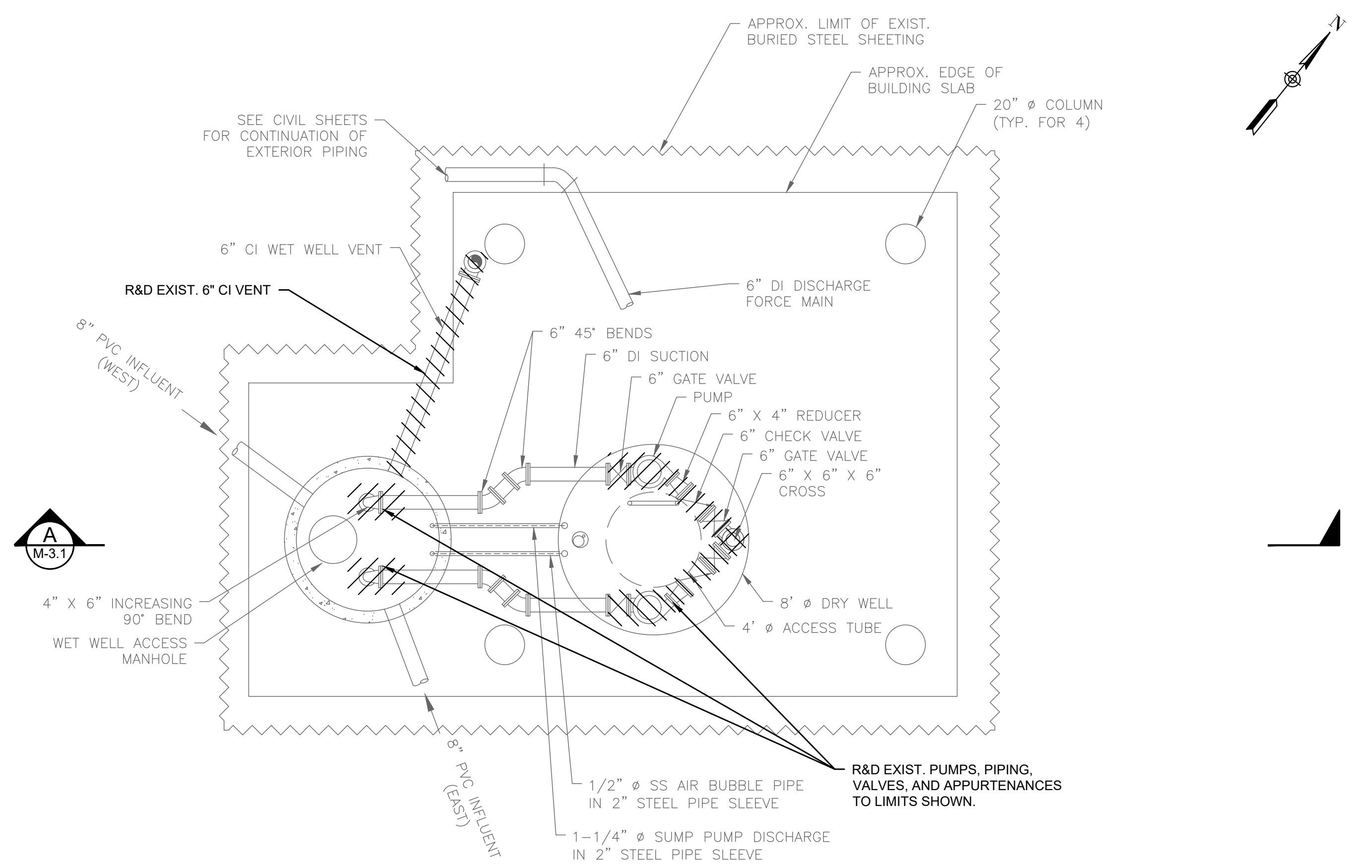
PROPOSED SECTION A
SCALE: 1/4" = 1'-0"



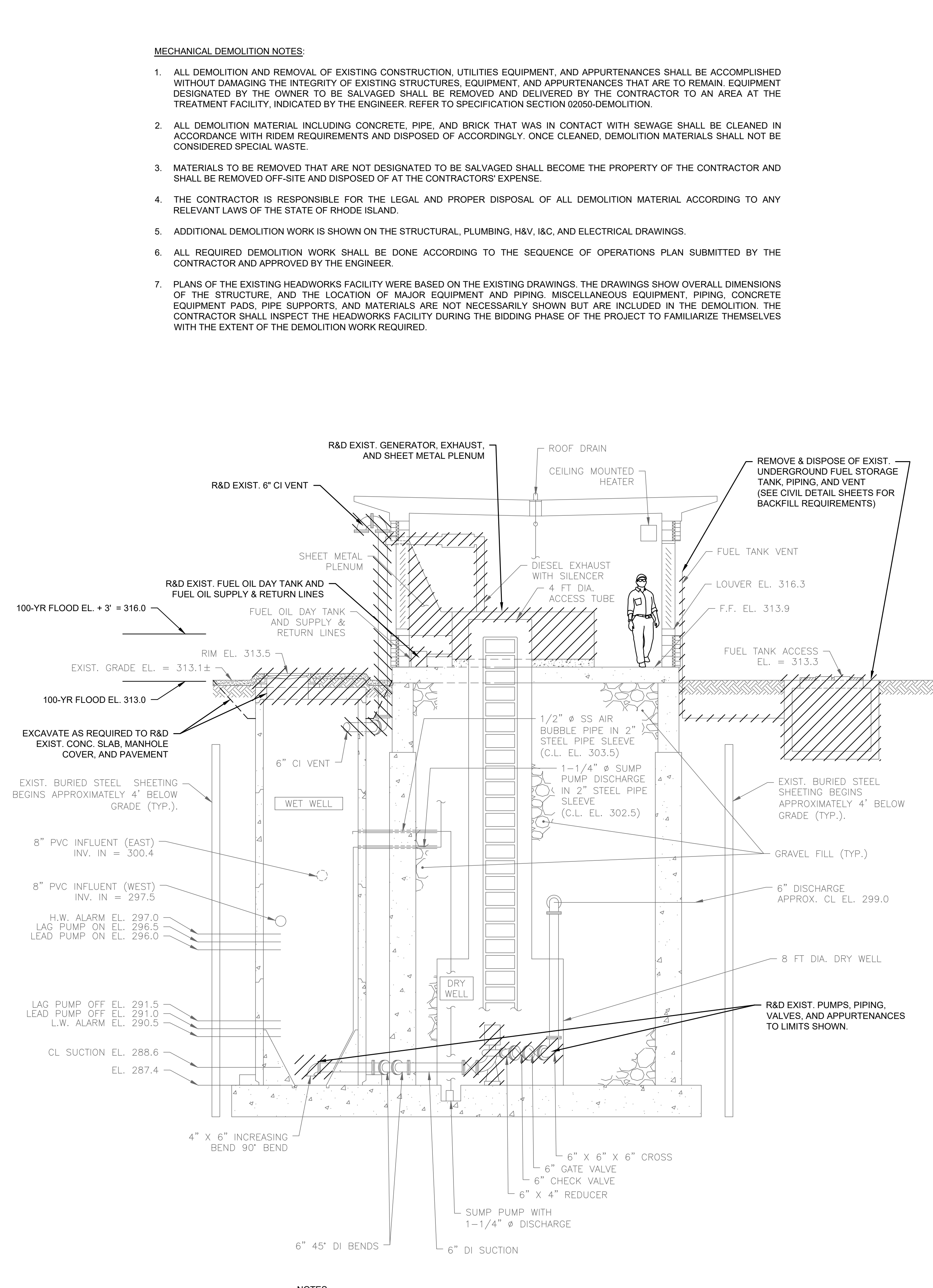
PROPOSED SECTION B
SCALE: 1/4" = 1'-0"



PUMP STATION PLAN (ABOVE GRADE) - DEMOLITION
SCALE: 1/4" = 1'-0"



PUMP STATION PLAN (BELOW GRADE) - DEMOLITION
SCALE: 1/4" = 1'-0"




MECHANICAL DEMOLITION NOTES:

- ALL DEMOLITION AND REMOVAL OF EXISTING CONSTRUCTION, UTILITIES EQUIPMENT, AND APPURTENANCES SHALL BE ACCOMPLISHED WITHOUT DAMAGING THE INTEGRITY OF EXISTING STRUCTURES, EQUIPMENT, AND APPURTENANCES THAT ARE TO REMAIN. EQUIPMENT DESIGNATED BY THE OWNER TO BE SALVAGED SHALL BE REMOVED AND DELIVERED BY THE CONTRACTOR TO AN AREA AT THE TREATMENT FACILITY, INDICATED BY THE ENGINEER. REFER TO SPECIFICATION SECTION 02050-DEMOLITION.
- ALL DEMOLITION MATERIAL INCLUDING CONCRETE, PIPE, AND BRICK THAT WAS IN CONTACT WITH SEWAGE SHALL BE CLEANED IN ACCORDANCE WITH RIDEM REQUIREMENTS AND DISPOSED OF ACCORDINGLY. ONCE CLEANED, DEMOLITION MATERIALS SHALL NOT BE CONSIDERED SPECIAL WASTE.
- MATERIALS TO BE REMOVED THAT ARE NOT DESIGNATED TO BE SALVAGED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED OFF-SITE AND DISPOSED OF AT THE CONTRACTORS' EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE FOR THE LEGAL AND PROPER DISPOSAL OF ALL DEMOLITION MATERIAL ACCORDING TO ANY RELEVANT LAWS OF THE STATE OF RHODE ISLAND.
- ADDITIONAL DEMOLITION WORK IS SHOWN ON THE STRUCTURAL, PLUMBING, H&V, I&C, AND ELECTRICAL DRAWINGS.
- ALL REQUIRED DEMOLITION WORK SHALL BE DONE ACCORDING TO THE SEQUENCE OF OPERATIONS PLAN SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- PLANS OF THE EXISTING HEADWORKS FACILITY WERE BASED ON THE EXISTING DRAWINGS. THE DRAWINGS SHOW OVERALL DIMENSIONS OF THE STRUCTURE, AND THE LOCATION OF MAJOR EQUIPMENT AND PIPING. MISCELLANEOUS EQUIPMENT, PIPING, CONCRETE EQUIPMENT PADS, PIPE SUPPORTS, AND MATERIALS ARE NOT NECESSARILY SHOWN BUT ARE INCLUDED IN THE DEMOLITION. THE CONTRACTOR SHALL INSPECT THE HEADWORKS FACILITY DURING THE BIDDING PHASE OF THE PROJECT TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF THE DEMOLITION WORK REQUIRED.

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

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BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS

BURRILLVILLE, RI


TITLE

OAKLAND PS - DEMOLITION PLAN & SECTION

NO.	REVISIONS	DATE

DRAWN BY: CJM
DESIGNED BY: AJG
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SCALE



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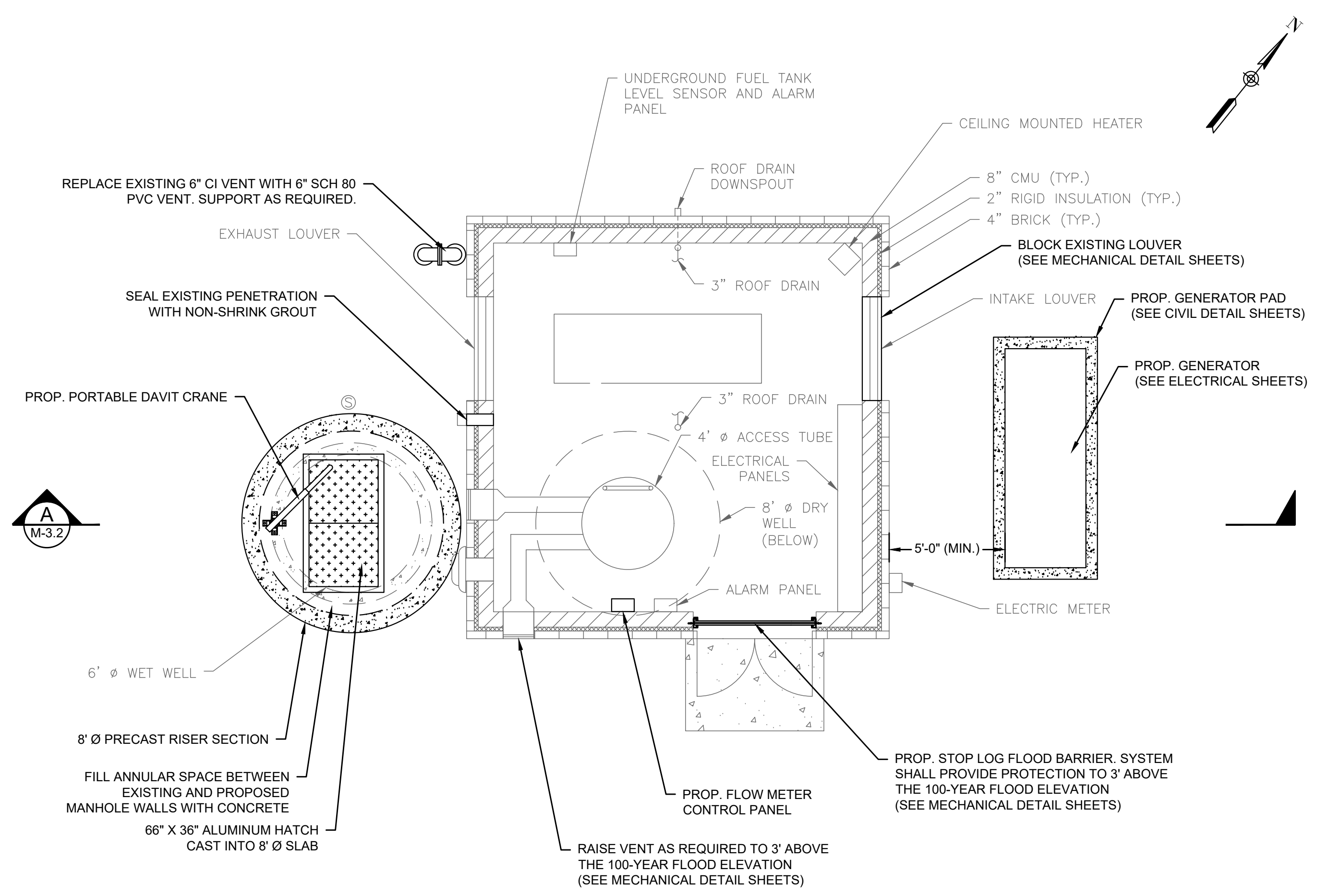
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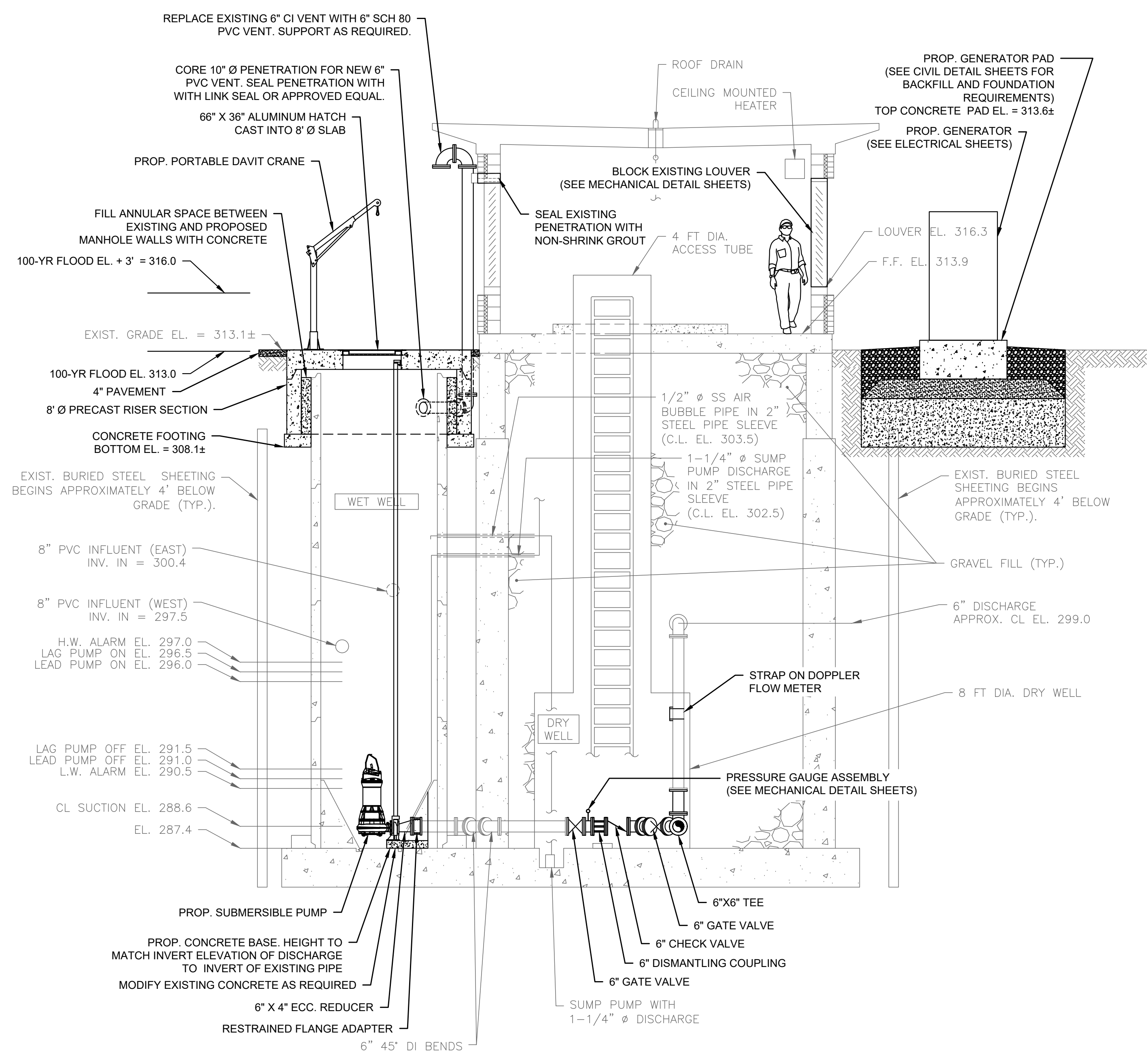
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NO.	REVISIONS	DATE

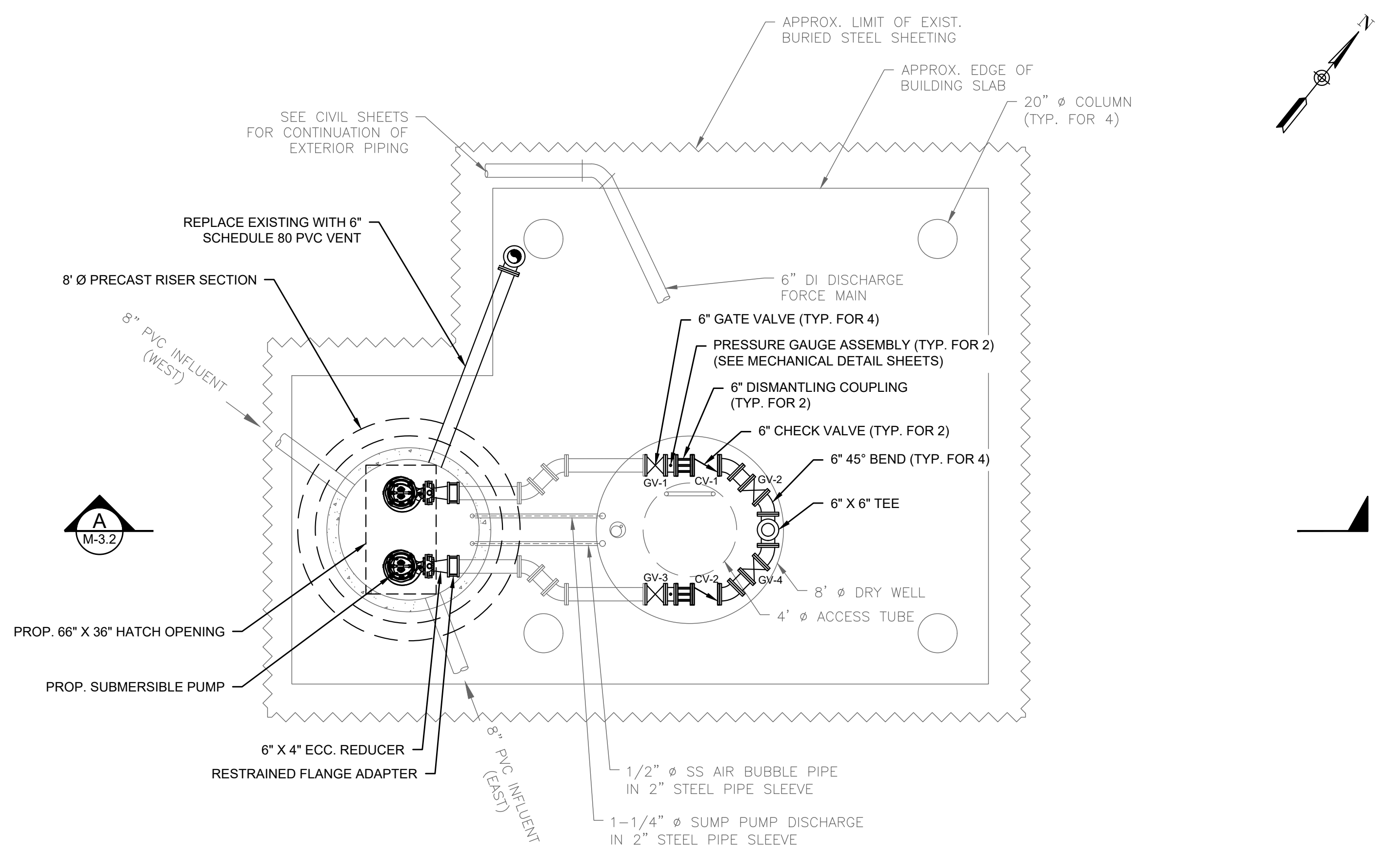
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BETA JOB NO.:	6861-105
SCALE	
	
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SHEET NO.	M-3.2



PUMP STATION PLAN (ABOVE GRADE) - PROPOSED
 SCALE: 1/4" = 1'-0"



PROPOSED SECTION
 SCALE: 1/4" = 1'-0" A M-3.2



PUMP STATION PLAN (BELOW GRADE) - PROPOSED
 SCALE: 1/4" = 1'-0"

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**BURRILLVILLE WWTF
 HEADWORKS &
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BURRILLVILLE, RI

TITLE

**MECHANICAL
 DETAILS - I**

NO.	REVISIONS	DATE

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SCALE

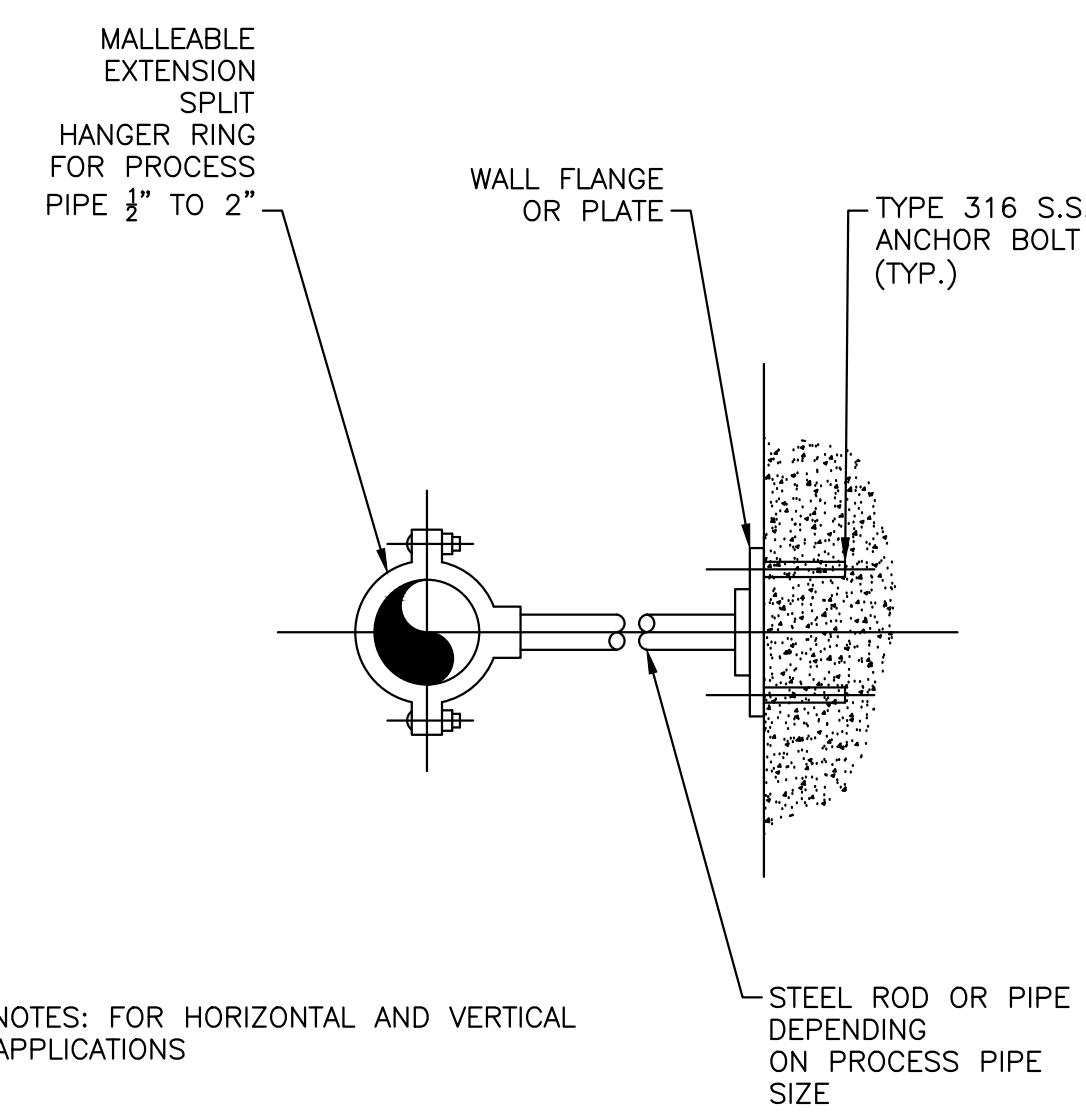
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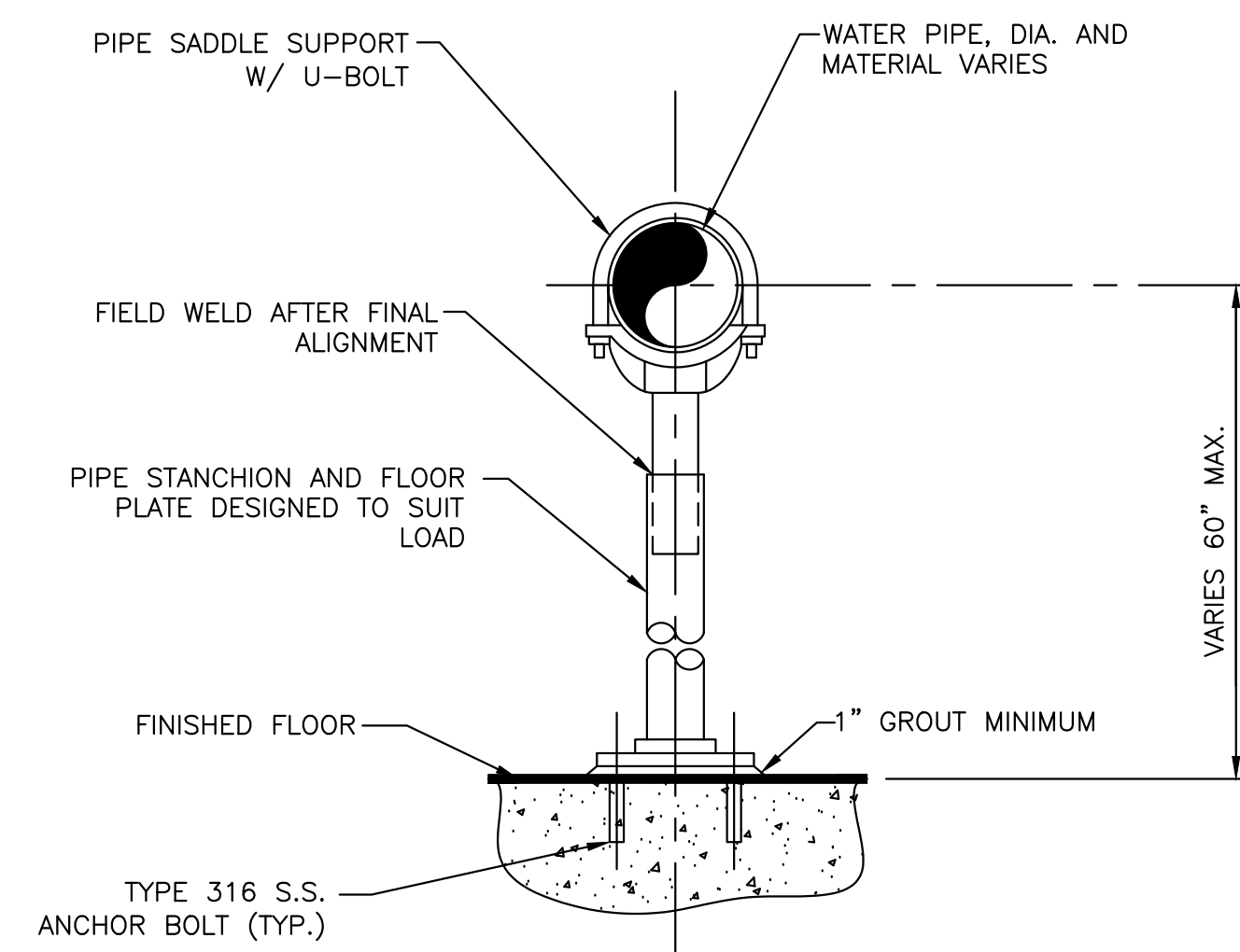
MD-1



NOTES: FOR HORIZONTAL AND VERTICAL APPLICATIONS

GRINNELL FIGURE 138 OR EQUAL

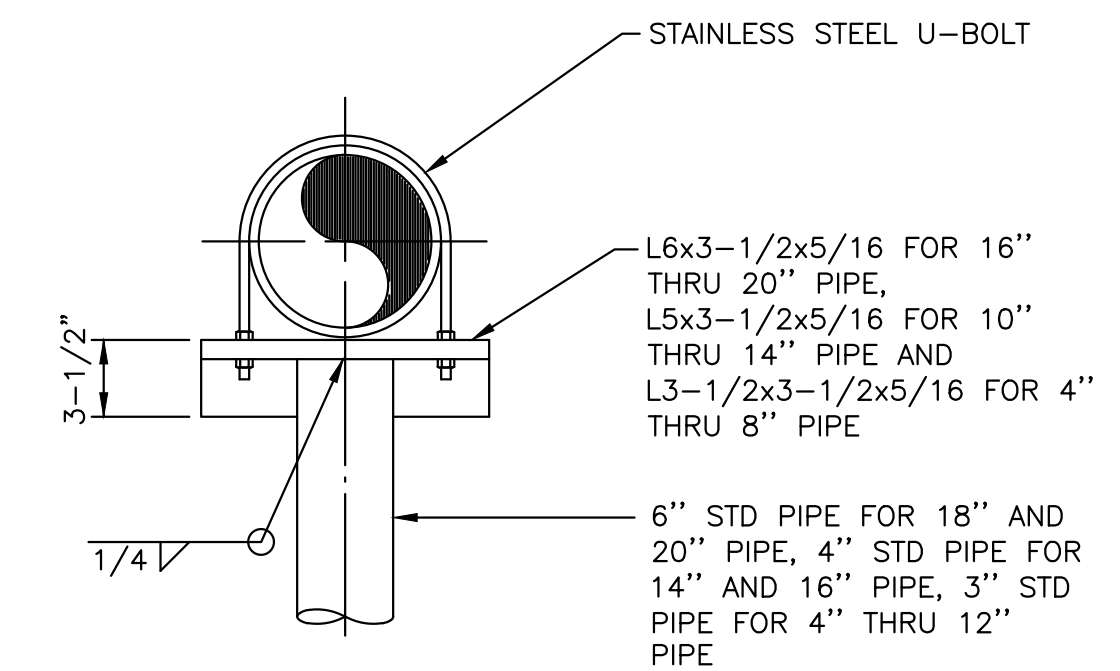
WALL PIPE SUPPORT
 NOT TO SCALE



NOTES:

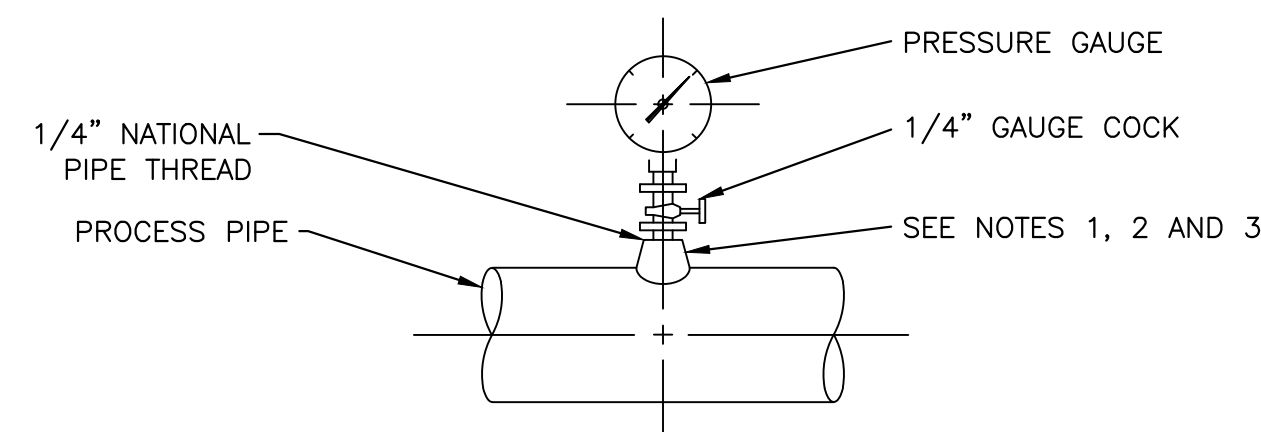
1. PROVIDE HALF-ROUND RIGID INSULATION WAND INSULATION SHIELD FOR INSULATED PIPING.
2. PROVIDE NEOPRENE ISOLATION PAD UNDER SUPPORT FOOT FOR ISOLATED PIPING OR WHEN SUPPORT IS ADJACENT TO MECHANICAL EQUIPMENT.

FLOOR PIPE SUPPORT
 NOT TO SCALE

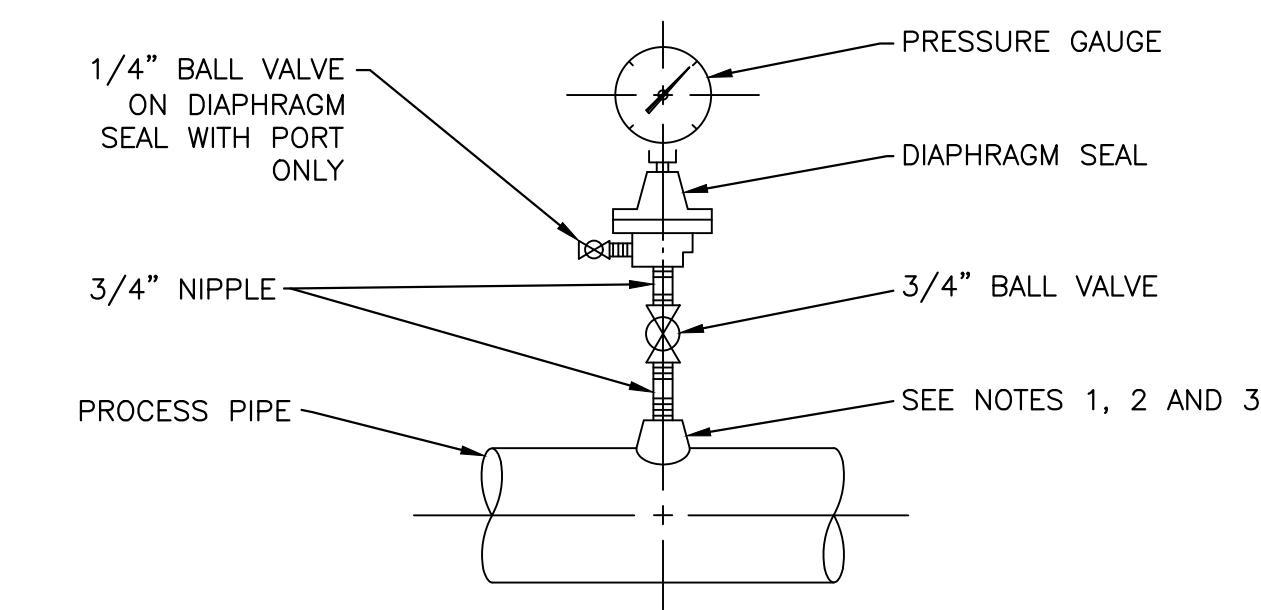


NOTE: USE STANDARD AWWA RING FLANGE FOR BASE.

PIPE SUPPORT
 NOT TO SCALE



PRESSURE GAUGE

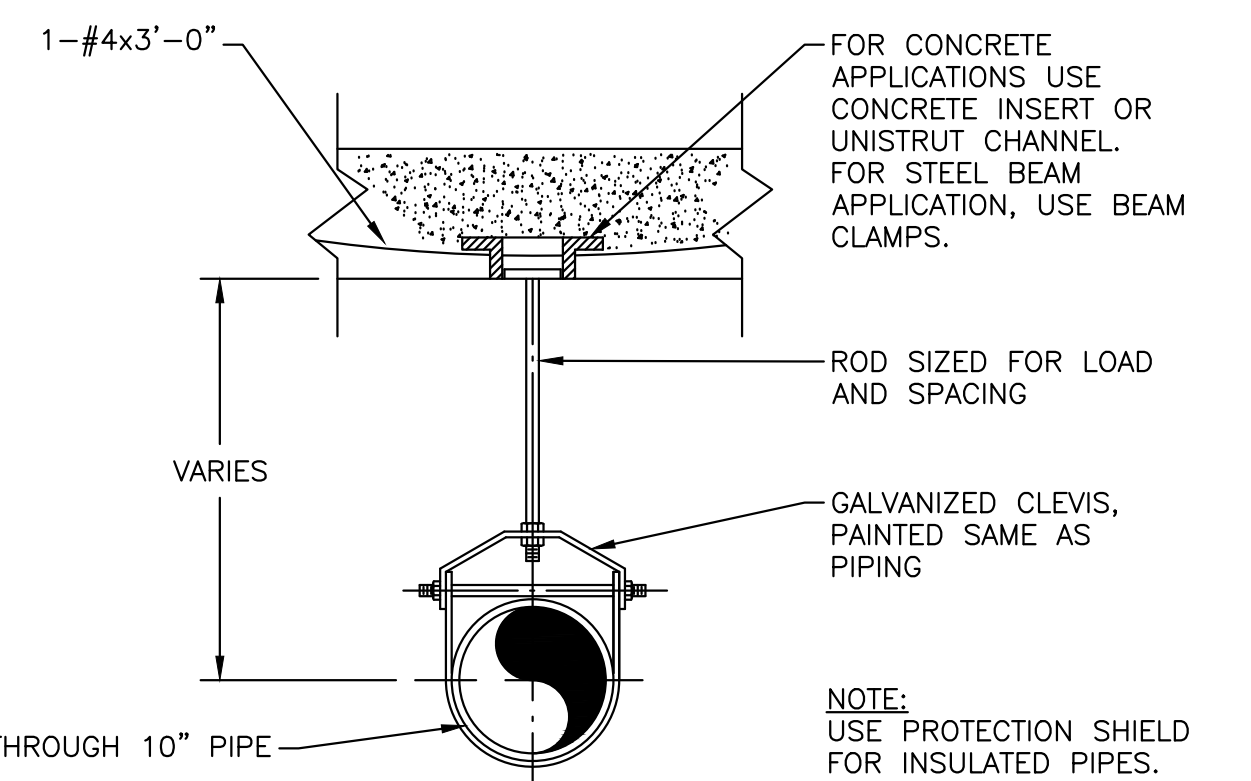


DIAPHRAGM PRESSURE GAUGE

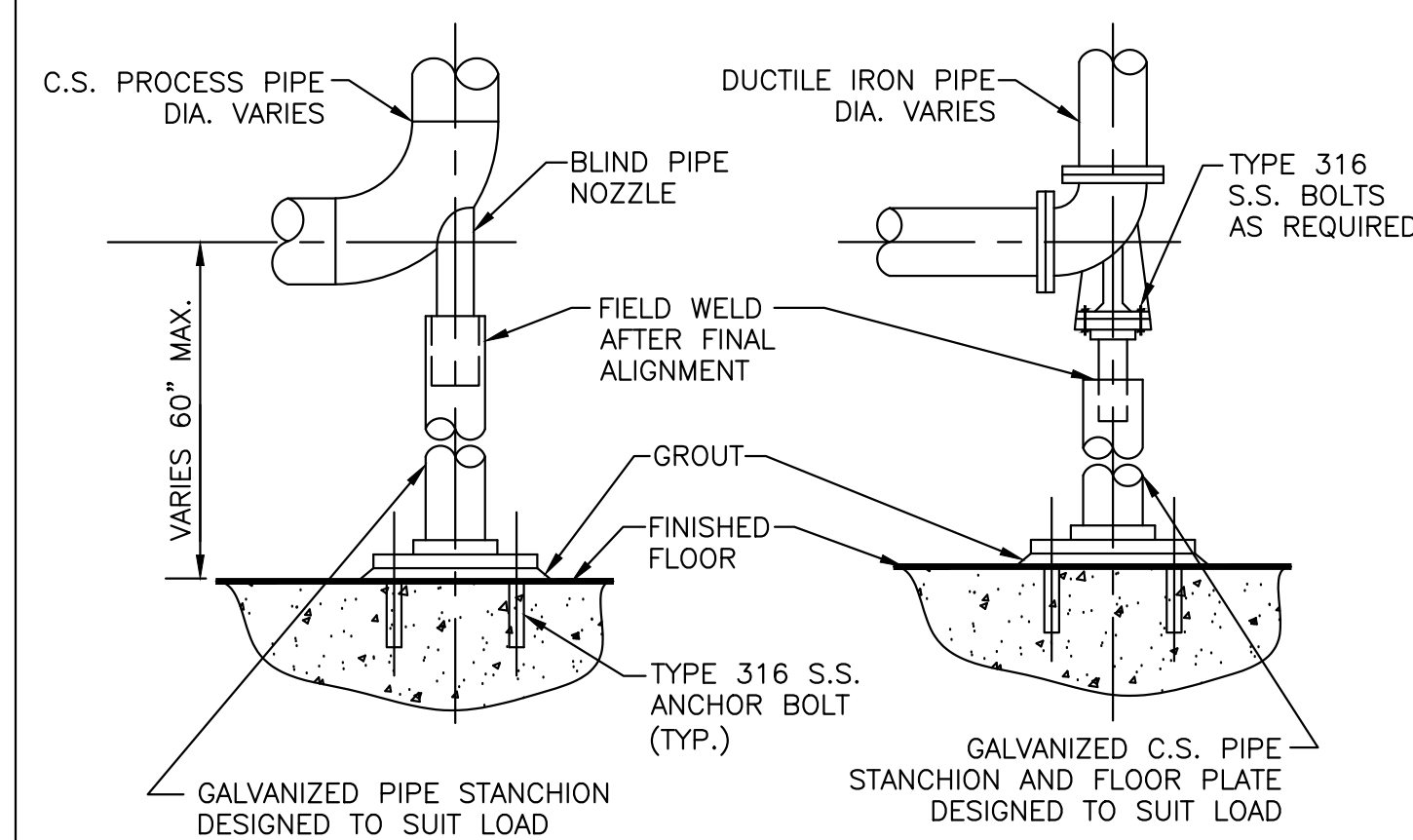
NOTES:

1. FOR STEEL, GALVANIZED STEEL, AND PVC 2 1/2" AND SMALLER, USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON AND FIBERGLASS REINFORCED PLASTIC PIPE. ALL SIZES, USE PIPE SADDLE WITH BUSHING.
3. FOR STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, AND PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.
4. PROVIDE SNUBBER FOR POSITIVE DISPLACEMENT PUMP INSTALLATIONS.

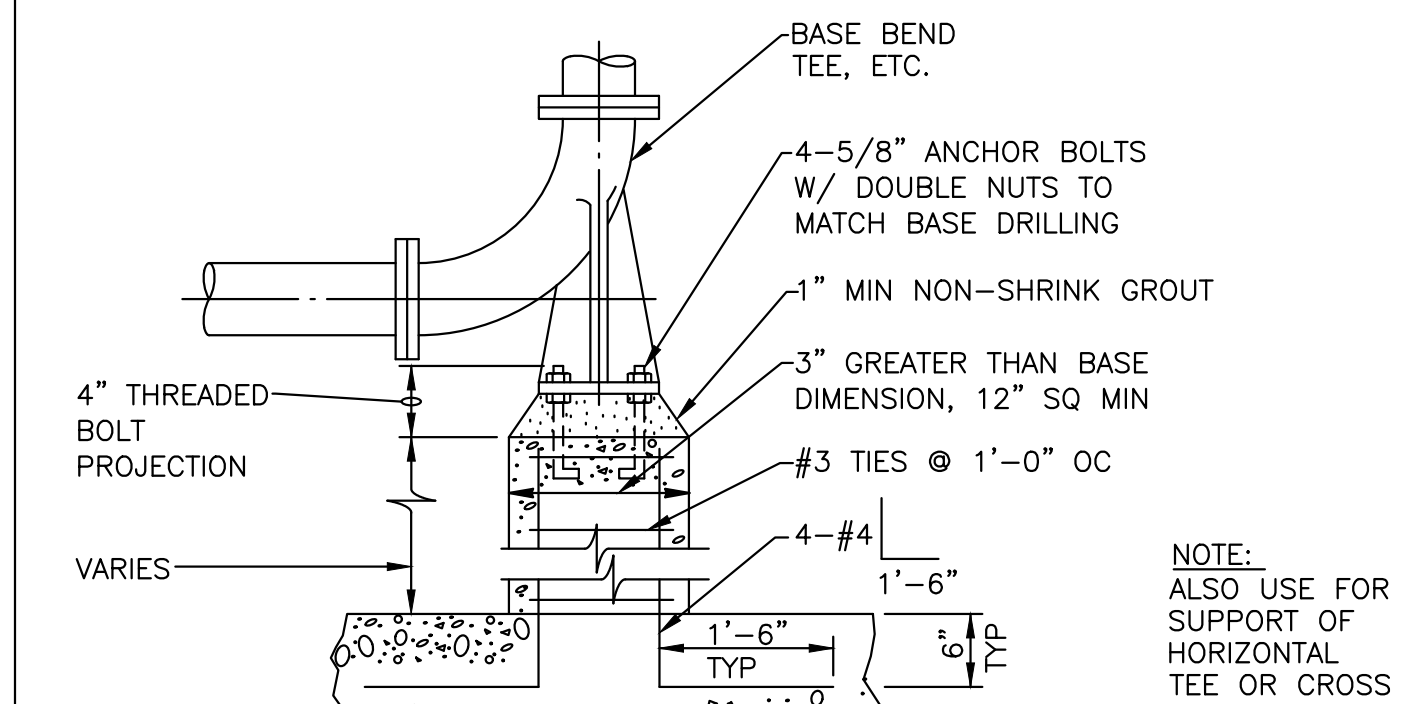
PRESSURE GAUGE MOUNTING DETAILS
 NOT TO SCALE



PIPE HANGER
 NOT TO SCALE

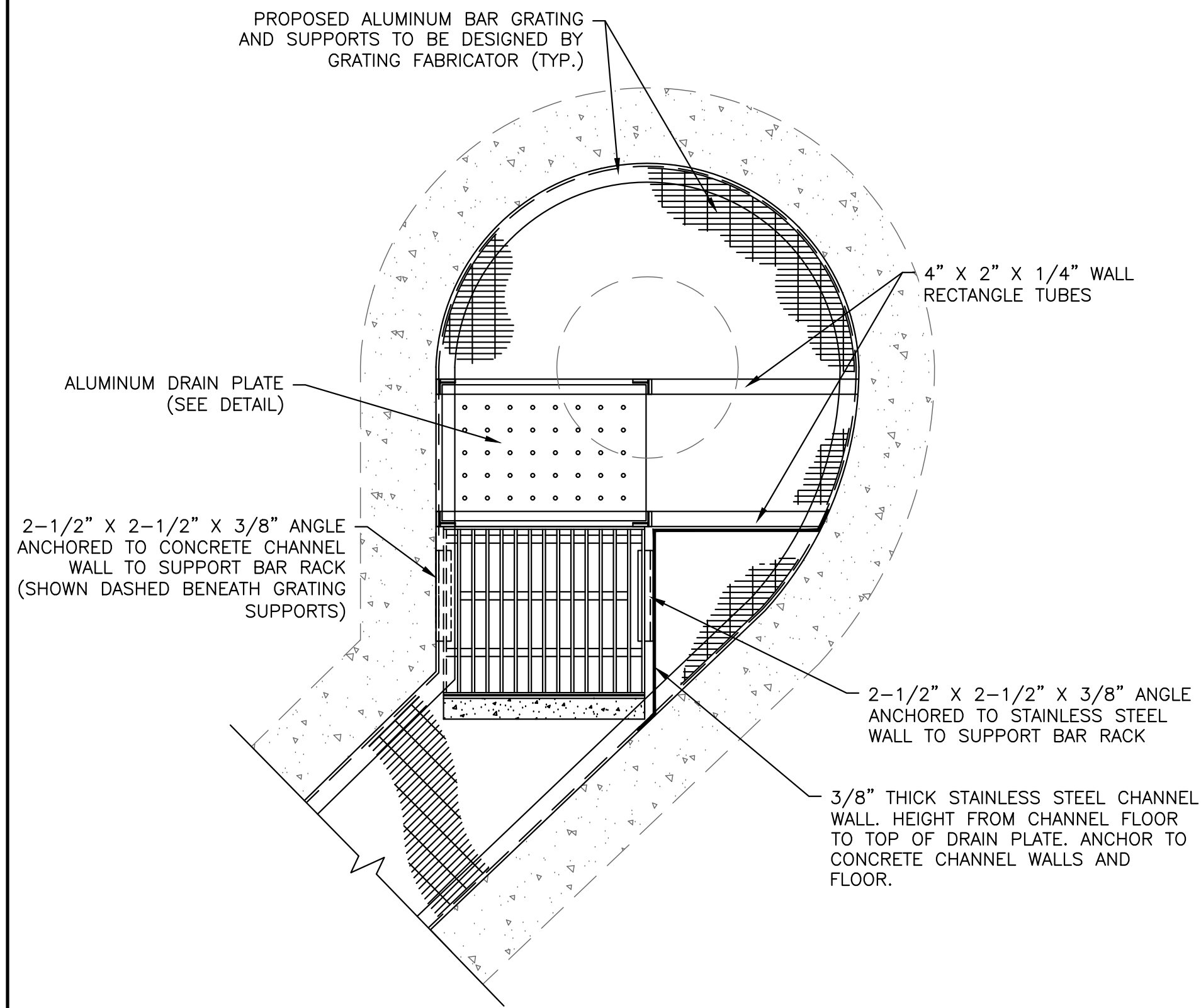


FLOOR PIPE SADDLE
 NOT TO SCALE

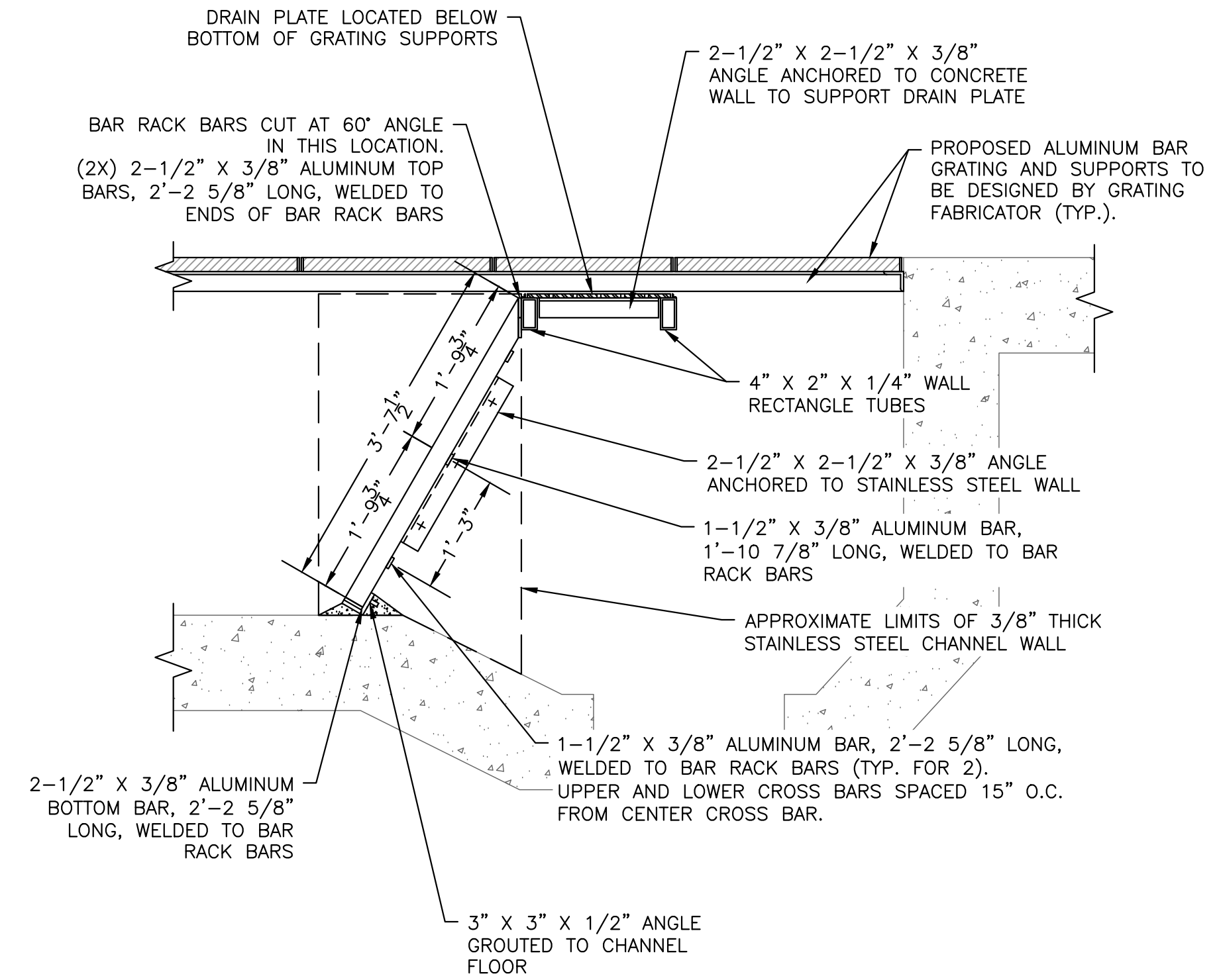


BASE BEND
 NOT TO SCALE

15/02/2023 J:\BURRILLVILLE\WTF - HEADWORKS IMPROVEMENTS\3D\DRAWING\FILES\PLAN\METMECHANICAL-DETAILS.DWG

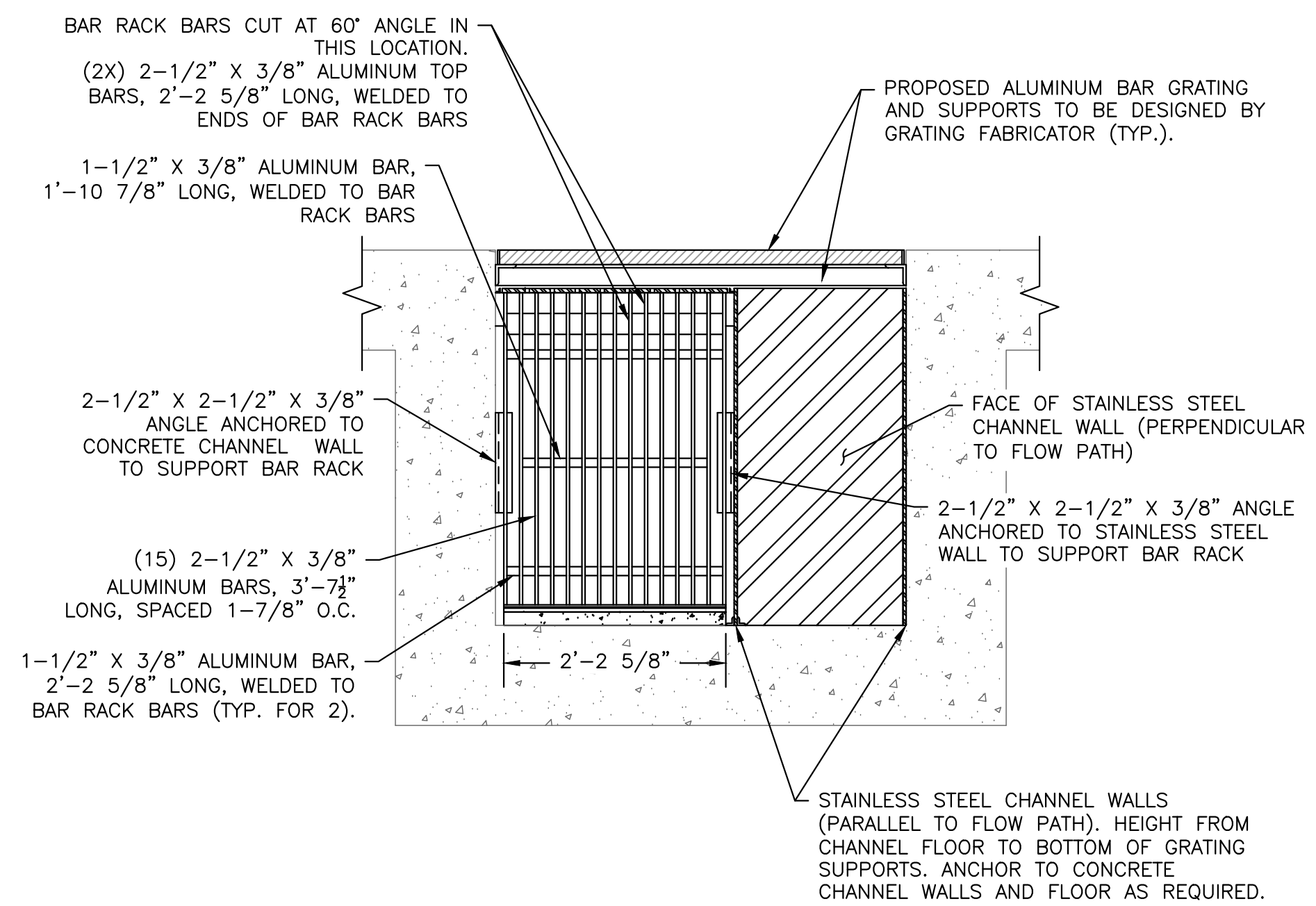


BAR RACK DETAIL - PLAN
NOT TO SCALE



BAR RACK DETAIL - PROFILE
NOT TO SCALE

- NOTES:
1. ANGLE OF THE BAR RACK IS 30° FROM THE VERTICAL AXIS.
 2. BAR RACK SHALL NOT EXTEND BEYOND THE BOTTOM OF THE ALUMINUM BAR GRATING.



BAR RACK DETAIL - ELEVATION
NOT TO SCALE

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**MECHANICAL
DETAILS - II**

NO.	REVISIONS	DATE

NO. REVISIONS DATE

DRAWN BY: CJM
DESIGNED BY: AJG
CHECKED BY: JRD
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

SCALE

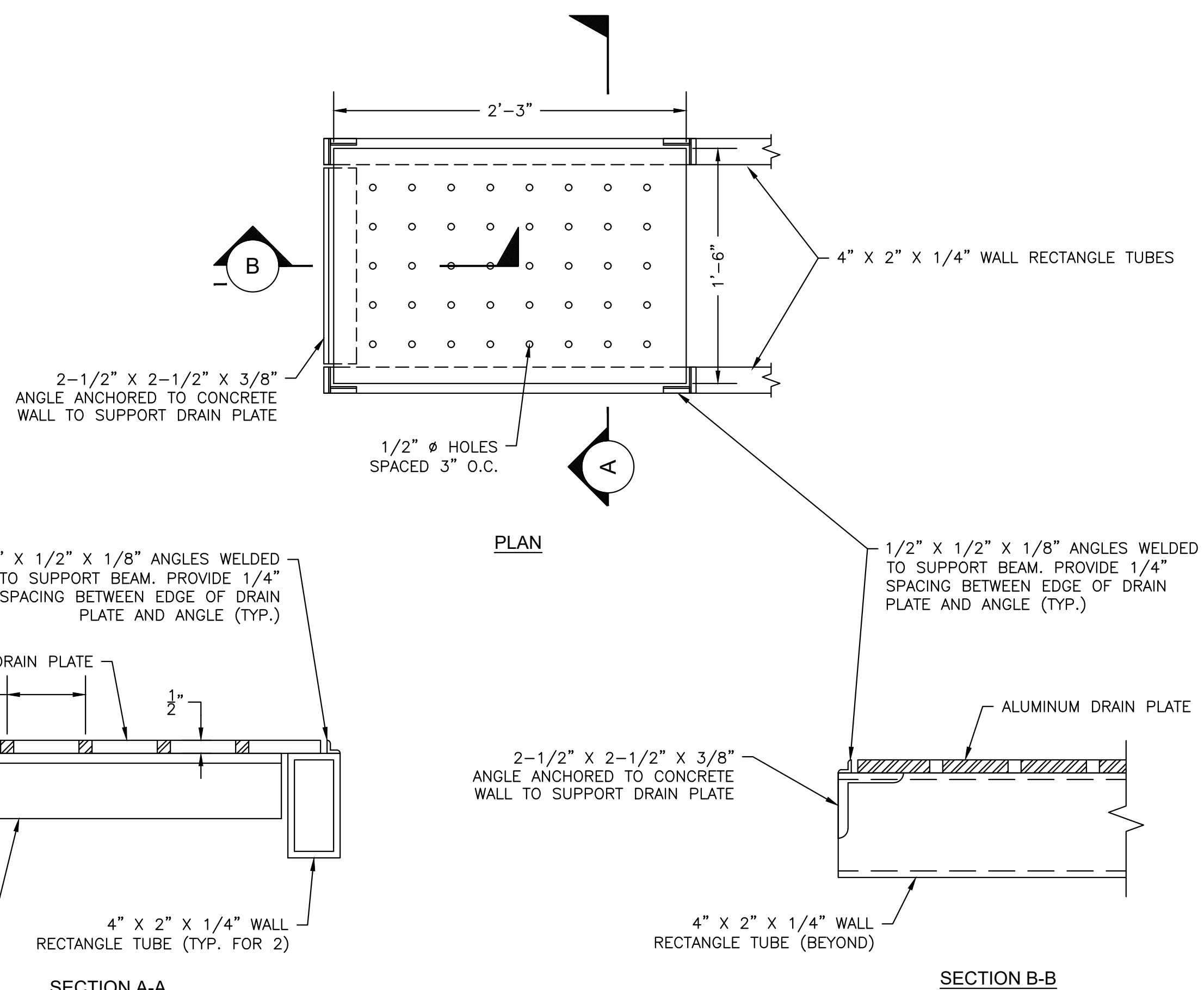
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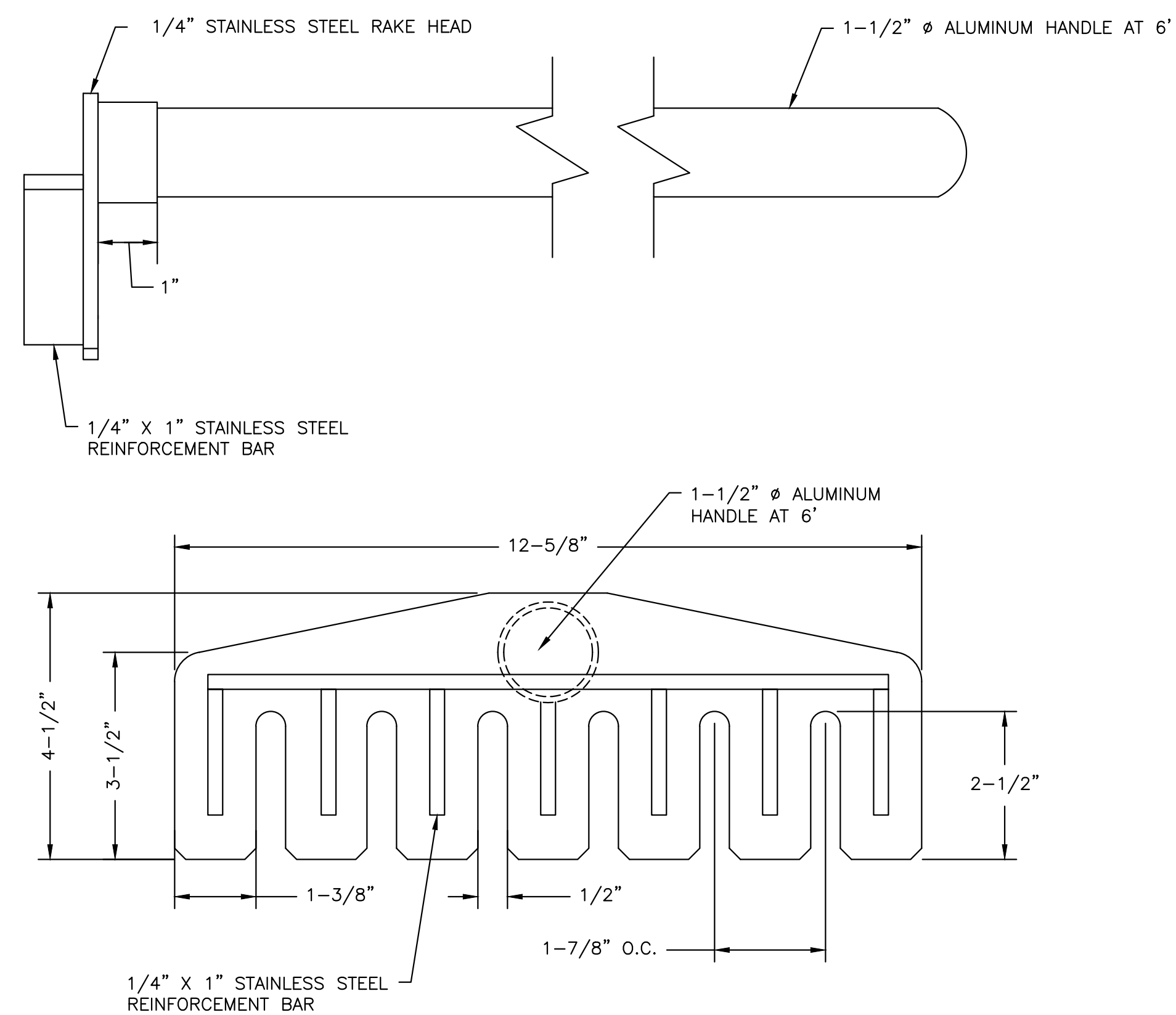
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SHEET NO.

MD-2



DRAIN PLATE DETAILS
NOT TO SCALE



BAR RACK RAKE
NOT TO SCALE

PREPARED BY



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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**MECHANICAL
DETAILS - III**

NO.	REVISIONS	DATE

DRAWN BY: CJM
DESIGNED BY: AJG
CHECKED BY: JRD
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

SCALE

AS SHOWN

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SHEET NO.

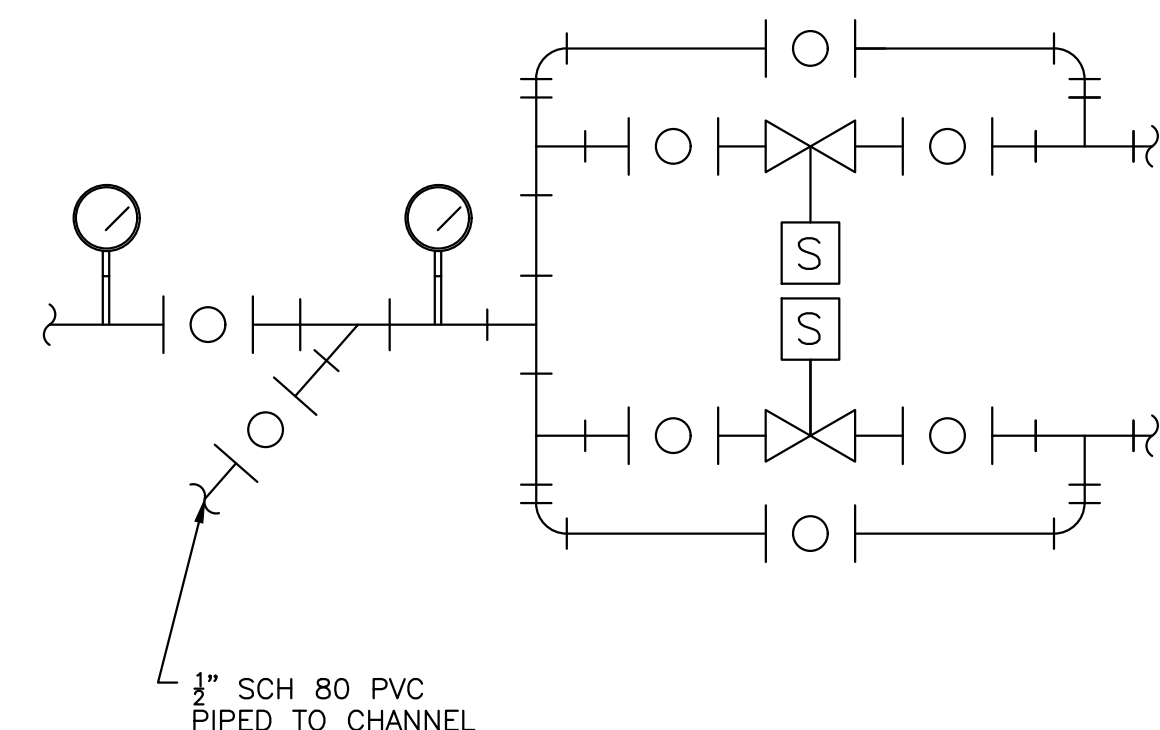
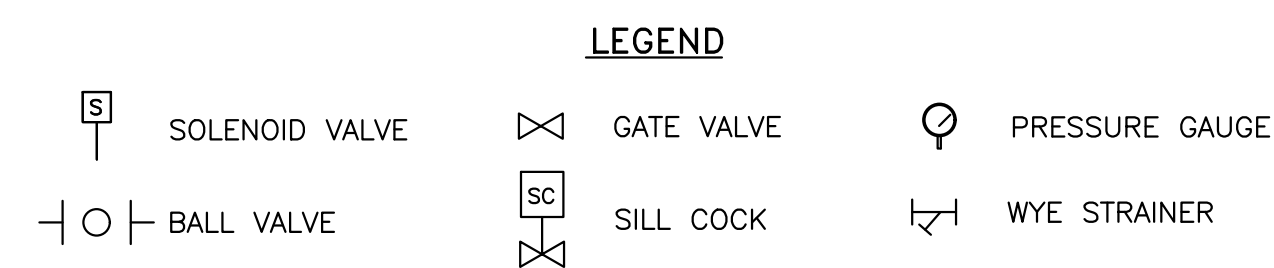
MD-3

SLUICE GATE SCHEDULE (WWTF HEADWORKS)							
DESIGNATION	TYPE	SIZE (WxH)	GATE MATERIAL	MOUNTING TYPE	OPERATOR	OPENING INVERT ELEV. (FT)	OPERATING FLOOR ELEV. (FT)
G-1	NON-RISING STEM MULTI-LEAF	24"x28"	316 SS	CHANNEL MOUNTED	NUT	296.6 ±	300.8
G-2	NON-RISING STEM MULTI-LEAF	24"x28"	316 SS	CHANNEL MOUNTED	NUT	296.6 ±	300.8
G-3	NON-RISING STEM MULTI-LEAF	24"x32"	316 SS	CHANNEL MOUNTED	NUT	296.6 ±	300.8
G-4	NON-RISING STEM MULTI-LEAF	24"x32"	316 SS	CHANNEL MOUNTED	NUT	296.6 ±	300.8
SG-1	SELF CONTAINED RISING STEM	24"x30"	316 SS	WALL MOUNTED	MOTOR OPERATED	286.3 ±	300.8

NOTE: DRILL EXISTING GATE THIMBLE AS REQUIRED TO INSTALL SG-1.

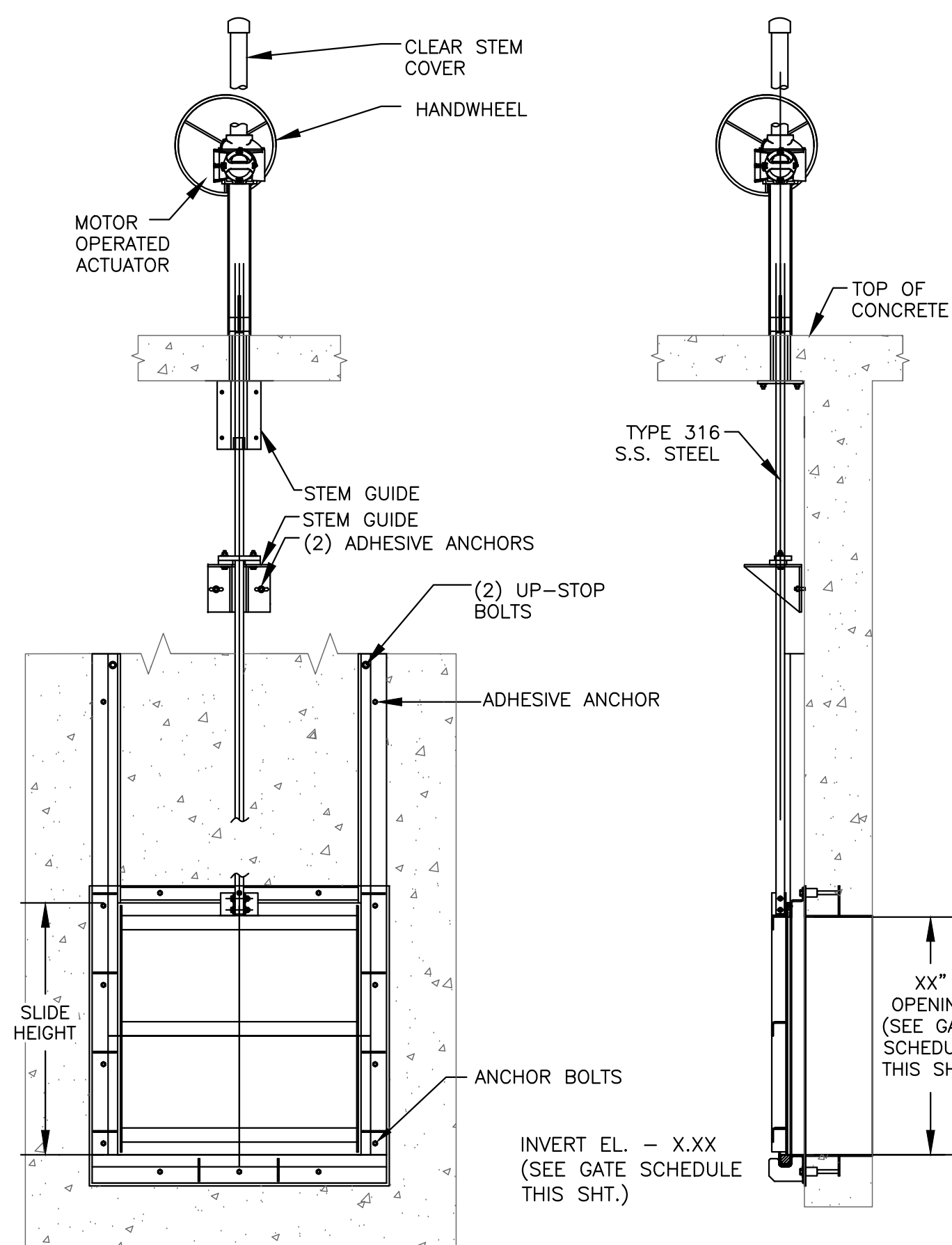
VALVE SCHEDULE (WWTF HEADWORKS)							
VALVE TAG	NO. REQUIRED	VALVE TYPE	SIZE	MATERIAL	ACTUATOR	LOCATION	CONNECTION
GV-1 TO GV-8	8	GATE VALVE	10"	DUCTILE IRON	MANUAL	PUMP ROOM	FL X FL
CV-1 TO CV-3	3	SWING CHECK	10"	CAST IRON	WEIGHTED LEVER	PUMP ROOM	FL X FL
PV-1	1	PLUG VALVE	14"	CAST IRON	CHAIN WHEEL	PUMP ROOM	FL X FL

WWTF - SLUICE GATE AND VALVE SCHEDULES
NOT TO SCALE

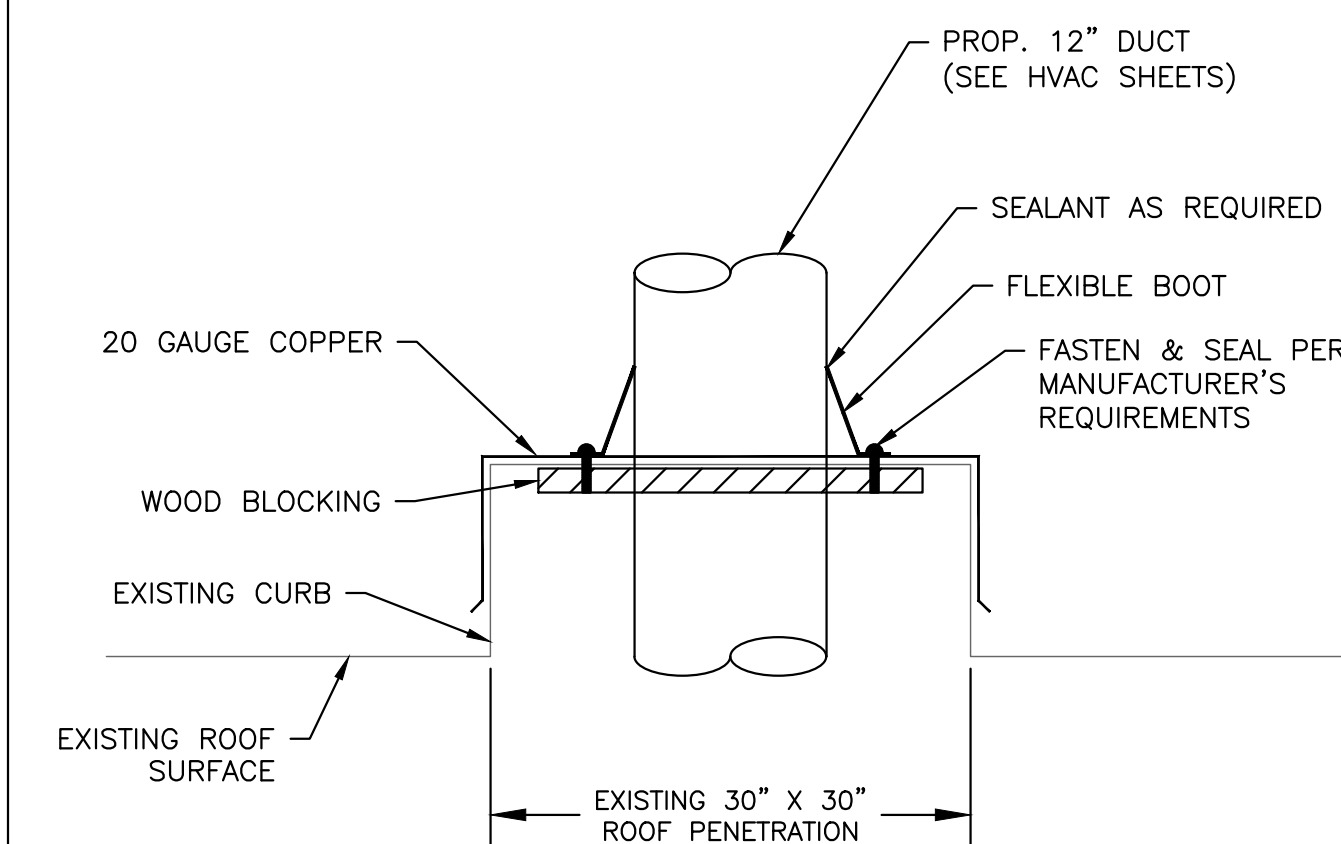


NOTES:
1. ALL SOLENOID VALVES TO HAVE BYPASS CONFIGURATION AS SHOWN.

WASH PRESS WATER SUPPLY DETAIL
NOT TO SCALE



SLUICE GATE (SG-1)
NOT TO SCALE



DUCTWORK ROOF PENETRATION DETAIL
NOT TO SCALE

PUMP SCHEDULE (OAKLAND PUMP STATION)										
PUMP TAG	PUMP CONFIGURATION	NO. REQUIRED	CAPACITY		MOTOR		DISCHARGE SIZE (IN)	TYPE	MINIMUM EFFICIENCY AT DESIGN POINT (%)	SHUT OFF HEAD (FT)
			FLOW (GPM)	TDH (FT)	POWER (HP)	PUMP SPEED (RPM)				
SP-1 SP-2	SINGLE PUMP OPERATION	2	470	94	25	1800	4"	SUBMERSIBLE SOLIDS HANDLING	56%	115

VALVE SCHEDULE (OAKLAND PUMP STATION)							
VALVE TAG	NO. REQUIRED	VALVE TYPE	SIZE	MATERIAL	ACTUATOR	LOCATION	CONNECTION
GV-1 TO GV-4	4	GATE VALVE	6"	DUCTILE IRON	MANUAL	DRY WELL	FL X FL
CV-1 TO CV-2	2	SWING CHECK	6"	CAST IRON	WEIGHTED LEVER	DRY WELL	FL X FL

OAKLAND - VALVE & PUMP SCHEDULES
NOT TO SCALE

PREPARED BY



REGISTERED PROFESSIONAL

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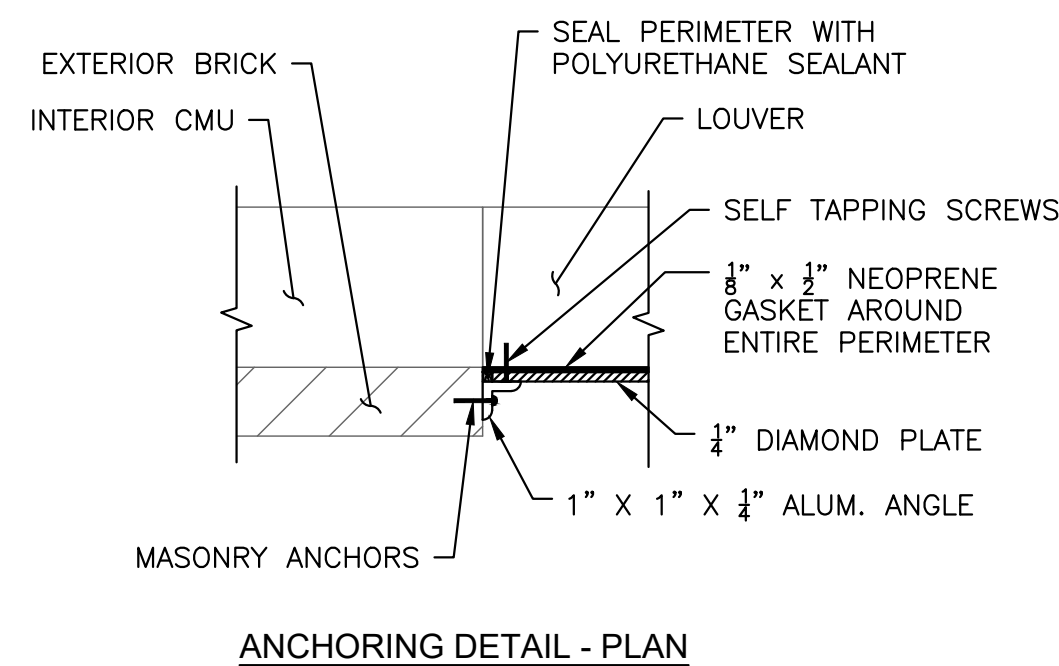
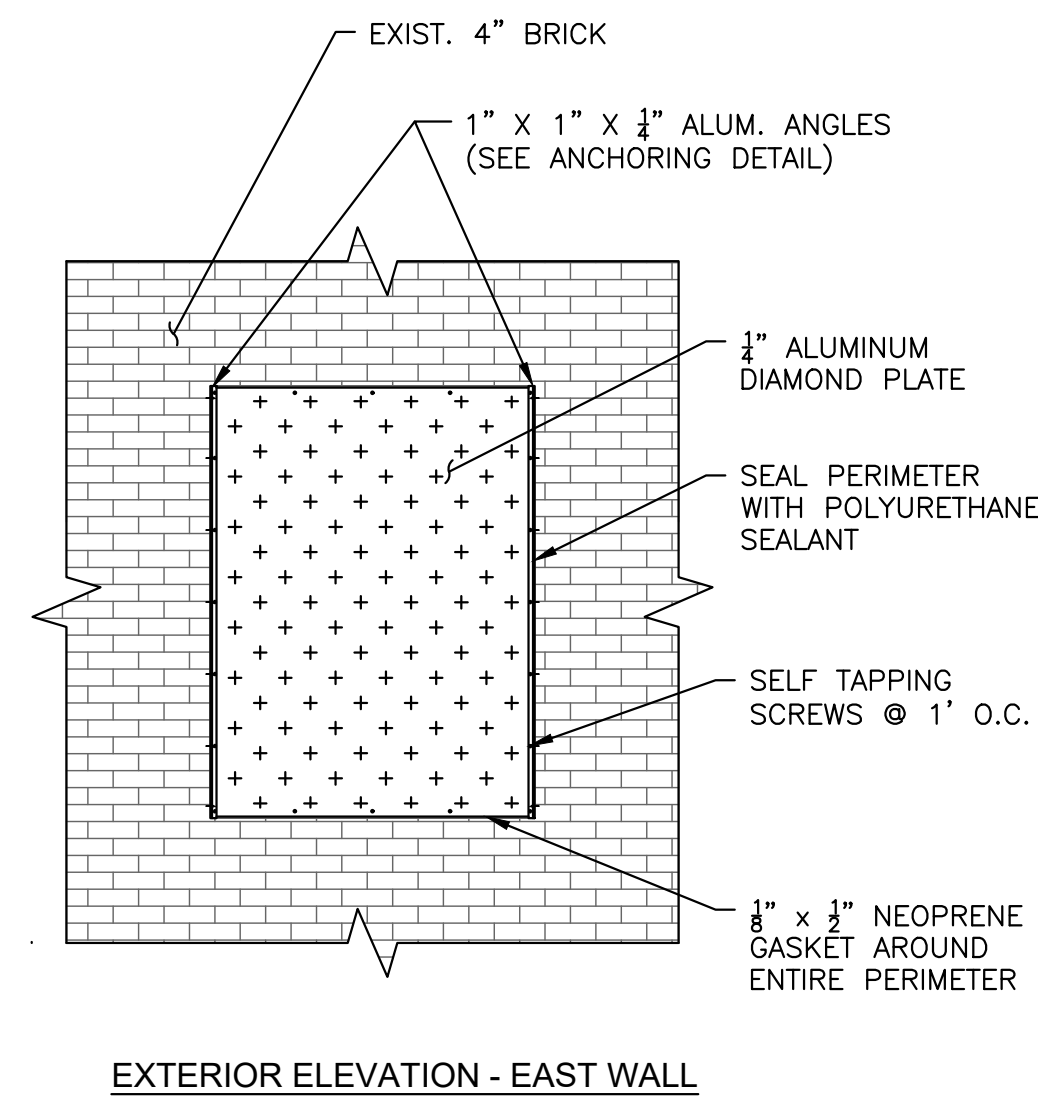
PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

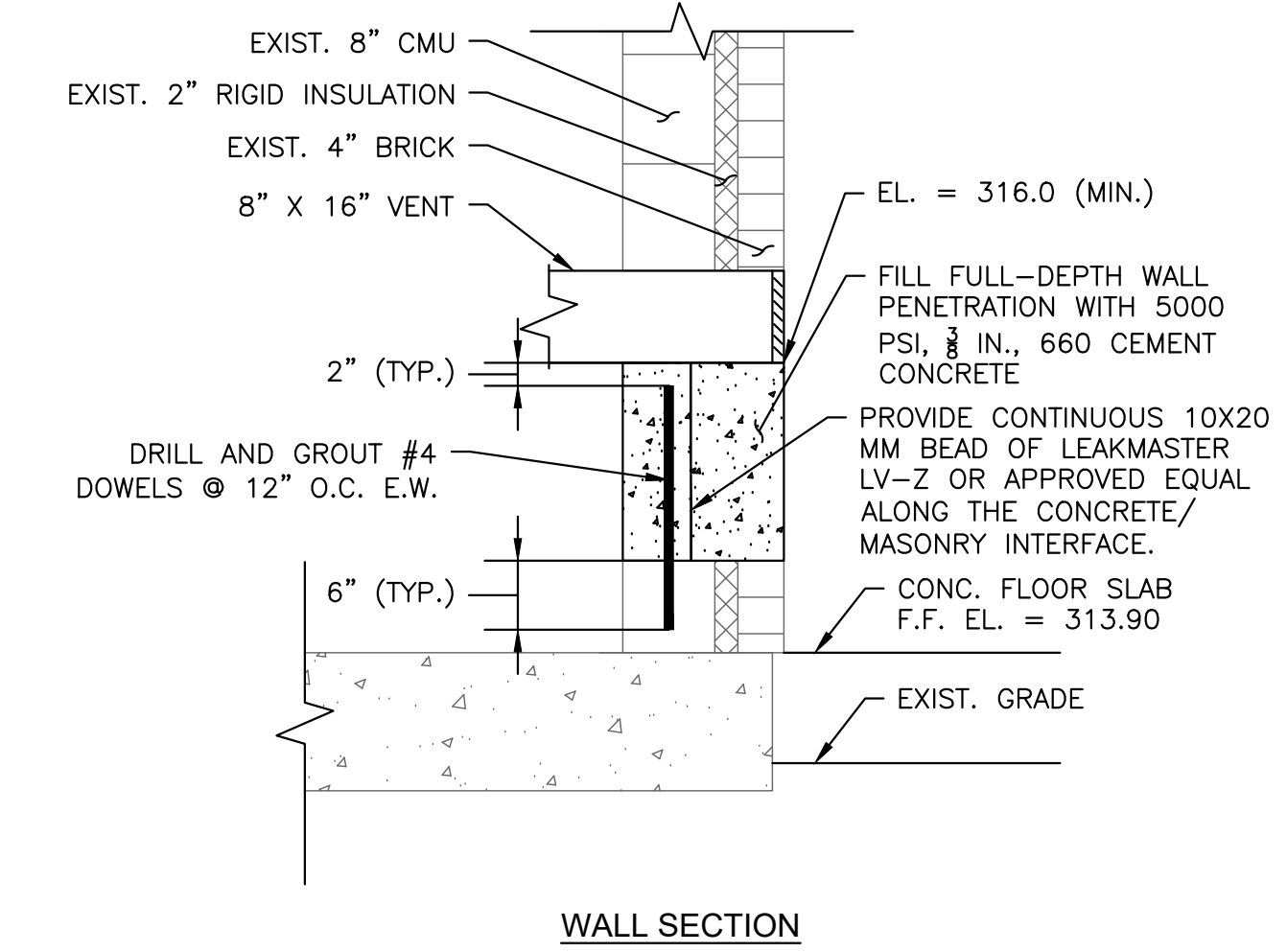
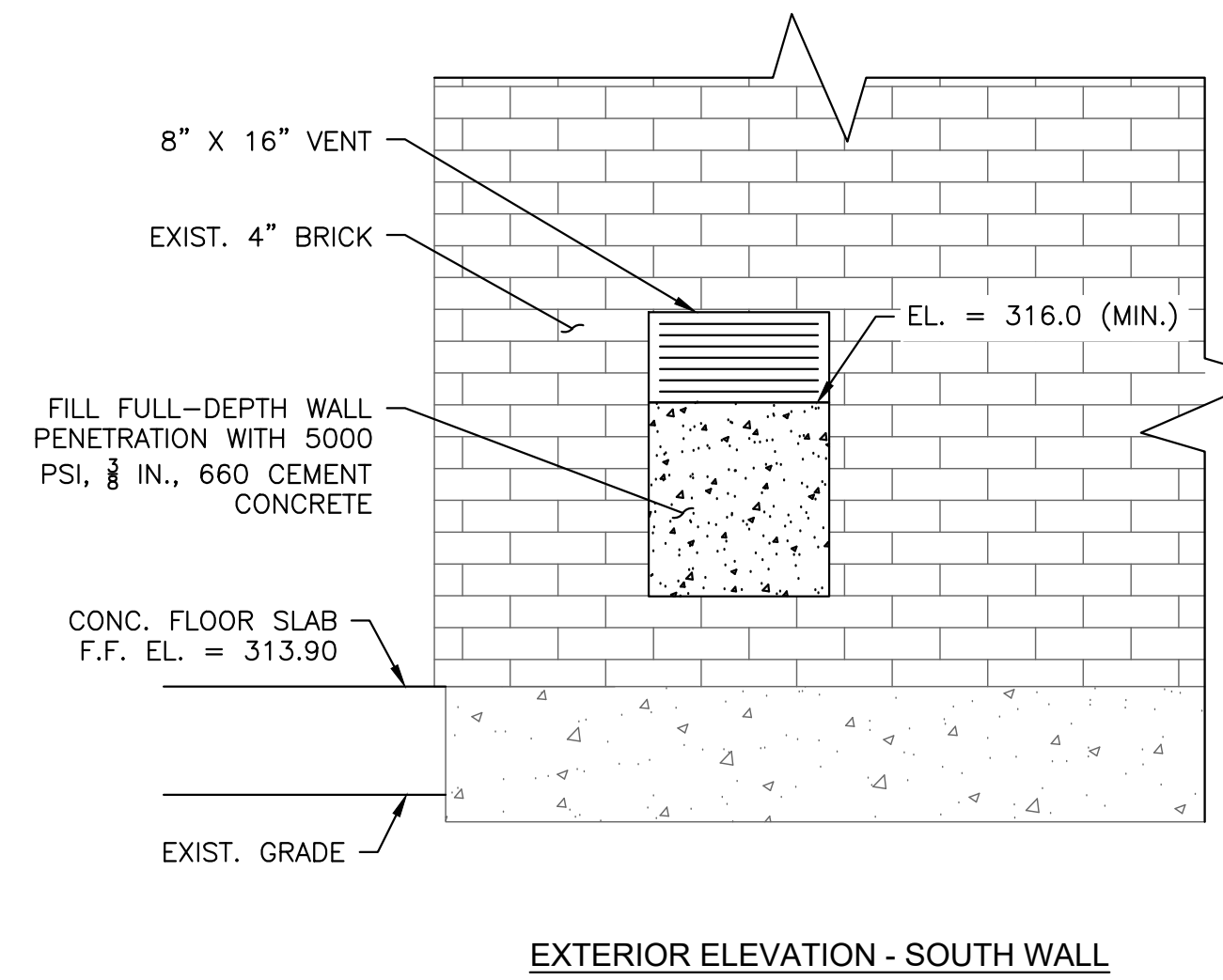
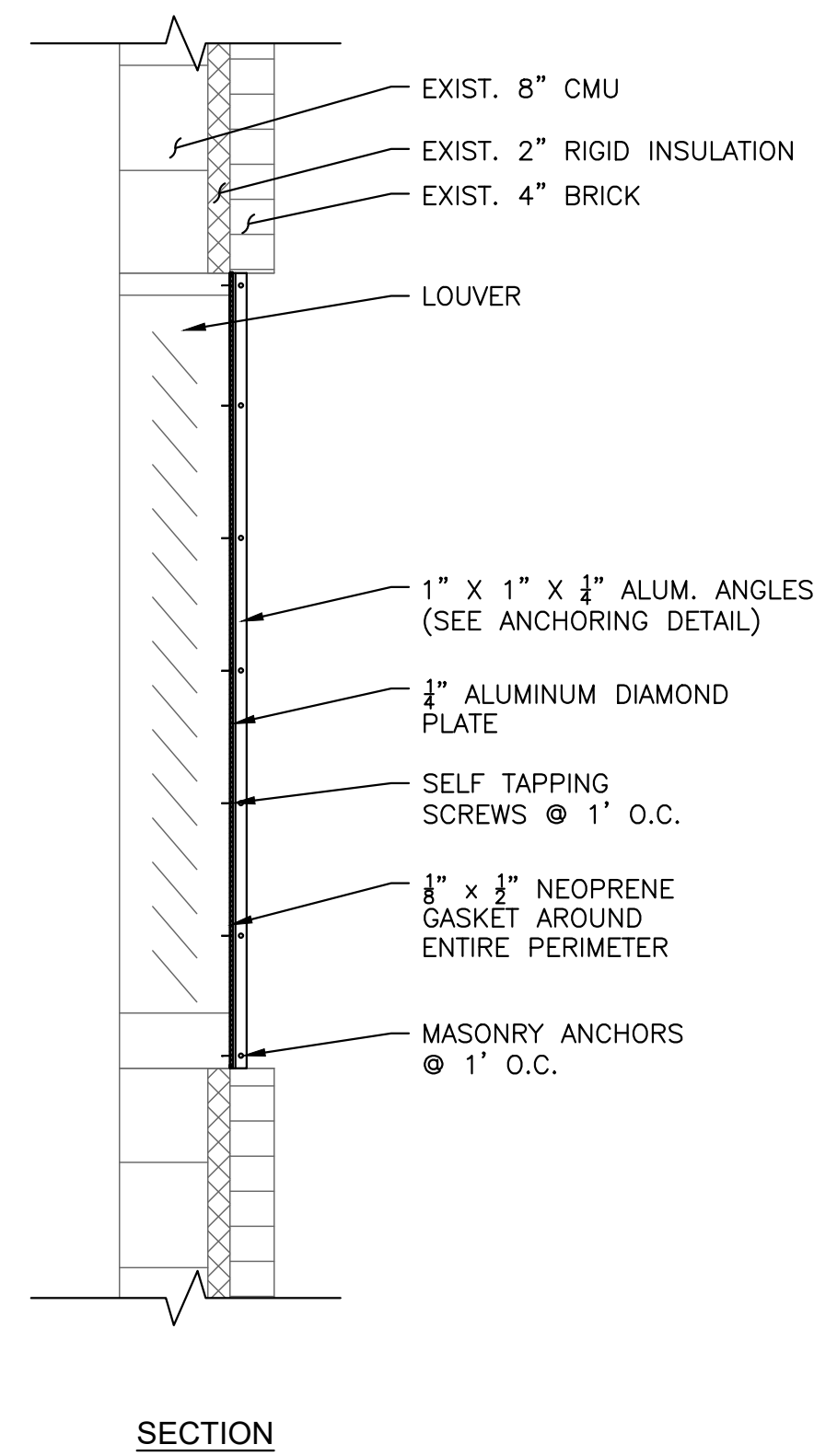
**MECHANICAL
DETAILS - IV**



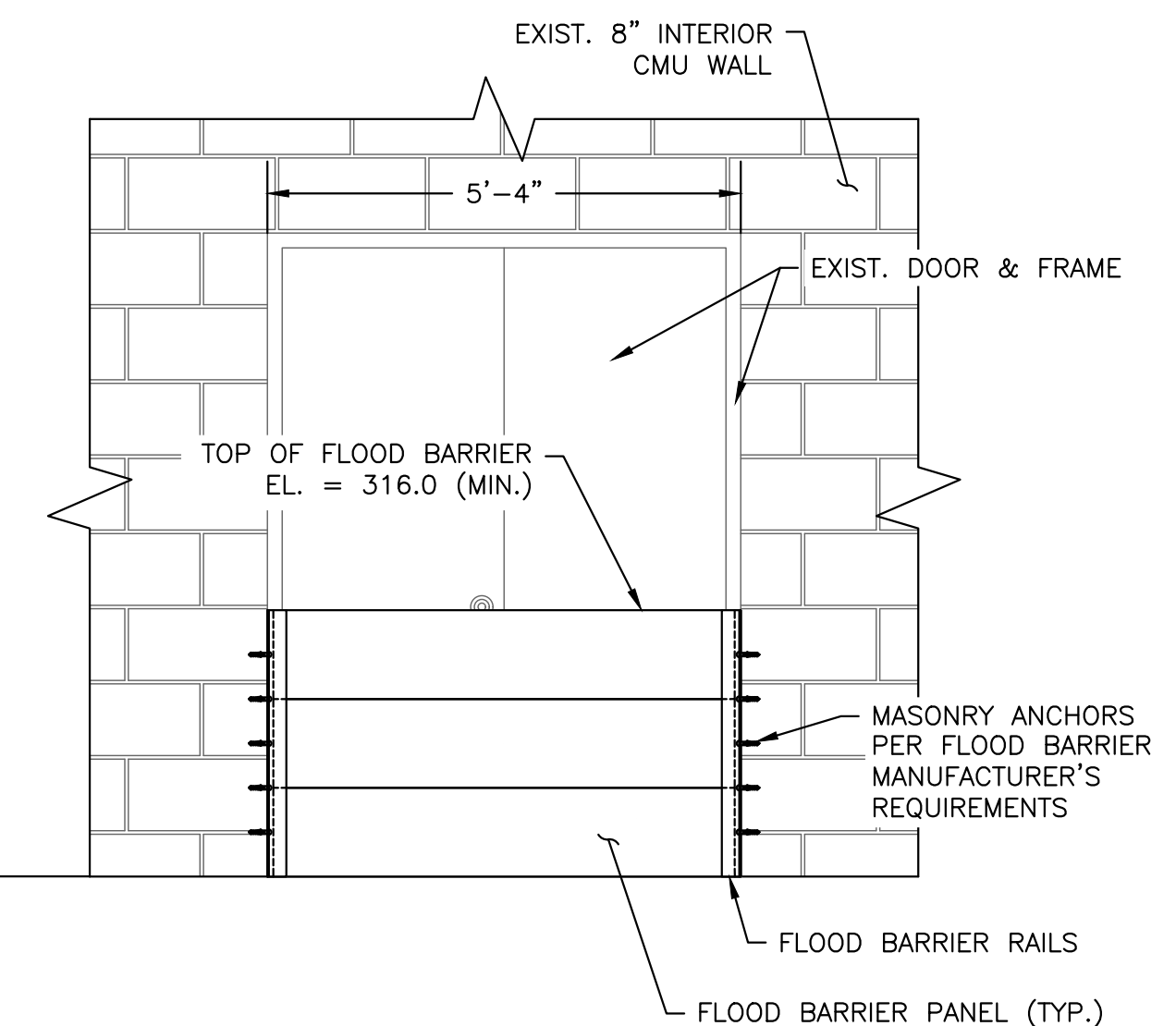
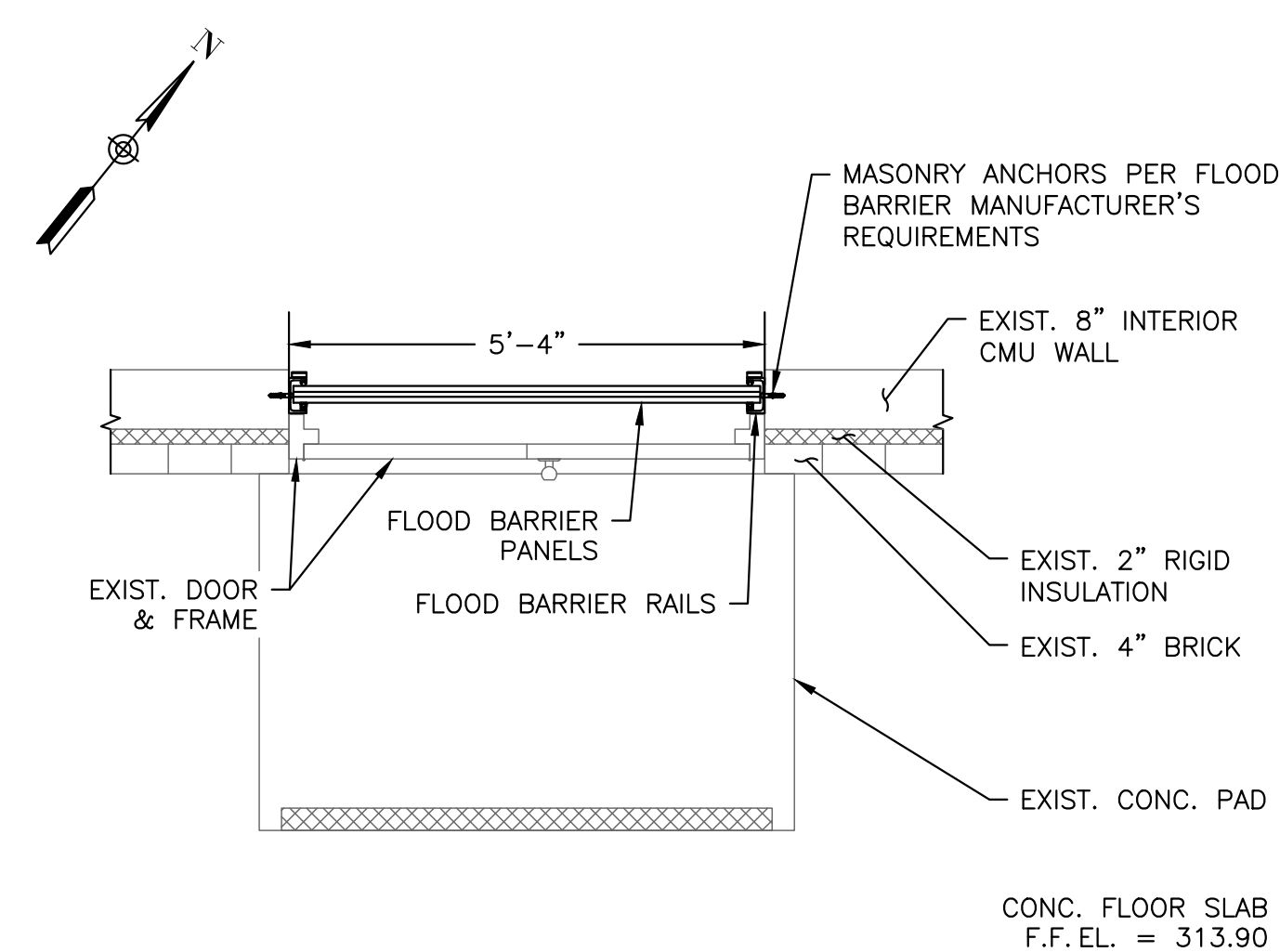
PAIN EXTERIOR ALUMINUM AS FOLLOWS:

1. SURFACE PREPARATION: PRESSURE WASH WITH OAKITE AND SAND AND WITH 3M SCOTCH-BRITE NYLON PADS.
2. ONE COAT:
 - 2.1. TNEMEC N69/66HS HI-BUILD EPOXOLINE AT 2.0 MILS DFT.
 - 2.2. PPG PMC AMERLOCK 400 HI-BUILD EPOXY AT 2.0 TO 3.0 MILS DFT.
 - 2.3. DUPONT 25P HIGH SOLIDS AT 4.0 MILS DFT.
3. AND ONE COAT:
 - 3.1. TNEMEC 73 ENDURA-SHIELD AT 2.0 MILS DFT.
 - 3.2. PPG PMC AMERCOAT 450H POLYURETHANE AT 3.0 MILS DFT.
 - 3.3. DUPONT HIGH SOLIDS IMRON 2.8 AT 4.0 MILS DFT.

LOUVER DETAILS
NOT TO SCALE



VENT RELOCATION AND CMU WALL REPAIR DETAIL
NOT TO SCALE



FLOOD BARRIER DETAIL
NOT TO SCALE

NO.	REVISIONS	DATE

DRAWN BY: CJM
DESIGNED BY: AJG
CHECKED BY: JRD
ISSUE DATE: JANUARY 2023
BETA JOB NO.: 6861-105

SCALE

AS SHOWN

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SHEET NO.

MD-4

GENERAL NOTES

- 1. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EXISTING DUCTS, PIPING OR EQUIPMENT INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. EXACT LOCATIONS MUST HAVE THE APPROVAL OF THE ARCHITECT.
2. ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
3. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH STATE CODES, MANUFACTURER'S APPROVED PUBLISHED LITERATURE, AND AUTHORITIES HAVING JURISDICTION.
4. INSTALLATION OF EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/ OR REPLACEMENT.
5. ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
6. HVAC CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER.
7. ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
8. PROVIDE VOLUME DAMPERS AT EVERY MAIN BRANCH TAKE-OFF AND AS INDICATED AND IN SUCH OTHER LOCATIONS WHERE REQUIRED TO PROPERLY BALANCE THE SYSTEM. DO NOT INSTALL VOLUME DAMPERS IN NECKS OF DIFFUSERS OR AT DISCHARGE OR INLET GRILLES IN DUCTWORK.
9. PROVIDE INSTRUMENT TEST HOLES WITH CAPS IN AIR DISTRIBUTION SYSTEMS AS REQUIRED TO BALANCE SYSTEM.
10. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHEETMETAL TRANSITIONS AT AIR TERMINAL UNITS, FANS, COILS, AND OTHER SIMILAR HVAC EQUIPMENT.
11. ALL OPEN ENDED DUCTS IN THE CEILING PLENUM SHALL BE UNOBSTRUCTED FOR A MINIMUM DISTANCE OF 24" FROM THE OPENING TO ALLOW FREE AIR FLOW AND SHALL HAVE 3/4" WIRE MESH SCREENING.
12. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY HVAC SUBCONTRACTOR.
13. EXACT LOCATION OF CEILING DIFFUSERS, GRILLES AND REGISTERS TO BE DETERMINED BY ARCHITECTURAL REFLECTED CEILING PLAN.
14. INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRES PIPING TO BE ABOVE.
15. EXACT ELEVATION FOR SIDE WALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION.
16. UNLESS OTHERWISE NOTED, ALL PIPING RUNOUTS SHALL BE 3/4"
17. ALL EXPOSED EQUIPMENT (REGISTERS, UNIT HEATERS, ETC.) SHALL HAVE COLORS SELECTED BY THE ARCHITECT, UNLESS NOTED OTHERWISE.
18. HVAC SUBCONTRACTOR SHALL BLANK OFF AND INSULATE ALL UNUSED LOUVER AREA.
19. PITCH AIR INTAKE PLENUMS AND PROVIDE DRAIN TO NEAREST FLOOR DRAIN.
20. ALL REGISTERS, GRILLES AND DIFFUSERS LOCATED IN WALLS NEAR FLOOR SHALL BE HEAVY-DUTY TYPE DESIGNED TO WITHSTAND RUGGED IMPACT. REFER TO SCHEDULE. THE SECTION OF DUCTWORK BEHIND THE AIR DEVICE SHALL BE PAINTED FLAT BLACK.
21. EXACT LOCATION OF THERMOSTAT TO BE COORDINATED WITH FINAL LOCATION OF WALL MOUNTED ARCHITECTURAL AND ELECTRICAL EQUIPMENT.
22. PROVIDE FLEXIBLE CONNECTOR ON INTAKES AND DISCHARGES OF ALL AIR HANDLING UNITS.
23. ROOF OPENINGS SHALL BE SIZED FROM APPROVED SHOP DRAWINGS.
24. ALL DAMPER MOTORS SHALL BE 24 VOLT.

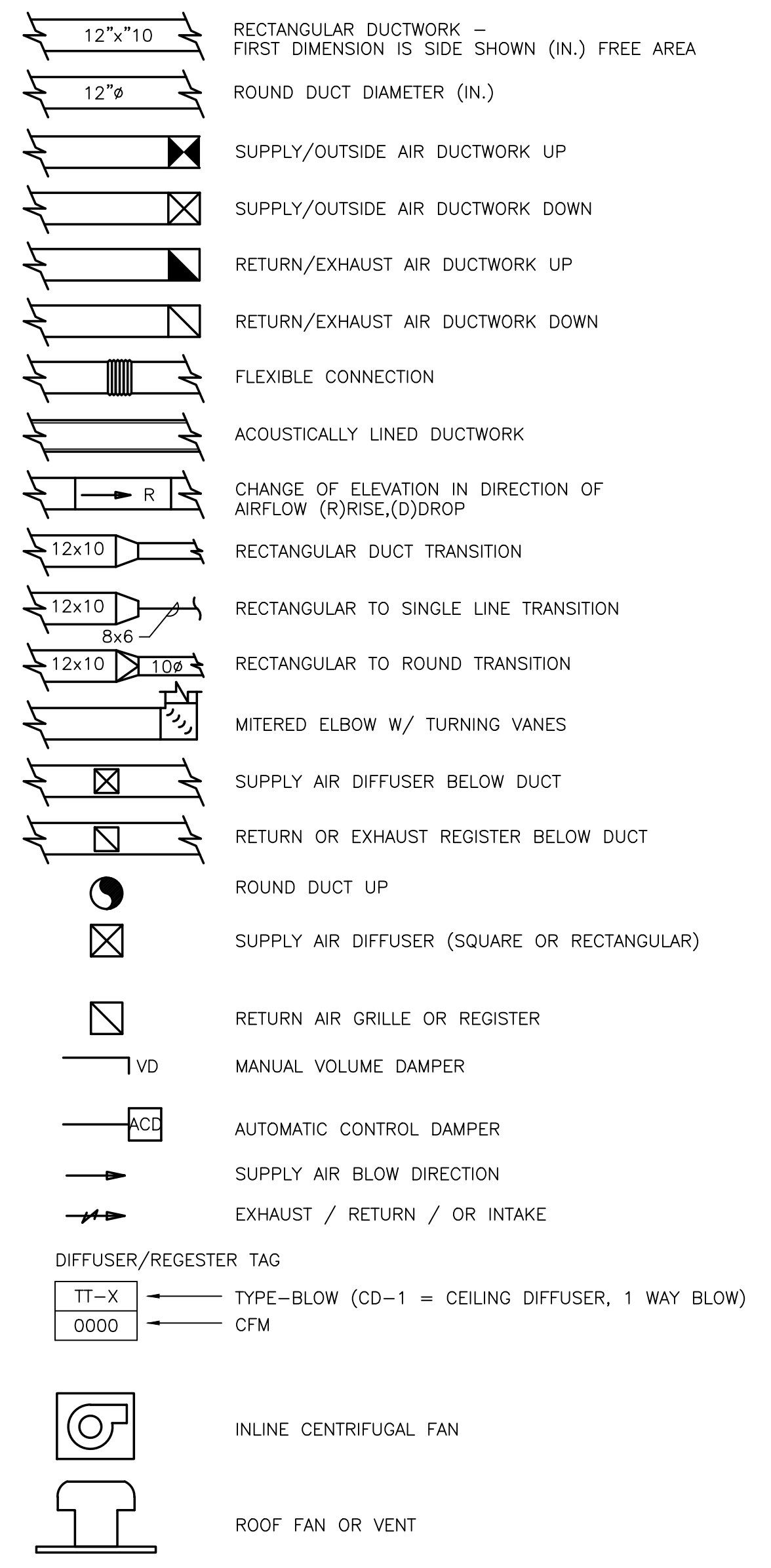
ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes terms like ACD (Automatic Control Damper), AFF (Above Finished Floor), AHAP (As High as Possible), AP (Access Panel), ARCH (Architect), ATC (Automatic Temperature Control), BDD (Backdraft Damper), BTU (British Thermal Unit), BTUH (British Thermal Unit per Hour), BOD (Bottom of Duct), CAP (Capacity), CD (Ceiling Diffuser), CFM (Cubic Feet per Minute), CO (Cleanout), CONT (Controller), CP (Cut and Cap), DIA (Diameter), DB (Dry Bulb Temperature), DC (Dust Collector), DDC (Direct Digital Control), DN (Down), DWG (Drawing), DX (Direct Expansion Cooling), EA (Exhaust Air), EAT (Entering Air Temperature), EBB (Electric Baseboard Radiation), ECH (Electric Cabinet Heater), ECON (Air-Side Economizer), EF (Exhaust Fan), EFF (Efficiency), ELV (Elevation), ER (Exhaust Register), ESP (External Static Pressure), ETR (Existing to Remain), EWT (Entering Water Temperature), EXH (Exhaust), FA (Free Area), FD (Fire Damper), FLA (Full Load Amps), FOB (Flat on Bottom), FOT (Flat on Top), FPI (Fins per Inch), FPM (Feet per Minute), FT (Feet), FTR (Finned Tube Radiation), GAL (Gallons), GALV (Galvanized), GC (General Contractor), GF (Glycol Feed), GPM (Gallons per Minute), HP (Horsepower), HVAC (Heating, Ventilating and Air Conditioning), HGRH (Hot Gas Reheat), HW (Hot Water), HZ (Hertz), IN (Inches), KE (Kitchen Exhaust), KW (Kilowatts), LAT (Leaving Air Temperature), LD (Linear Diffuser), LF (Linear Feet), LWT (Leaving Water Temperature), MBH (Thousands of BTU's per Hour), MCC (Motor Control Center), NC (Normally Closed), NIC (Not in Contract), NO (Normally Open), NTS (Not to Scale), OA (Outside Air), OAT (Outside Air Temperature), OBD (Opposed Blade Damper), OD (Outside Diameter), OED (Open Ended Duct), POS (Provided Under Other Sections), PSI (Pounds per Square Inch (Gauge)), PD (Pressure Drop), PRV (Pressure Reducing Valve), PG (Propylene Glycol), R (Return), RA (Return Air), RB (Rebalance), RF (Return/Exhaust Fan), RG (Return Grille), RM (Room), RPM (Revolutions per Minute), RR (Return Register), S (Supply), SA (Supply Air), SAT (Supply Air Temperature), SF (Square Feet, Supply Fan), SP (Static Pressure), SR (Supply Register), SS (Stainless Steel), STL (Steel), TYP (Typical), UC (Undercut Door), V (Volts), VAV (Variable Air Volume), VD (Volume Damper), VFD (Variable Frequency Drive), W/ (With), W/O (Without), WB (Wet Bulb Temperature), WG (Water Gauge), WMS (Wire Mesh Screen).

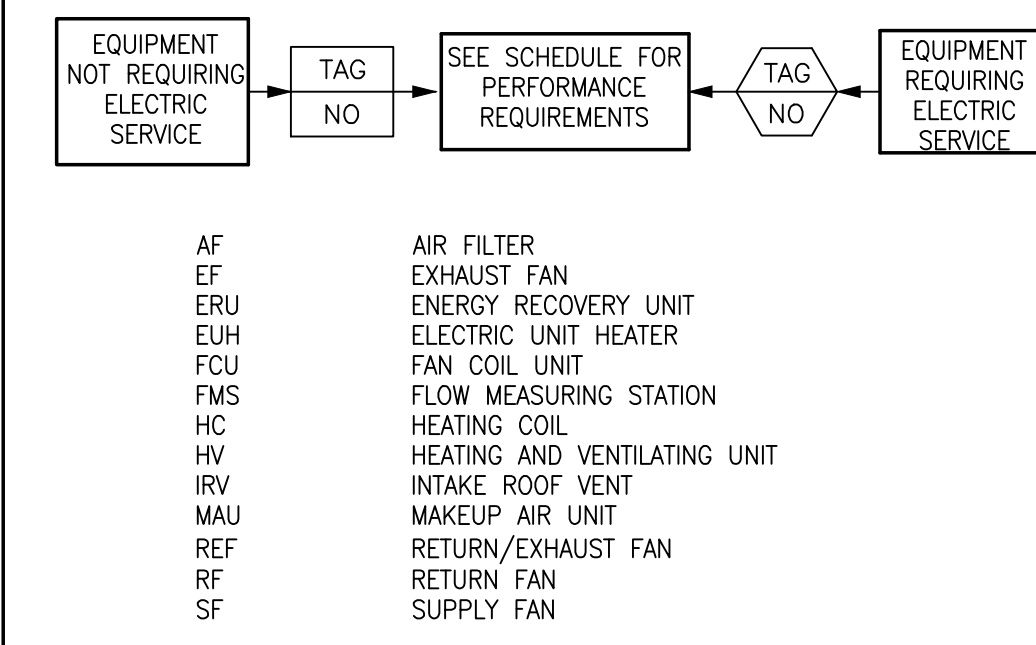
PIPING LEGEND



DUCTWORK LEGEND/SYMBOLS



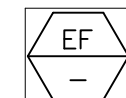
EQUIPMENT TAG SYMBOLS & ABBREVIATIONS



INSTRUMENTATION

Table of instrumentation symbols: (PI) LOCAL PRESSURE GAUGE W/SHUTOFF AND SNUBBER, (DP) DIFFERENTIAL PRESSURE GAUGE W/SHUTOFFS AND SNUBBERS, (TI) LOCAL TEMPERATURE INDICATION, (Th) HEATING ONLY THERMOSTAT, (Tc) COOLING ONLY THERMOSTAT, (T) HEATING/COOLING THERMOSTAT, (TT) TEMPERATURE TRANSMITTER, (PT) PRESSURE TRANSMITTER, (SD) SMOKE DETECTOR, (HD) HEAT DETECTOR, (FT) FLOW TRANSMITTER, (SP) STATIC PRESSURE SENSOR, (H) HUMIDITY SENSOR OR HUMIDISTAT, (CO2) CARBON DIOXIDE DETECTOR, (CO) CARBON MONOXIDE DETECTOR, (OS) OCCUPANCY SWITCH, (PS) PRESSURE SENSOR SWITCH, (S) OCCUPIED/UNOCCUPIED SWITCH.

Project information block including: PREPARED BY (BETA logo), REGISTERED PROFESSIONAL, SUBCONSULTANT (SAR ENGINEERING, INC. logo), PROJECT (BURRILLVILLE WWTF HEADWORKS & OAKLAND PUMP STATION IMPROVEMENTS), BURRILLVILLE, RI, TITLE (Hvac Legend and Notes), REVISIONS table, DRAWN BY (RLB), DESIGNED BY (RLB), CHECKED BY (RHB), ISSUE DATE (AUGUST 2022), BETA JOB NO. (6861-105), SCALE (NONE), 90% REVIEW SET, SHEET NO. (H-0.1).



EXHAUST FAN SCHEDULE

TAG NO.	LOCATION	CFM	ESP (IN WC)	SPEED (RPM)			ELECTRICAL DATA				MANUFACTURER & MODEL #	REMARKS
				FAN	MOTOR	DRIVE	HP	V	PH	HZ		
EF-1	ROOF	3,800	3.0	1636	1800	BELT	5	480	3	60	MK PLASTICS CNW 315	①②

① VFD RATED MOTOR ② FRP CONSTRUCTION



ELECTRIC UNIT HEATER SCHEDULE

TAG NO.	BUILDING	CAPACITY KW	FAN DATA				MANUFACTURER MODEL NUMBER	REMARKS
			CFM	V	PH	HZ		
EUH-1	HEADWORKS BUILDING	5	400	480	3	60	QMARK GUX5004832-D	EXPLOSION PROOF, WITH DISCONNECT

DIFFUSER, REGISTER & GRILLE SCHEDULE

TAG NO.	MODULE SIZE (IN)	ROUND APARTER SIZE (IN)	FLEX DUCT SIZE (IN)	SQUARE DUCT SIZE (IN)	SERVICE	CFM RANGE		MAX. NC LEVEL	MANUFACTURER & MODEL NO.	REMARKS
						MIN	MAX			
SR-1	-	-	-	N/A	SUPPLY	-	-	-	-	
ER-1	-	-	-	N/A	EXHAUST	-	-	-	-	

PREPARED BY



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REGISTERED PROFESSIONAL

SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Hvac Schedules

NO. REVISIONS DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: RHB

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

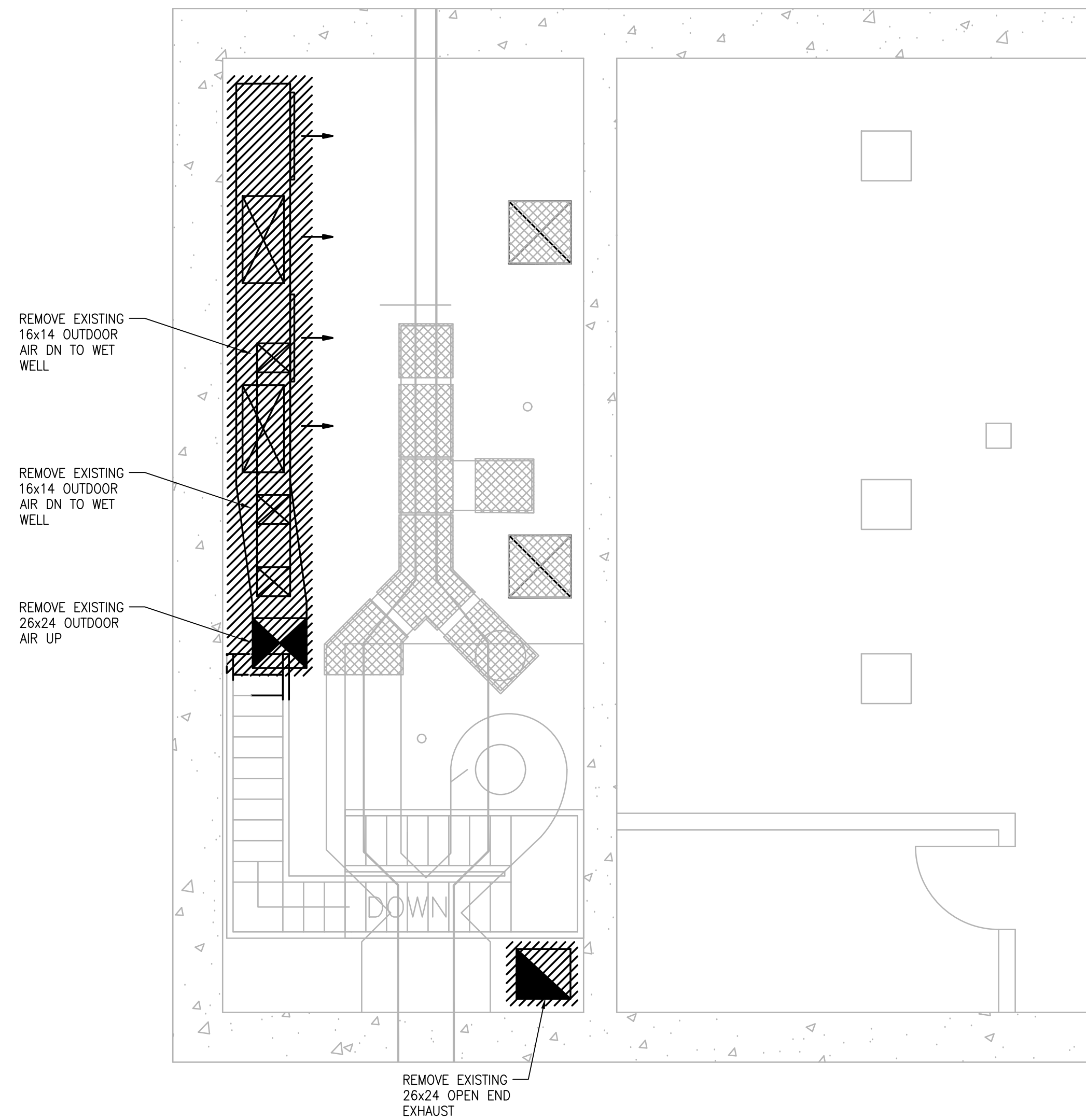
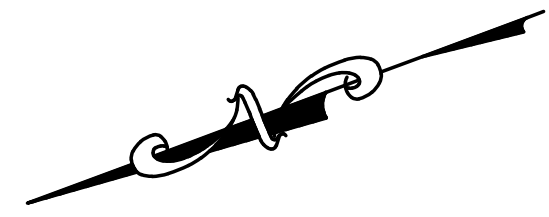
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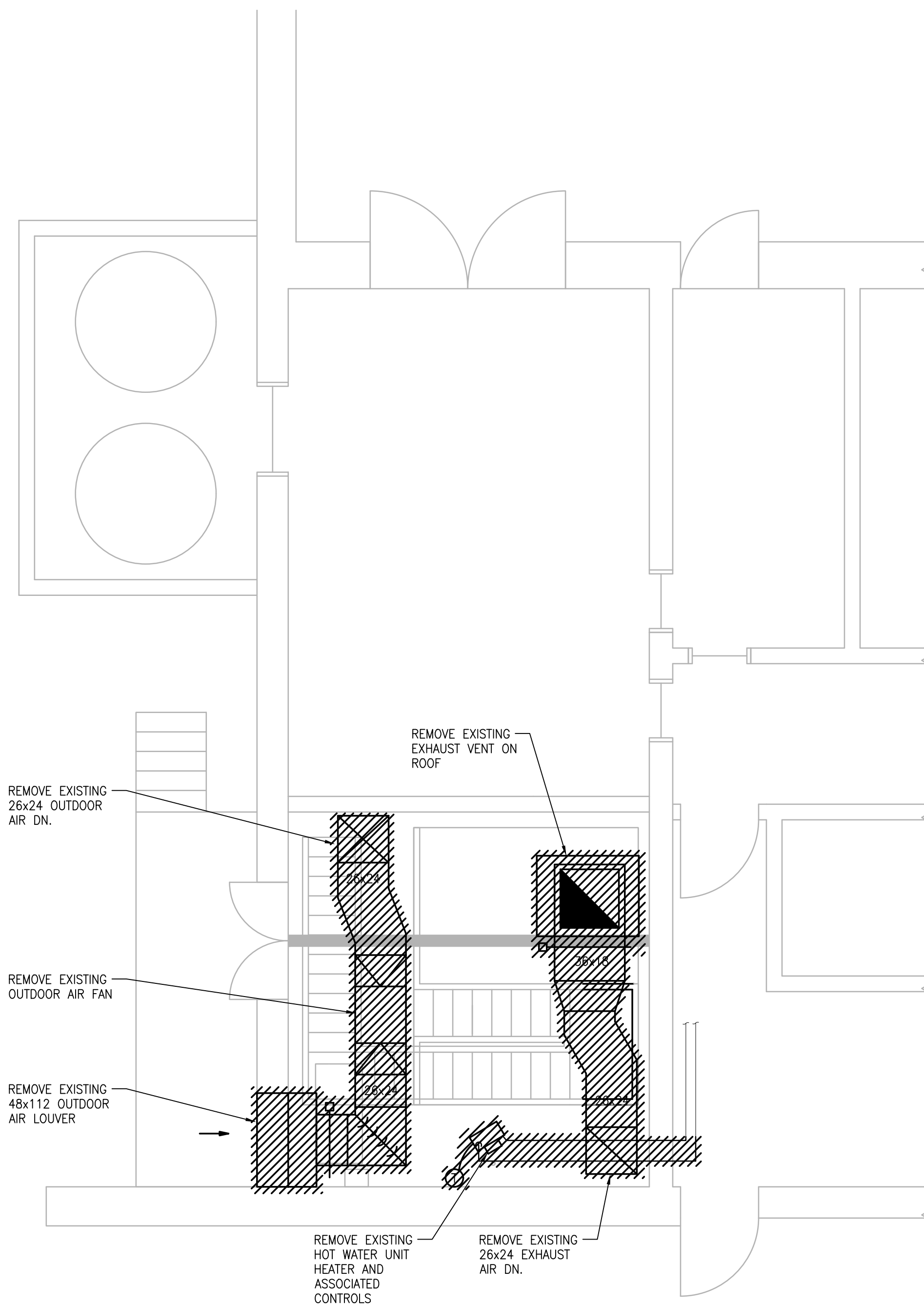
SHEET NO.

H-0.2



LOWER LEVEL DEMOLITION PLAN

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



UPPER LEVEL DEMOLITION PLAN

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

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Headworks

Hvac
Demolition
Plans

NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: RHB

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

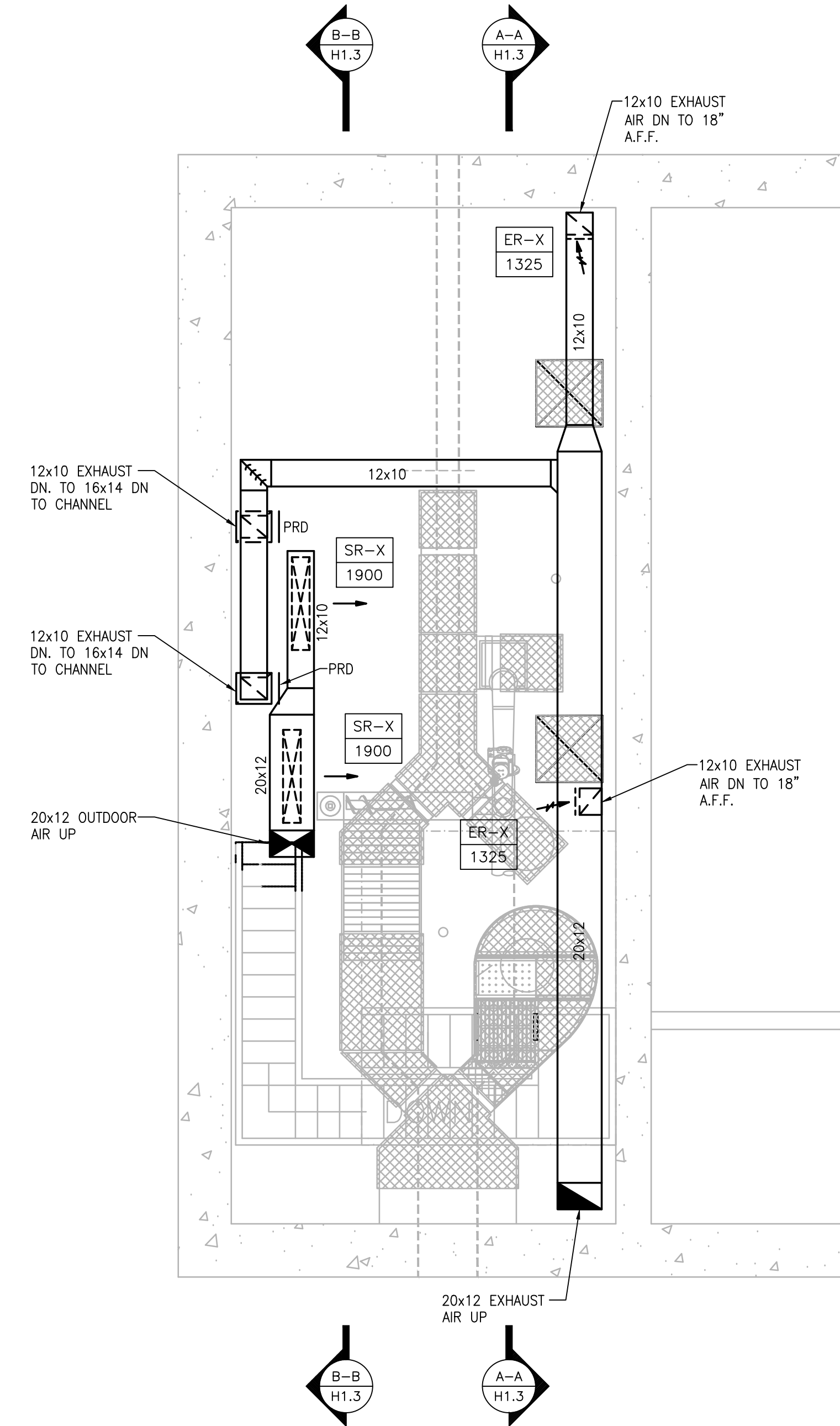
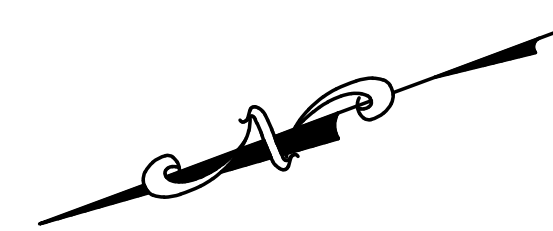
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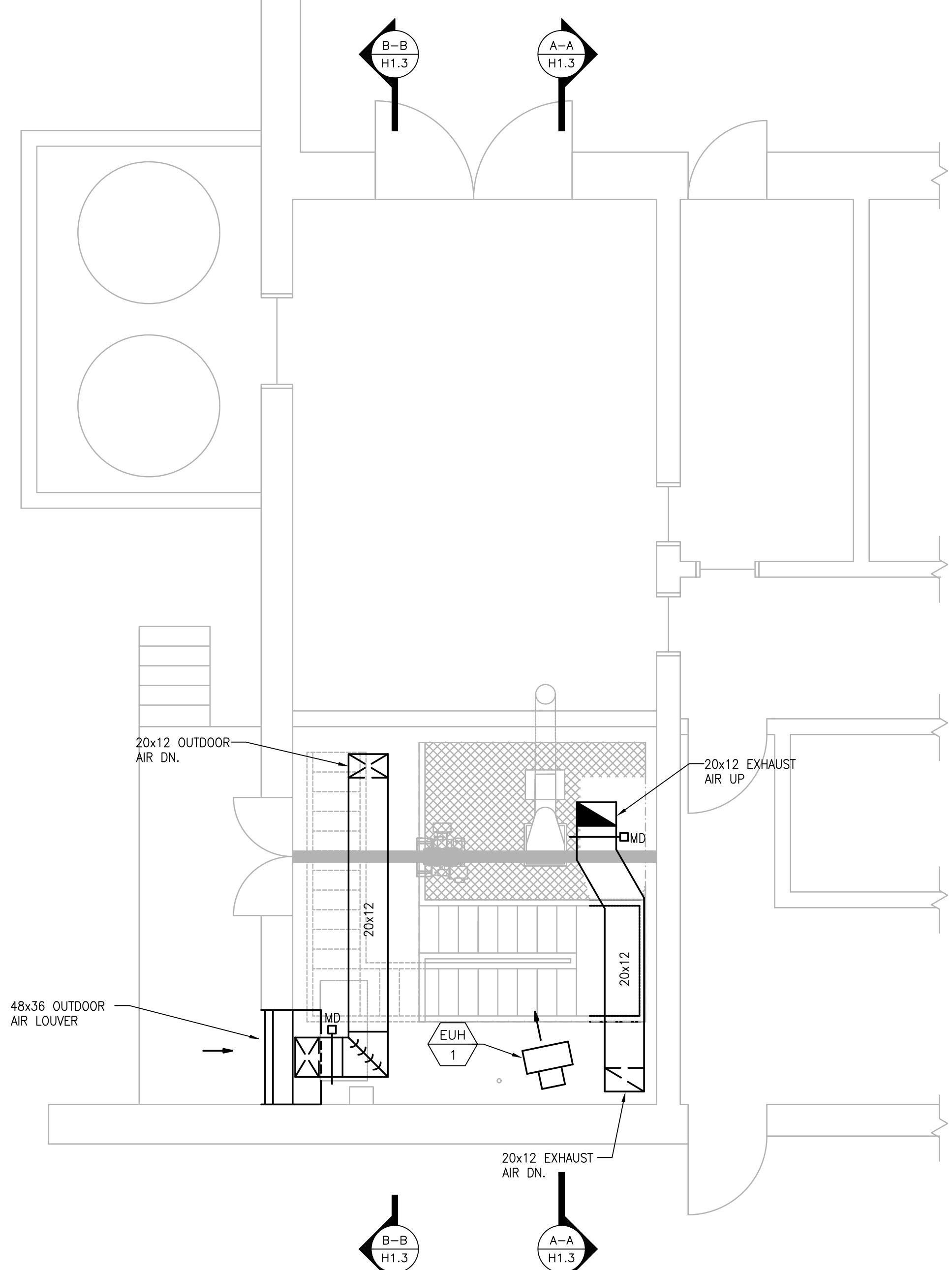
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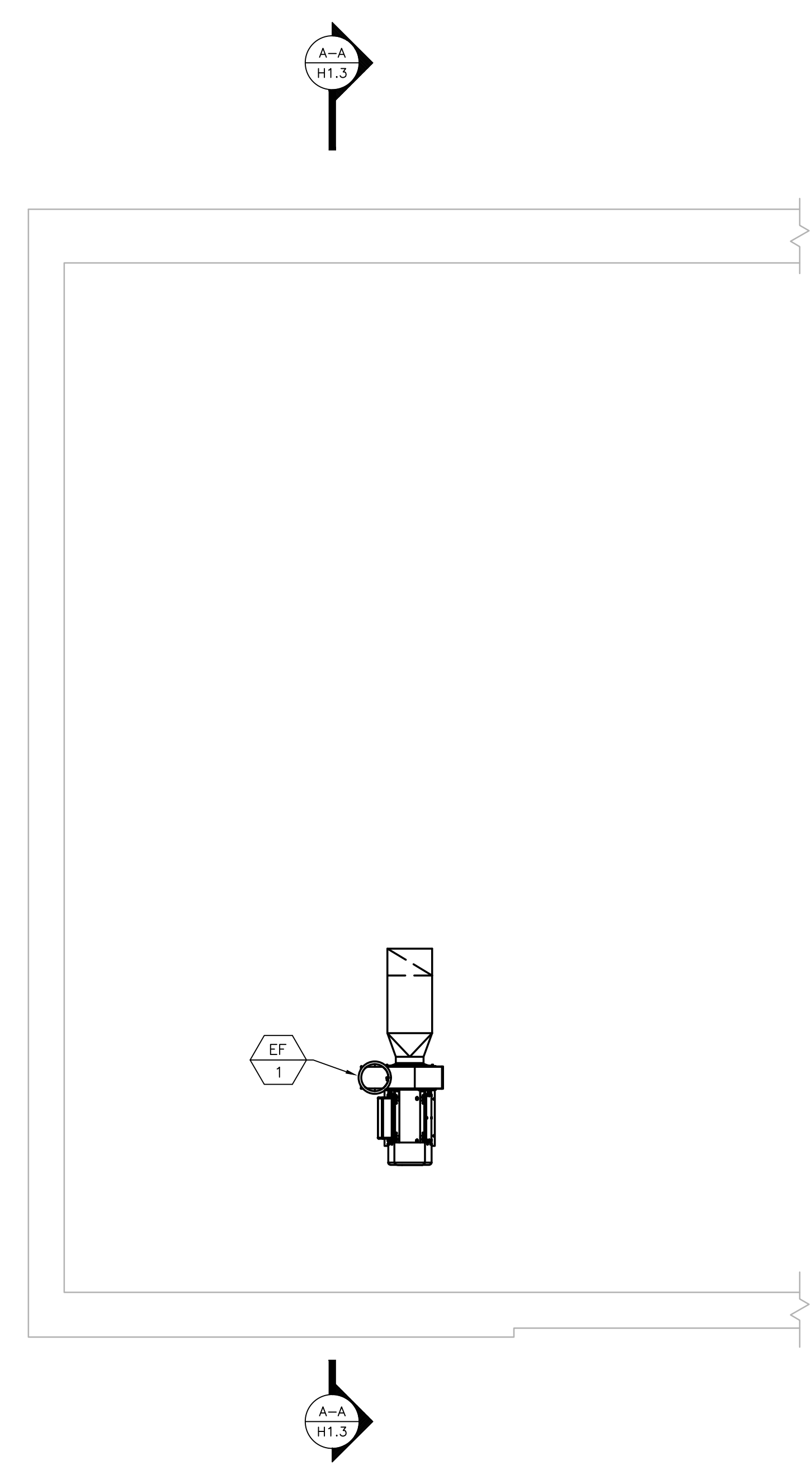
SHEET NO. **H-1.1**



LOWER LEVEL NEW WORK PLAN
SCALE: 1/4"=1'-0"



UPPER LEVEL NEW WORK PLAN
SCALE: 1/4"=1'-0"



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

PREPARED BY
BETA
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SUBCONSULTANT
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PROJECT
**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE
Headworks

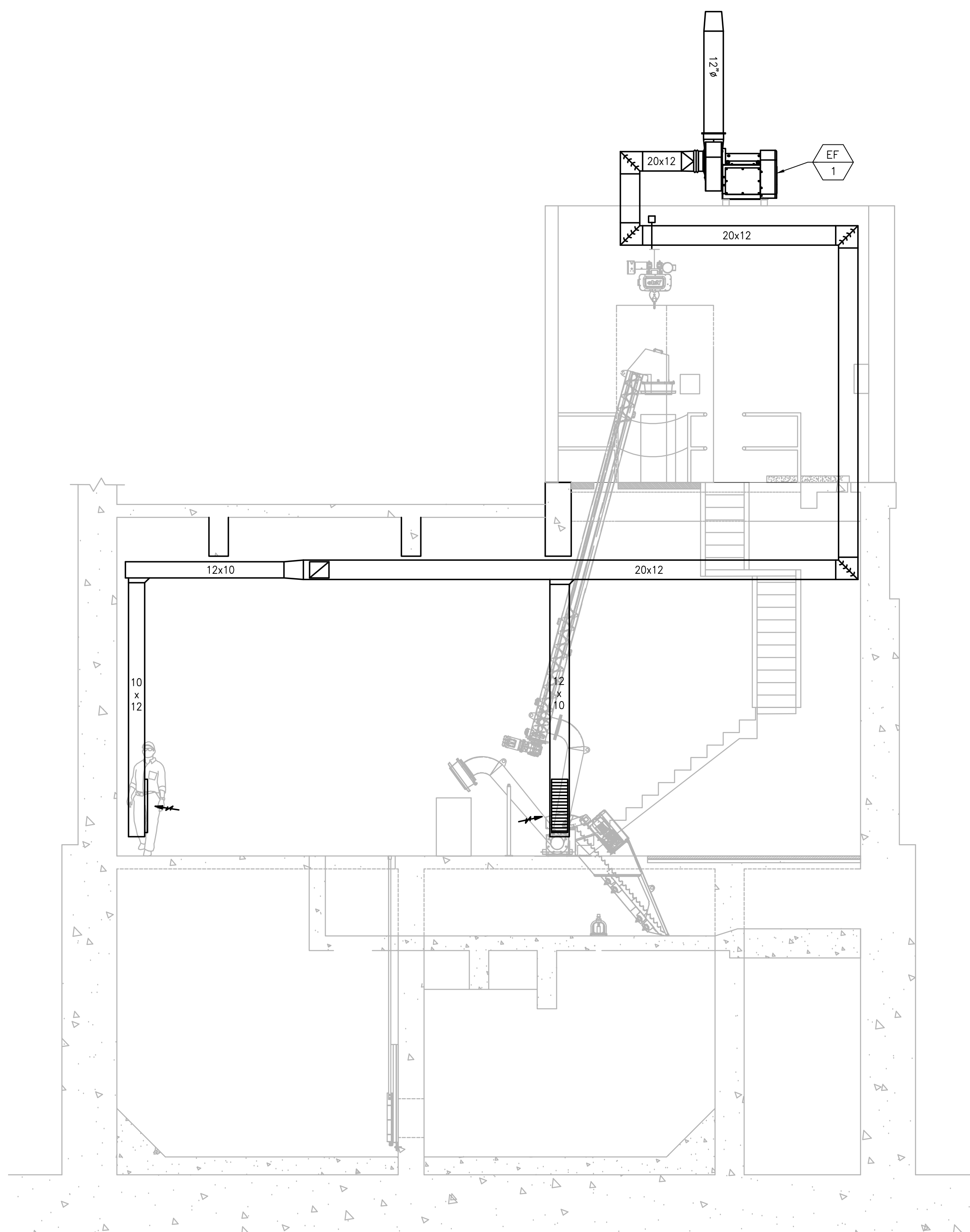
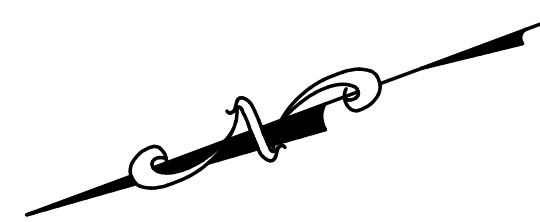
Hvac New
Work Plans

NO.	REVISIONS	DATE

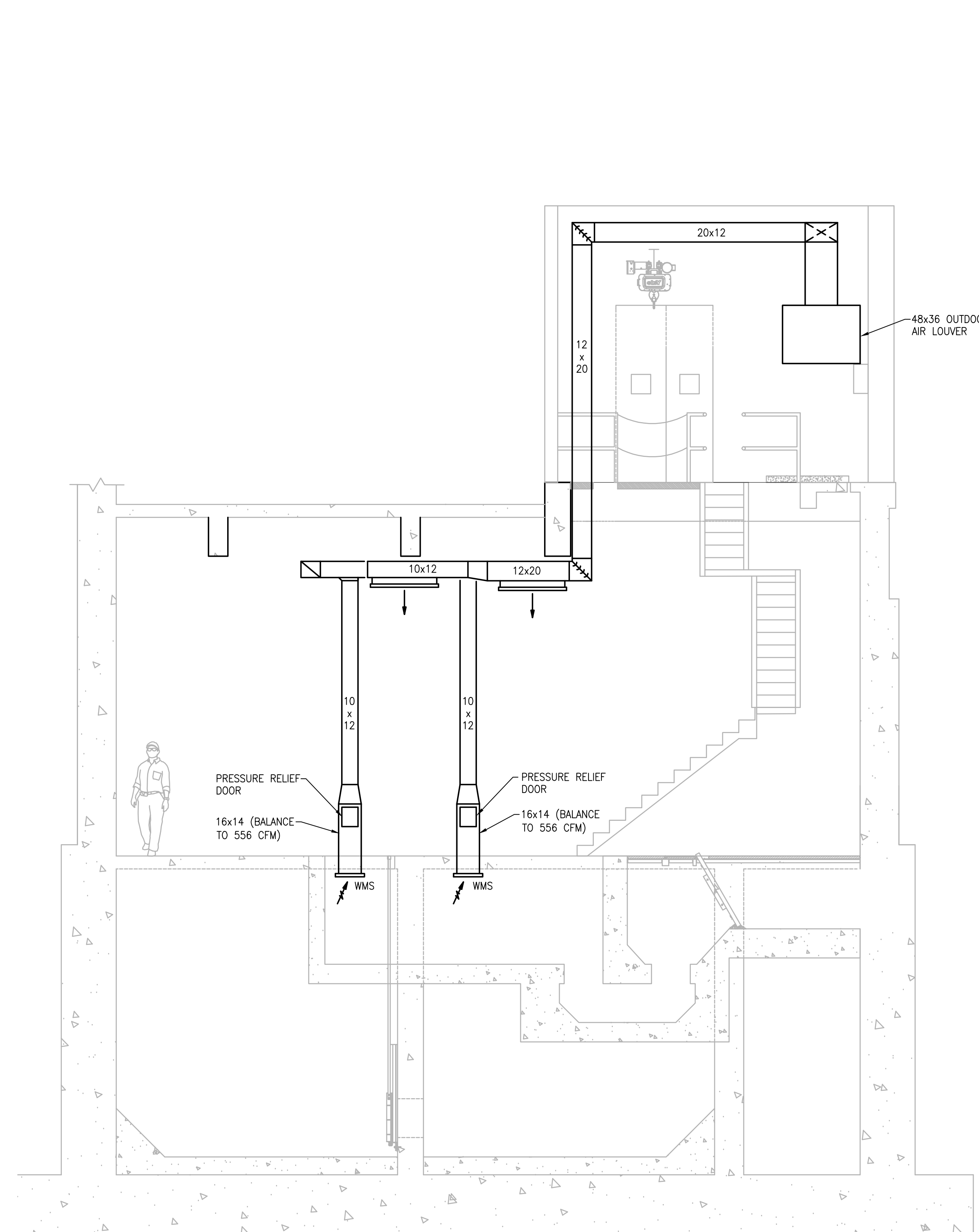
DRAWN BY: RLB
DESIGNED BY: RLB
CHECKED BY: RHB
ISSUE DATE: AUGUST 2022
BETA JOB NO.: 6861-105

SCALE
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SCALE IN FEET: 1"=4'

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SHEET NO. **H-1.2**



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



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

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Headworks

Hvac Sections

NO.	REVISIONS	DATE
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ISSUE DATE: AUGUST 2022

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SCALE



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SHEET NO.

H-1.3

PLUMBING NOTES

- THE WORK COVERED CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL COMPLETE AND READY FOR CONTINUOUS OPERATION, THE PLUMBING SYSTEMS, APPARATUS AND EQUIPMENT FOR THIS PROJECT.
- ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE PLUMBING SUB-CONTRACT, LABOR AND TESTING PERFORMED HEREIN SHALL BE IN COMPLETE ACCORDANCE WITH THE STATE BUILDING CODE, LOCAL FUEL GAS AND PLUMBING CODES, ALL LOCAL CODES AND REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.
- ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIAL SHALL BE OBTAINED AS PART OF THE WORK OF THE SPECIFICATION INCLUDING ALL FEES OR EXPENSES INCURRED.
- FOR PLUMBING SCHEDULES, REFER TO DRAWING P00.01.
- FOR PLUMBING DETAILS, REFER TO DRAWINGS P03.01.
- ALL PRODUCTS USED AS PART OF THE POTABLE WATER SYSTEM WHERE THE INTENDED PURPOSE IS TO DELIVER OR CONVEY POTABLE WATER FOR HUMAN CONSUMPTION SHALL BE LEAD FREE AND CONFORM TO THE LATEST "LEAD FREE" LAW.
- WHERE WATER PIPING IS SHOWN DROPPING INTO PLUMBING CHASES WITH SIZES NOTED, THAT SIZE SHALL BE CARRIED FULL LENGTH THROUGH THE CHASE. REFER TO PLUMBING FIXTURE SCHEDULE ON THIS DRAWING FOR INDIVIDUAL FIXTURE CONNECTION SIZES.
- UNLESS OTHERWISE NOTED, ALL HORIZONTAL DRAINAGE PIPING WHICH IS 3" OR LESS IN DIAMETER SHALL PITCH OF NOT LESS THAN 1/4" PER FOOT AND ALL HORIZONTAL DRAINAGE PIPING WHICH IS 4" OR LARGER IN DIAMETER SHALL PITCH OF NOT LESS THAN 1/8" PER FOOT.
- ALL BELOW FLOOR PIPING THAT INTERSECTS A GRADE BEAM REQUIRES COORDINATION WITH STRUCTURAL.
- PROVIDE ALL FLOOR CLEANOUTS WITH HUB AND SPIGOT; LEAD AND OAKUM JOINTS FROM CLEANOUT TO AND INCLUDING CONNECTION TO SANITARY OR STORM DRAIN.
- REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND HEIGHT OF ALL PLUMBING FIXTURES.
- MISCELLANEOUS DISCREPANCIES OR OMISSIONS WHICH MIGHT APPEAR ON THE PLANS OR SPECIFICATIONS WILL NOT RELIEVE THE PLUMBING SUB-CONTRACTOR OF CODE COMPLIANCE.
- ALL FLOOR DRAINS SHALL BE PROVIDED WITH A TRAP PRIMER CONNECTION. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED EQUIPMENT NECESSARY TO PROVIDE A COMPLETE SYSTEM.
- PROVIDE CLEANOUTS AT ALL CHANGE OF DIRECTIONS FOR STORM AND SANITARY/WASTE PIPING.
- PROVIDE DANDY CLEANOUTS AT ALL EXPOSED STORM AND SANITARY/WASTE PIPING 18 INCHES (APPROXIMATELY) ABOVE FINISHED FLOOR WHERE PIPING GOES BELOW FINISHED FLOOR/GRADE.
- PROVIDE WALL CLEANOUTS WITH ACCESS PANELS AT ALL STORM AND SANITARY/WASTE PIPING WITHIN PIPE CHASES OR WALLS.
- HANDICAPPED ACCESSIBLE FIXTURES SHALL BE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES AND THE RULES AND REGULATIONS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD. WHERE THE TWO STANDARDS DIFFER, THE MORE STRINGENT SHALL APPLY.
- ALL INTERIOR BURIED DOMESTIC WATER PIPING, NON-POTABLE WATER PIPING, TEMPERED WATER PIPING OR AIR PIPING SHALL BE SOFT ROLLED "K" COPPER COIL AND BE PROTECTED WITH A HIGH DENSITY RUBBER INSULATION. FITTINGS SHALL NOT BE PERMITTED IN OR UNDER SLAB. PROVIDE SLAB PENETRATIONS WITH SLEEVE AND FIRE STOPPING.

PLUMBING DEMOLITION NOTES

- UNLESS OTHERWISE NOTED, ALL EXISTING PLUMBING SYSTEMS WITHIN HATCH MARKS (COLD WATER, HOT WATER, HOT WATER RETURN, SANITARY, RAIN LEADERS, ETC) AND ASSOCIATED EQUIPMENT IS TO BE DEMOLISHED OR SALVAGED. REMOVE THE EQUIPMENT TO BE DEMOLISHED OR SALVAGED PER SECTION 02050. ALL CONTROL DEVICES ASSOCIATED WITH THE DEMOLISHED EQUIPMENT SHALL BE REMOVED.
- NO PIPING OR EQUIPMENT INDICATED FOR DEMOLITION WILL BE REUSED OR SALVAGED UNLESS SPECIFICALLY NOTED AS SUCH. ALL EQUIPMENT REMOVED SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF. PRIOR TO REMOVAL OF EQUIPMENT COORDINATE WITH OWNER FOR ANY EQUIPMENT THE OWNER WILL KEEP.
- EXISTING EQUIPMENT INDICATED ON THE DEMOLITION PLANS ARE BASED ON SITE OBSERVATIONS AND IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT AND MATERIALS TO BE DISCONNECTED AND/OR REMOVED.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
—————	ETR	LIGHT LINE INDICATES EXISTING PIPING TO REMAIN
	RE	REMOVE EXISTING PIPING
⊙	CTE	CONNECT TO EXISTING
—X—X—	C&C	CUT & CAP
=====		BELOW FLOOR PIPING (INDICATED AS DOUBLE LINEWORK)
— — —	CW	COLD WATER
—NPCW—	NPCW	NON-POTABLE COLD WATER
—NPHW—	NPHW	NON-POTABLE HOT WATER
—————	S or W	SOIL OR WASTE
-----	V	VENT
—————	RW	RAIN WATER CONDUCTOR
—————	CONT	CONTINUATION
—————	UP	PIPE RISE OR UP
—————	DN	PIPE DROP OR DOWN
—○—	TEE	PIPE TEE
— —	SOV	SHUT-OFF VALVE
— —	PRV	PRESSURE REDUCING VALVE
— —	CV	CHECK VALVE
— —	BVA	BALANCING VALVE ASSEMBLY
—○—	W & T	WASTE & TRAP
— —	CO	CLEANOUT PLUG
—○—	FCO	FLUSH FLOOR CLEANOUT
— —	DCO	DANDY CLEANOUT
— —		CAPPED PIPE
→		ARROW INDICATES DIRECTION OF FLOW
→.01		ARROW INDICATES DIRECTION OF SLOPE
— —		UNION
—X—	PA	PIPE ANCHORS
— —	PGD	PIPE GUIDES
—+—	HB	HOSE BIBB
—+—	WH	WALL HYDRANT
①		DIAGRAM NO. & DWG. NO. REFERENCE
⊙	FD "A"	FLOOR DRAIN & TYPE
⊙	RD "A"	ROOF DRAIN & TYPE

PLUMBING LEGEND

ABBREVIATION	DESCRIPTION
WH-1	WATER HEATER & NUMBER
SS	SOIL STACK
VS	VENT STACK
VTR	VENT THRU ROOF
INV	INVERT
TMV	THERMOSTATIC MIXING VALVE
TW	TEMPERED WATER (70°F)
TYP	TYPICAL
NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR
LPC	LIMIT OF PLUMBING CONTRACT
GC	GENERAL CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
HVAC	HVAC CONTRACTOR
LPC	LIMIT OF PLUMBING CONTRACT
WC	WATER CLOSET
UR	URINAL
LAV	LAVATORY
MR	MOP RECEPTOR
SHR	SHOWER
DF	DRINKING FOUNTAIN
SK	SINK
F & I	FURNISH & INSTALL
S=.01	SLOPE = 1/8" PER FOOT
S=.02	SLOPE = 1/4" PER FOOT
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
F.F.E.	FINISHED FLOOR ELEVATION


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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Plumbing Legend
and Notes**

NO.	REVISIONS	DATE

DRAWN BY: RLB
DESIGNED BY: RLB
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BETA JOB NO.: 6861-105

SCALE

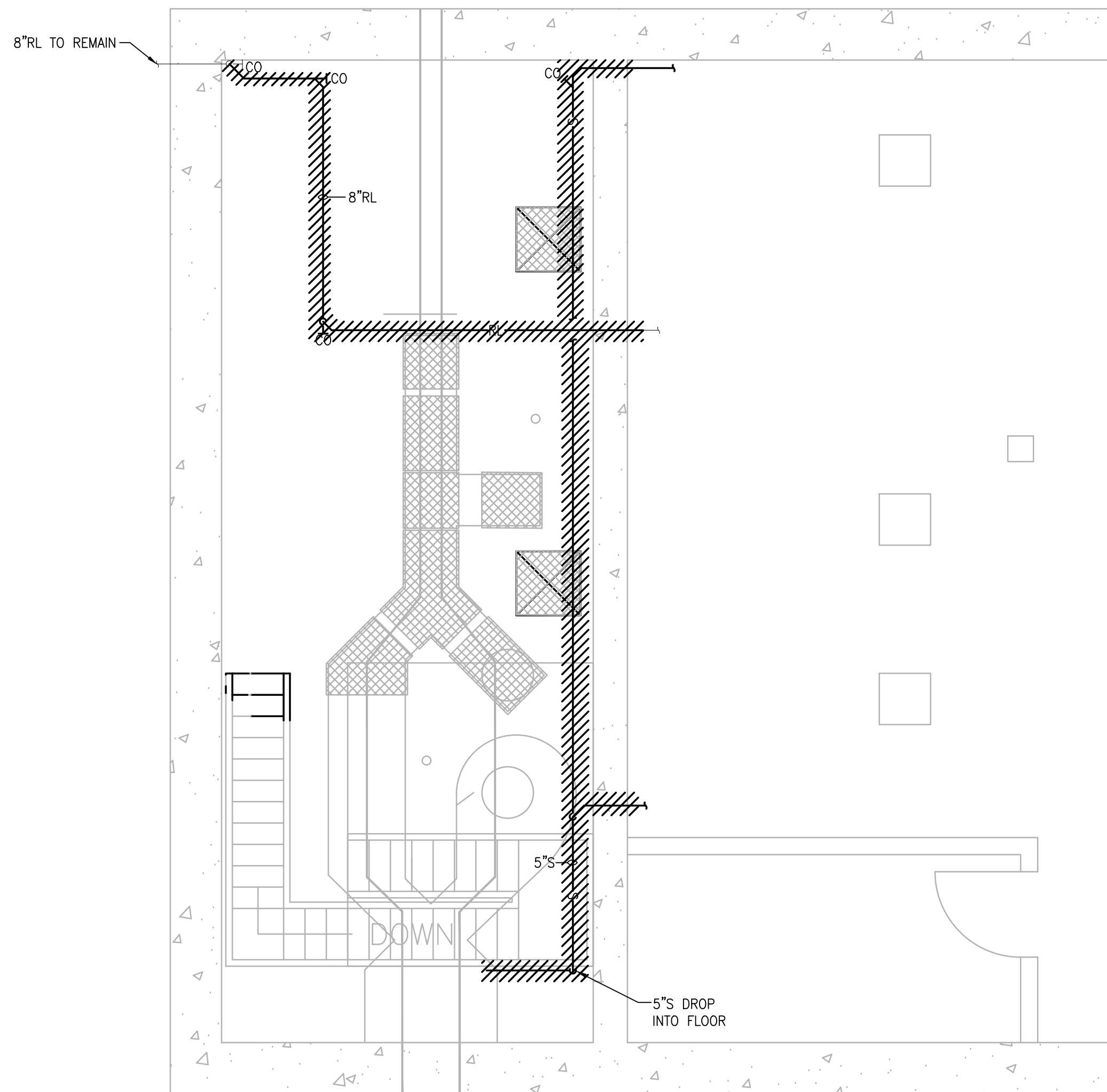
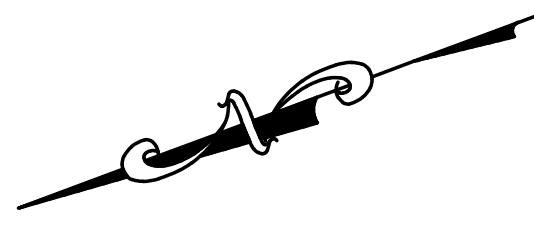
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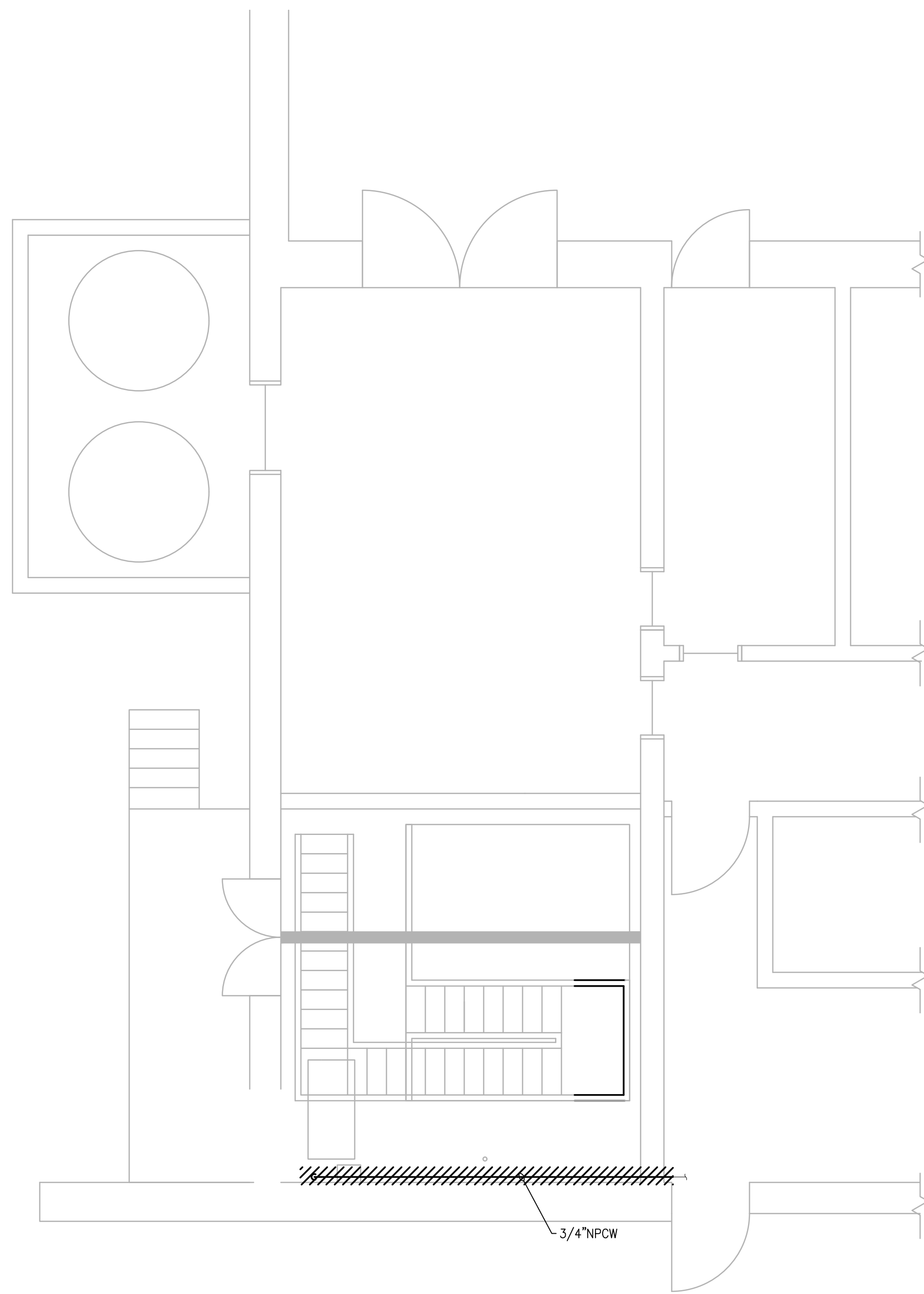
SHEET NO.

P-0.1



LOWER LEVEL DEMOLITION PLAN

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



UPPER LEVEL DEMOLITION PLAN

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

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Headworks

Plumbing
Demolition
Plans

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DRAWN BY: RLB

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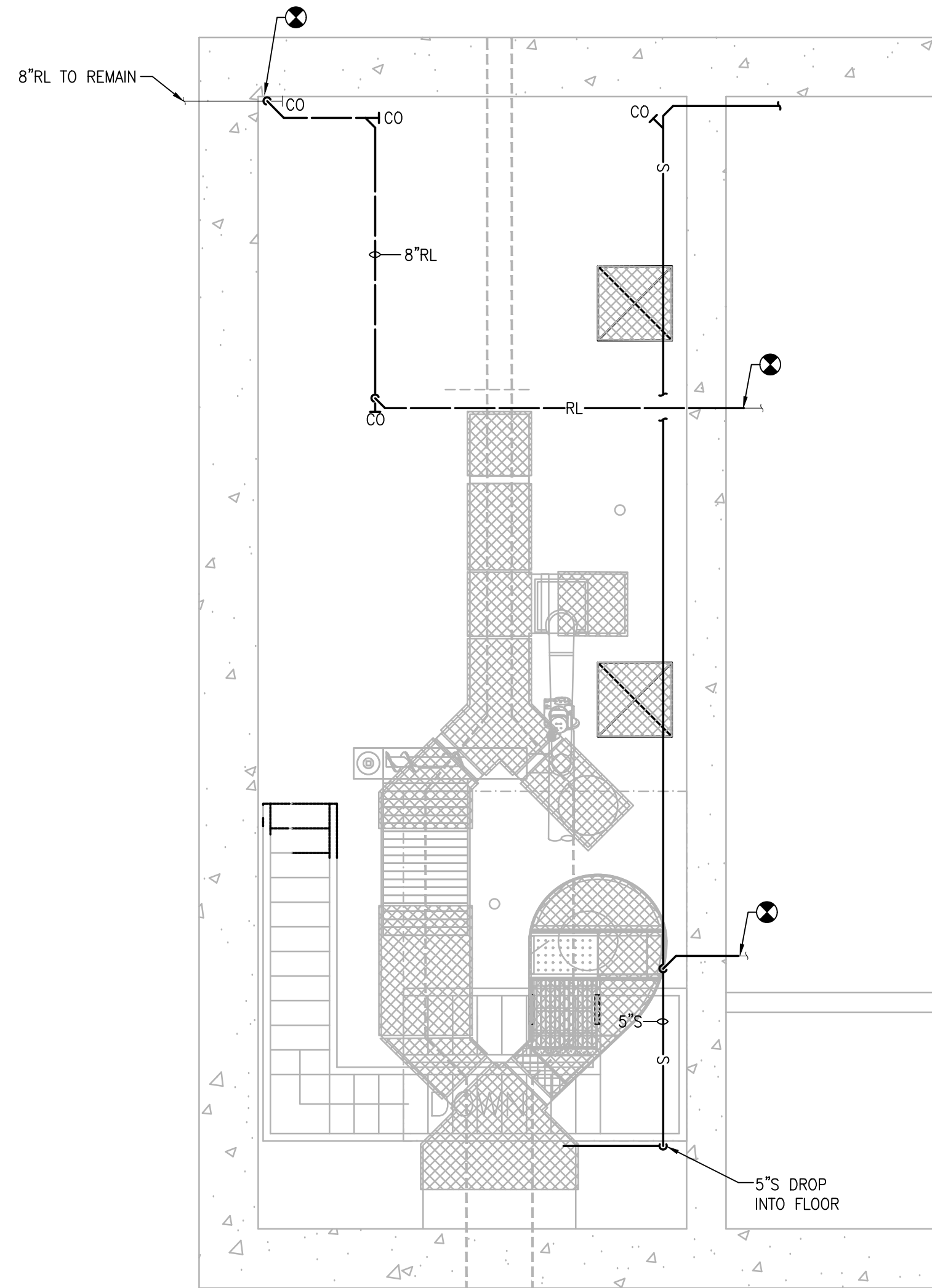
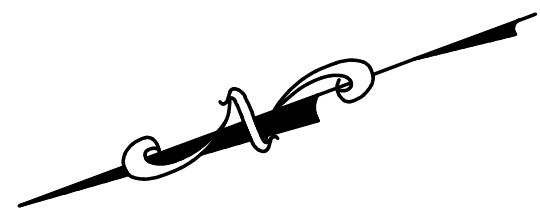


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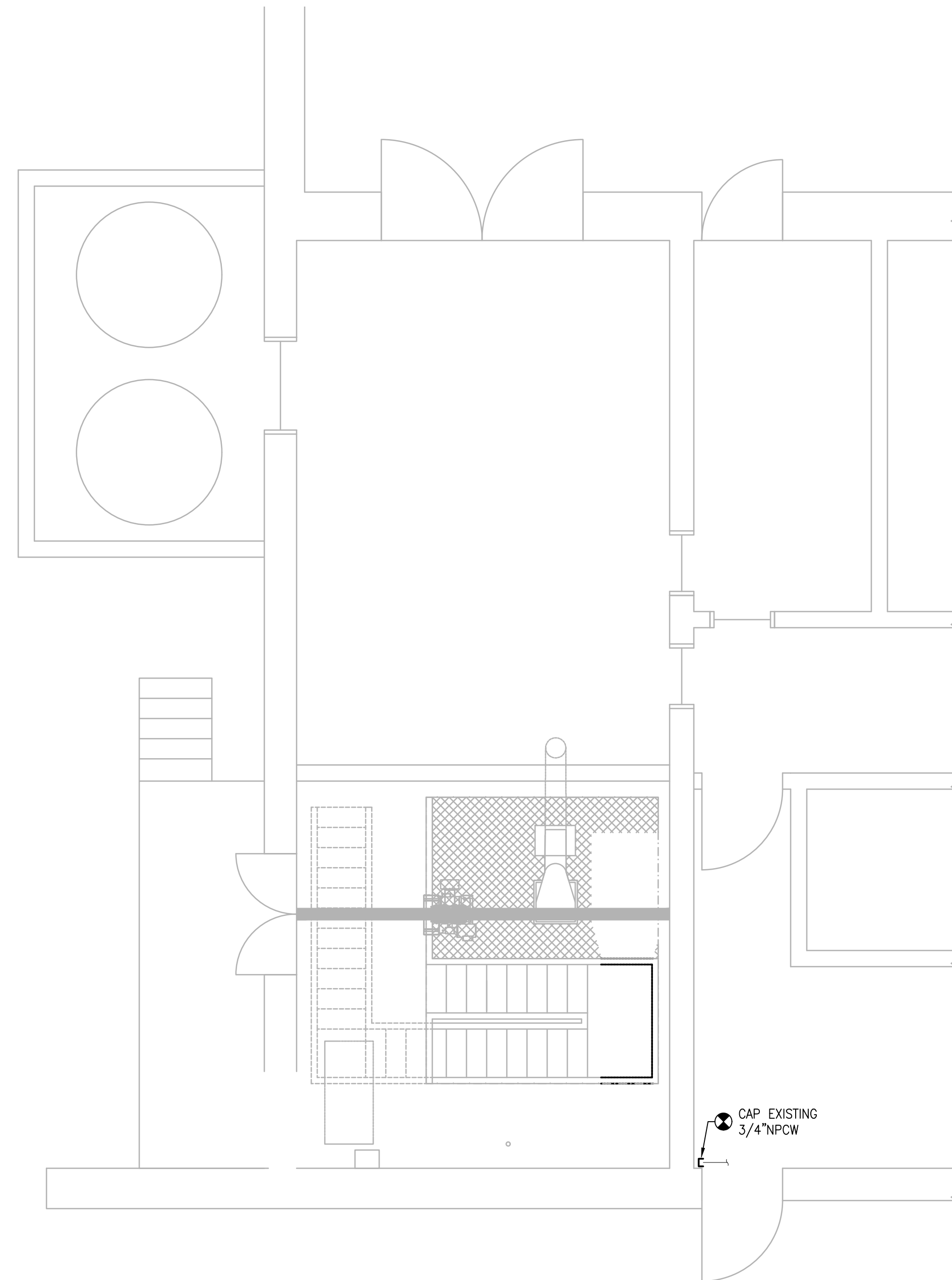
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LOWER LEVEL NEW WORK PLAN

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



UPPER LEVEL NEW WORK PLAN

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

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Headworks

Plumbing New
Work Plans

NO.	REVISIONS	DATE
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P-1.2

ELECTRICAL SYMBOLS

Table of electrical symbols including Linear Lighting Fixtures, Pole Mounted Site Light Fixture, Emergency Exit Sign, Emergency Lighting Battery Unit, Remote Emergency Lighting Unit, Single Pole Switch, 2-Pole Switch, 3-Way Switch, 4-Way Switch, Digital Time Clock Switch, Mechanical Timer Switch, Wall Mounted Dual Technology Occupancy Sensor, Low Voltage Switch, Ceiling Mounted Dual Technology Occupancy Sensor, Duplex Receptacle, Duplex Receptacle with Weather-Resistant Cover, Simplex Receptacle, Unfused Disconnect Switch, Fused Disconnect Switch, 3-Phase Receptacle, Wall Mounted Combination Motor Starter, Motor Starter with Motor Circuit Protector, Enclosed Variable Frequency Drive, Manual Motor Starter, Junction Box or Pull Box, Hand Hole, Alarm Relay, Control Relay, Motor Start Relay, Timing Relay, Normally Open Relay Contact, Normally Closed Relay Contact, Operator Push Button, Pressure Switch (High/Low).

ELECTRICAL SYMBOLS

Table of electrical symbols including Underground Conduit Duct Bank, Homerun Designation to Panel PP1 Circuit #1, EYS Type Conduit Seal, Surge Protection Device, Ground Fault Monitor and Indication Light, Utility Pole, Molded Case Circuit Breaker, Dry Type Transformer, Electric Hand Hole, 3/4" x 10"-0" Copper Clad Ground Rod, Building Grounding System, Motor, Cable/Conduit Designation, Intrinsicly Safe Barrier Panel, Generator Emergency Stop, Gas Detection System (Amber Alarm Beacon/Alarm Horn), Occupied/Unoccupied Selector Switch, Thermostat, Motor Operated Damper, Electric Unit Heater, Equipment Circuit Number Designation to Panel PP1-LP Circuit #21.

Table of electrical symbols including Magnetic Door Switch (DS).

FIRE ALARM SYSTEM SYMBOLS

Table of fire alarm system symbols including Manual Fire Alarm Station, Fire Alarm Audio/Visual Device, Fire Alarm Visual Only Device, Fire Alarm Beacon, Smoke Detector, Duct Smoke Detector, Remote Test Station and Alarm for Duct Smoke Detector, Heat Detector, Carbon Monoxide Detector, Input Monitoring Module, Relay Control Module, Fire Alarm Control Panel, Fire Alarm Annunciator Panel, Remote Alarm Indicating Light, Master Box, Key Depository - Knox Box.

GENERAL NOTES

- 1. ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
2. BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
3. EQUIPMENT & CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
4. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
5. NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
6. RECEPTACLES AND SWITCHES SHALL BE MOUNTED 45" ABOVE FINISHED FLOOR.
7. THE WIRING AND BLOCK DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL AND PROCESS EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

DEMOLITION NOTES

- 1. UNLESS OTHERWISE NOTED AS SALVAGE, ALL EXISTING ELECTRICAL SYSTEMS WITHIN HATCH MARKS (POWER, LIGHTING, LOW VOLTAGE, CONTROLS, ETC) AND ASSOCIATED EQUIPMENT IS TO BE DEMOLISHED. DISCONNECT AND DE-ENERGIZE THE EQUIPMENT. REMOVE THE EQUIPMENT TO BE DEMOLISHED OR SALVAGED PER SECTION 02050. ALL CONTROL DEVICES, CONDUIT, CABLING, BOXES, SUPPORTS, ETC, ASSOCIATED WITH THE DEMOLISHED EQUIPMENT SHALL BE REMOVED. THE CONDUIT AND CABLING SHALL BE REMOVED BACK TO SOURCE.
2. NO DEVICE OR EQUIPMENT INDICATED FOR DEMOLITION WILL BE REUSED OR SALVAGED UNLESS SPECIFICALLY NOTED AS SUCH. ALL EQUIPMENT REMOVED SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF. PRIOR TO REMOVAL OF EQUIPMENT COORDINATE WITH OWNER FOR ANY EQUIPMENT THE OWNER WILL KEEP.
3. EXISTING EQUIPMENT INDICATED ON THE DEMOLITION PLANS ARE BASED ON SITE OBSERVATIONS AND IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT AND MATERIALS TO BE DISCONNECTED AND/OR REMOVED.

ABBREVIATIONS

Table of abbreviations including (2)1" C, 3#8, #10GND; 3/4" CE; ABL; AFF; AFG; AR; ATS; CR; CP; DRG. DWG.; EAN; EC; ETM; FE; FIT; FS; FT; FVNR; GND, GRD; HO; HOA; HH; ISRP; J OR JB; JPB; LE; LIT; LL; LSX; LT; MC; MCC; MH; MFR; MS; NTS; OEM; OH; OL; OS; PB; PBE; PBL; PBM; PIT; PL; PSH; PSL; PT; RGS; RVNR; SPD; SOV; S/S; TB; TD; TR; TS; TSP; TSTW; TYP; UG; UNO; VFD; WP; WSH; XFMR; XS.

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PROJECT

BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS

BURRILLVILLE, RI

TITLE

Electrical Legend
and Notes

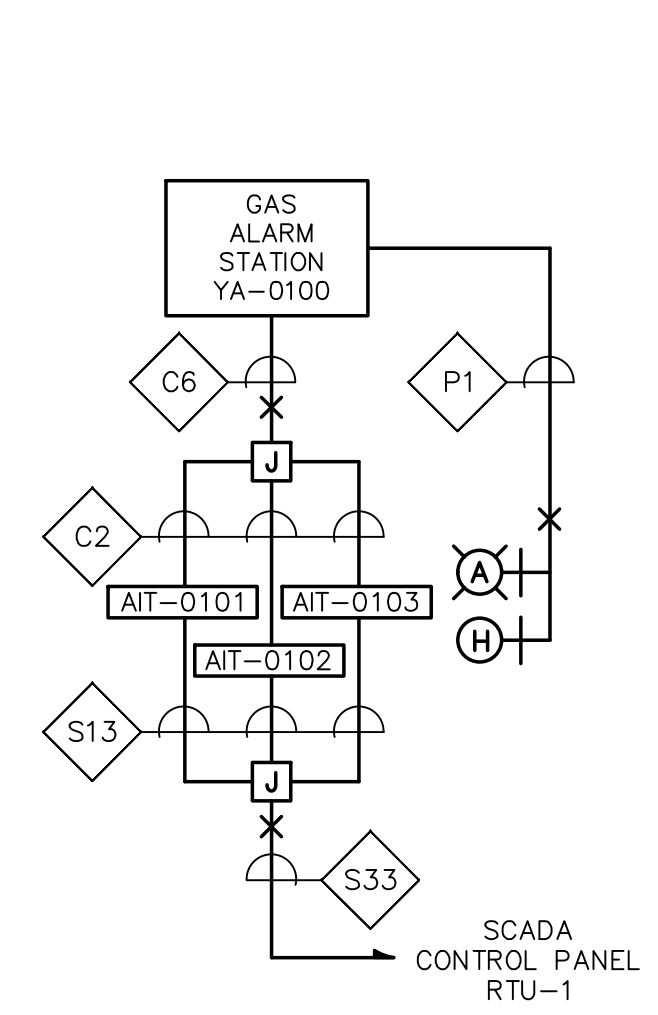
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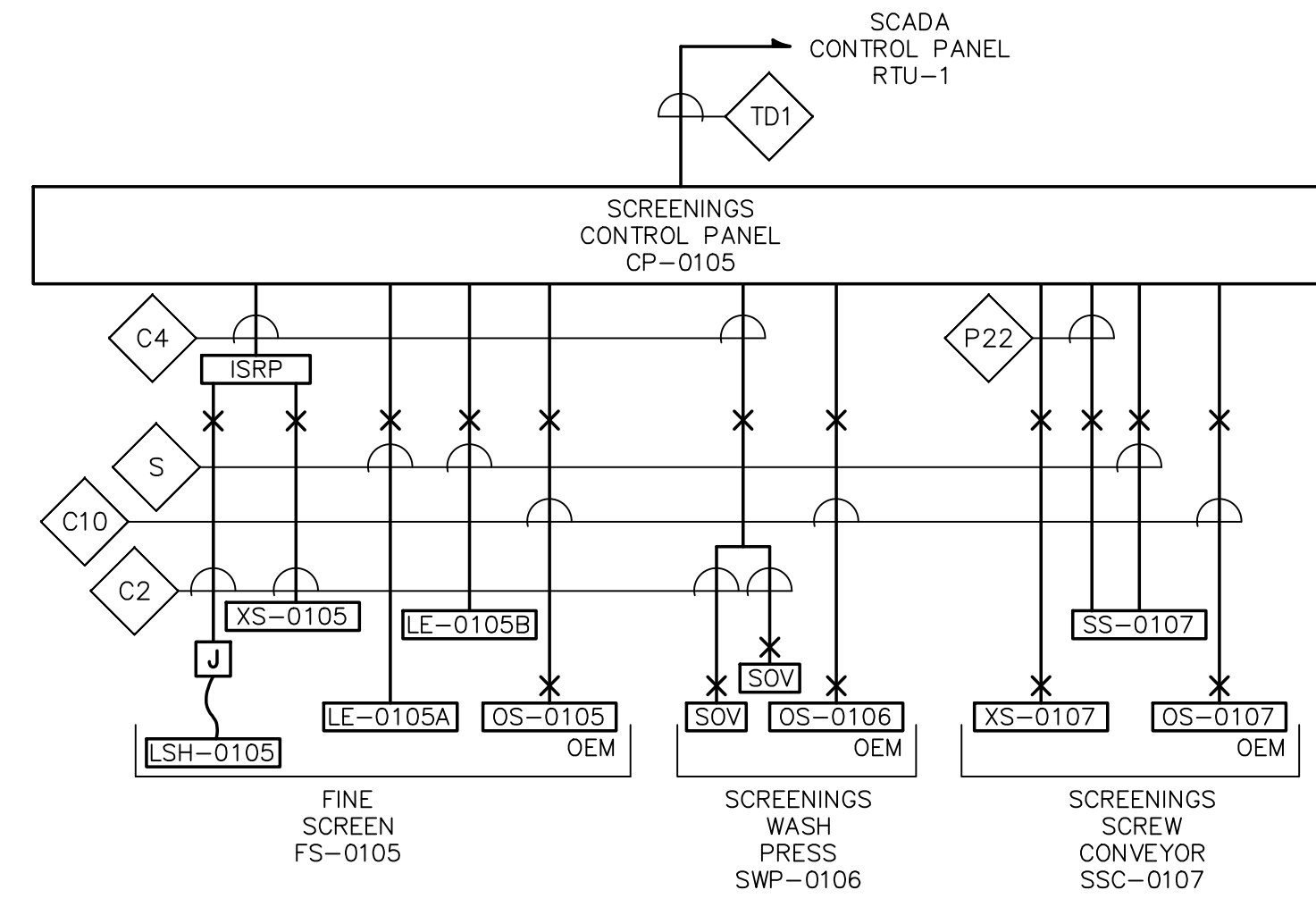
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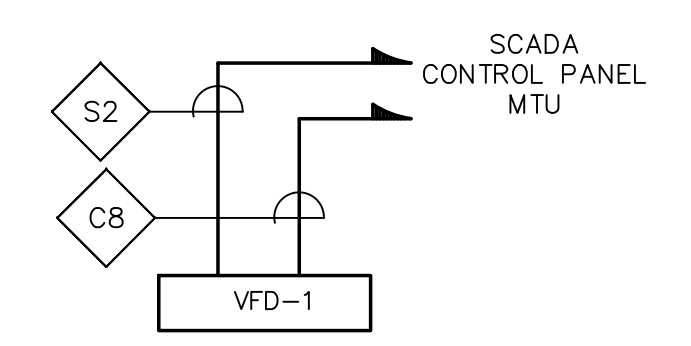
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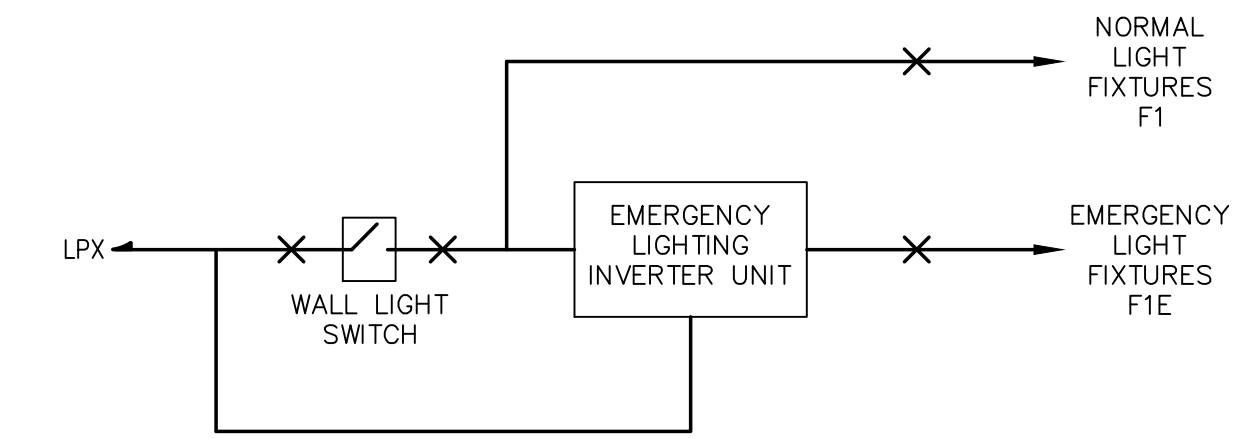
**CONTROL BLOCK WIRING DIAGRAM
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NOT TO SCALE



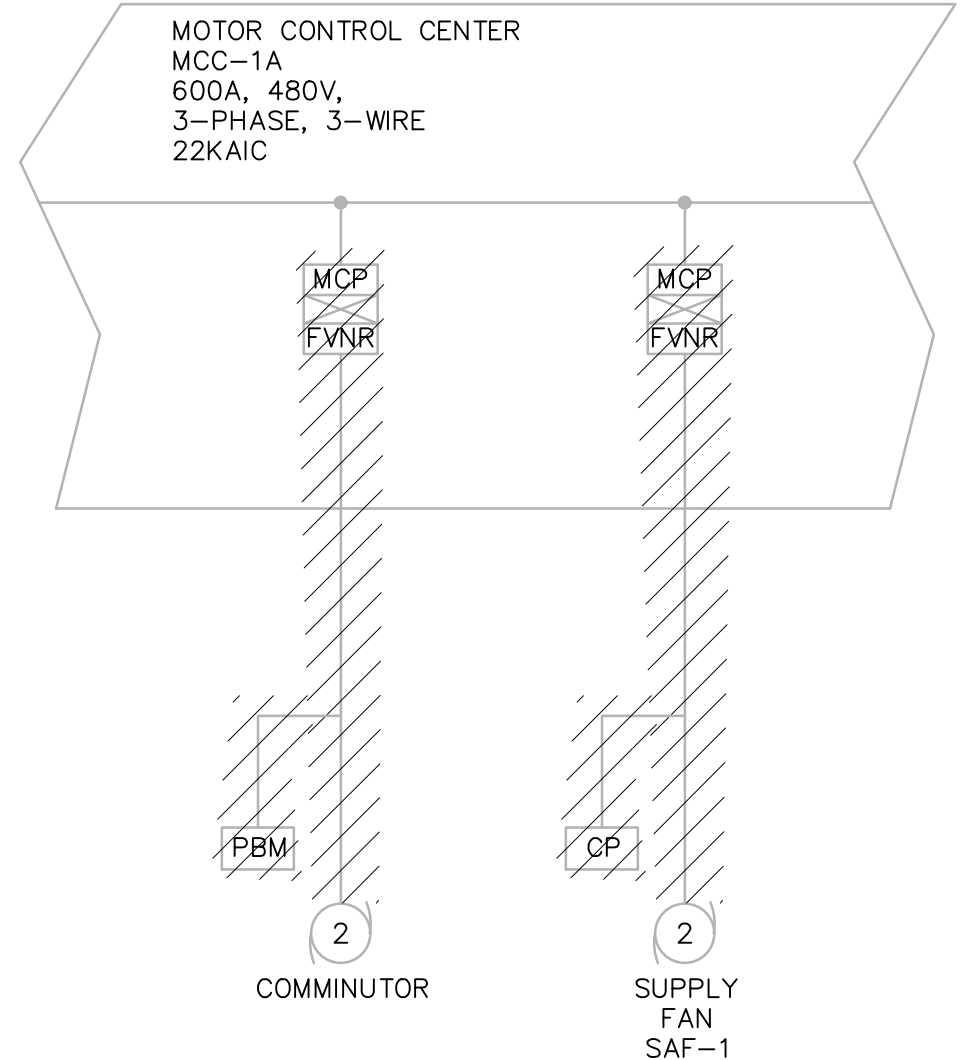
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HEAD WORKS SCREENINGS**
NOT TO SCALE



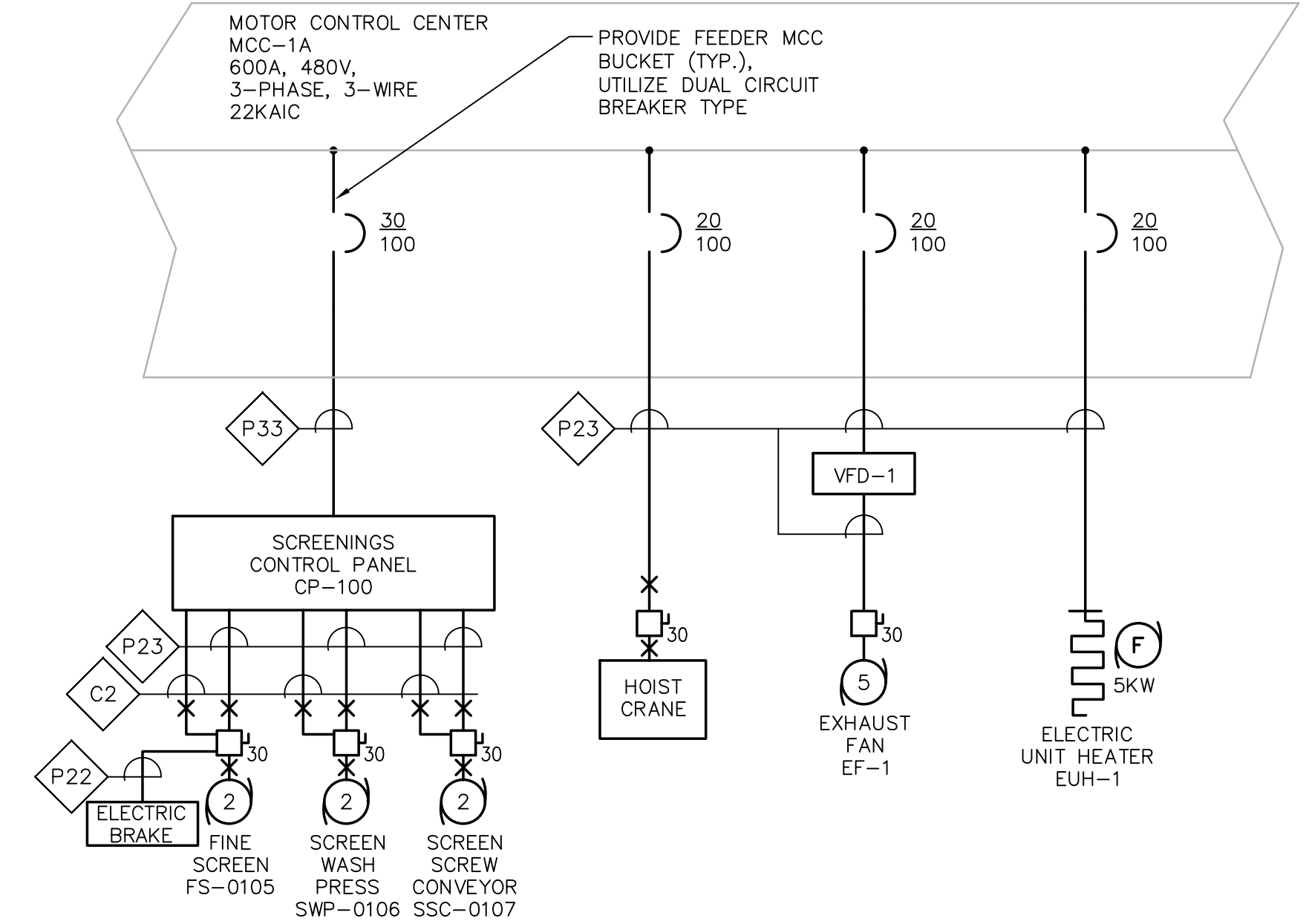
**CONTROL BLOCK WIRING DIAGRAM
EXHAUST FAN EF-1**
NOT TO SCALE



**HEADWORKS LIGHT SWITCHING
WIRING DIAGRAM**
NOT TO SCALE




OPERATIONS BUILDING DEMOLITION ONE LINE DIAGRAM
NOT TO SCALE



OPERATIONS BUILDING ONE LINE DIAGRAM
NOT TO SCALE


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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**WWTF
HEADWORKS**
Electrical One Line
and Wiring
Diagrams

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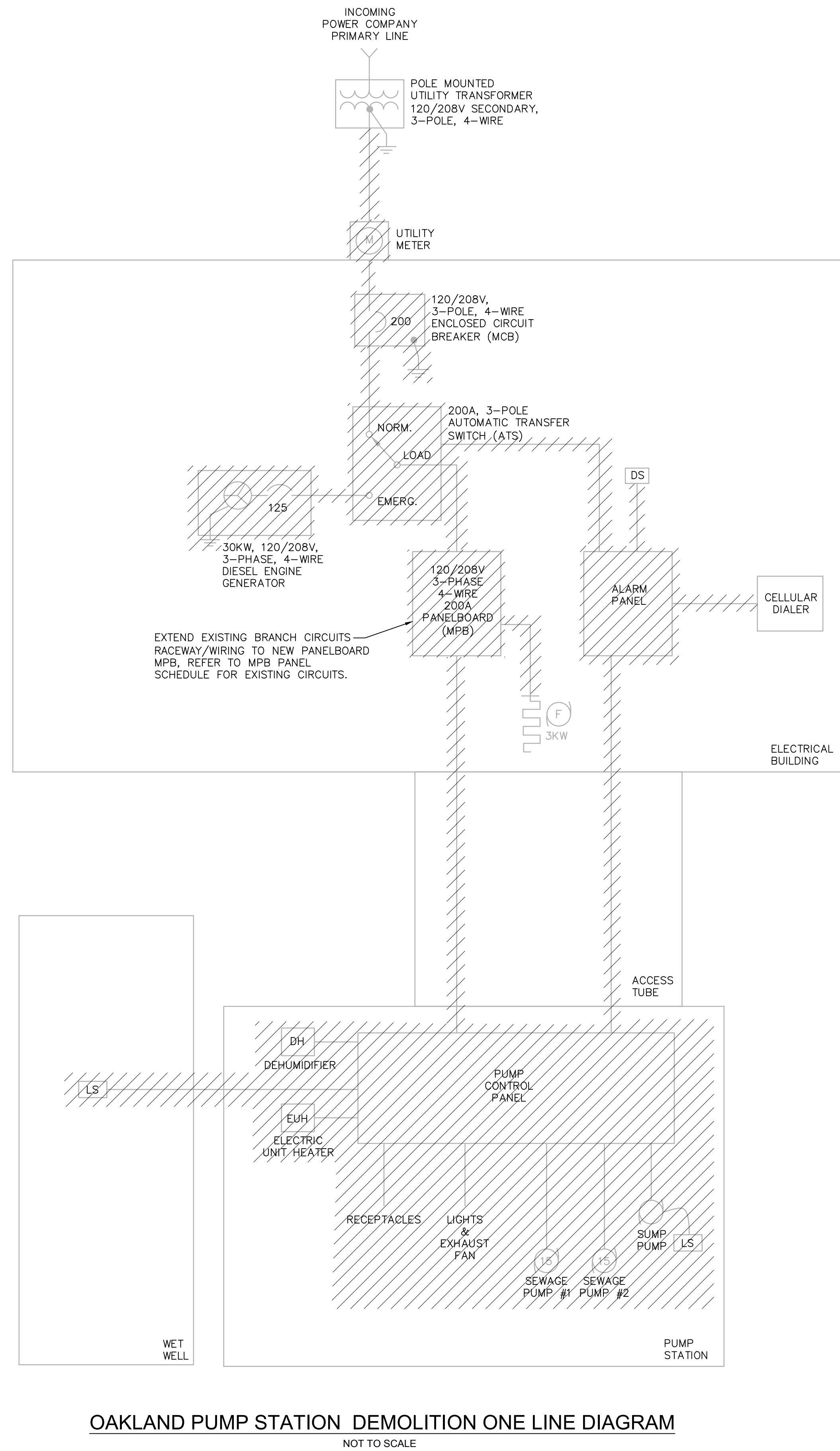
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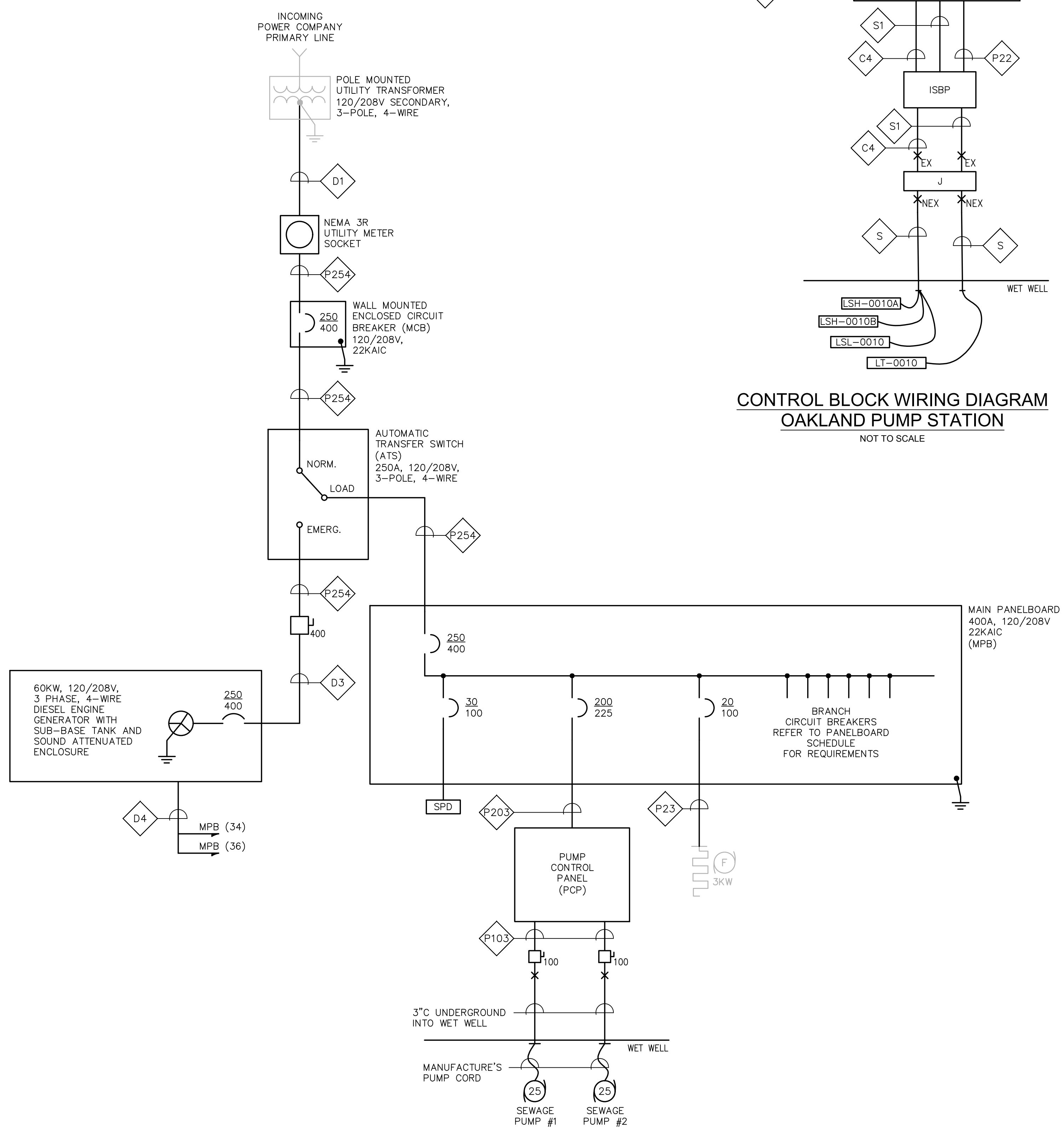
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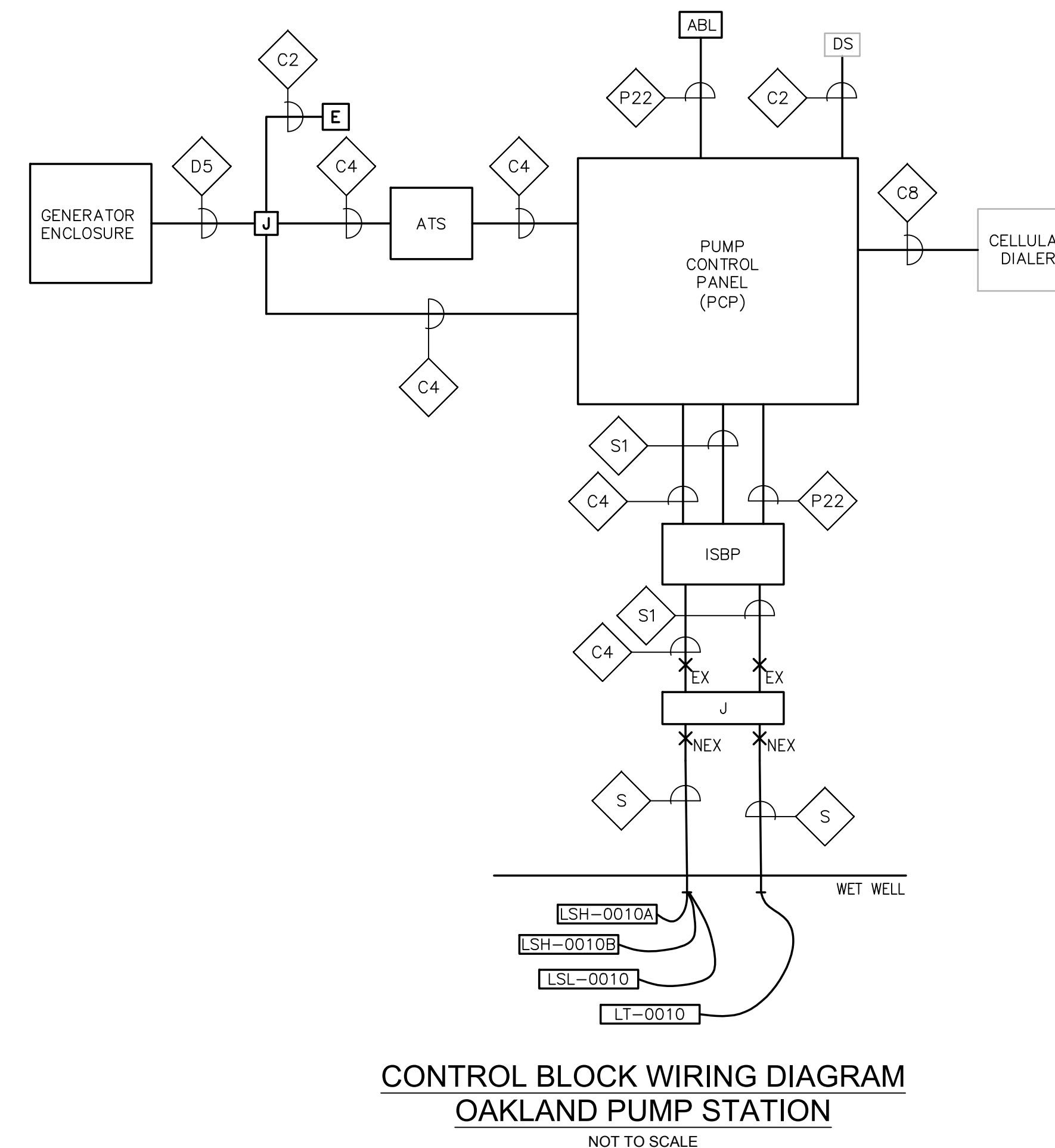
E-0.2



OAKLAND PUMP STATION DEMOLITION ONE LINE DIAGRAM
NOT TO SCALE



OAKLAND PUMP STATION DEMOLITION ONE LINE DIAGRAM
NOT TO SCALE



CONTROL BLOCK WIRING DIAGRAM
OAKLAND PUMP STATION
NOT TO SCALE

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

WWTF
Fire Alarm
Riser Diagrams

NO. REVISIONS DATE

DRAWN BY: RLB
DESIGNED BY: RLB
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ISSUE DATE: AUGUST 2022
BETA JOB NO.: 6861-105

SCALE

NONE

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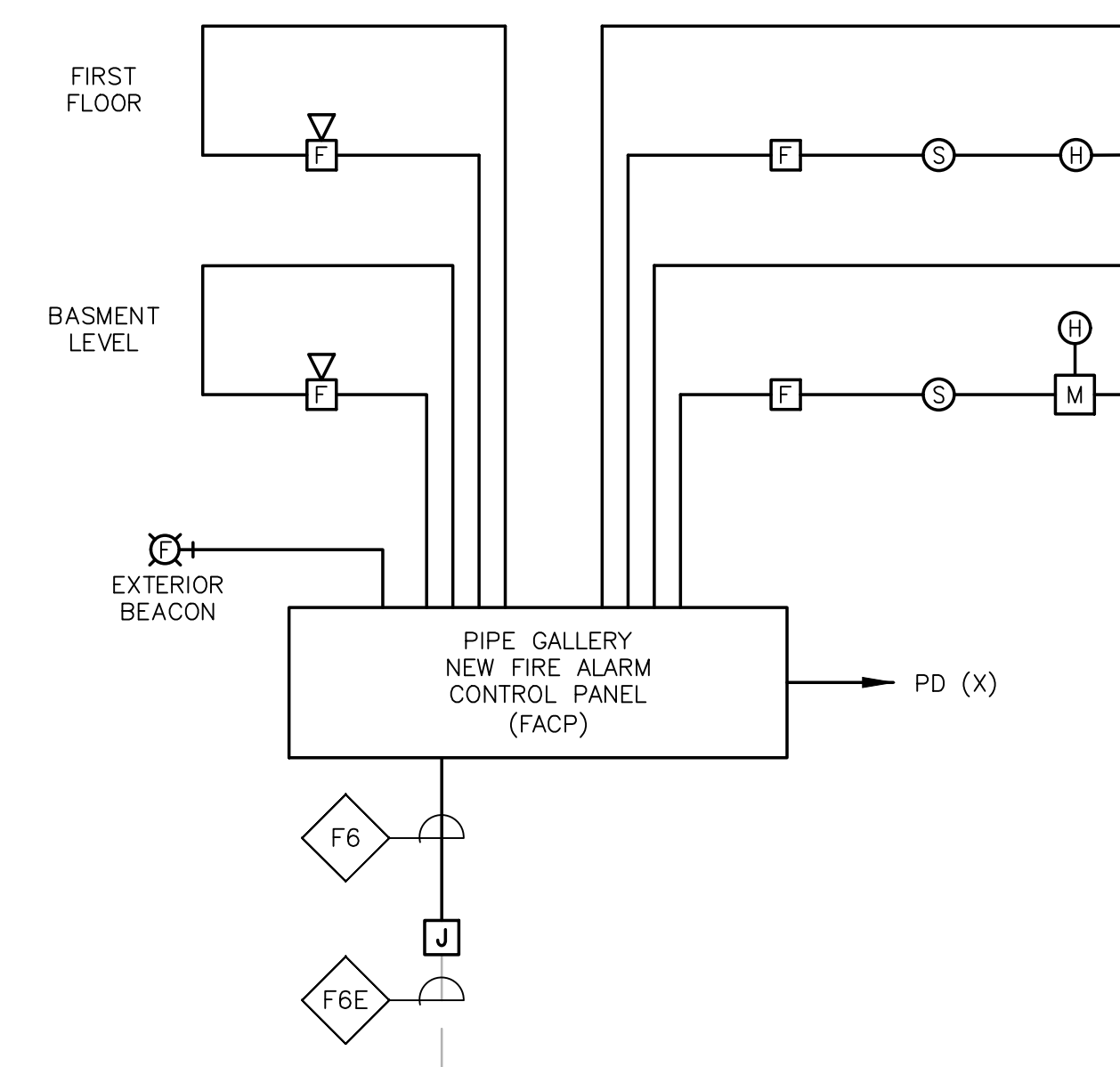
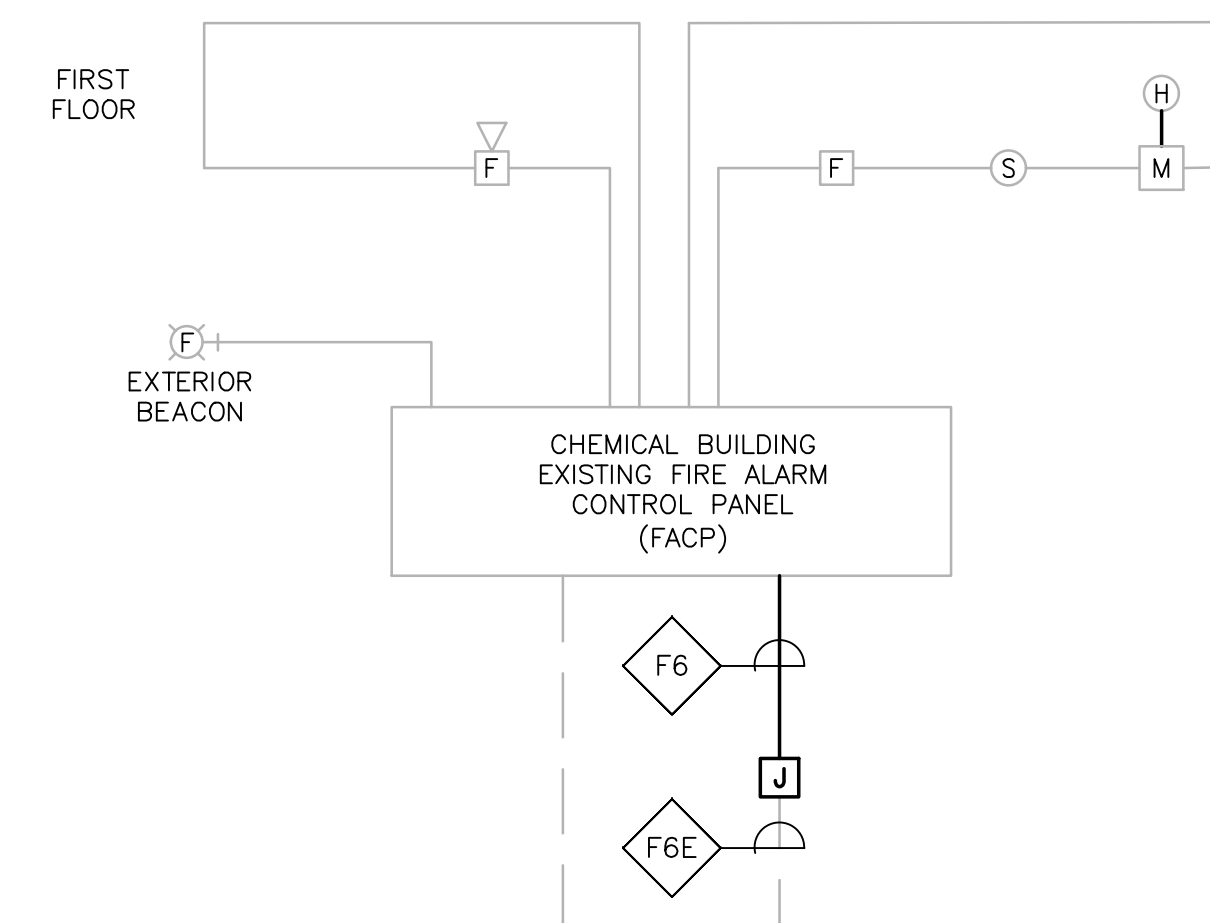
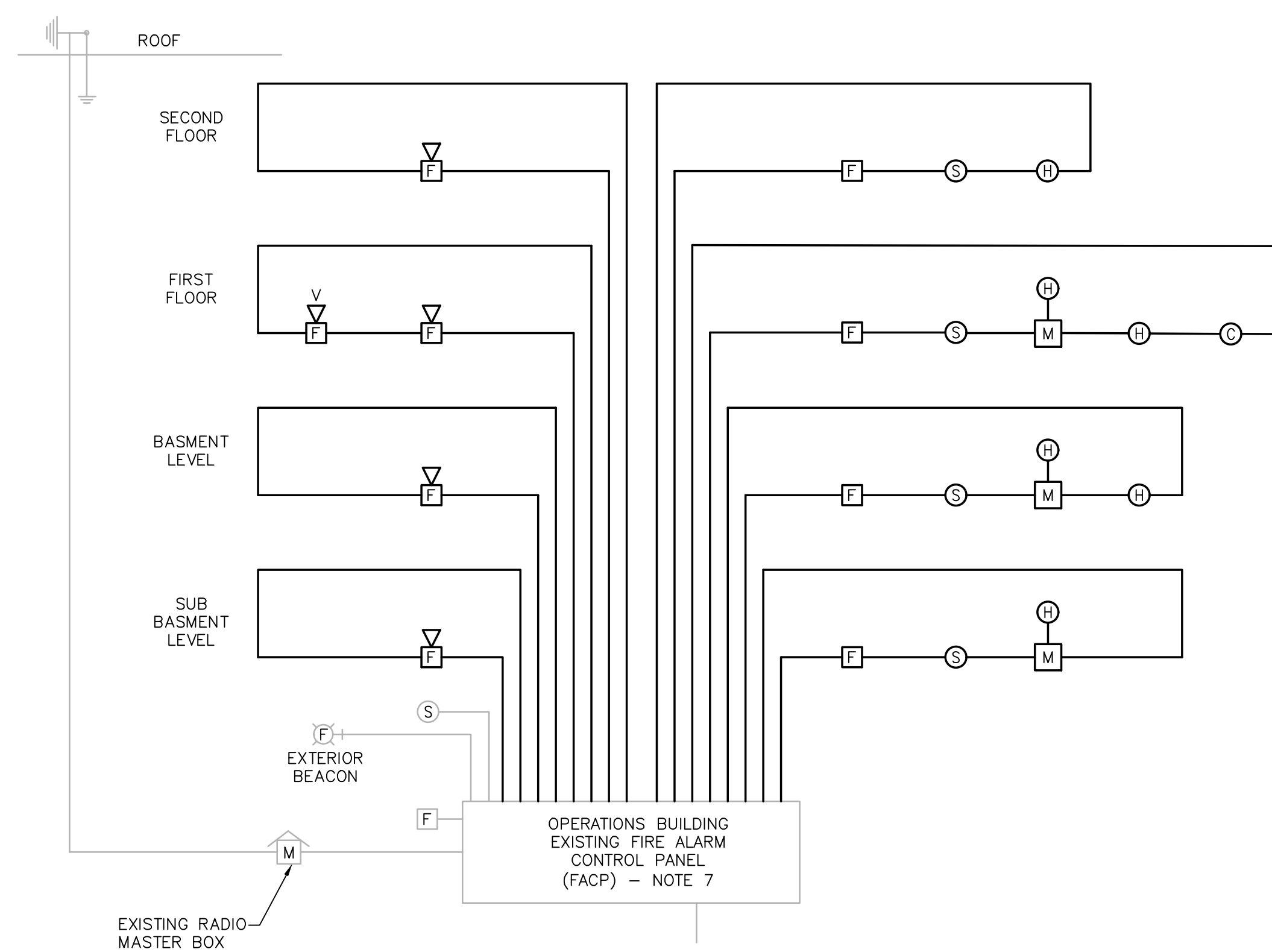
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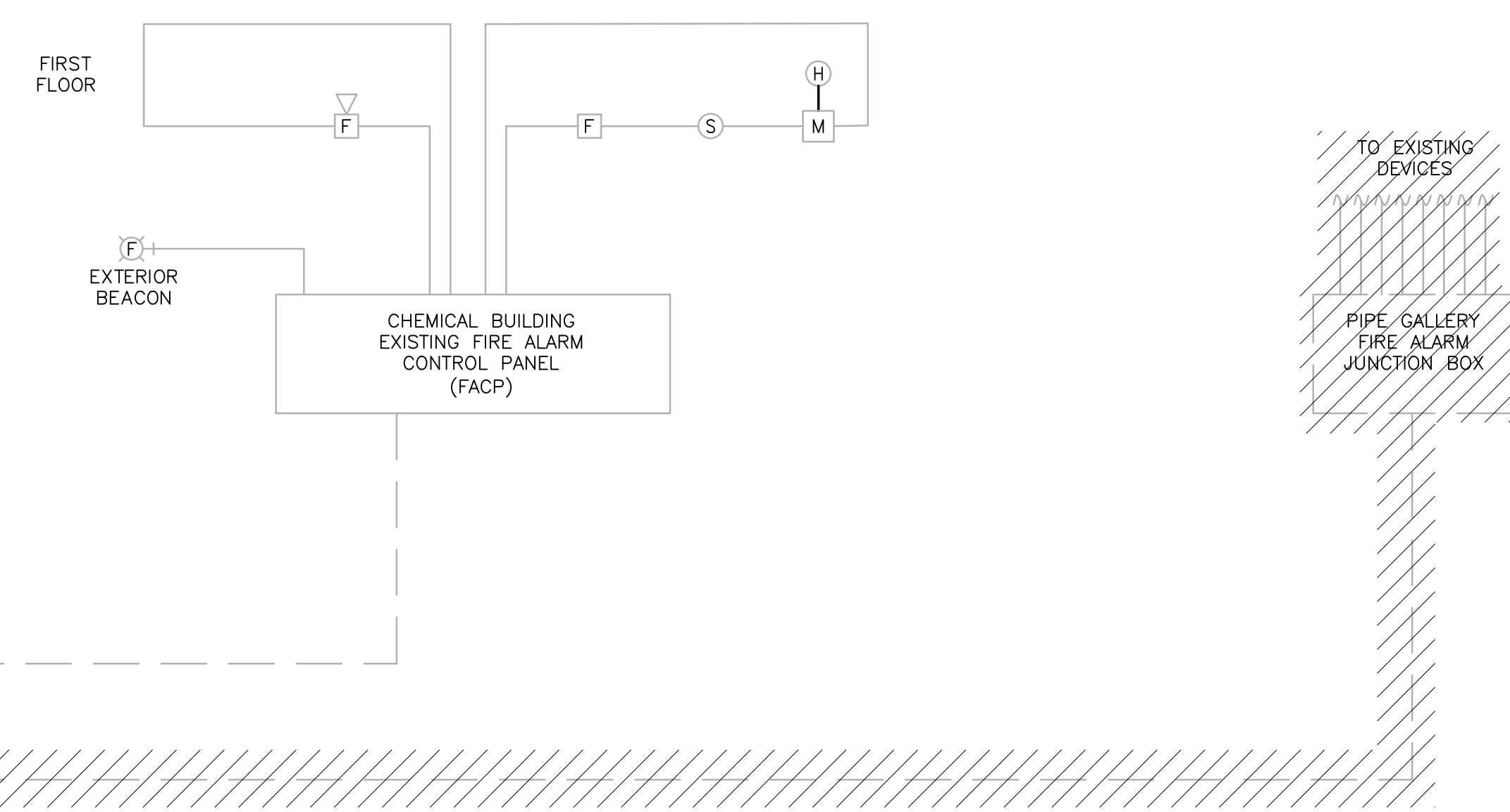
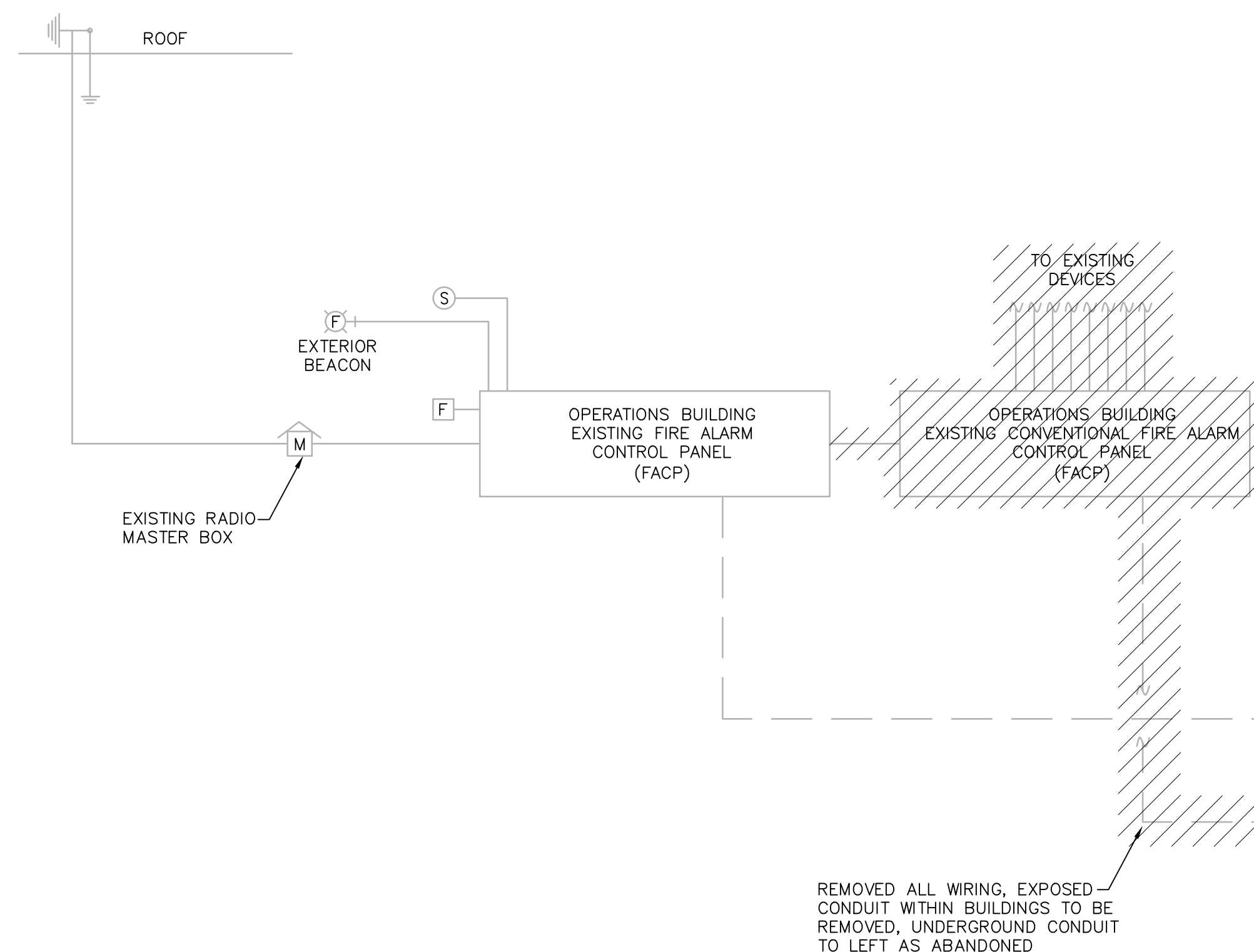
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FIRE ALARM NOTES:

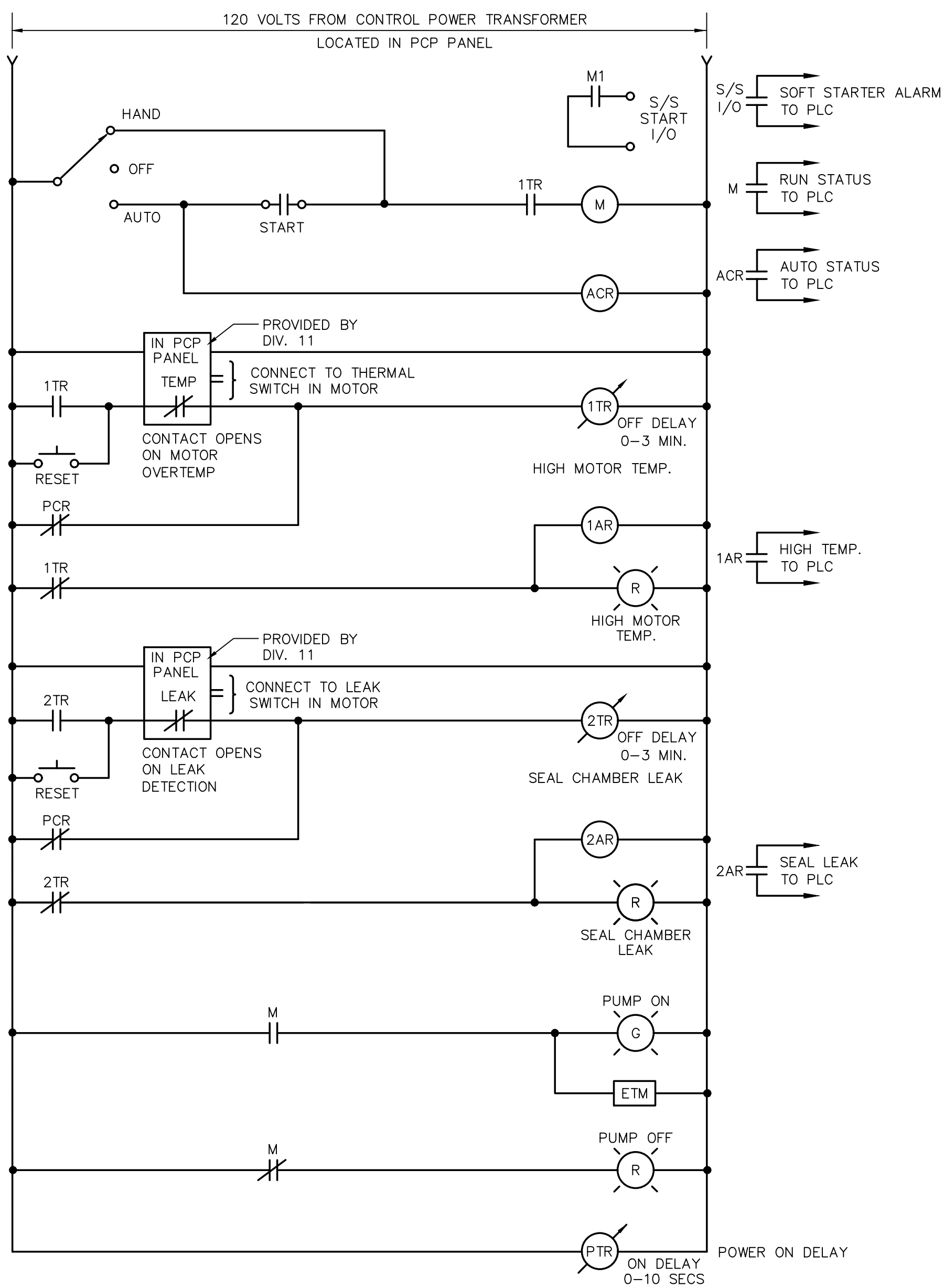
1. RISER DIAGRAMS ONLY REPRESENTS TYPE OF DEVICES WITHIN AN AREA AND DOES NOT REPRESENT ACTUAL QUANTITIES. REFER TO PLAN DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS OF DEVICES.
2. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
3. SYSTEM CONDUIT/CABLING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
4. PROVIDE RED COLORED CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT. HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP, BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
5. ALL COMPONENTS OF THE SYSTEM SHALL BE MOUNTED IN ACCORDANCE WITH ADA REQUIREMENTS.
6. THE FIRE ALARM SYSTEM SHALL BE ADDRESSABLE TYPE. CONTRACTOR TO PROVIDE THE NECESSARY INTERFACE MODULES FOR THE FIRE ALARM DEVICES THAT REQUIRES THEM.
7. THE EXISTING (2) 40 AMP-HOUR BATTERIES ARE TO BE REPLACED WITH NEW HIGHER AMP-HOUR CAPACITY BATTERIES BASED ON SYSTEM DEVICES WITHIN THE OPERATIONS BUILDING.



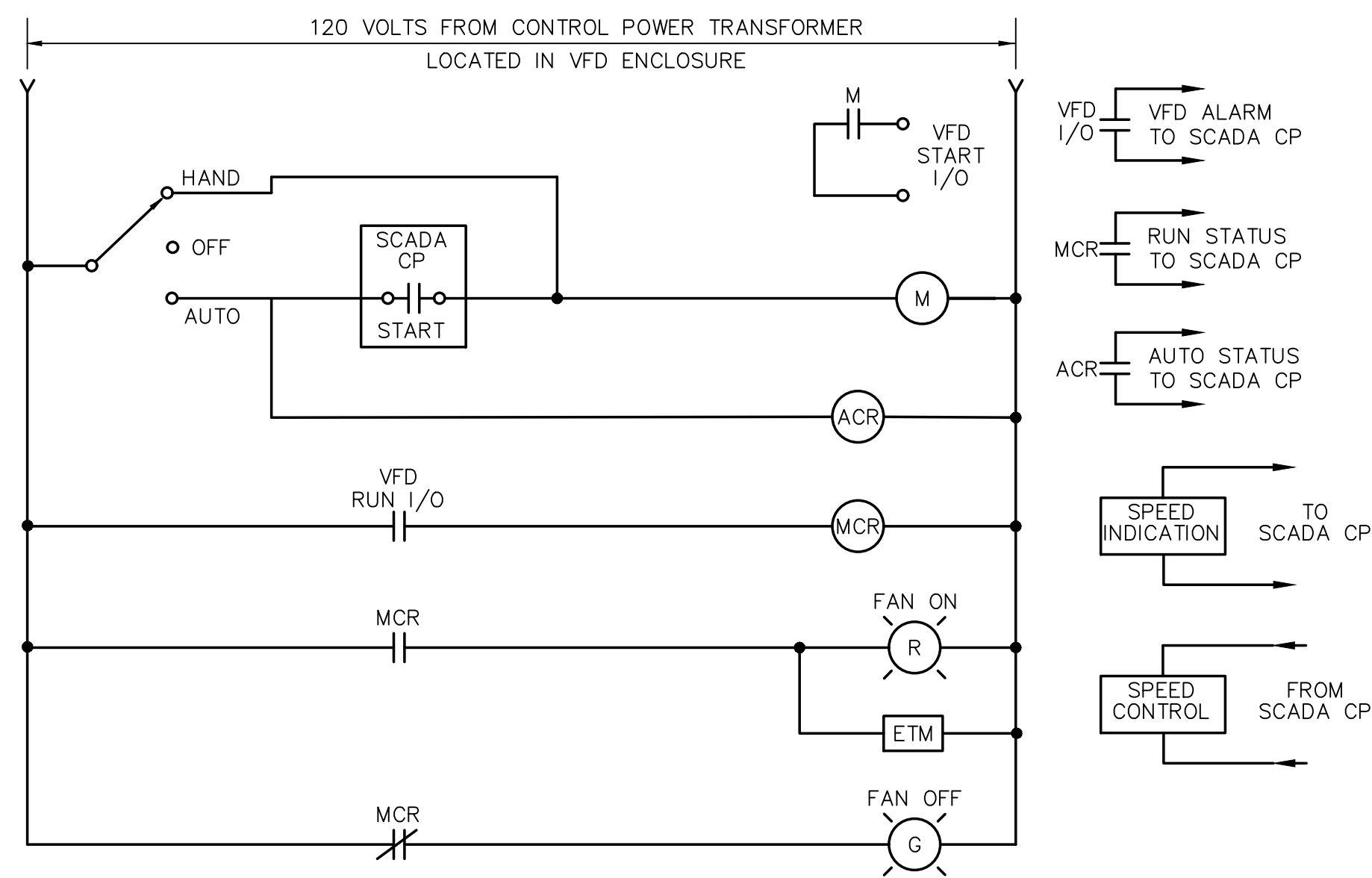
FIRE ALARM RISER DIAGRAM
NOT TO SCALE



FIRE ALARM DEMOLITION RISER DIAGRAM
NOT TO SCALE



**CONTROL WIRING DIAGRAM
SEWAGE PUMPS**
NOT TO SCALE



**MOTOR CONTROL WIRING DIAGRAM
EXHAUST FAN EF-1**
NOT TO SCALE

PREPARED BY
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PROJECT
**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE
**Electrical
Motor Control
Wiring Diagrams**

NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

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E-0.5

POWER CABLE/CONDUIT SCHEDULE			
SYMBOL	CONDUIT SIZE*	CONDUCTORS*	GND*
P22	3/4"	(2)#12	(1)#12
P23	3/4"	(3)#12	(1)#12
P26	3/4"	(6)#12	(1)#12
P32	3/4"	(2)#10	(1)#10
P33	3/4"	(3)#10	(1)#10
P53	3/4"	(3)#8	(1)#10
P54	3/4"	(4)#8	(1)#10
P63	1"	(3)#8	(1)#8
P64	1"	(4)#6	(1)#8
P83	1 1/4"	(3)#4	(1)#8
P84	1 1/4"	(4)#4	(1)#8
P103	1 1/2"	(3)#3	(1)#6
P104	1 1/2"	(4)#3	(1)#6
P113	1 1/2"	(3)#2	(1)#6
P114	1 1/2"	(4)#2	(1)#6
P133	2"	(3)#1	(1)#6
P134	2"	(4)#1	(1)#6
P153	2"	(3)#1/0	(1)#6
P154	2"	(4)#1/0	(1)#6
P173	2 1/2"	(3)#2/0	(1)#6
P174	2 1/2"	(4)#2/0	(1)#6
P203	2 1/2"	(3)#3/0	(1)#4
P204	2 1/2"	(4)#3/0	(1)#4
P254	3"	(4)250KCMIL	(1)#4

SIGNAL CABLE/CONDUIT SCHEDULE		
SYMBOL	CONDUIT SIZE	CONDUCTORS
S	1"	VENDER PROVIDED
S1	3/4"	1-2/C#16 TSP
S13	3/4"	1-3/C#16 TSP
S2	3/4"	2-2/C#16 TSP
S23	3/4"	2-3/C#16 TSP
S3	1"	3-2/C#16 TSP
S33	1"	3-3/C#16 TSP
S4	1"	4-2/C#16 TSP
S5	1"	5-2/C#16 TSP
S6	1 1/2"	6-2/C#16 TSP
S7	1 1/2"	7-2/C#16 TSP
S8	1 1/2"	8-2/C#16 TSP
S9	1 1/2"	9-2/C#16 TSP
S10	2"	10-2/C#16 TSP
TC1	3/4"	8/C#18

TELE/DATA CABLE/CONDUIT SCHEDULE		
SYMBOL	CONDUIT SIZE	CABLES
TD1	1"	1-CAT6
TD2	1"	2-CAT6
F6	2"	6 STRAND FIBER OPTIC
F6E	EXISTING 2"	6 STRAND FIBER OPTIC

CONTROL CABLE/CONDUIT SCHEDULE		
SYMBOL	CONDUIT SIZE	CONDUCTORS
C2	3/4"	2#14
C4	3/4"	4#14
C5	3/4"	5#14
C6	3/4"	6#14
C7	3/4"	7#14
C8	3/4"	8#14
C9	3/4"	9#14
C10	3/4"	10#14
C12	3/4"	12#14
C16	1"	16#14
C20	1"	20#14
C30	1"	30#14
C50	1 1/2"	50#14
C100	2"	100#14
C200	3"	200#14

NOTE: CONDUIT AND CONDUCTOR SIZES ARE TO BE PER THE ABOVE SCHEDULES UNLESS OTHERWISE NOTED.

PANELBOARD SCHEDULE														
NO. MPB _____					LOCATION: ELECTRIC ROOM _____									
208/120 V, 3 PH, 4 W, 400 A MAINS		400 A SOLID NEUTRAL		250 A MCB										
22,000 AIC AT 120 V		400 A GROUND BUS		A MLO		SURFACE MOUNTING								
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		PANEL	BREAKER			LOAD (KVA)	DESCRIPTION OF LOAD	CIRCUIT	
		AΦ	BΦ	CΦ	TRIP	POLE		POLE	TRIP	AΦ				BΦ
1	ELECTRIC ROOM RECEPTACLES - EXISTING CIRCUIT	1.0			20	1		1	20	0.4		DRY WELL RECETPACLE	2	
3	ELECTRIC ROOM LIGHTS - EXISTING CIRCUIT		0.5		20	1		1	20		0.4	DRY WELL LIGHTS	4	
5	CELLULAR DIALER - EXISTING CIRCUIT			0.2	20	1		1	20		1.0	DRY WELL SUMP PUMP	6	
7	EXISTING CIRCUIT	0.5			20	1		1	20	1.0		DRY WELL EXHAUST FAN	8	
9	EXISTING CIRCUIT		0.5		20	1		1	20		0.4	EXTERIOR RECETPACLES	10	
11	EXISTING CIRCUIT			0.5	20	1		1	20			SPARE	12	
13	SPARE	-			20	1		1	30	-		SPARE	14	
15	SPARE	-			20	1		1	20	-		SPARE	16	
17	SPARE	-			20	1		1	20	-		SPARE	18	
19	SPARE	-			20	1		1	20	-		SPARE	20	
21	SPARE	-			20	1		1	20	-		SPARE	22	
23	SPARE	-			20	1		1	20	-		SPARE	24	
25	SPARE	-			20	1		1	20	-		SPARE	26	
27	SPARE	-			20	1		1	20	-		SPARE	28	
29	SPARE	-			20	1		1	20	-		SPARE	30	
31		1.0						1	20	-		SPARE	32	
33	ELECTRIC UNIT HEATER 3KW		1.0		20	3		1	20		0.6	GENERATOR BATTERY CHARGER & ALTERNATOR HEATER	34	
35				1.0				1	20			1.0	GENERATOR JACKET HEATER	36
	PUMP CONTROL PANEL	18.5			200	3		3	30			SPD		
SUB-TOTAL CONNECTED		21.0	20.5	20.2							1.4	1.4	2.0	SUB-TOTAL CONNECTED
* PROVIDE GFCI BREAKER														
SUB-TOTAL CONNECTED					SUB-TOTAL CONNECTED					KVA AΦ = 22.4				
SUB-TOTAL CONNECTED					SUB-TOTAL CONNECTED					KVA BΦ = 22.9				
SUB-TOTAL CONNECTED					SUB-TOTAL CONNECTED					KVA CΦ = 22.2				
TOTAL CONNECTED					TOTAL CONNECTED					KVA = 67.5				

LIGHTING FIXTURE SCHEDULE									
TYPE	DESCRIPTION	MANUFACTURER & CATALOG SERIES	LAMPS		VOLTS	WATTS	MOUNTING		REMARKS
			TYPE	LUMENS			TYPE	HEIGHT	
F1	CLASS 1 DIV.1 EXPLOSION PROOF LED LIGHT FIXTURE	LIGHTLOGIX LLEX-20W-4000K-120-A1-N	LED 4000K	2800lm	120	20	CEILING	-	-
F2	UTILITY CLEAR GLOBE LED LIGHT FIXTURE WITH GUARD	HUBBELL VSL-16-30-V2-P-N	LED 5000K	1328lm	120	16	WALL	6' AFF	-

LIGHTING FIXTURE SCHEDULES NOTES:

- THE CATALOG NUMBERS LISTED ARE GIVEN AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS, MATERIALS, DIMENSIONS, COEFFICIENT OF UTILIZATIONS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS WILL BE ACCEPTABLE.

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

Electrical
Schedules

NO.	REVISIONS	DATE
-----	-----------	------

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

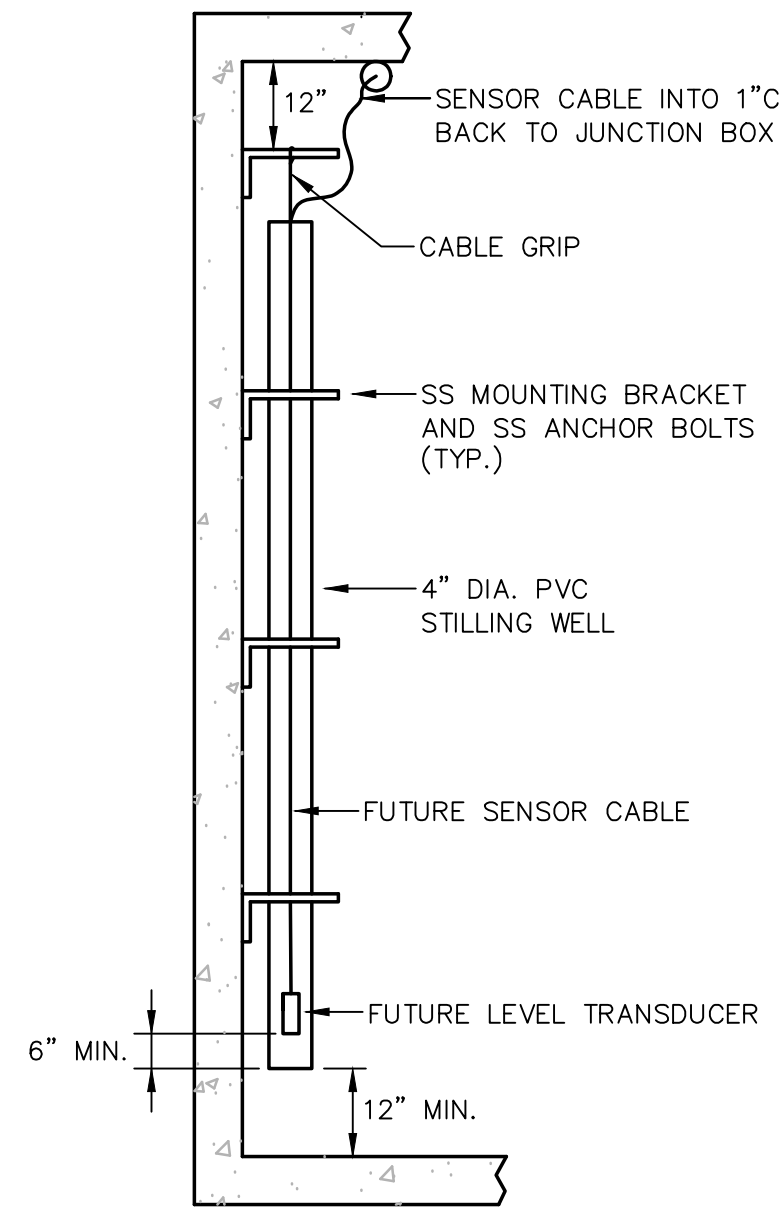
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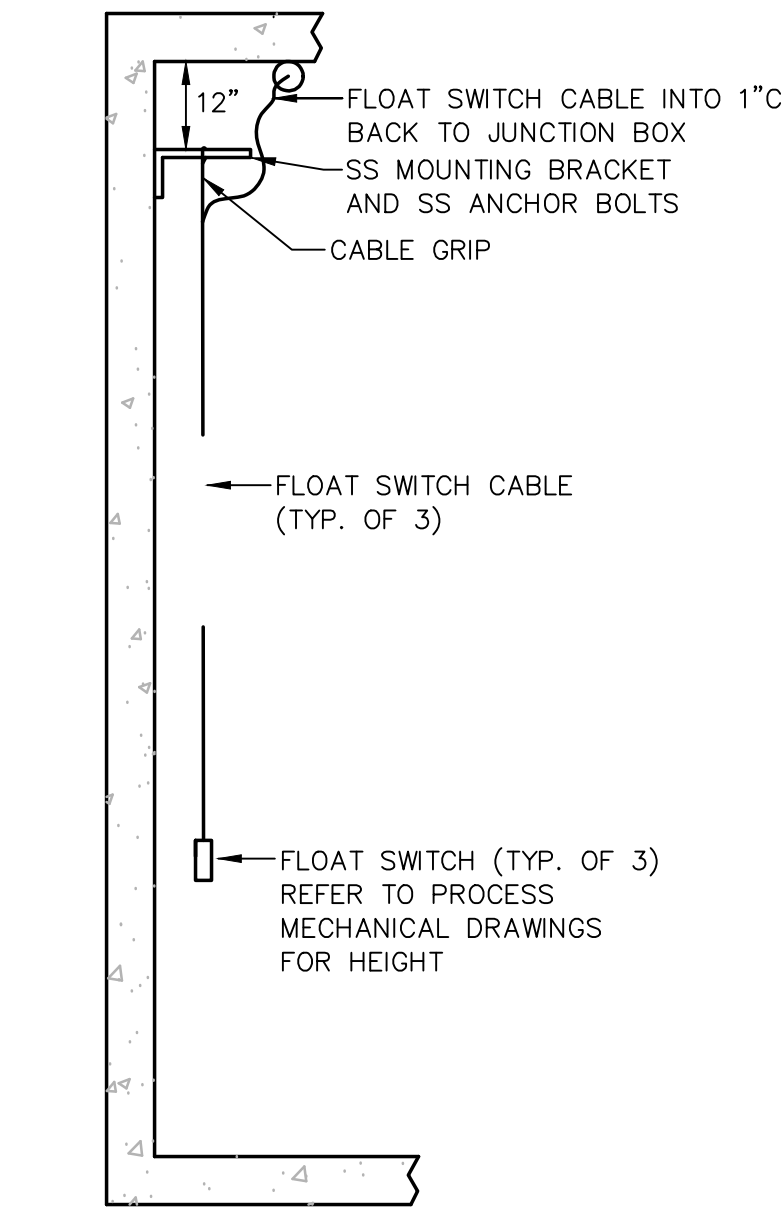
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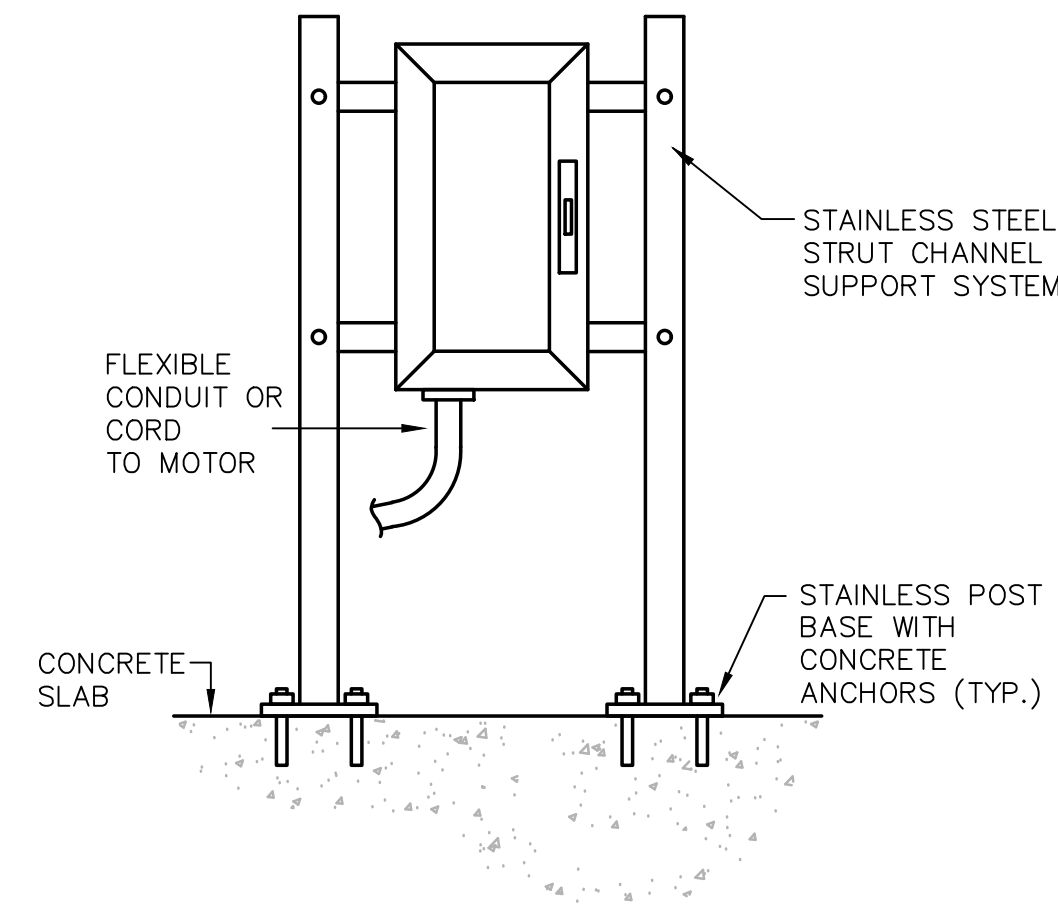
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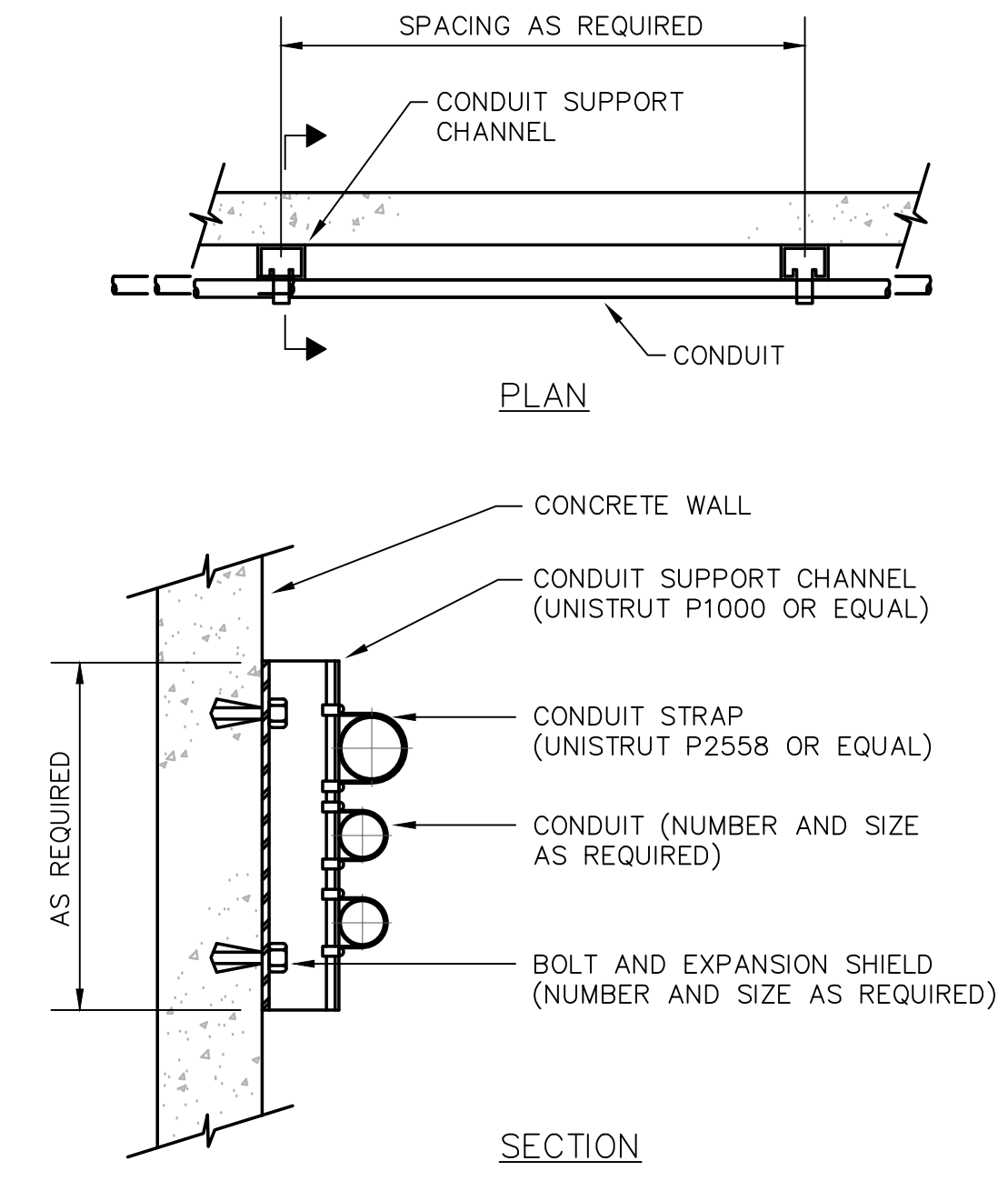
**SUBMERSIBLE LEVEL TRANSDUCER
IN WET WELL**
NOT TO SCALE



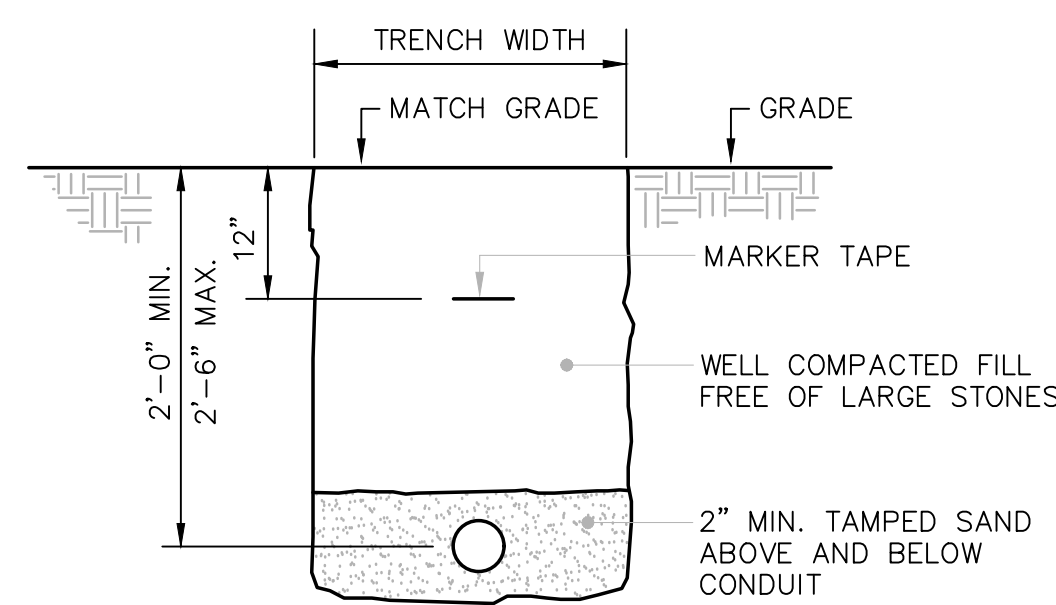
**FLOAT LEVEL SWITCH
IN WET WELL**
NOT TO SCALE



**ELECTRICAL EQUIPMENT
STANCHION MOUNTING DETAIL**
NOT TO SCALE

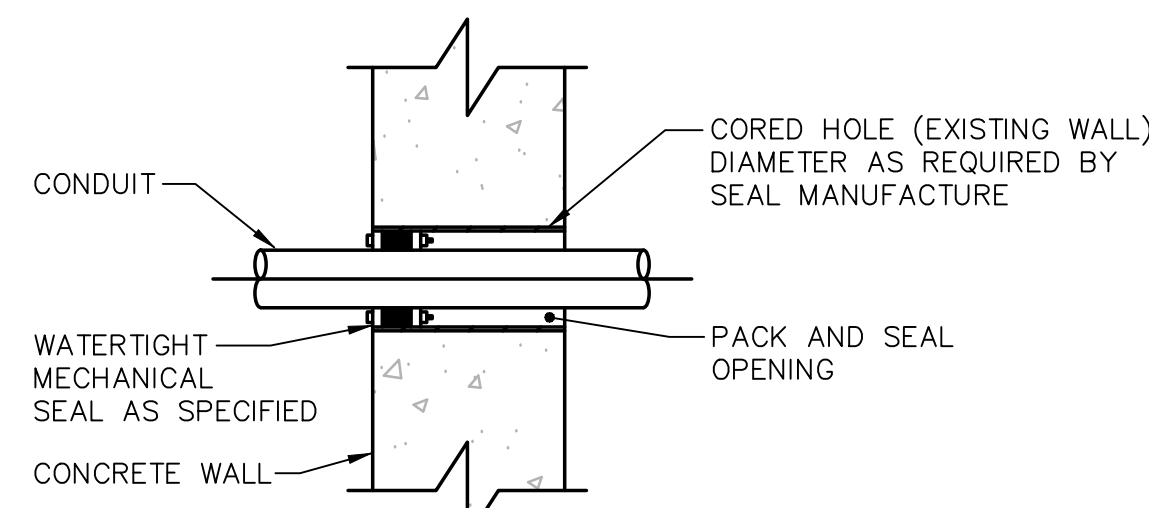


TYPICAL CONDUIT WALL SUPPORT
NOT TO SCALE

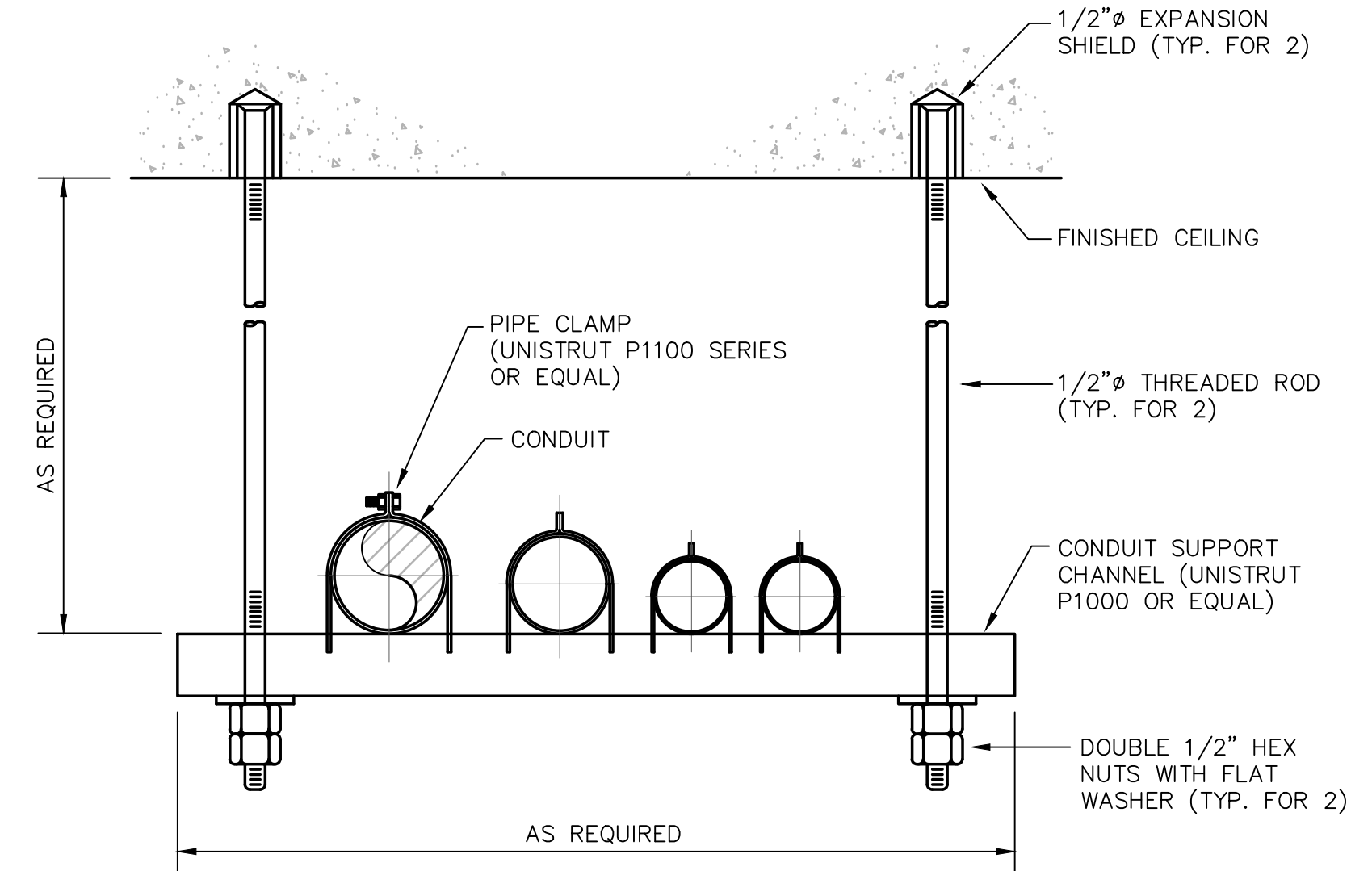


- NOTES:**
1. BACKFILL IN LAYERS AND MANUALLY TAMP. PROVIDE RED DUCT BANK MARKER TAPE, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPE 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
 2. TRENCHING AND BACKFILLING SHALL BE PERFORMED UNDER DIVISION 2 OF THIS CONTRACT.

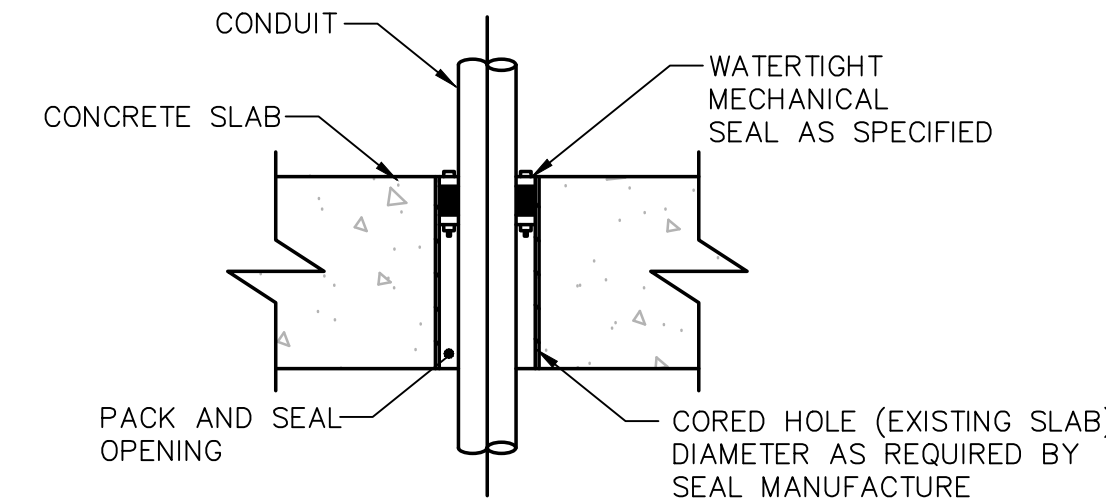
TYPICAL UNDERGROUND CONDUIT SECTION
NOT TO SCALE



**CONDUIT PENETRATION
THROUGH EXISTING CONCRETE WALL**
NOT TO SCALE



TYPICAL CONDUIT CEILING SUPPORT
NOT TO SCALE



**CONDUIT PENETRATION PASSING
THROUGH EXISTING CONCRETE SLAB**
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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Electrical
Details**

NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

NONE

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PROJECT

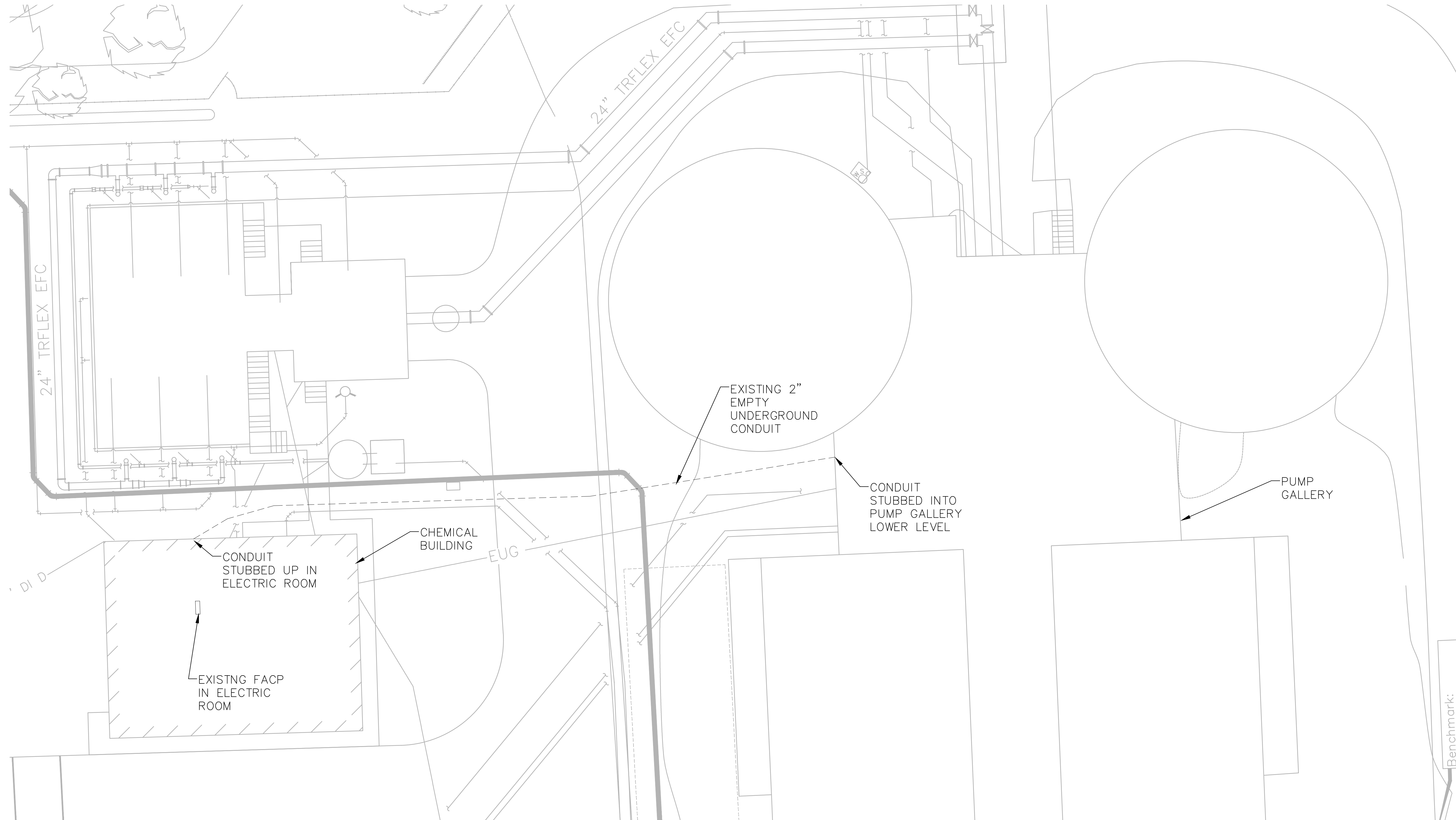
**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

WWTF

Electrical Site
Plan



ELECTRICAL SITE PLAN
SCALE: 1" = 10' - 0"

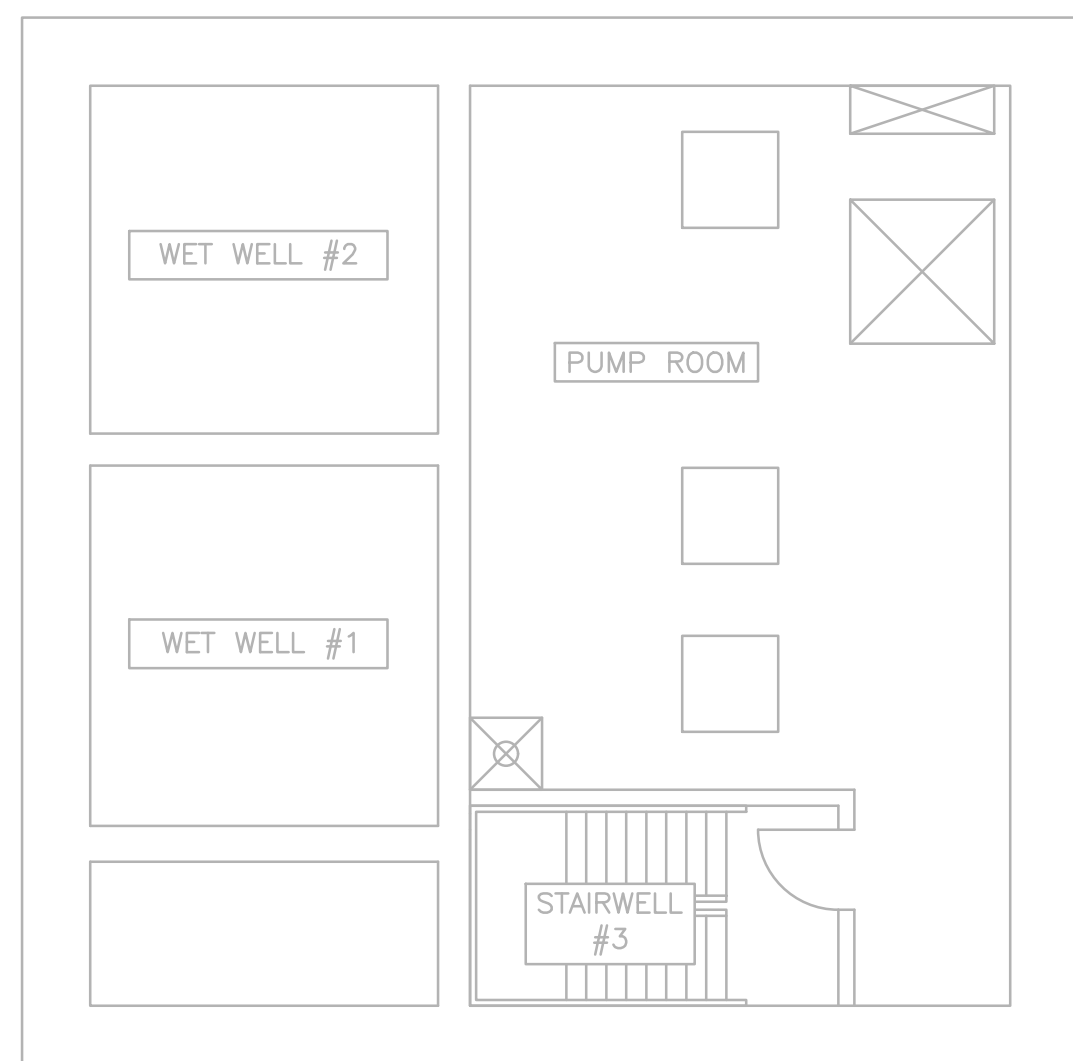
NO.	REVISIONS	DATE

DRAWN BY:	RLB
DESIGNED BY:	RLB
CHECKED BY:	MC
ISSUE DATE:	AUGUST 2022
BETA JOB NO.:	6861-105

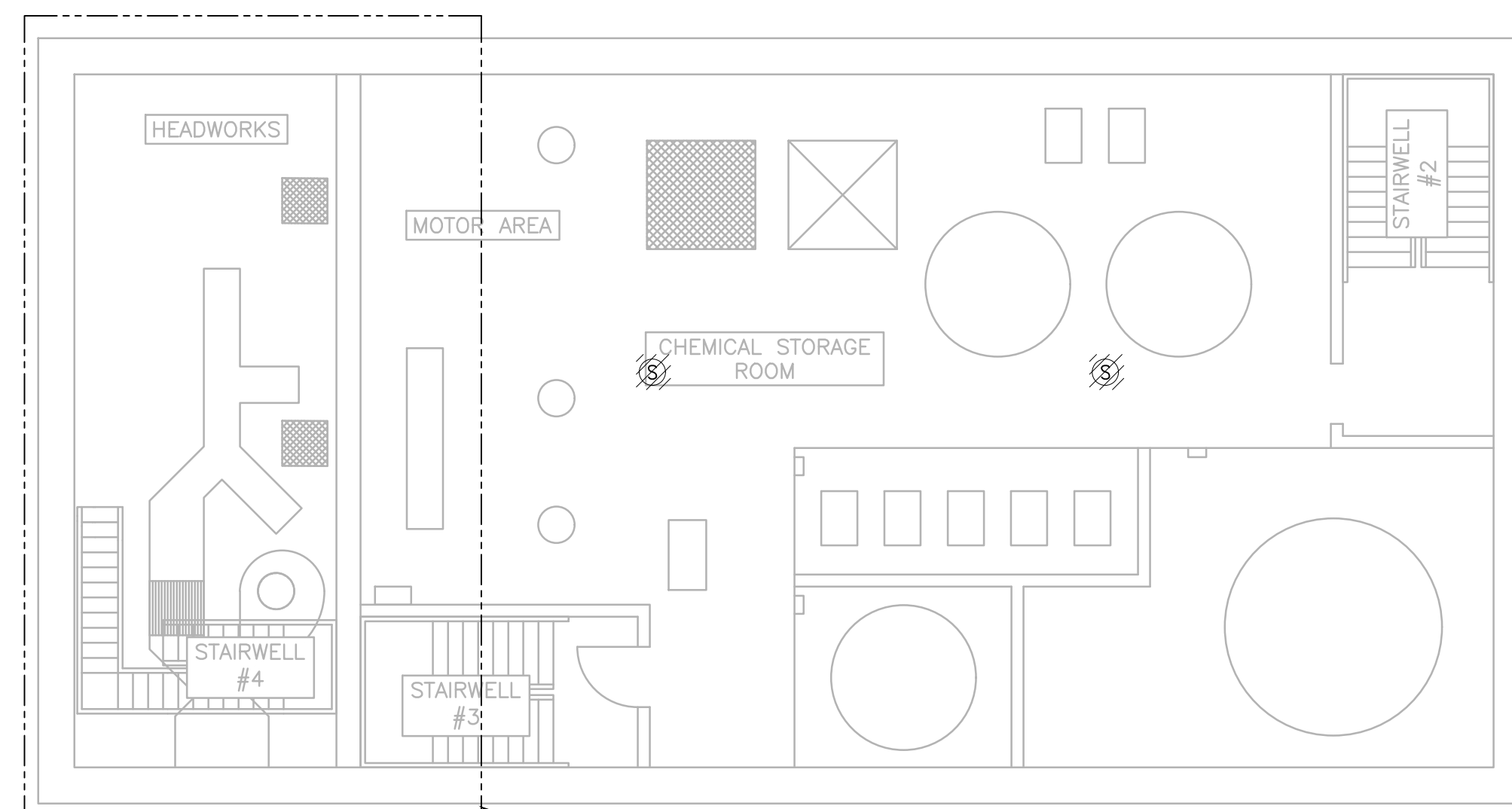
SCALE
AS SHOWN

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SHEET NO. **E-1.0**

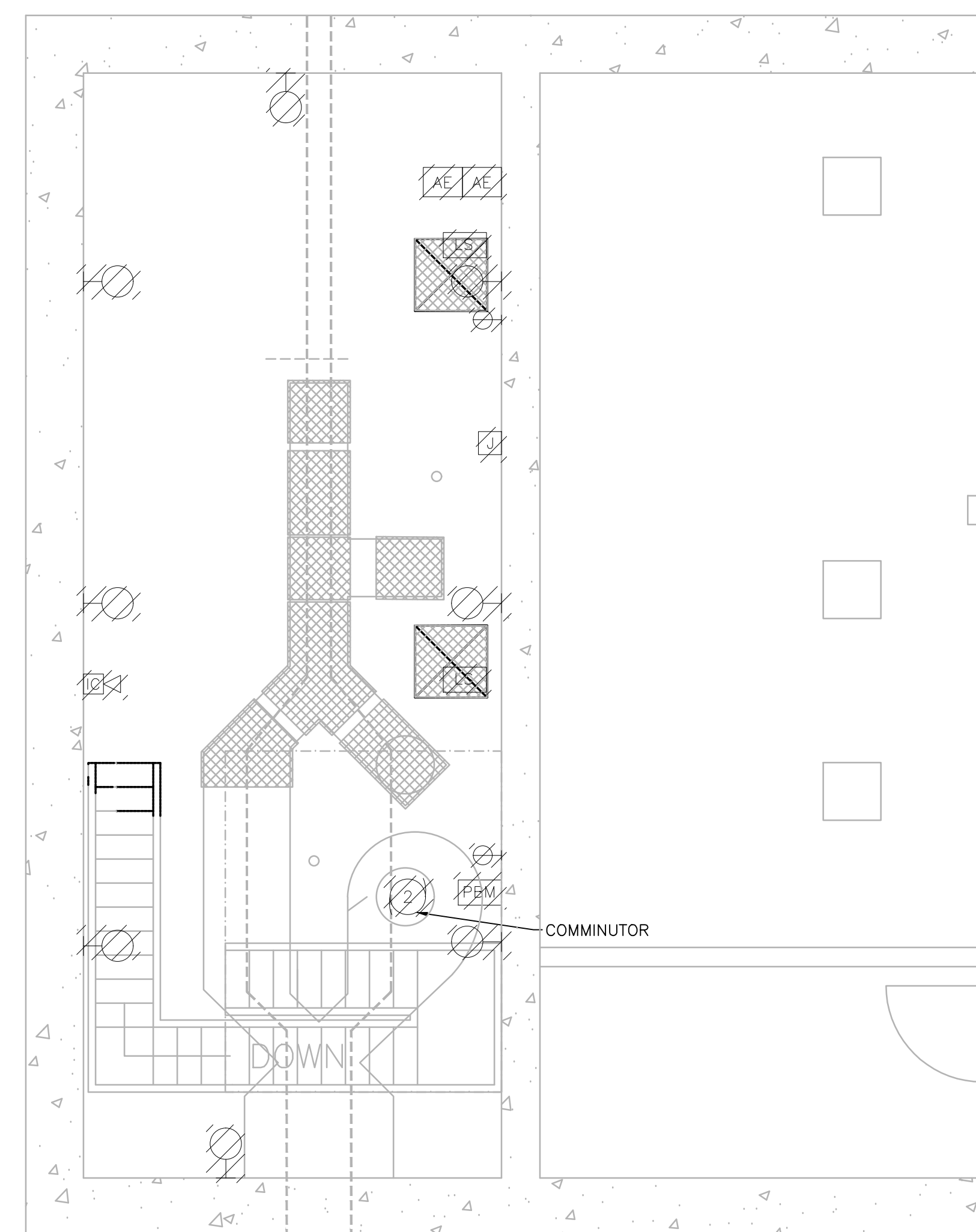


SUB BASEMENT - DEMOLITION PLAN
SCALE: 1/8" = 1'



REFER TO HEADWORKS
BASEMENT DEMOLITION PLAN
ON THIS DRAWING

BASEMENT - DEMOLITION PLAN
SCALE: 1/8" = 1'



HEADWORKS BASEMENT - DEMOLITION PLAN
SCALE: 1/8" = 1'

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Operations
Building
Electrical
Sub Basement and
Basement
Demolition Plans**

NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

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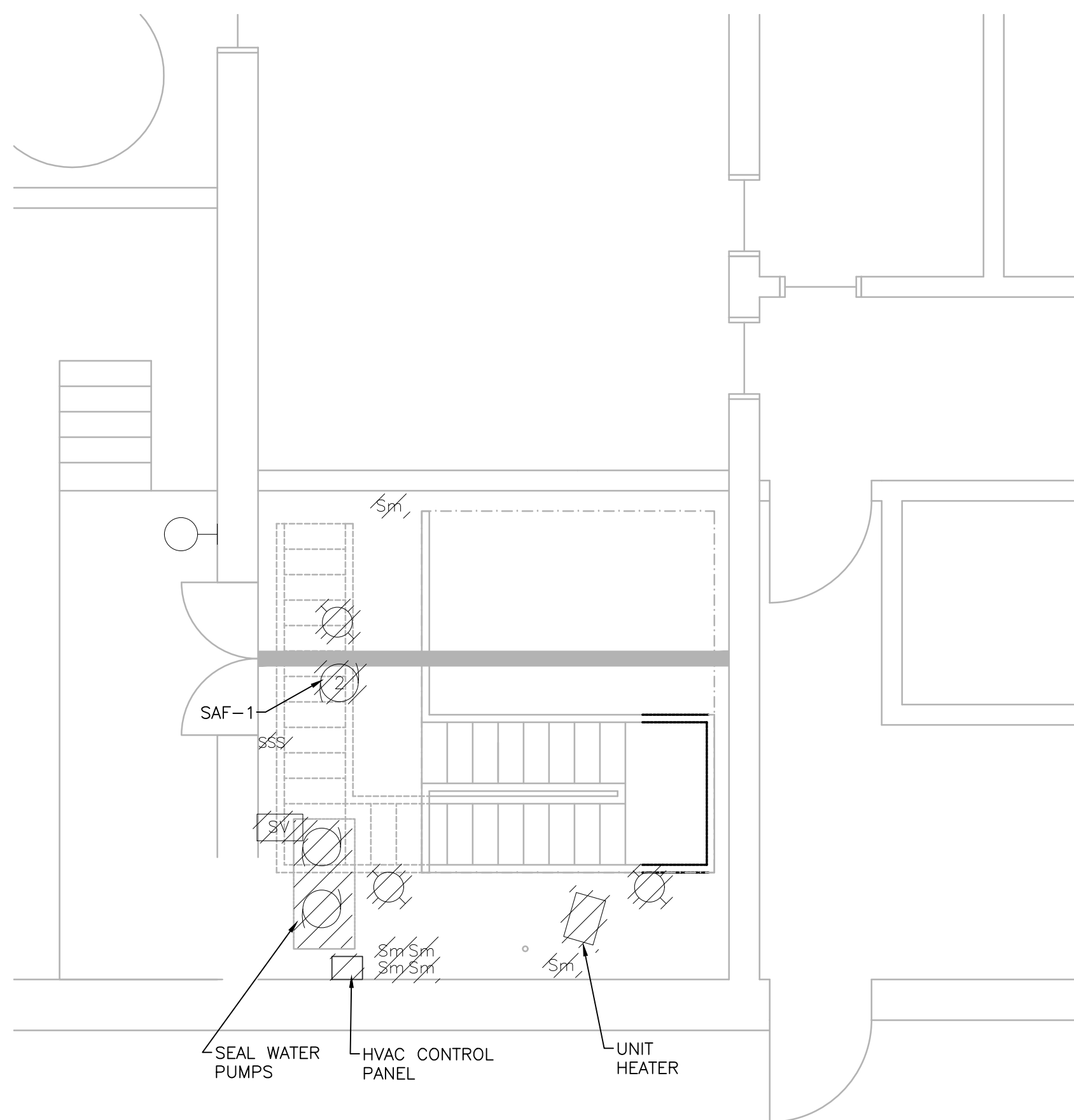
PROJECT

**BURRILLVILLE WWTF
 HEADWORKS &
 OAKLAND PUMP
 STATION
 IMPROVEMENTS**

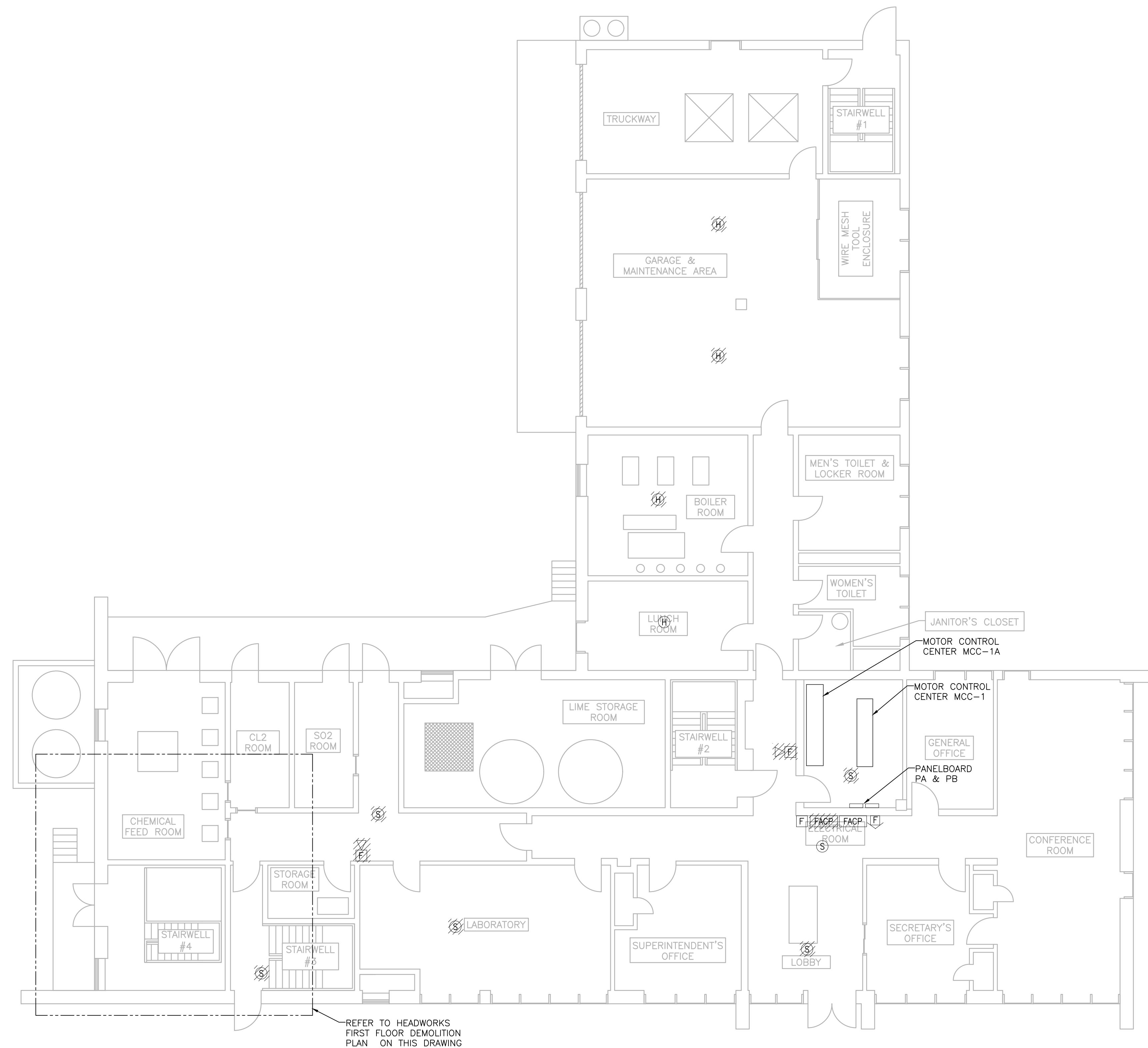
BURRILLVILLE, RI

TITLE

**Operations
 Building**
 Electrical
 First Floor
 Demolition Plan



HEADWORKS FIRST FLOOR - DEMOLITION PLAN
 SCALE: 1/4" = 1'



FIRST FLOOR - DEMOLITION PLAN
 SCALE: 1/8" = 1'

NO.	REVISIONS	DATE

DRAWN BY: RLB
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SCALE

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Operations
Building**

Electrical
2nd Floor
Demolition Plan

NO. REVISIONS DATE

DRAWN BY: RLB
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ISSUE DATE: AUGUST 2022
BETA JOB NO.: 6861-105

SCALE

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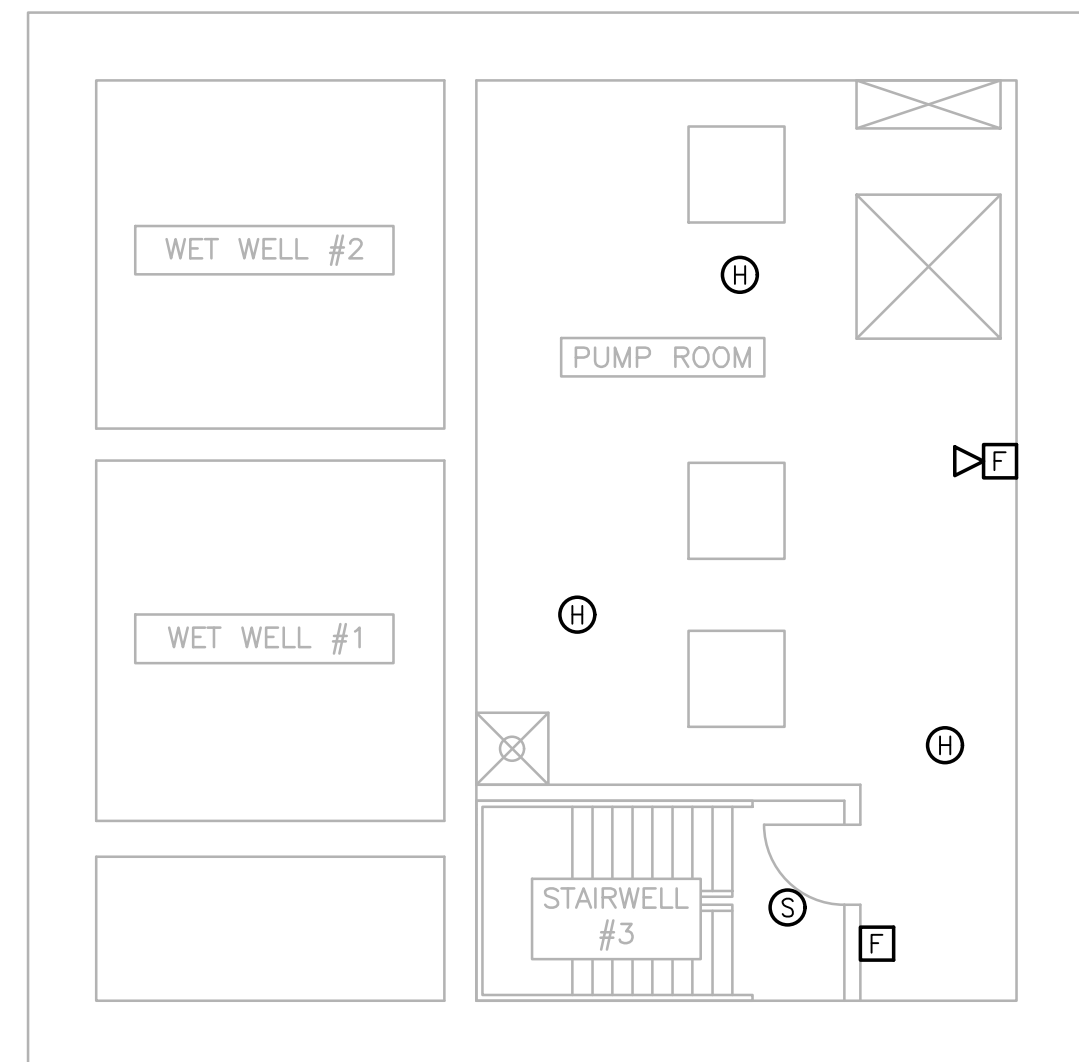
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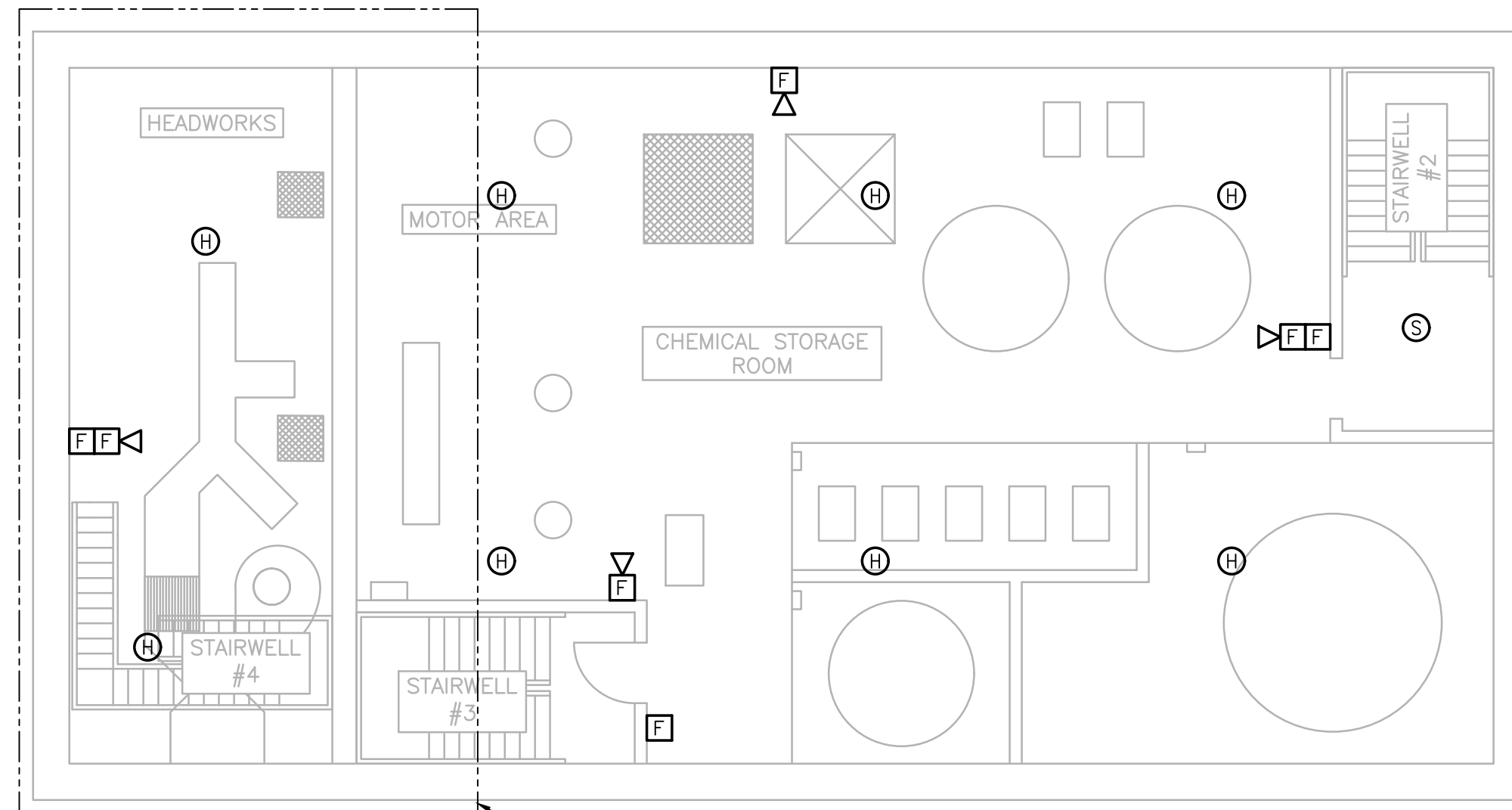
E-1.3



2ND FLOOR - DEMOLITION PLAN
SCALE: 1/8" = 1'

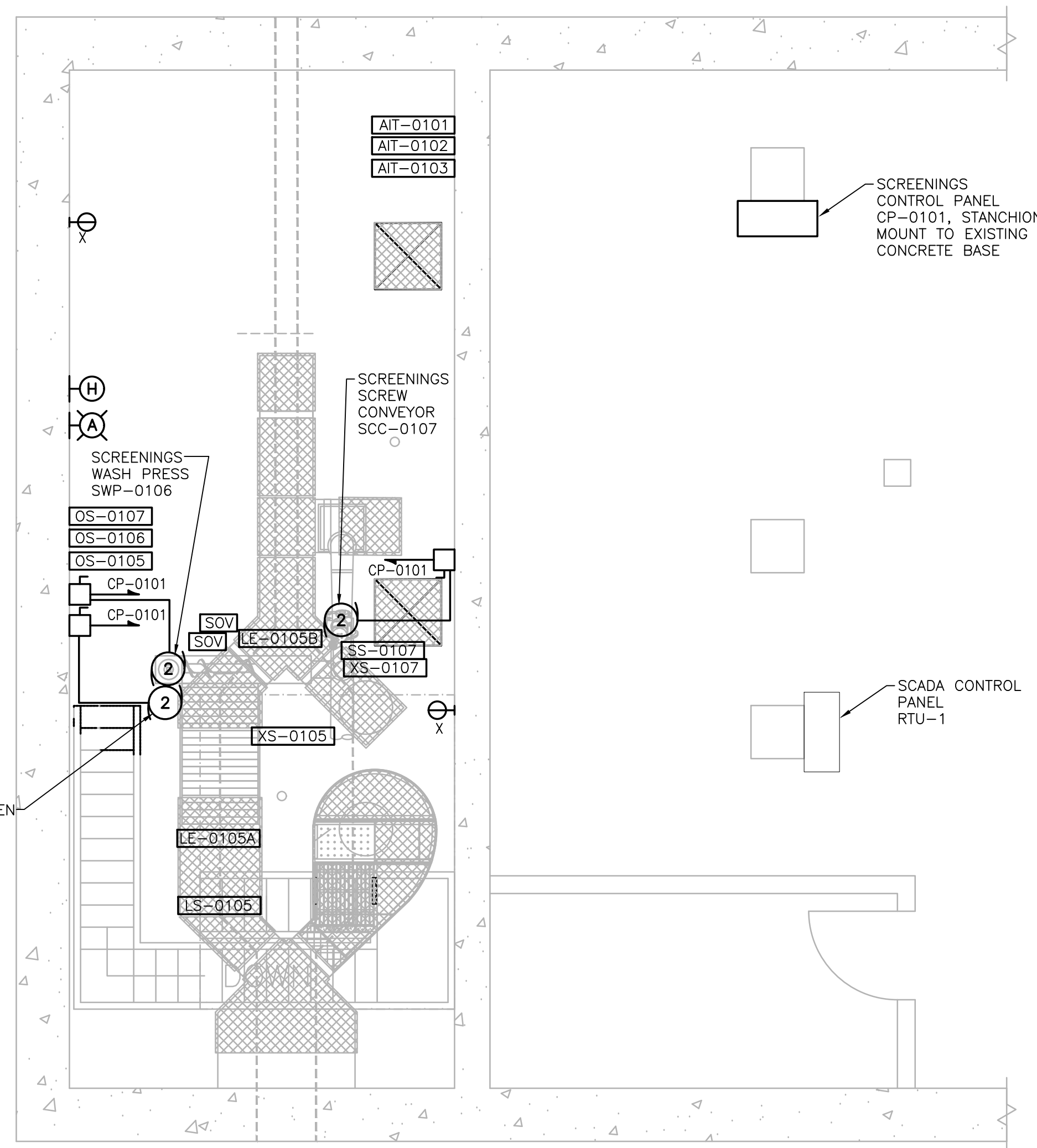


SUB BASEMENT - PLAN
SCALE: 1/8" = 1'

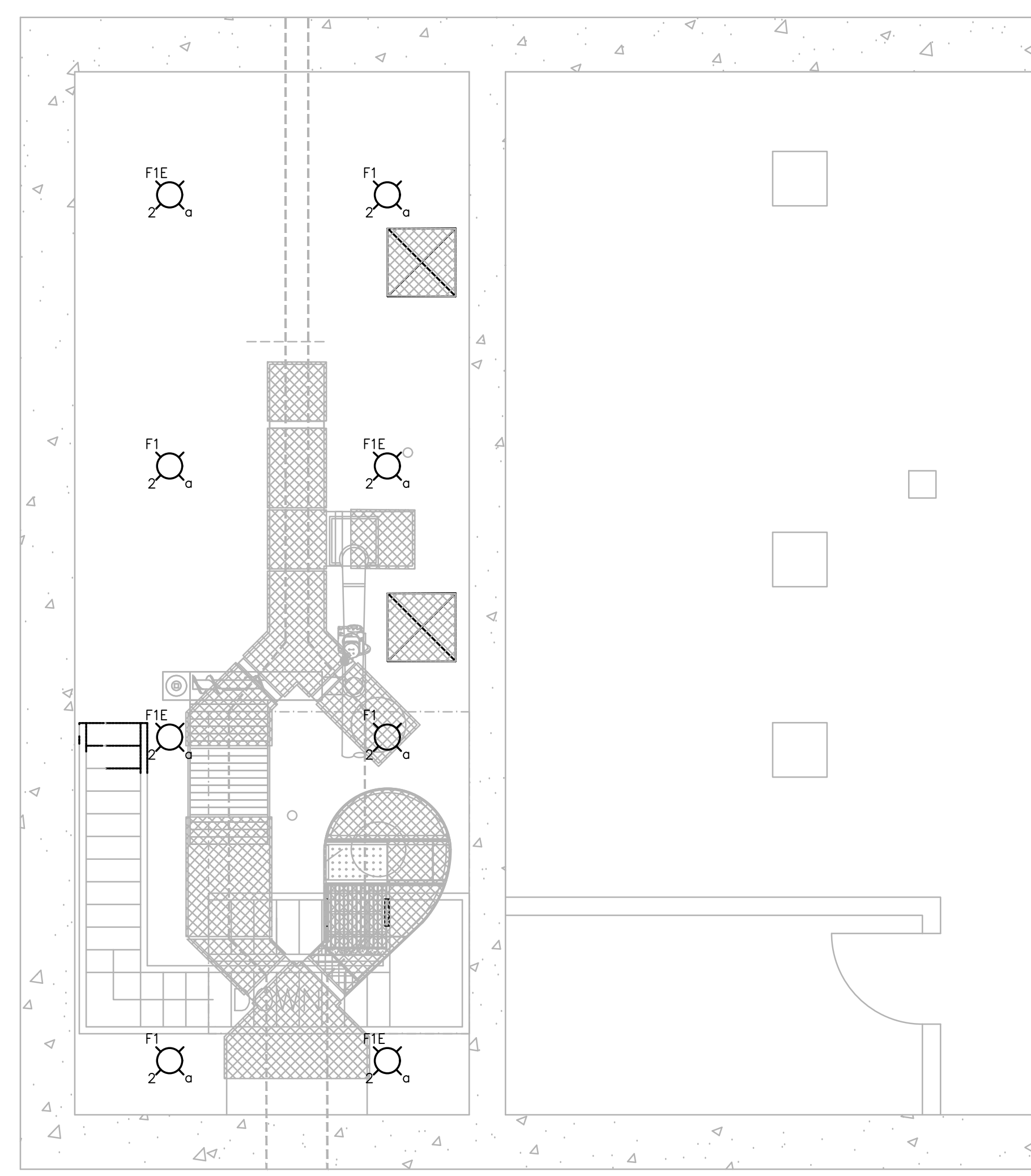


BASEMENT - PLAN
SCALE: 1/8" = 1'

REFER TO HEADWORKS
BASEMENT PLANS ON THIS
DRAWING



HEADWORKS BASEMENT - POWER PLAN
SCALE: 1/8" = 1'



HEADWORKS BASEMENT - LIGHTING PLAN
SCALE: 1/8" = 1'

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Operations
Building
Electrical
Sub Basement and
Basement
Plans**

NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

AS SHOWN

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PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Operations
Building**

Electrical
2nd Floor
Demolition Plan



2ND FLOOR - PLAN
SCALE: 1/8" = 1'

NO. REVISIONS DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

AS SHOWN

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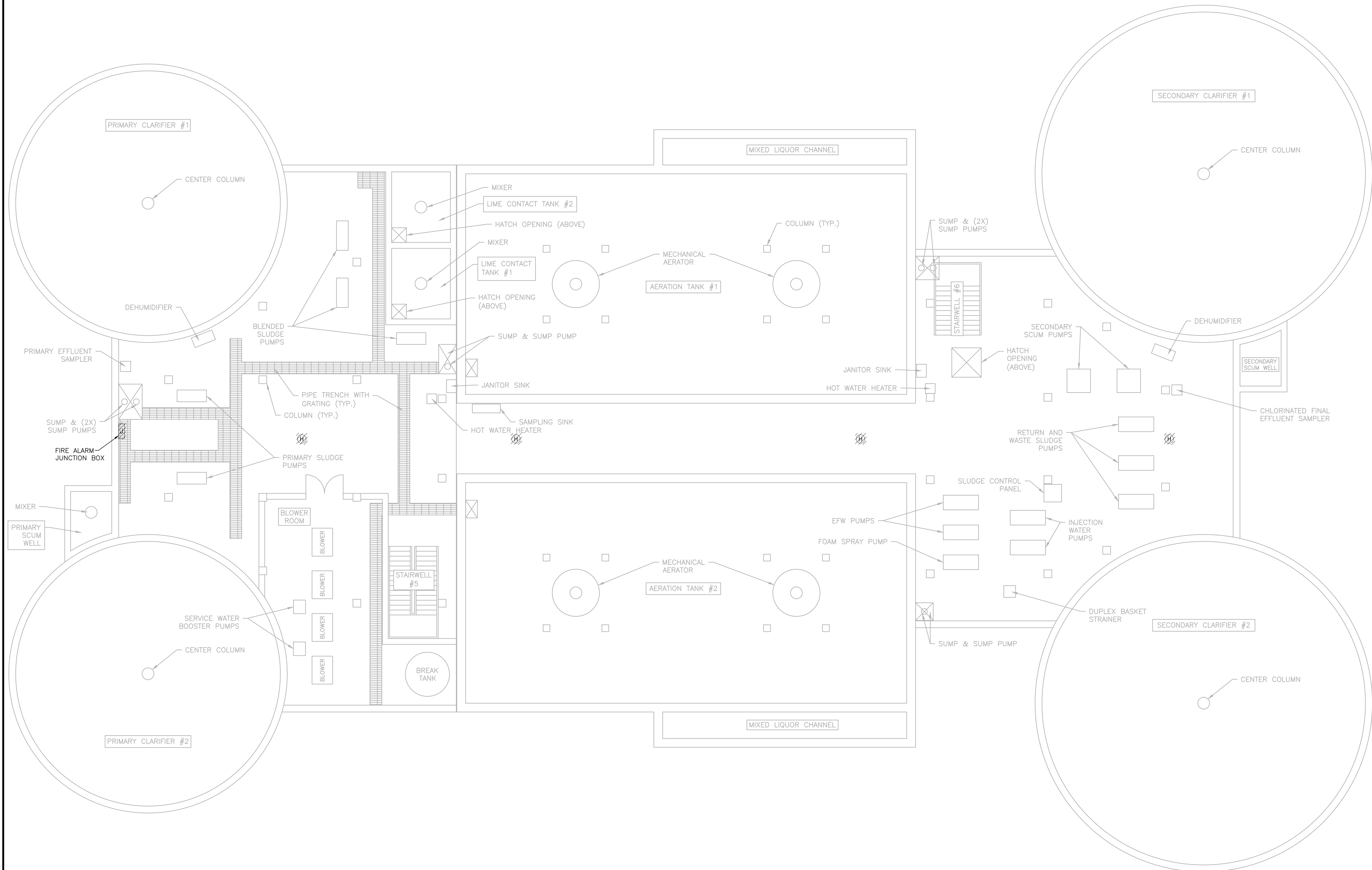
PROJECT

**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Pump
Gallerly**
Electrical
Lower Level
Demolition Plan



LOWER LEVEL - DEMOLITION PLAN
SCALE: 1/8" = 1'

NO. REVISIONS DATE

DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

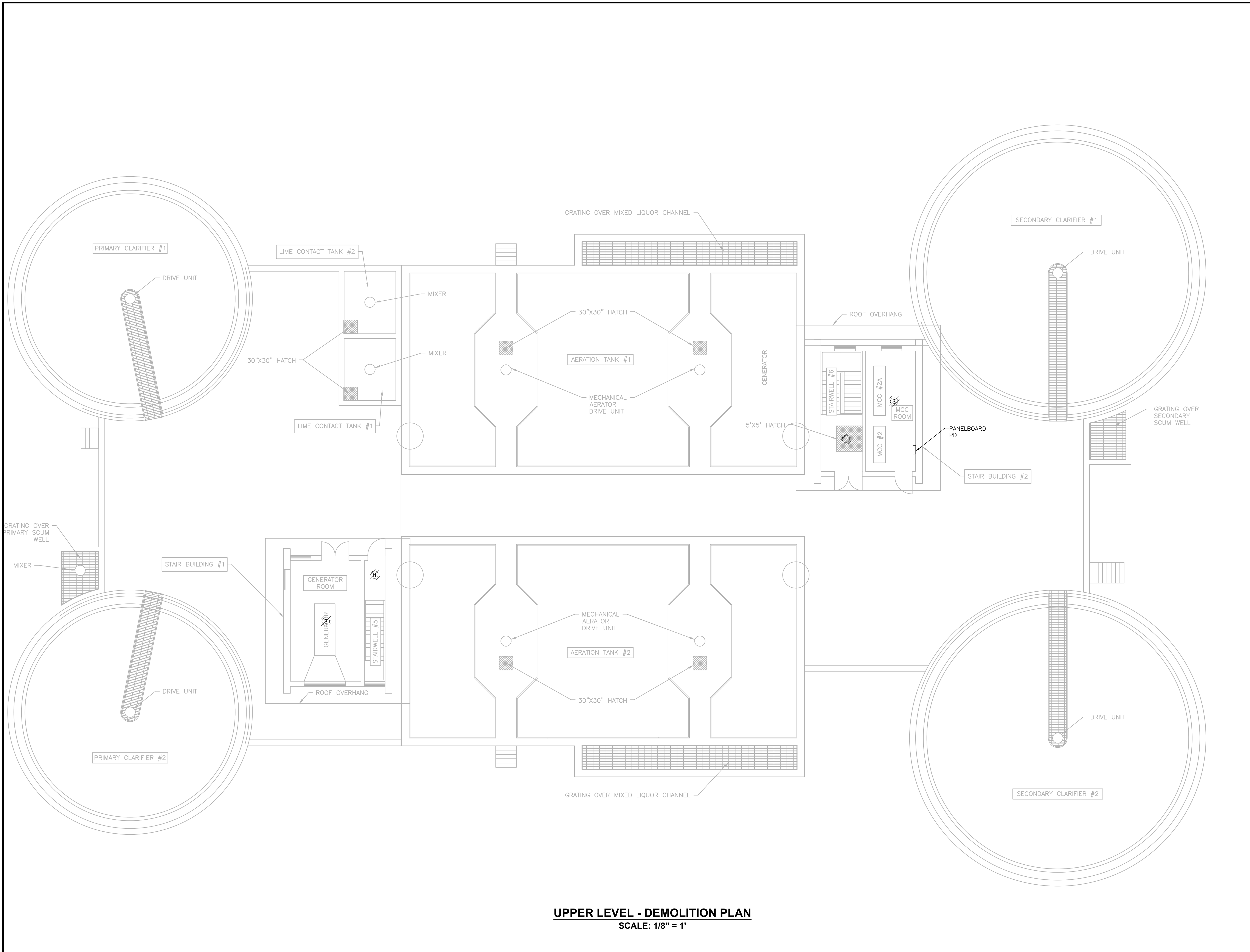
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E-2.1



UPPER LEVEL - DEMOLITION PLAN
 SCALE: 1/8" = 1'

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PROJECT

**BURRILLVILLE WWTf
 HEADWORKS &
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 STATION
 IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Pump
 Gallerly**
 Electrical
 Upper Level
 Demolition Plan

NO.	REVISIONS	DATE
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DRAWN BY:	RLB
DESIGNED BY:	RLB
CHECKED BY:	MC
ISSUE DATE:	AUGUST 2022
BETA JOB NO.:	6861-105

SCALE

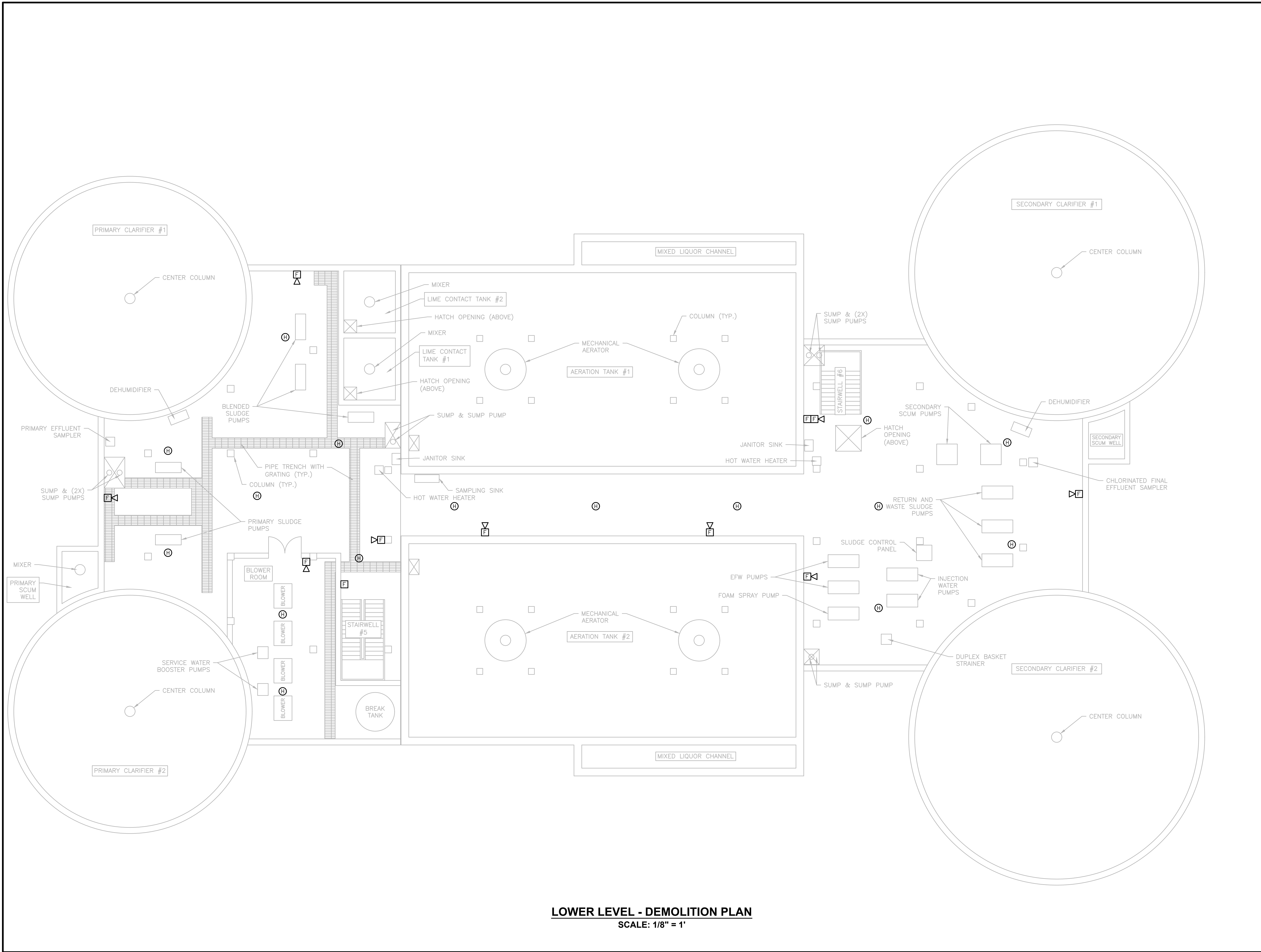
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SHEET NO.

E-2.2



LOWER LEVEL - DEMOLITION PLAN
 SCALE: 1/8" = 1'

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PROJECT

**BURRILLVILLE WWTF
 HEADWORKS &
 OAKLAND PUMP
 STATION
 IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Pump
 Gallerly**
 Electrical
 Lower Level
 Demolition Plan

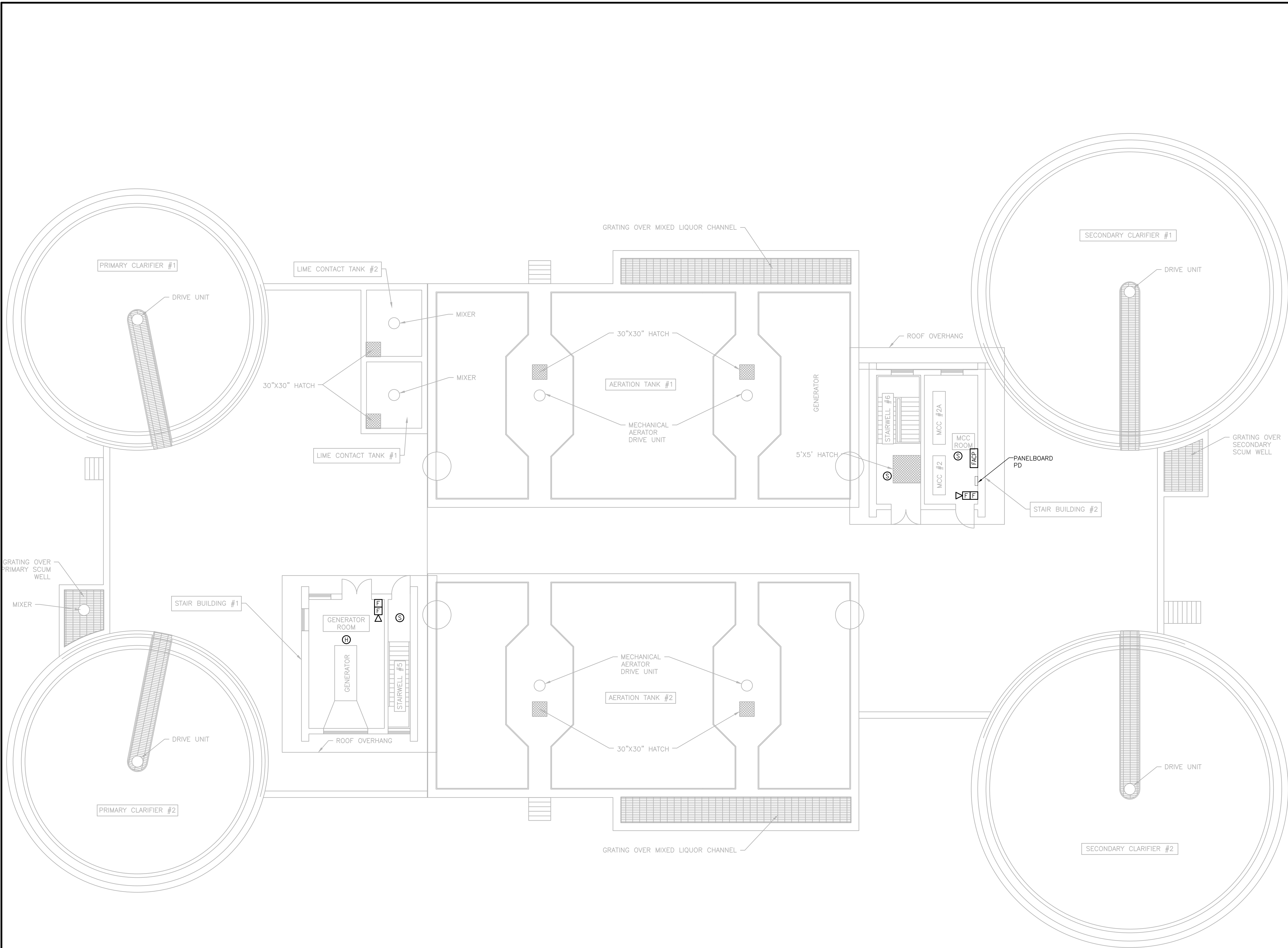
NO.	REVISIONS	DATE

DRAWN BY:	RLB
DESIGNED BY:	RLB
CHECKED BY:	MC
ISSUE DATE:	AUGUST 2022
BETA JOB NO.:	6861-105

SCALE
 AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION
90% REVIEW SET

SHEET NO.
E-2.3



UPPER LEVEL - PLAN
SCALE: 1/8" = 1'

PREPARED BY



REGISTERED PROFESSIONAL

SUBCONSULTANT



Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 221-9220
web: www.sar.com

PROJECT

**BURRILLVILLE WWTf
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Pump
Gallery**
Electrical
Upper Level
Plan

NO.	REVISIONS	DATE

DRAWN BY:	RLB
DESIGNED BY:	RLB
CHECKED BY:	MC
ISSUE DATE:	AUGUST 2022
BETA JOB NO.:	6861-105

SCALE
AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION
90% REVIEW SET

SHEET NO. **E-2.4**

NO.	REVISIONS	DATE
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DRAWN BY: RLB

DESIGNED BY: RLB

CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE

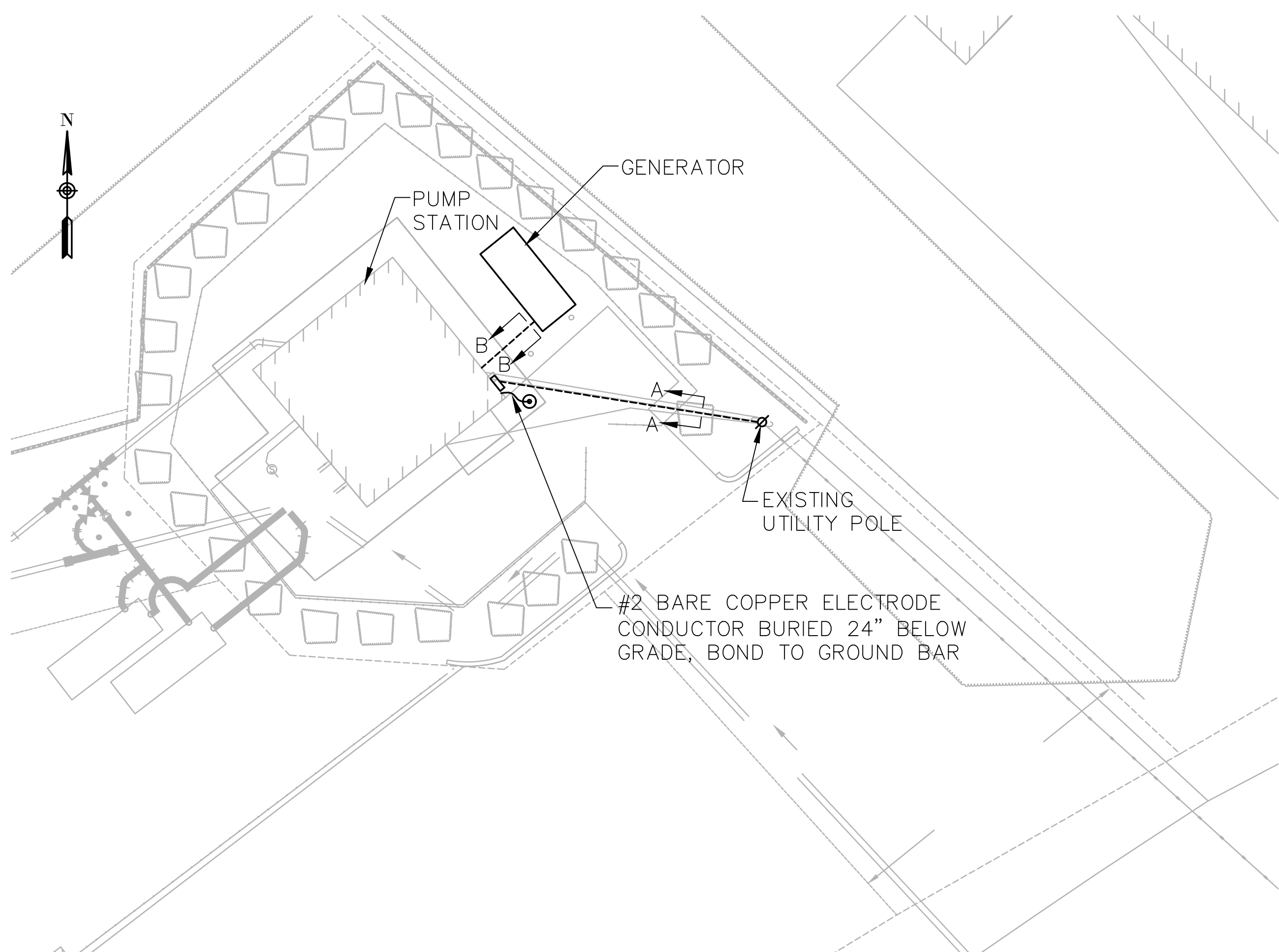
AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

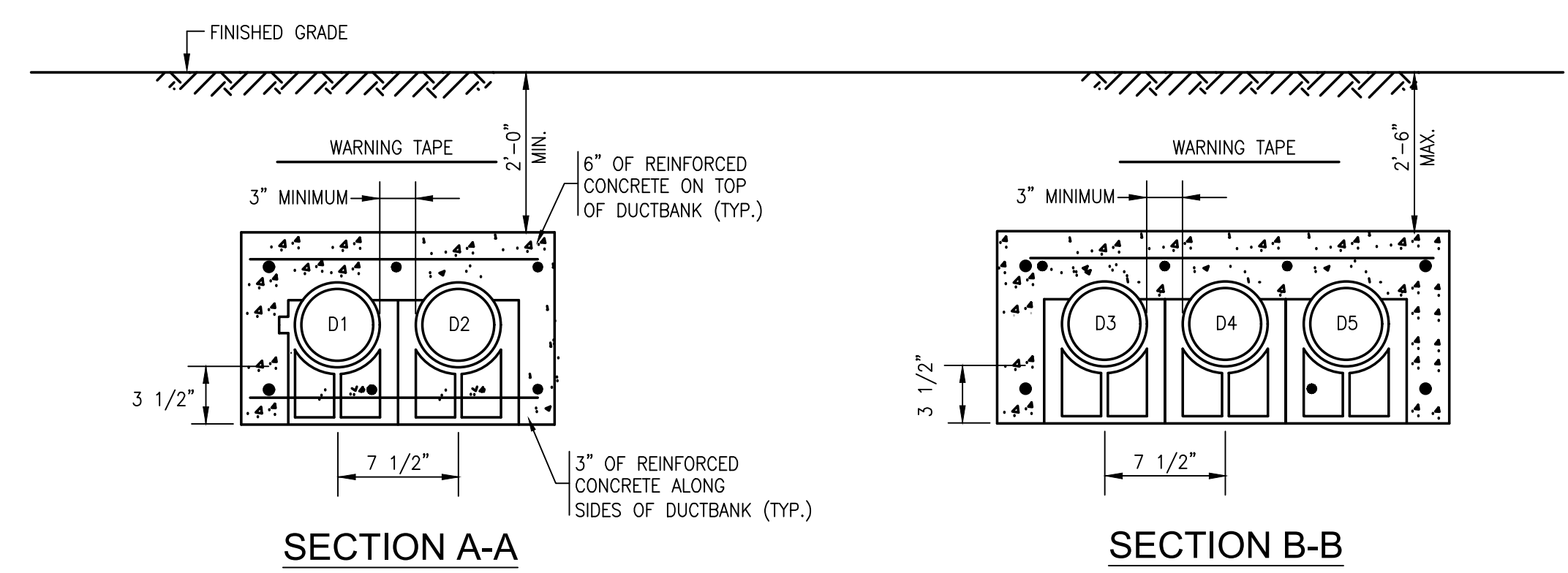
90% REVIEW SET

SHEET NO.

E-3.0

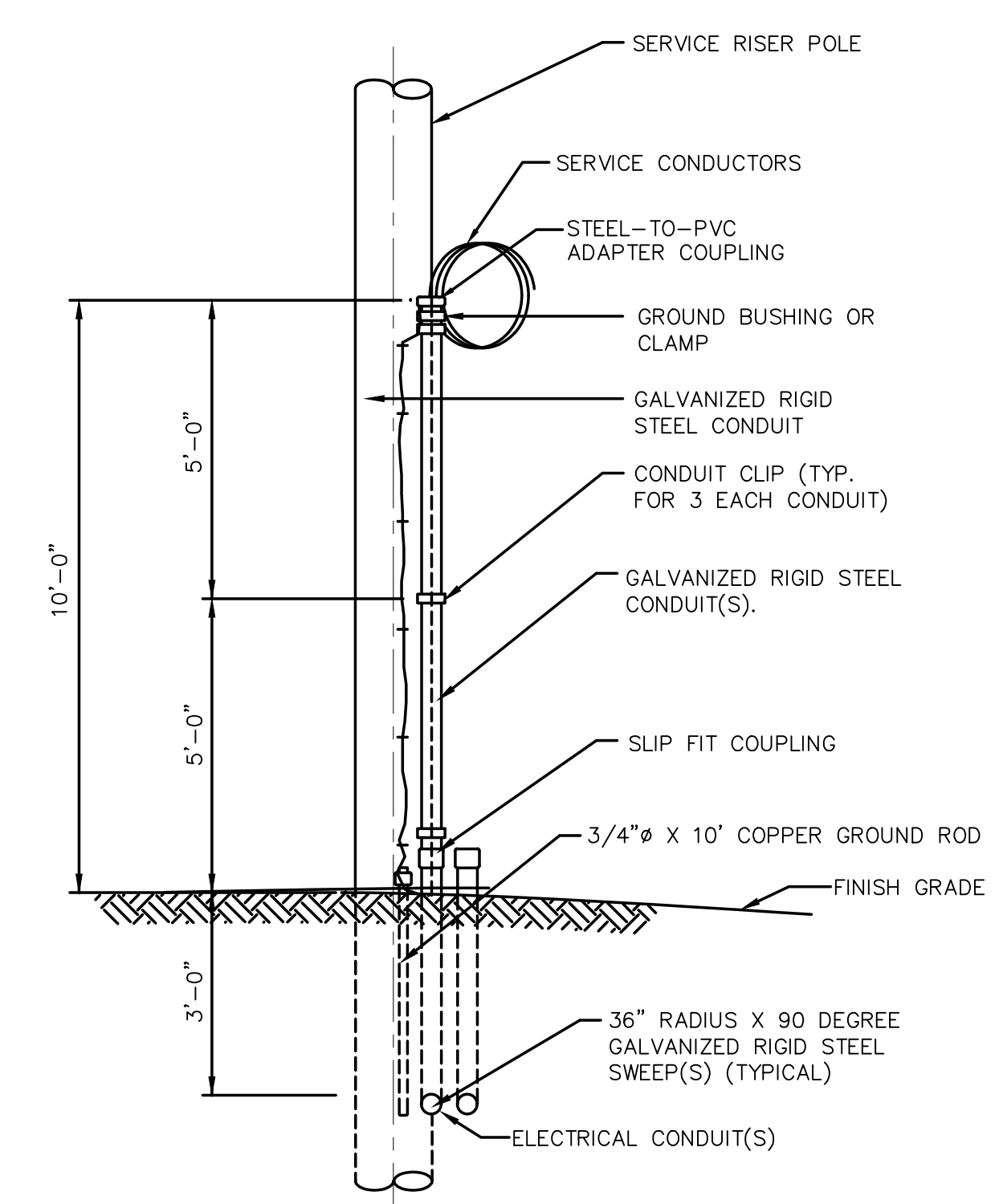


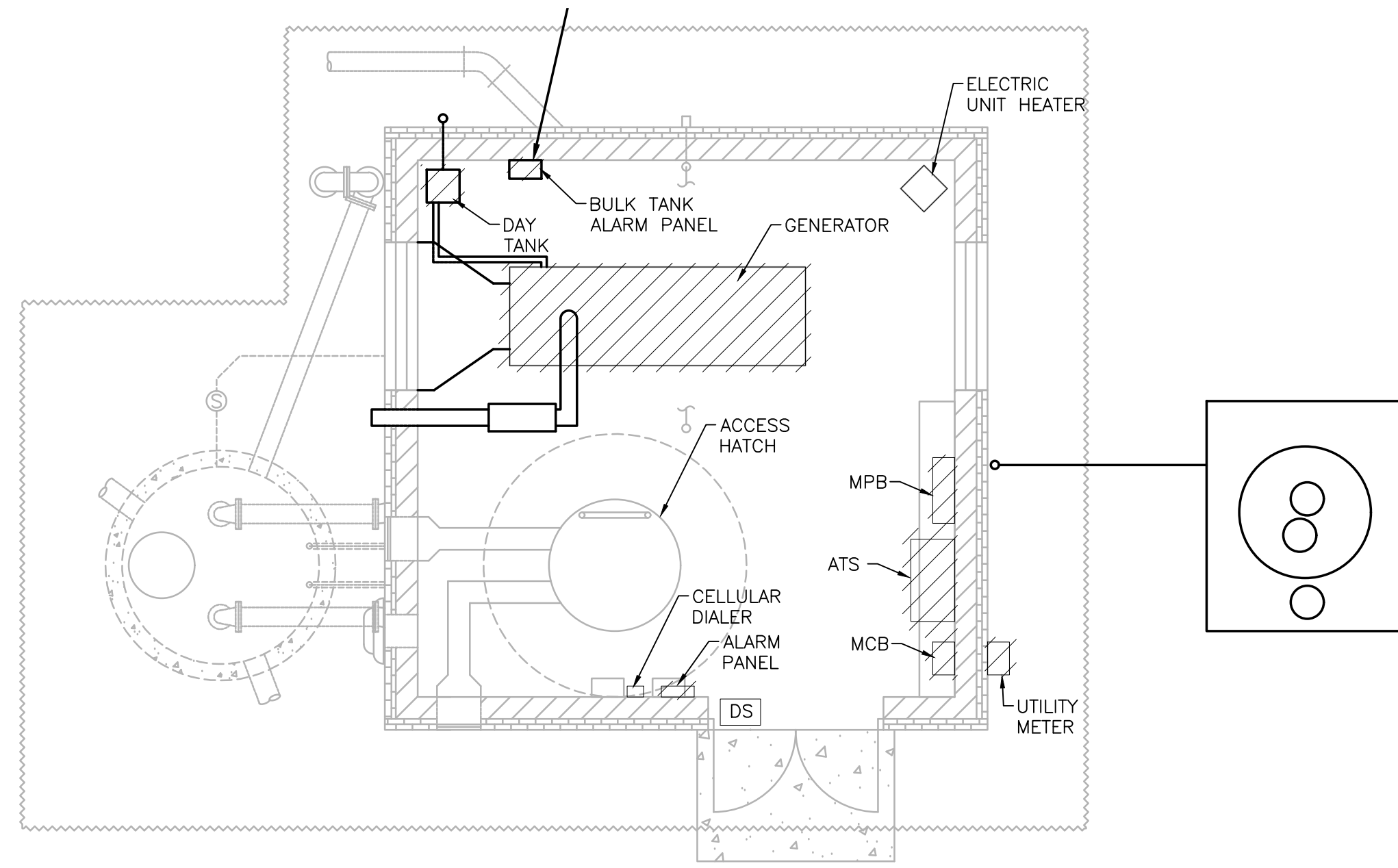
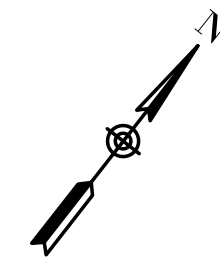
DUCT / CABLE SCHEDULE				
DUCT NO.	SIZE	CONDUCTORS	FROM	TO
D1	3"	(4) #250KCMIL	UTILITY POLE	UTILITY METER
D2	3"	PULL STRING	STUB UP AND CAP AT UTILITY POLE BASE	STUB UP AND CAP BELOW UTILITY METER
D3	3"	(4) #250KCMIL, #4 GND	GENERATOR	GENERATOR DISCONNECT SWITCH
D4	1"	(4) #12, #12GND	MPB	GENERATOR AUXILIARY SYSTEMS
D5	1"	(6) #14	GENERATOR	ATS, EMERGENCY STOP, PUMP CONTROL PANEL



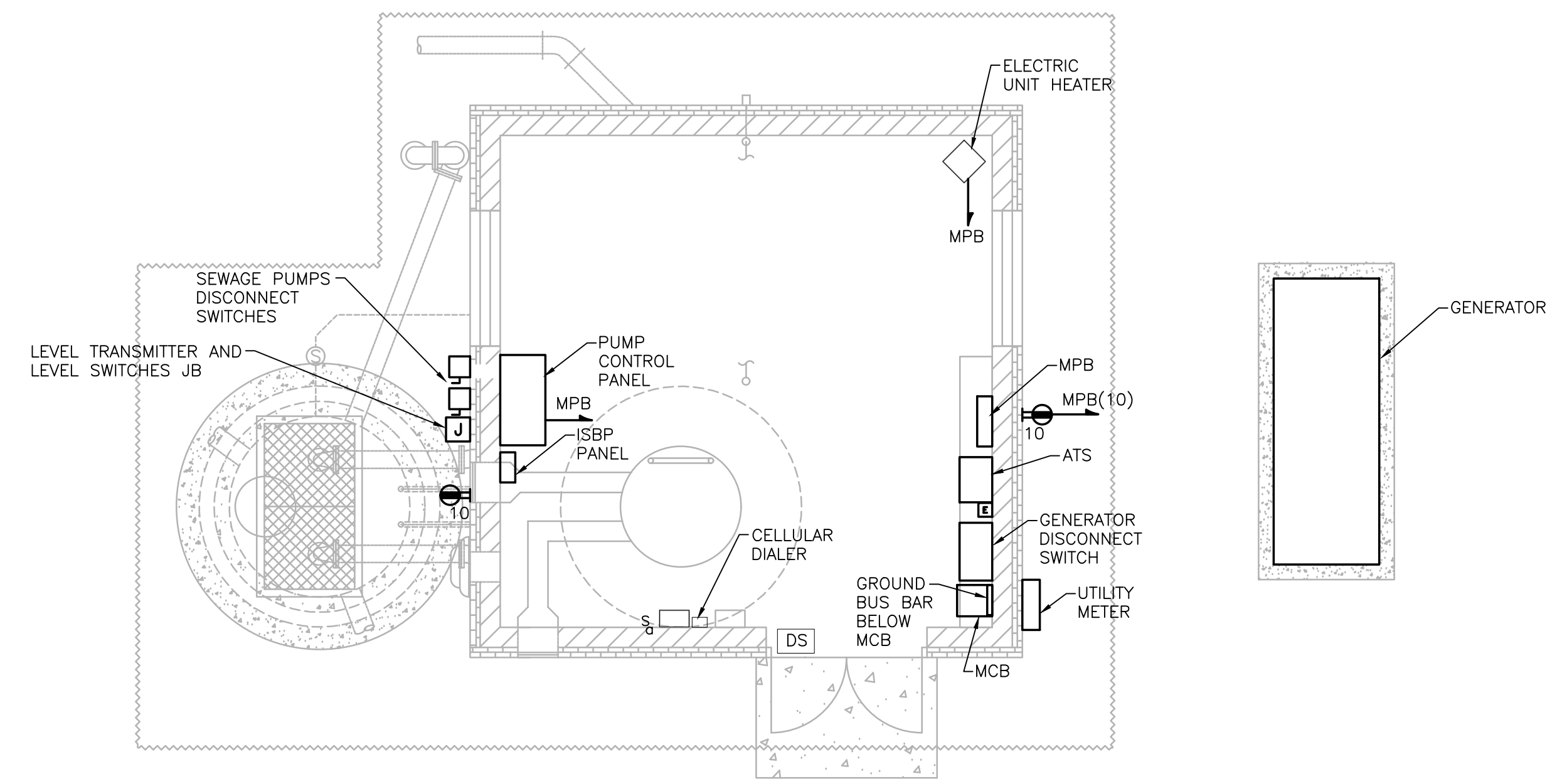
- NOTES:
- BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE RED DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.

DUCTBANK SECTIONS
NO SCALE

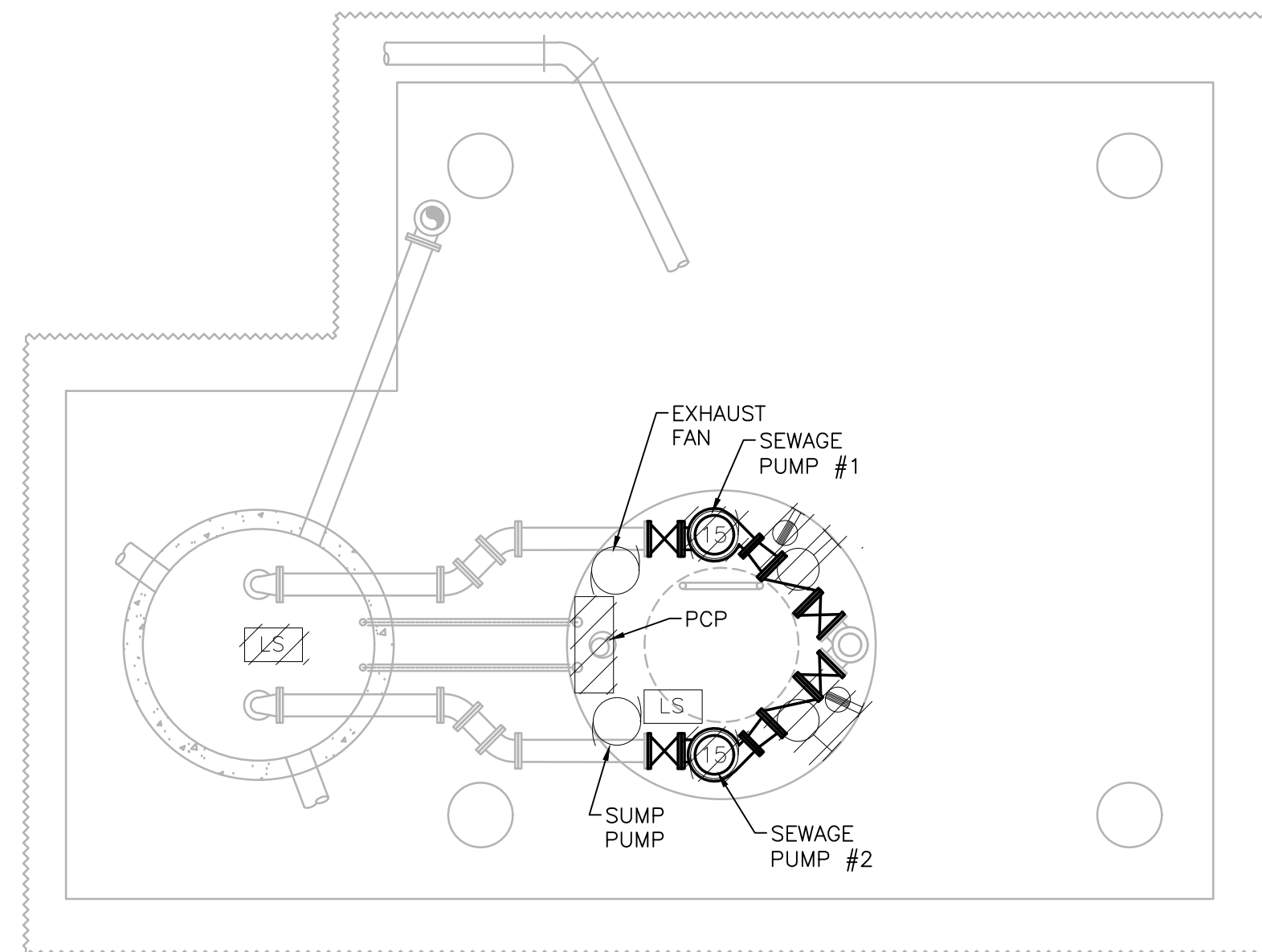




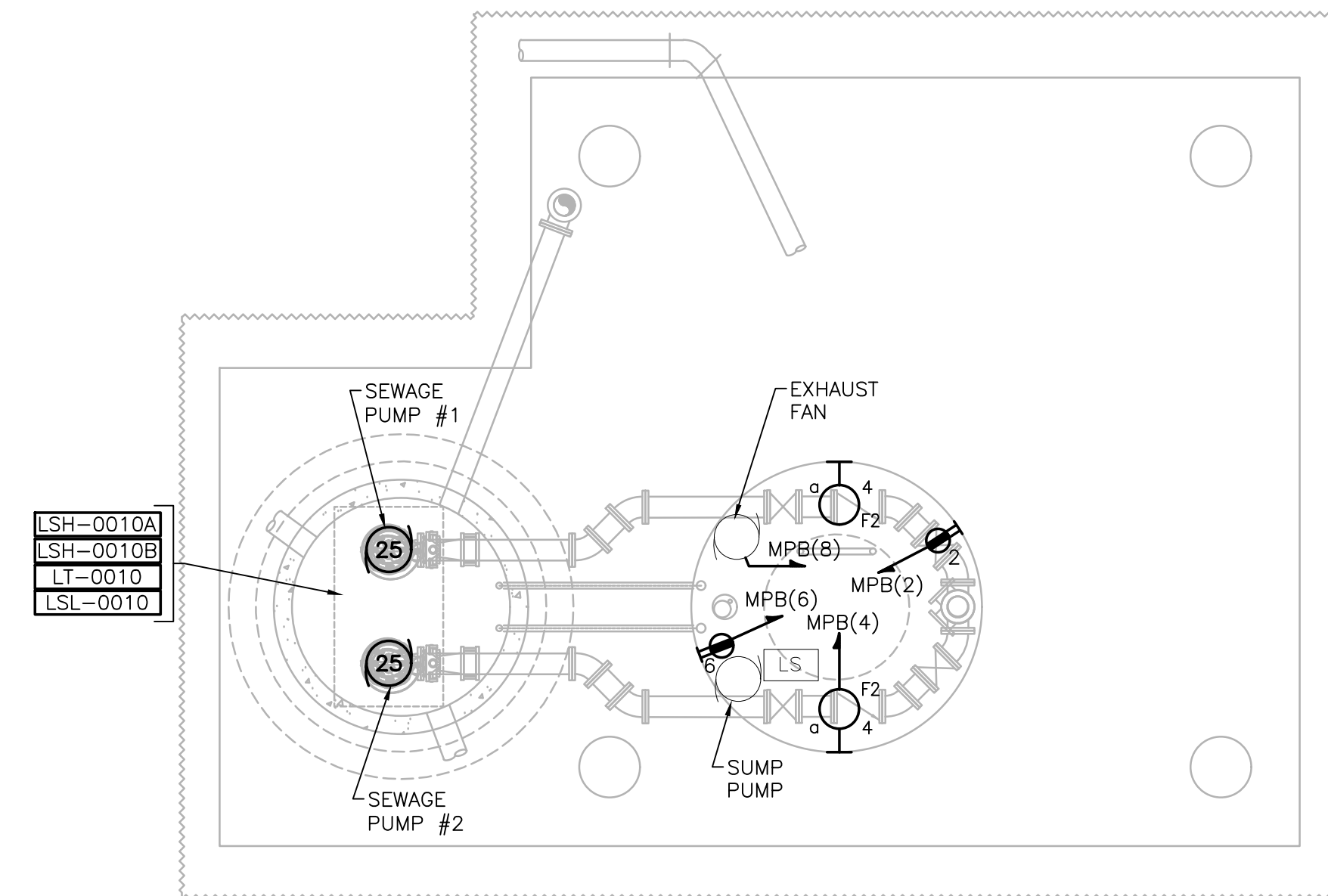
GROUND LEVEL - DEMOLITION PLAN
SCALE: 1/4" = 1'



GROUND LEVEL - PLAN
SCALE: 1/4" = 1'



LOWER LEVEL - DEMOLITION PLAN
SCALE: 1/4" = 1'



LOWER LEVEL - PLAN
SCALE: 1/4" = 1'

PREPARED BY



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**BURRILLVILLE WWTF
HEADWORKS &
OAKLAND PUMP
STATION
IMPROVEMENTS**

BURRILLVILLE, RI

TITLE

**Oakland Pump
Station**

Electrical
Plans

NO.	REVISIONS	DATE
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DRAWN BY: RLB

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CHECKED BY: MC

ISSUE DATE: AUGUST 2022

BETA JOB NO.: 6861-105

SCALE



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