

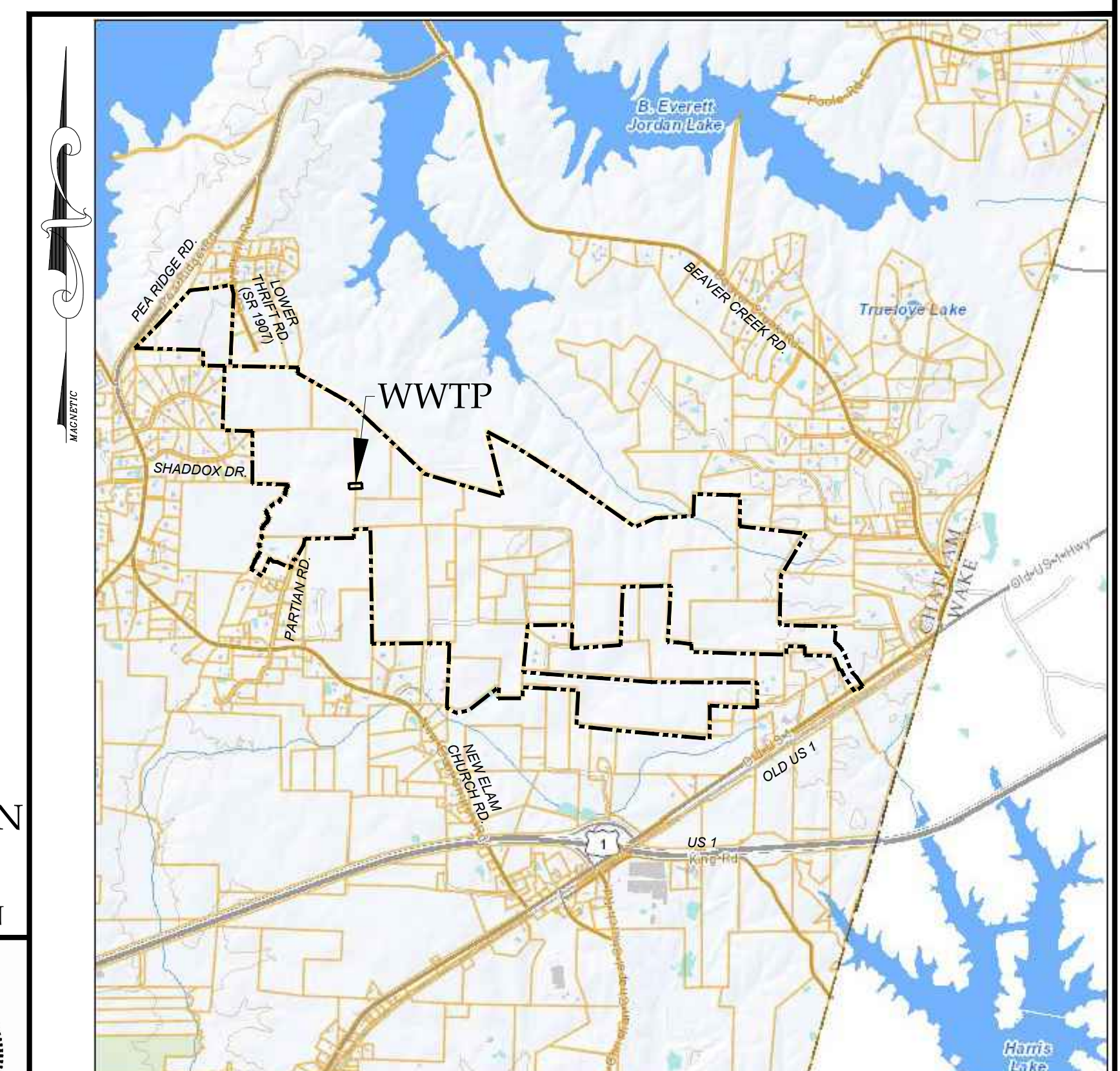
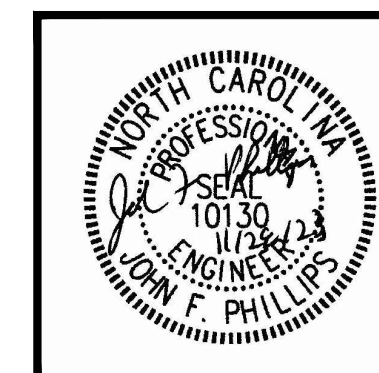
THE CONSERVANCY AT JORDAN LAKE WASTEWATER TREATMENT PLANT

THE CONSERVANCY REAL ESTATE GROUP, LLC
CHATHAM COUNTY, NORTH CAROLINA

INDEX OF DRAWINGS	
1	SITE PLAN
2	PROCESS FLOW SCHEMATIC AND HYDRAULIC PROFILE
3	BLOWER, AIR PIPING AND CHEMICAL FEED SCHEMATICS
4	ENLARGED PLAN OF BLOWERS, NaOH FEED SYSTEM, AND INFLUENT PUMP STATION
5	INFLUENT PUMP STATION - PLAN AND SECTIONAL PLAN
6	INFLUENT PUMP STATION - SECTION AND DETAILS
7	FLOW CONTROL/SPLITTER BOX - PLAN AND SECTIONS, CHEMICAL FEED SYSTEM PUMP STAND DETAIL, AND GUIDE RAIL SUPPORT
8	MISCELLANEOUS SECTIONS OF AIR PIPING AND CHEMICAL TANK ELEVATION
9	PLANT No. 1 - PLAN
10	PLANT No. 2 - PLAN
11	PLANT No. 3 - PLAN
12	TYPICAL PLANT SECTIONS AND DETAILS
13	DISC FILTERS & CHLORINE CONTACT TANK - PLAN AND SECTIONS
14	CHLORINE CONTACT TANK - SECTIONS AND DETAILS AND MISCELLANEOUS SITE DETAILS
15	BACKWASH RETURN PUMP STATION - PLAN, SECTIONAL PLAN, AND SECTION AND CHEMICAL FEED SYSTEMS DETAIL
16	LAB BUILDING - PLAN, ELEVATIONS, AND TYPICAL WALL SECTION
17	STAKING PLAN
E1	ELECTRICAL SITE PLAN
E2	ONE LINE DIAGRAM
E3	ONE LINE DIAGRAM (CONT.), PANEL SCHEDULES, AND CELLULAR ALARM DIALER INPUTS
E4	ENLARGED PLAN OF INFLUENT P.S., BLOWERS & CHEM. FEED SYSTEMS, INFLUENT PUMP STATION SECTIONAL PLAN & LUMINAIRE DETAIL - ELECTRICAL
E5	PLANT No. 1 - ELECTRICAL
E6	DISC FILTERS & CHLORINE CONTACT TANK - ELECTRICAL
E7	LAB BUILDING - POWER, LIGHTING, AND PLUMBING/HVAC PLAN-ELECTRICAL
S1	GENERAL NOTES AND DETAILS
S2	BLOWERS, NaOH FEED SYSTEM, AND INFLUENT PUMP STATION - FOUNDATION PLAN
S3	INFLUENT PUMP STATION - TOP PLAN AND SECTION
S4	INFLUENT PUMP STATION - SECTIONS AND ELEVATIONS
S5	INFLUENT PUMP STATION - SECTIONS AND ELEVATIONS
S6	TYPICAL PLANT - FOUNDATION PLAN AND SECTION
S7	DISC FILTERS & CHLORINE CONTACT TANK - FOUNDATION PLAN
S8	CHLORINE CONTACT TANK - SECTIONS
S9	LAB BUILDING, GENERATOR, MICRO-C AND SODIUM HYPOCHLORITE CONT./STORAGE - FOUNDATION PLANS AND DETAIL

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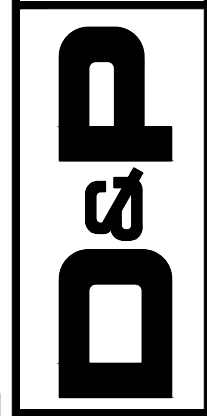
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VICINITY MAP
NO SCALE

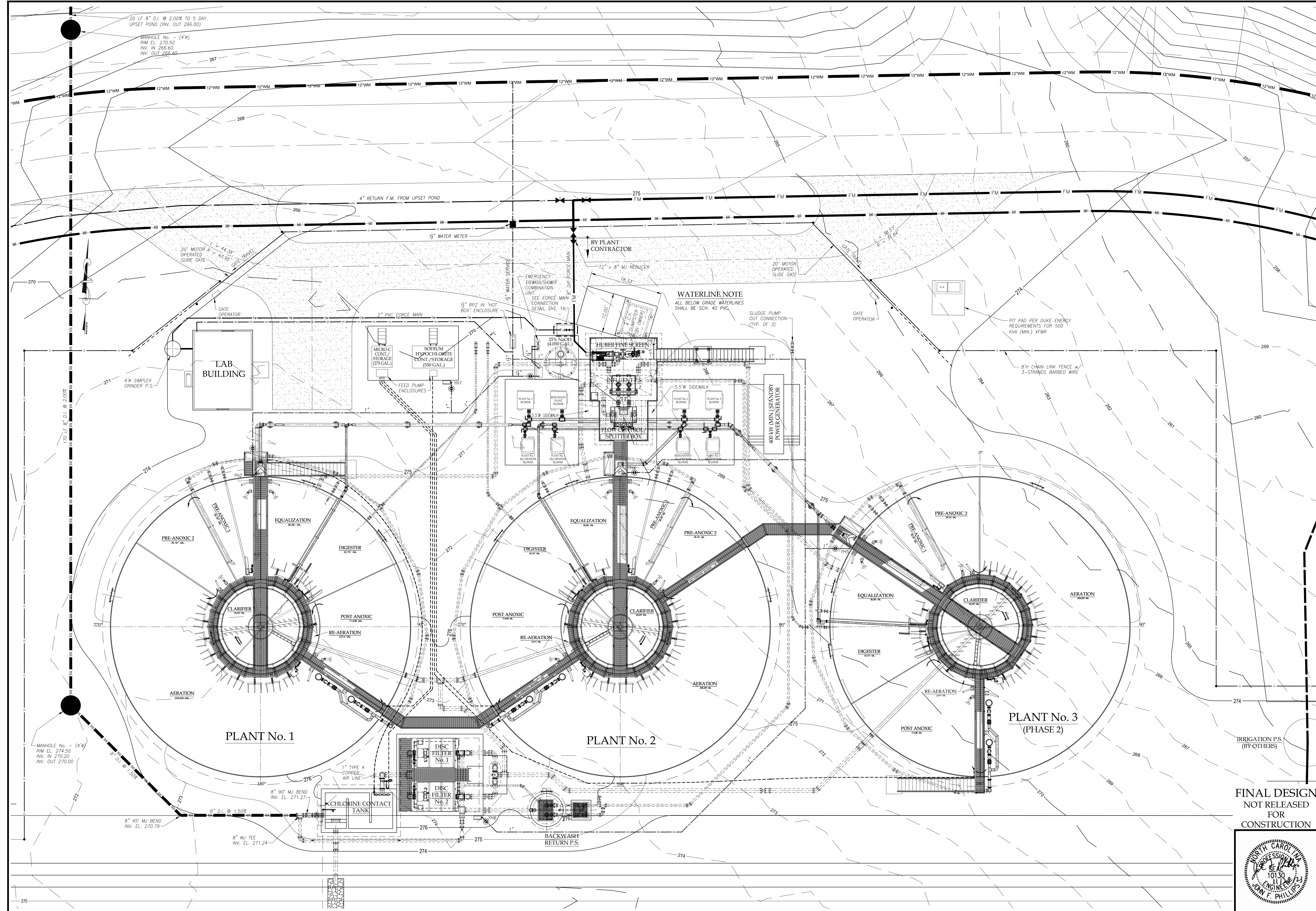
DESIGN JFP
 DRAWN JLB
 CHECKED JFP
 SCALE 1" = 10'
 FILE CONSERV-SFR1

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 WASTEWATER TREATMENT PLANT
 CHATHAM COUNTY, NORTH CAROLINA

SITE PLAN
 SHEET 1 OF 33



20 LF 8" D.I. @ 2.00% TO 5 DAY
 UPSET POND (INV. OUT 266.00)

MANHOLE No. - (4")
 RIM EL. 270.50
 INV. IN 266.60
 INV. OUT 266.40

WATERLINE NOTE
 ALL BELOW GRADE WATERLINES
 SHALL BE SCH. 40 PVC.

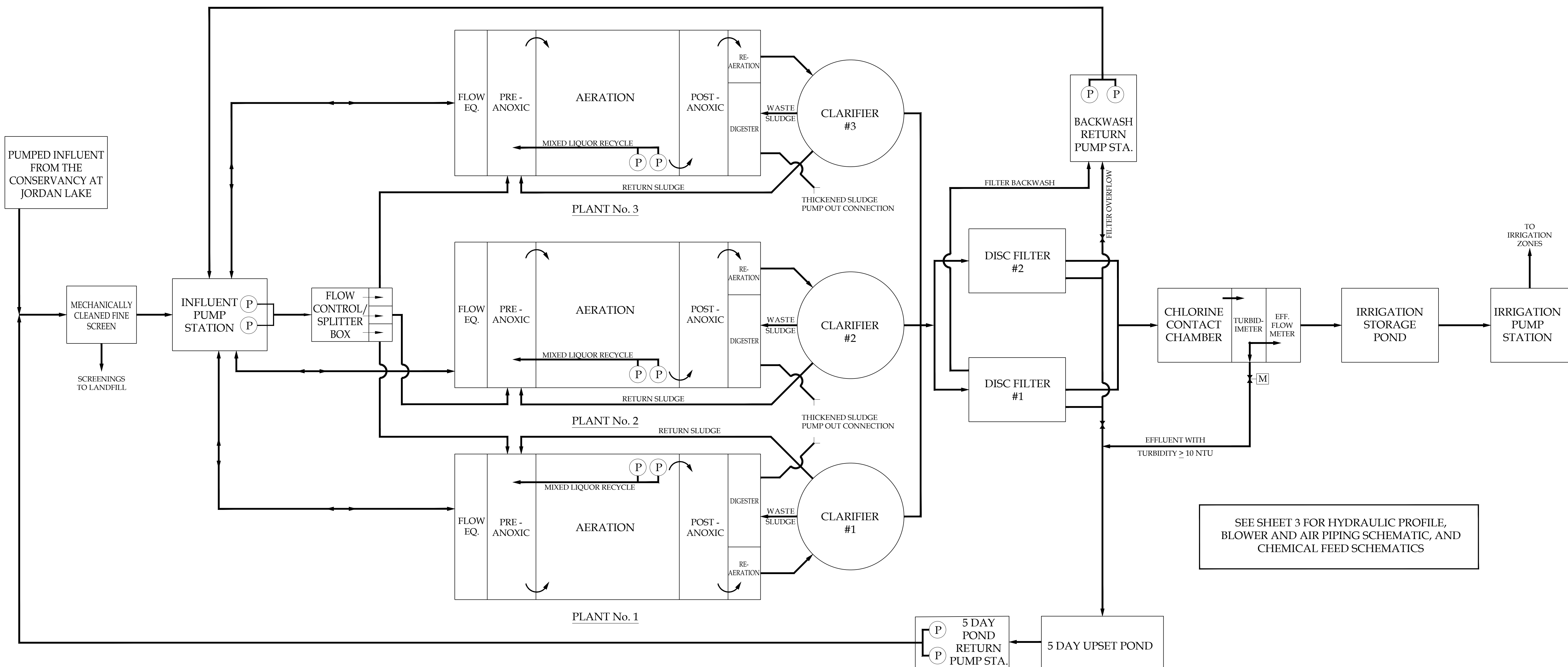
PLANT No. 3
 (PHASE 2)

PLANT No. 1

PLANT No. 2

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SEE SHEET 3 FOR HYDRAULIC PROFILE,
 BLOWER AND AIR PIPING SCHEMATIC, AND
 CHEMICAL FEED SCHEMATICS

PROCESS FLOW SCHEMATIC

PROCESS FLOW SCHEMATIC NOTES

DESIGN INFLUENT WASTEWATER CHARACTERISTICS

BOD5	440 MG/L
TOTAL SUSPENDED SOLIDS	440 MG/L
NH3-N	50 MG/L
TOTAL KJELDAHL NITROGEN	80 MG/L
ALKALINITY (AS CALCIUM CARBONATE)	200 MG/L

EFFLUENT LIMITS - TYPE 1 RECLAIMED WATER

BOD5	10 MG/L MONTHLY AVE., 15 MG/L DAILY MAX
TOTAL SUSPENDED SOLIDS	5 MG/L MONTHLY AVE., 10 MG/L DAILY MAX
NH3-N	4 MG/L MONTHLY AVE., 6 MG/L DAILY MAX
TURBIDITY	≤10 NTU
FECAL COLIFORM	≤14/100 ML MONTHLY GEO. MEAN, 25/100 ML DAILY MAXIMUM

TOTAL NITROGEN IS NOT A TYPE 1 EFFLUENT PARAMETER, BUT THE DESIGN REFLECTS A 10 MG/L AVERAGE EFFLUENT CONCENTRATION GOAL, TO COMPLY WITH THE RECOMMENDED AGRONOMIC APPLICATION RATES.

DESIGN FLOWS

PHASE 1 - PLANTS NO. 1 AND NO. 2 CONSTRUCTED

PHASE 1 - AVERAGE DAILY FLOW - 240,000 GPD (167 GPM, OR 83 GPM/PLANT)

PHASE 1 - PEAK FLOW RATE - 600,000 GPD (417 GPM, OR 208 GPM/PLANT)

PHASE 2 - PLANT NO. 3 CONSTRUCTED

PHASE 2 - AVERAGE DAILY FLOW - 360,000 GPD (250 GPM, OR 83 GPM/PLANT)

PHASE 2 - PEAK FLOW RATE - 900,000 GPD (625 GPM, OR 208 GPM/PLANT)

INFLUENT FINE SCREEN

ONE MECHANICALLY CLEANED FINE SCREEN WITH 1/4 INCH OPENINGS. SCREENINGS ARE WASHED, COMPACTED, AND BAGGED, WITH THE BAGGED SCREENINGS COLLECTED IN A DUMPSTER FOR LANDFILL DISPOSAL. SCREEN HAS GATED BYPASS CHANNEL WITH A MANUALLY CLEANED BAR RACK (WITH 1/4 INCH CLEAR SPACES), IF MAINTENANCE IS REQUIRED FOR THE FINE SCREEN. RATED FOR A PEAK WASTEWATER FLOW RATE OF 625 GPM (CLEAN WATER PEAK FLOW RATINGS OF 875 GPM).

INFLUENT PUMP STATION AND FLOW EQUALIZATION BASINS

THE DUPLEX INFLUENT PUMP STATION WETWELL HAS PIPING CONNECTIONS TO THE EQUALIZATION BASIN IN EACH TREATMENT PLANT, WHICH CAUSES THE INTERCONNECTED WETWELL AND EQUALIZATION BASINS TO HAVE IDENTICAL WATER LEVELS. THE CONSTANT SPEED PUMPS DISCHARGE INTO A FLOW CONTROL/SPLITTER BOX ON THE TOP OF THE PUMP STATION. THE SELECTED PUMPS AND FLOW CONTROL BOX WILL DELIVER APPROXIMATELY 75% OF THE PLANT DESIGN FLOW WHEN THE WETWELL IS AT ITS LOW LEVEL, AND APPROXIMATELY 125% OF THE PLANT DESIGN FLOW WHEN THE WETWELL IS AT ITS HIGH LEVEL. SHOULD THE INFLUENT FLOW RATE INTO THE PUMP STATION EXCEED THE PEAK FLOW CAPACITY OF THE PUMPS, THE WATER LEVEL IN THE WETWELL AND EQUALIZATION BASINS WILL RISE TO A LEVEL THAT WILL CAUSE THE EQUALIZATION BASINS TO OVERFLOW INTO THE PRE-ANOXIC ZONES IN EACH PLANT (THROUGH OVERFLOW SLOTS IN THE HYDROSTATIC DIVIDER WALLS).

EACH PLANT'S EQUALIZATION BASIN HAS A VOLUME OF 36,381 GALLONS (30% OF PLANT ADF). A DIFFUSED AERATION SYSTEM, AND A CONSTANT SPEED SUBMERSIBLE MIXER. THE DIFFUSED AERATION SYSTEM IS SUPPLIED FROM THE EQUALIZATION/DIGESTER BLOWER PROVIDED FOR EACH PLANT. THE AIR ALLOCATION FOR THE DIGESTER IS 172 SCFM, OR 30 SCFM/1,000 CUBIC FEET AT FULL VOLUME. THE EQ/DIGESTER BLOWERS ARE SIZED TO DELIVER A MAXIMUM OF 245 SCFM AND ARE CONTROLLED BY VARIABLE FREQUENCY DRIVES (VFD). THE SPEED CONTROL FOR THE BLOWERS WILL BE FROM MANUAL SPEED SELECTION BY THE OPERATOR.

SODIUM HYDROXIDE WILL BE FED INTO THE INFLUENT PIPE TO THE FLOW CONTROL/SPLITTER BOX, TO SUPPLEMENT THE ALKALINITY REQUIRED FOR NITRIFICATION. THE FEED PUMP WILL OPERATE WHEN AN INFLUENT PUMP IS OPERATING.

PROCESS FLOW SCHEMATIC NOTES (cont.)

FOUR STAGE BIOLOGICAL NUTRIENT REMOVAL TREATMENT PLANTS

FLOW FROM THE FLOW CONTROL SPLITTER BOX WILL ENTER THE PRE-ANOXIC ZONE NO.1 (35,191 GALLONS) AND THEN FLOW TO PRE-ANOXIC ZONE NO. 2 (35,191 GALLONS), AERATION ZONE (226,225 GALLONS), POST AERATION ZONE (71,638 GALLONS), RE-AERATION ZONE (2,514 GALLONS), AND THE CLARIFIER.

EACH ANOXIC ZONE HAS A CONSTANT SPEED SUBMERSIBLE MIXER TO MAINTAIN THE MIXING AND SUSPENSION OF THE MIXED LIQUOR SOLIDS. THE AERATION ZONE HAS A PROCESS OXYGEN DEMAND THAT REQUIRES A MINIMUM AIR FLOW OF 640 SCFM, WHICH ALSO REFLECTS AN OXYGEN CREDIT FROM DENITRIFICATION. TO ENSURE THOROUGH MIXING AND TO PROVIDE AIR FOR THE AIR LIFT PUMPS, THE PLANT BLOWERS ARE SIZED TO DELIVER A MAXIMUM OF 895 SCFM AND ARE CONTROLLED BY VARIABLE FREQUENCY DRIVES (VFD). THE SPEED CONTROL FOR THE BLOWERS WILL BE FROM MANUAL SPEED SELECTION BY THE OPERATOR.

THE POST ANOXIC ZONE HAS A CARBON SOURCE FEED POINT TO PROMOTE ANOXIC CONDITIONS AND ADDITIONAL DENITRIFICATION. THE CARBON SOURCE FEED PUMP WILL BE STARTED AND STOPPED BASED ON THE ORP VALUES IN THE POST ANOXIC ZONE. THE ORP CONTROL SETPOINTS ARE ADJUSTABLE.

CLARIFIERS

EACH PLANT HAS A CLARIFIER WITH A DIAMETER OF 23.75 FEET AND A SIDE WATER DEPTH OF APPROXIMATELY 13 FEET. SURFACE OVERFLOW RATE IS 271 GPD/SF AT AVERAGE DAILY FLOW. SETTLED SLUDGE IS COLLECTED IN A CENTER SUMP BY MECHANICAL SCRAPERS, AND RETURNED TO THE PRE-ANOXIC ZONE NO. 1 BY AIR LIFT PUMP. SCUM IS REMOVED BY A SURFACE COLLECTION ARM AND BEACHING PLATE, AND THEN PUMPED BY AIRLIFT TO THE AERATION ZONE. WASTE SLUDGE IS ALSO REMOVED FROM THE CLARIFIER SUMP BY AIR LIFT AND DISCHARGED INTO THE DIGESTER ZONE OF THE PLANT. AIR FOR THE AIRLIFT PUMPS IS PROVIDED BY THE PLANT BLOWER.

DIGESTERS

EACH PLANT HAS AN AERATED DIGESTER ZONE WITH A VOLUME OF 42,731 GALLONS. WASTE SLUDGE IS DELIVERED TO THE DIGESTER VIA AN AIRLIFT PUMP THAT IS REMOVING SLUDGE FROM THE CLARIFIER SUMP. THE DIGESTER'S DIFFUSED AERATION SYSTEM IS SUPPLIED FROM THE EQUALIZATION/DIGESTER BLOWER PROVIDED FOR EACH PLANT. THE AIR ALLOCATION FOR THE DIGESTER IS 172 SCFM, OR 30 SCFM/1,000 CUBIC FEET AT FULL VOLUME. THE EQ/DIGESTER BLOWERS ARE SIZED TO DELIVER A MAXIMUM OF 245 SCFM AND ARE CONTROLLED BY VARIABLE FREQUENCY DRIVES (VFD). THE SPEED CONTROL FOR THE BLOWERS WILL BE FROM MANUAL SPEED SELECTION BY THE OPERATOR.

THE CONTENTS OF THE DIGESTER ARE GRAVITY THICKENED, WITH SUPERNATANT REMOVED TO THE EQUALIZATION BASIN WITH A SWING ARM DECANTER AND AN AIRLIFT PUMP. THE AIR SUPPLY FOR THIS AIRLIFT PUMP IS THE PLANT BLOWER.

PROCESS FLOW SCHEMATIC NOTES (cont.)

FILTERS

TWO AUTOMATIC BACKWASH DISC FILTERS ARE PROVIDED. EACH FILTER HAS THREE DISKS AND IS SIZED FOR THE PHASE 2 DESIGN FLOWS, THUS PROVIDING THE REQUIRED 100% REDUNDANCY. THE HYDRAULIC LOADING RATES ARE 1.85 GPM/SF OF MEDIA AT ADF AND 4.63 GPM/SF AT PEAK FLOWS. THE SOLIDS LOADING RATES ARE 0.33 LBS/DAY/SF AT ADF FLOW AND 0.84 LBS/SF/DAY AT PEAK FLOW, BASED ON A 15 MG/L INFLUENT SOLIDS CONCENTRATION. THE FILTER IS SIZED TO PRODUCE AN EFFLUENT TSS OF 5 MG/L WITH THE VARIOUS LOADINGS.

THE BACKWASHING OF THE FILTER DISCS IS TYPICALLY INITIATED BY AN INCREASE IN THE HEADLOSS THROUGH THE FILTER MEDIA. FILTERED WATER IS THE SOURCE FOR THE BACKWASH PUMP. THE BACKWASH WASTEWATERS FLOW TO THE BACKWASH RETURN PUMP STATION BY GRAVITY, AND ARE THEN PUMPED TO THE INFLUENT PUMP STATION.

EACH FILTER HAS AN INTERNAL WEIR THAT WILL OVERFLOW IF THE WATER LEVEL UPSTREAM OF THE DISCS RISES TO A LEVEL ABOVE THE BACKWASH INITIATION LEVEL (INDICATING A POSSIBLE SOLIDS OVERLOADING OF THE MEDIA, OR A POTENTIAL BACKWASH SYSTEM FAILURE). THE HIGH WATER LEVEL WILL INITIATE AN ALARM, AND THE OVERFLOW WATERS WILL GO TO THE BACKWASH RETURN PUMP STATION (AND BE RETURNED TO THE INFLUENT PUMP STATION). THERE IS ALSO A VALVED CONNECTION THAT WILL ALLOW THE OPERATOR TO DIRECT THE FILTER OVERFLOW WATER TO THE FIVE-DAY UPSET POND.

DISINFECTION SYSTEM

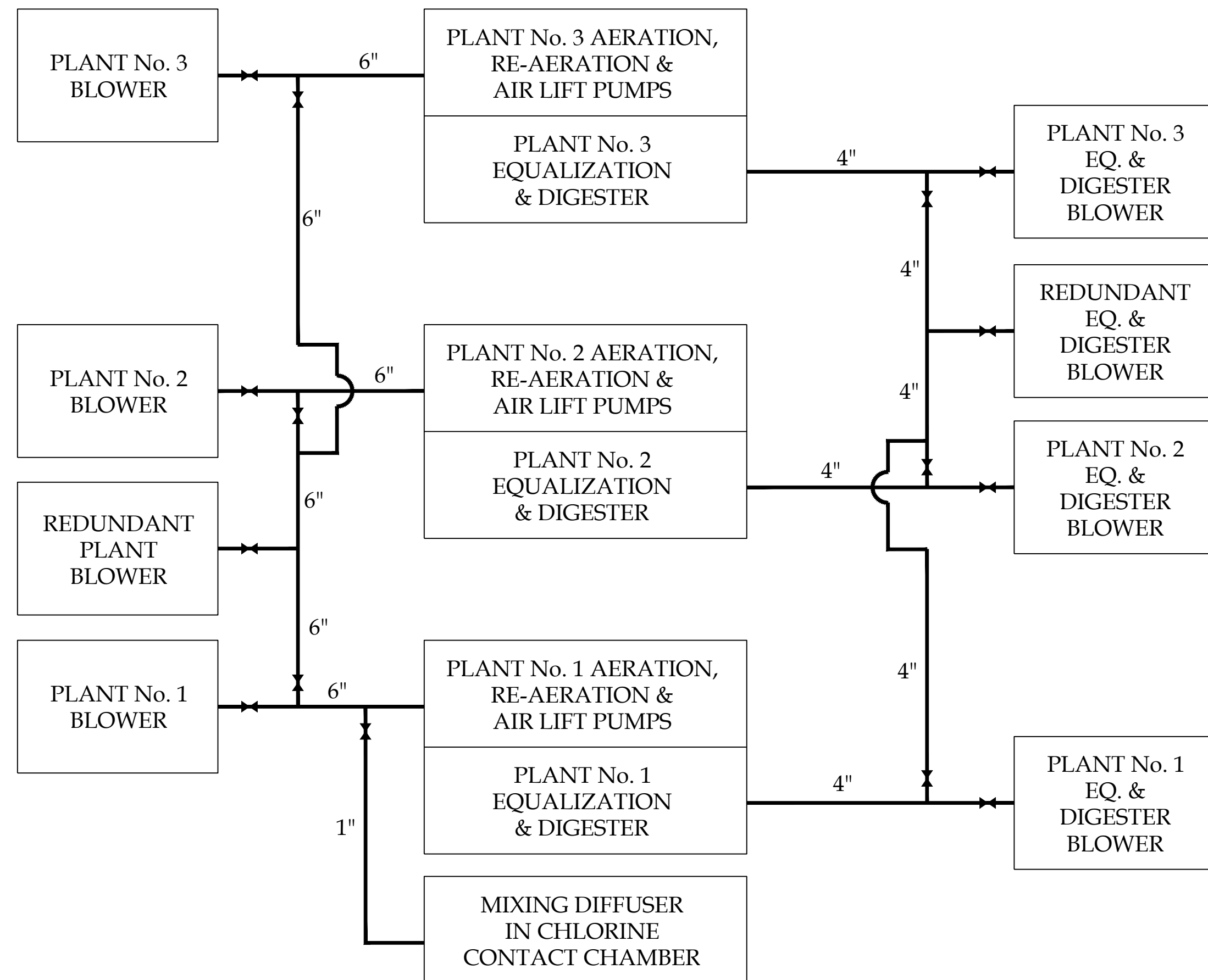
A SODIUM HYPOCHLORITE FEED SYSTEM WITH DUPLEX FEED PUMPS IS PROVIDED TO ADD CHLORINE TO THE PLANT EFFLUENT FOR DISINFECTION. THE FEED PUMPS ARE FLOW PACED BY A FLOW SIGNAL FROM THE PLANT EFFLUENT FLOW METER. THE CHLORINE CONTACT CHAMBER HAS A MINIMUM OF 30 MINUTES DETENTION TIME AT THE PHASE 2 AVERAGE DAILY FLOW RATE.

TURBIDITY MEASUREMENT

THE EFFLUENT TURBIDITY IS CONTINUOUSLY MEASURED BY AN INSTREAM SENSOR INSTALLED NEAR THE EXIT OF THE CHLORINE CONTACT CHAMBER. IF A TURBIDITY OF 10 NTU OR GREATER IS DETECTED, A MOTOR ACTUATED VALVE WILL OPEN TO DIVERT THE EFFLUENT TO THE FIVE DAY UPSET POND. THE DIVERSION PIPE IS INSTALLED IN THE CHLORINE CONTACT CHAMBER WALL AT AN ELEVATION BELOW THE V-NOTCH WEIR THAT MEASURES THE EFFLUENT FLOW TO THE IRRIGATION STORAGE POND. THIS ARRANGEMENT WILL CAUSE THE WATER LEVEL IN THE CHLORINE CONTACT CHAMBER TO BE LOWERED WHEN THE DIVERSION VALVE OPENS, THUS PREVENTING ANY FLOW TO THE IRRIGATION STORAGE POND.

EFFLUENT FLOW MEASUREMENT

THE PRIMARY ELEMENT IS A 45° V-NOTCH WEIR. THE EFFLUENT FLOW METER WILL TOTALIZE FLOW, DISPLAY CURRENT FLOWRATE AND HEAD, INTERFACE WITH AUTOMATIC EFFLUENT SAMPLER, AND PROVIDE A 4-20 MILLI-AMP SIGNAL TO THE SODIUM HYPOCHLORITE FEED PUMPS.



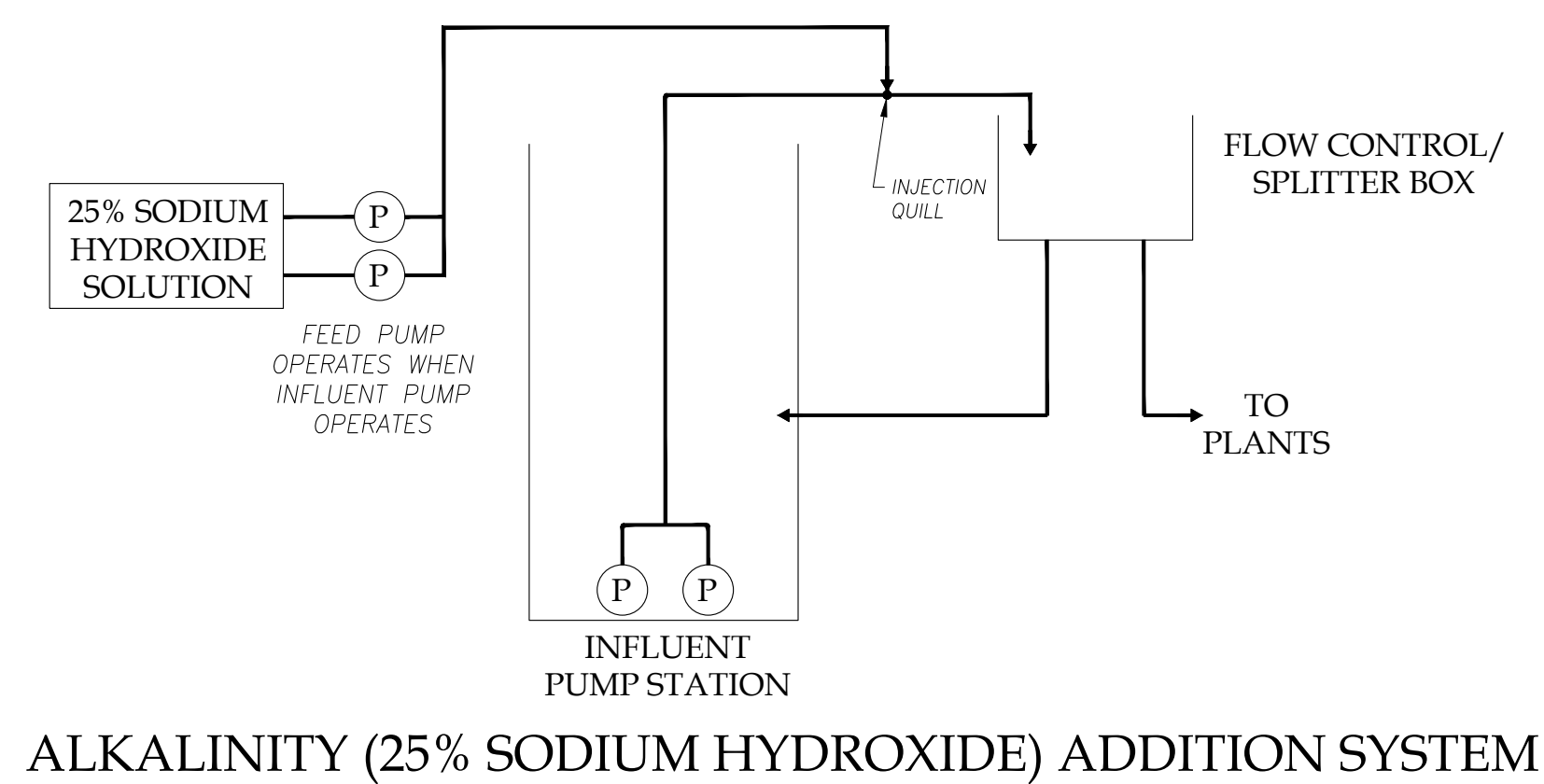
BLOWER & AIR PIPING SCHEMATIC

PLANT BLOWERS:

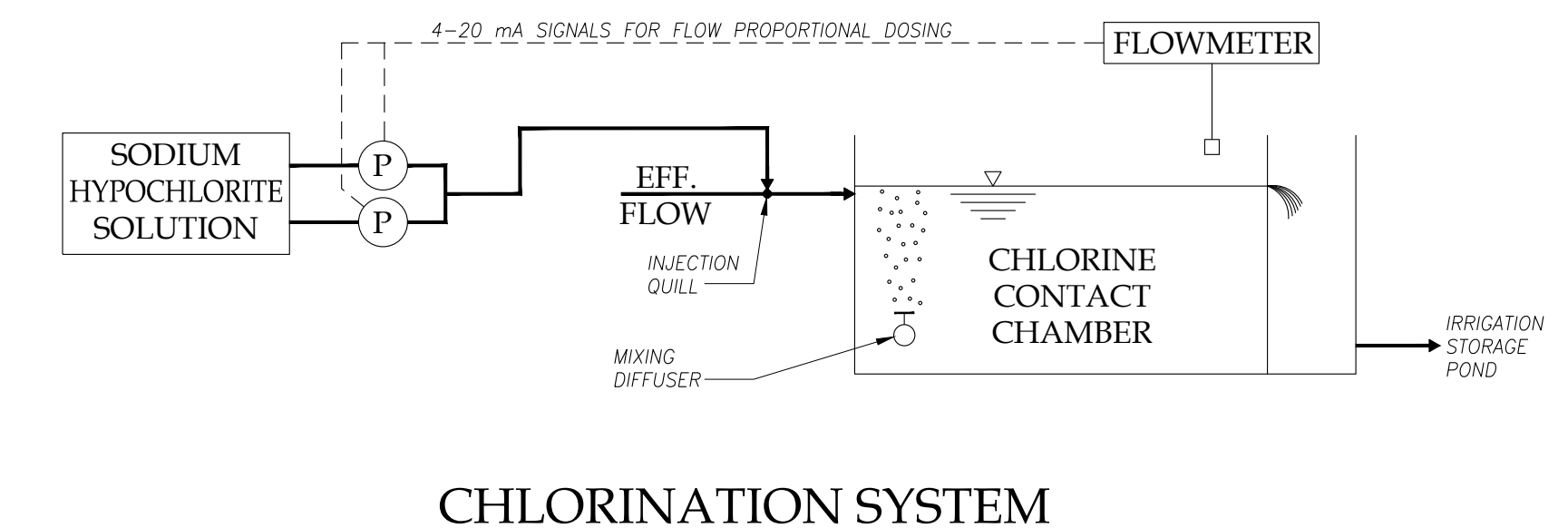
895 SCFM AT 7.5 PSIG DISCHARGE PRESSURE
 50 HP, VFD CONTROLLER
 SPEED ADJUSTED MANUALLY BY OPERATOR
 MAX. AIR DEMANDS:
 AIR LIFT PUMPS & RE-AERATION: 55 SCFM
 PROCESS AIR: 840 SCFM

EQ./DIGESTER BLOWERS:

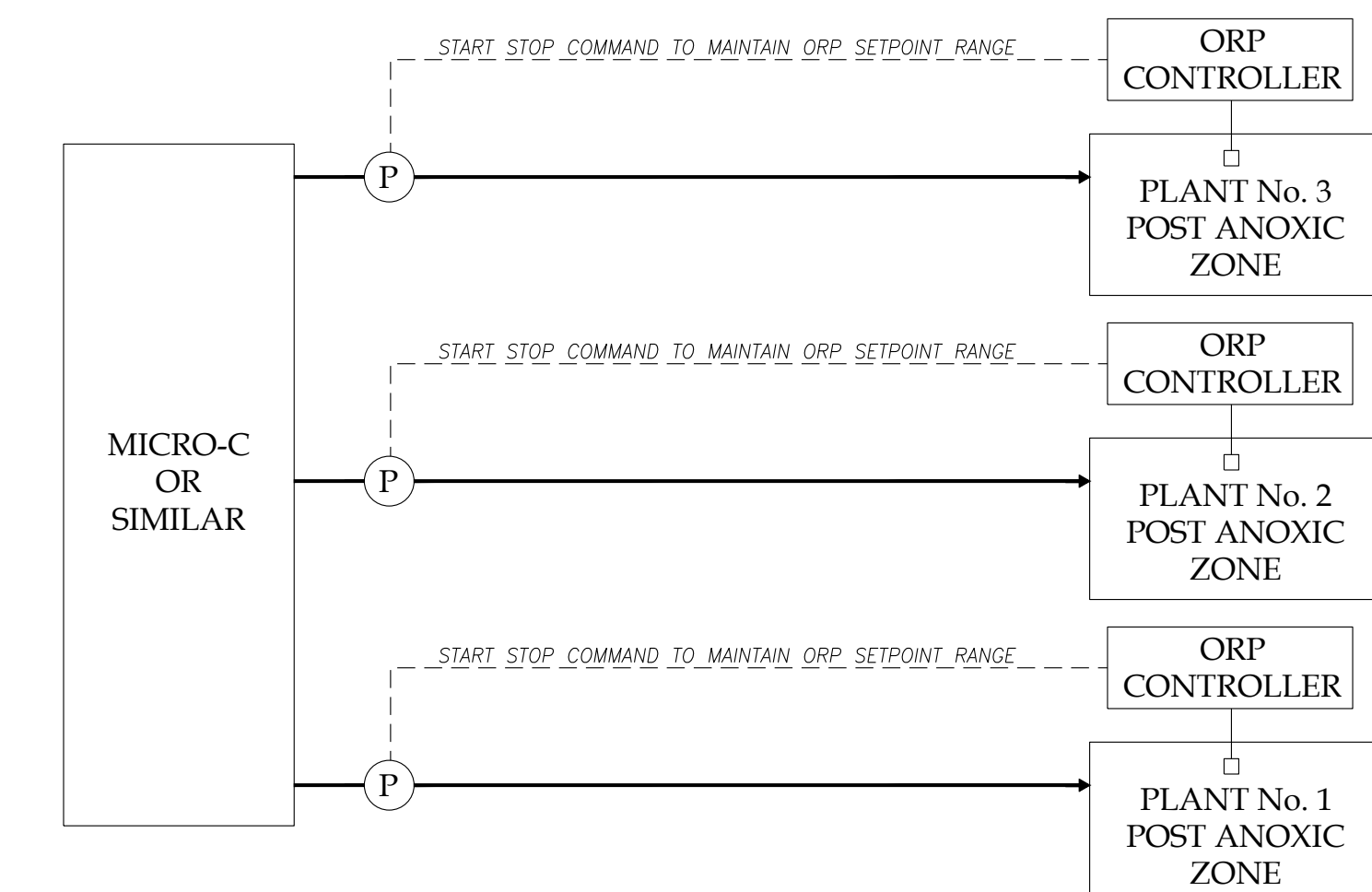
245 SCFM AT 7.0 PSIG DISCHARGE PRESSURE
 15 HP, VFD CONTROLLER
 SPEED ADJUSTED MANUALLY BY OPERATOR
 MAX. AIR DEMANDS:
 DIGESTER: 172 SCFM (30 SCFM/1000 CU. FT)
 EQ. BASIN: 73 SCFM (15 SCFM/1000 CU. FT)



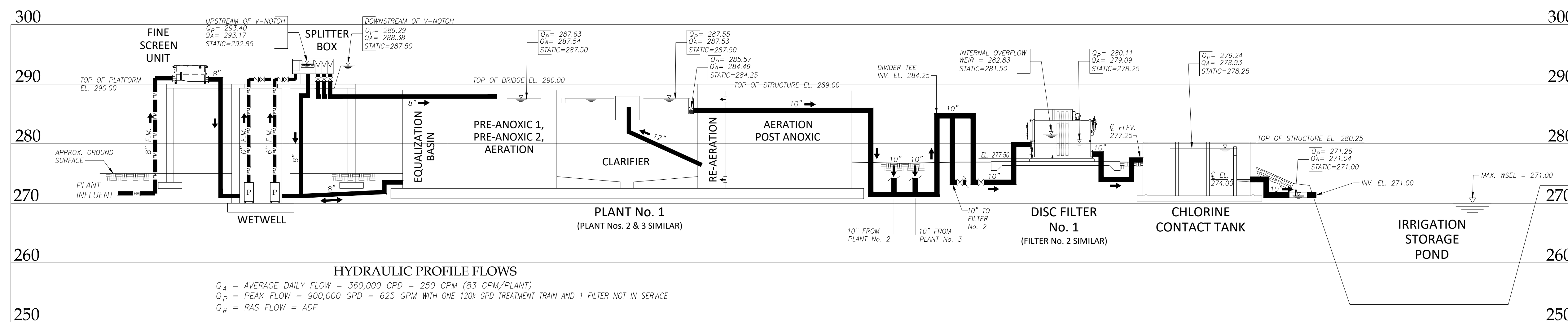
ALKALINITY (25% SODIUM HYDROXIDE) ADDITION SYSTEM



CHLORINATION SYSTEM



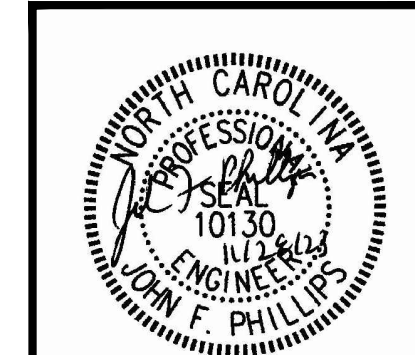
CARBON SOURCE FEED SYSTEM



HYDRAULIC PROFILE FLOWS
 Q_A = AVERAGE DAILY FLOW = 360,000 GPD = 250 GPM (83 GPM/PLANT)
 Q_P = PEAK FLOW = 900,000 GPD = 625 GPM WITH ONE 120k GPD TREATMENT TRAIN AND 1 FILTER NOT IN SERVICE
 Q_R = RAS FLOW = ADF

HYDRAULIC PROFILE
 NO SCALE HORIZONTAL
 1" = 10' VERTICAL

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DESIGN: JFP
 DRAWN: JLB
 CHECKED: JFP
 SCALE: NO SCALE
 FILE: CONSERV-PSR1

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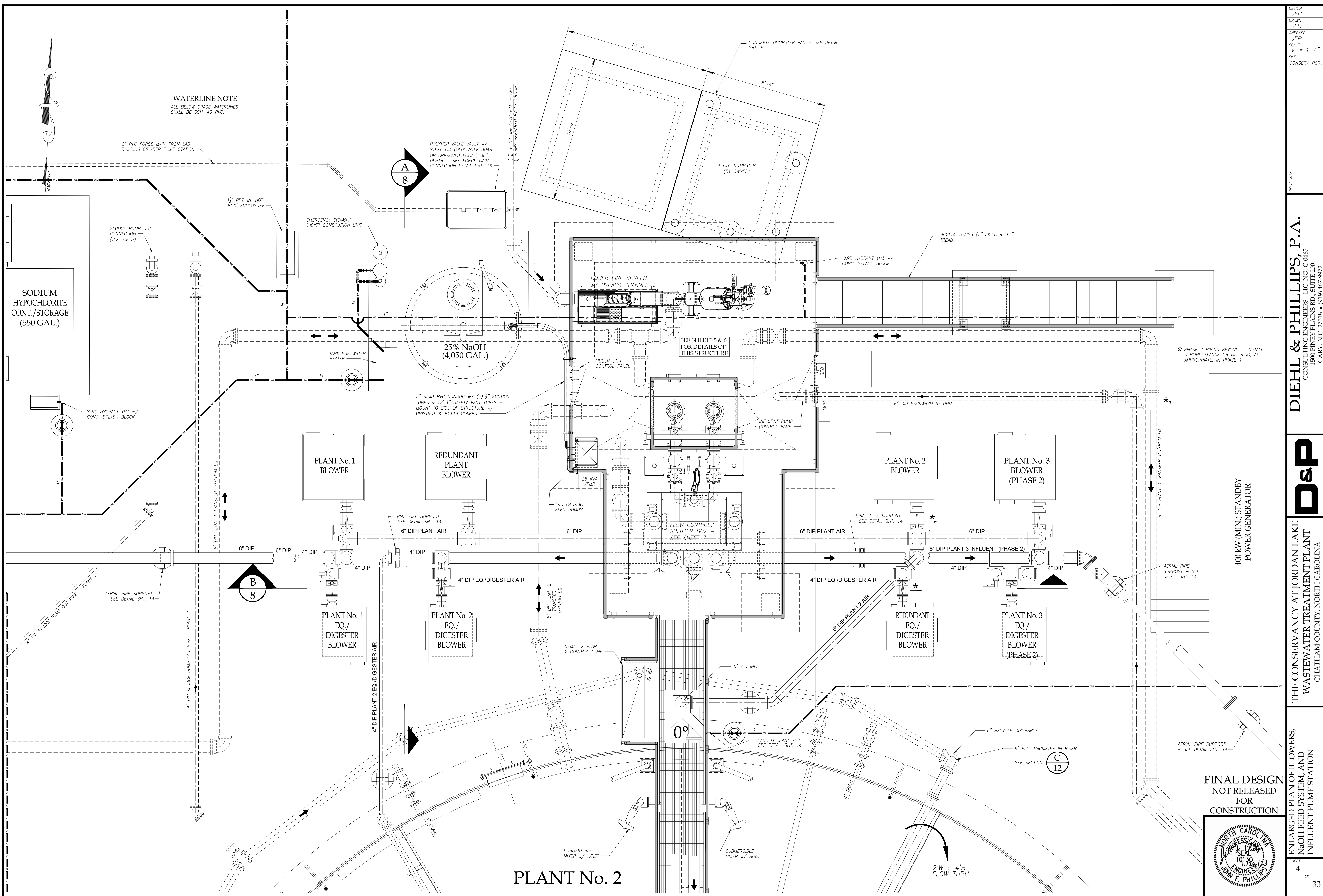
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THE CONSERVANCY AT JORDAN LAKE
 WASTEWATER TREATMENT PLANT
 CHATHAM COUNTY, NORTH CAROLINA

BLOWER, AIR PIPING AND
 CHEMICAL FEED SCHEMATICS

SHEET 3 OF 3

33



WATERLINE NOTE
ALL BELOW GRADE WATERLINES SHALL BE SCH. 40 PVC.

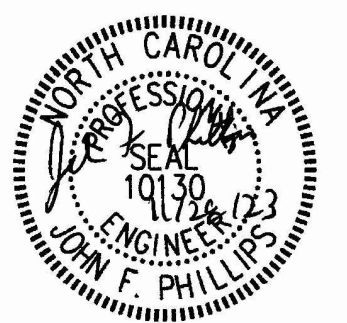
A
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B
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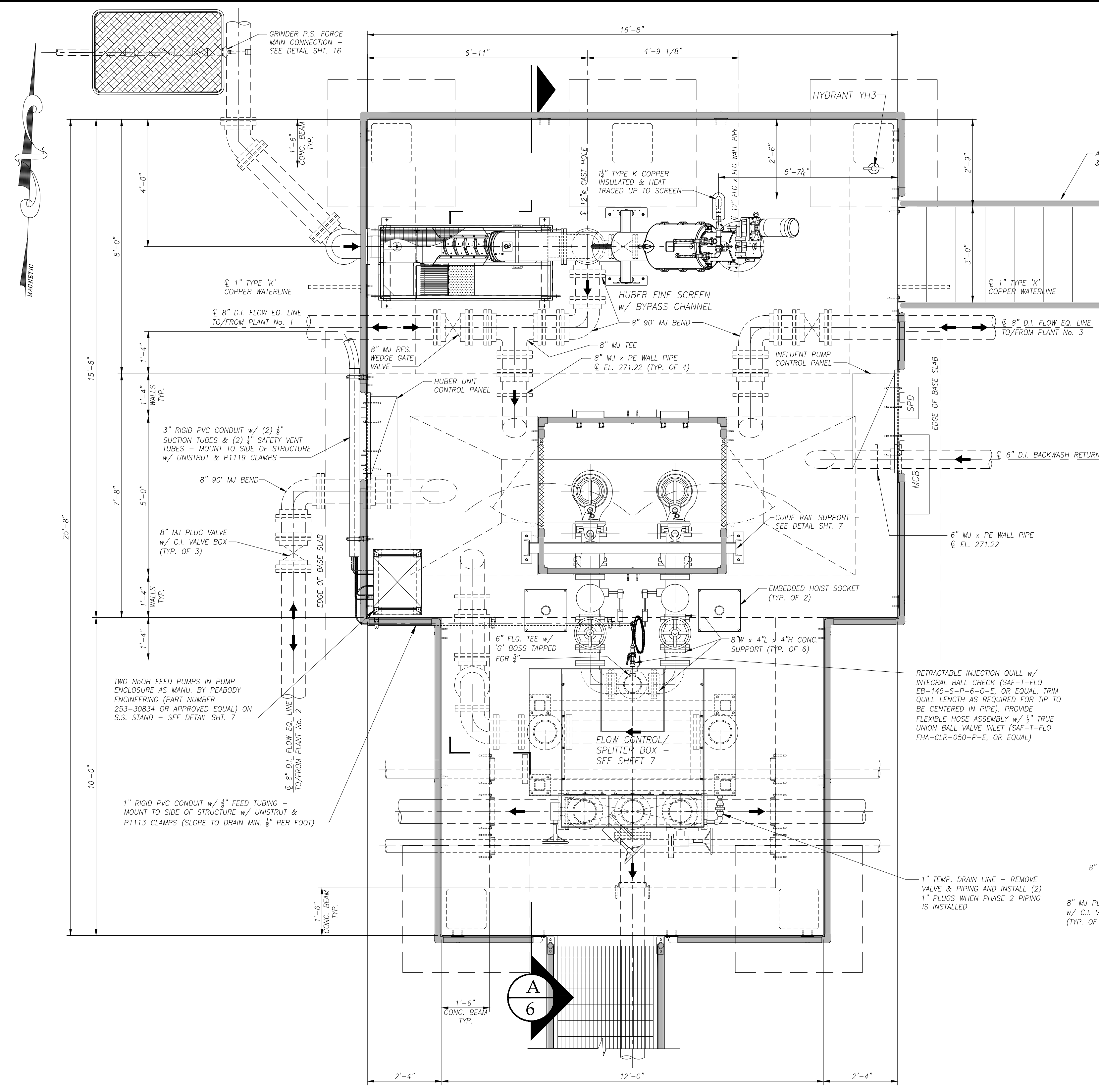
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PLANT No. 2

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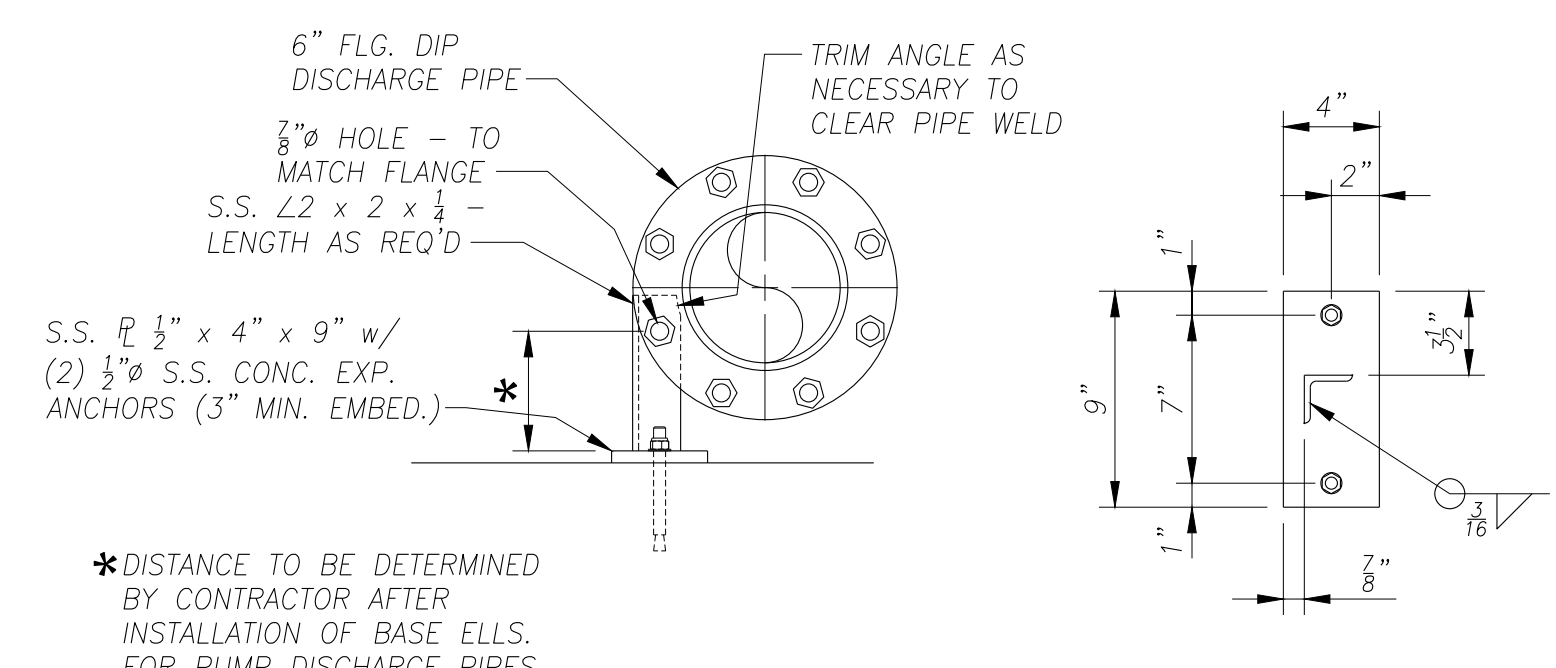


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DRAWN JLB	
CHECKED JFP	
SCALE 1" = 1'-0"	
FILE CONSERV-PSR1	
D&P	
THE CONSERVANCY AT JORDAN LAKE WASTEWATER TREATMENT PLANT CHATHAM COUNTY, NORTH CAROLINA	
ENLARGED PLAN OF BLOWERS, NaOH FEED SYSTEM, AND INFLUENT PUMP STATION	
SHEET 4	33



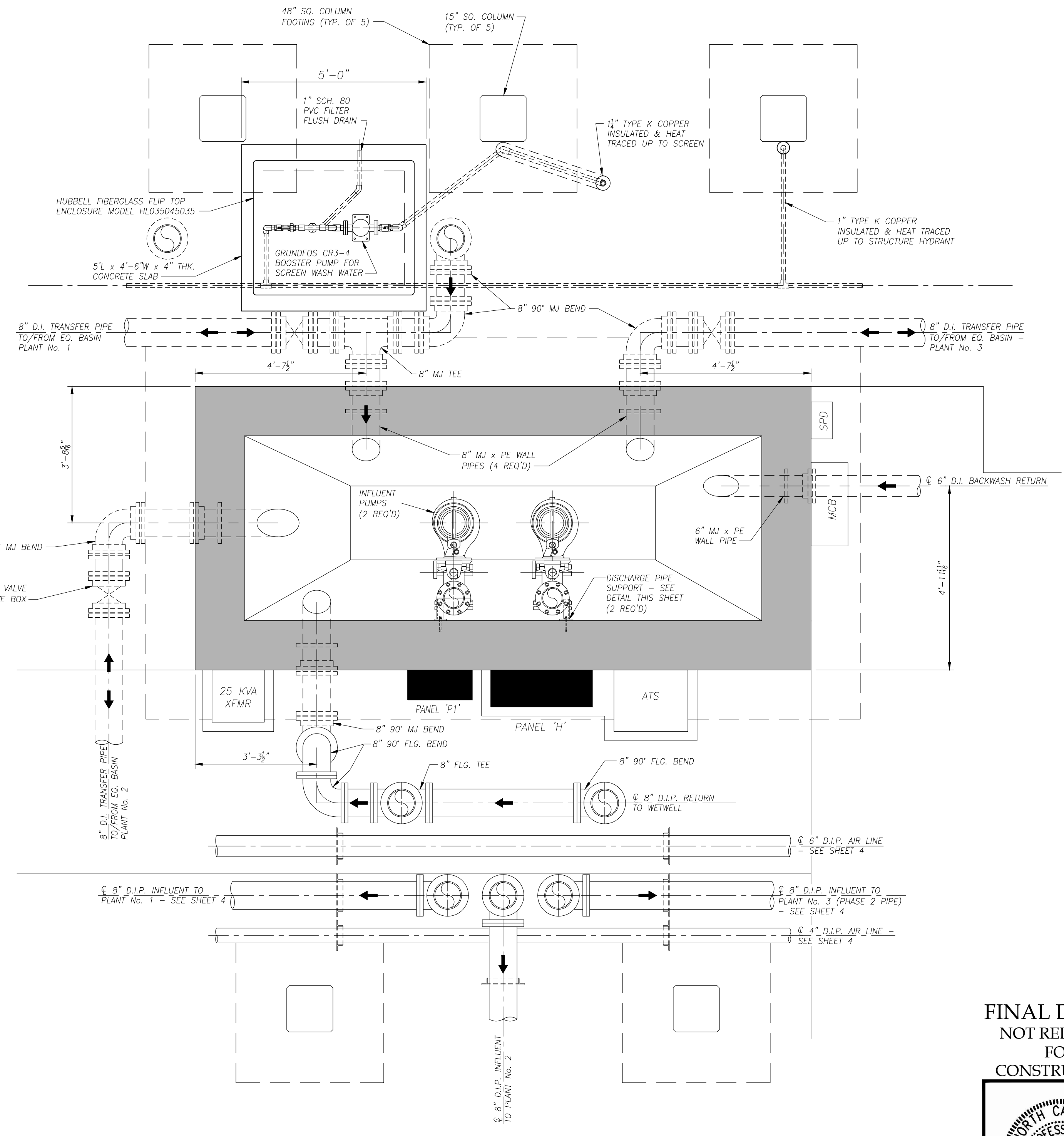
PLAN VIEW

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



DISCHARGE PIPE SUPPORT DETAIL

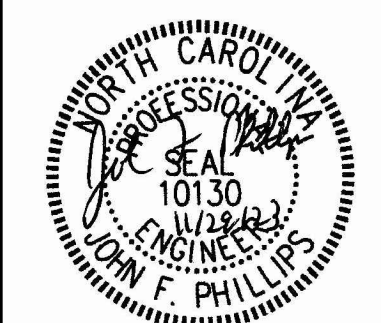
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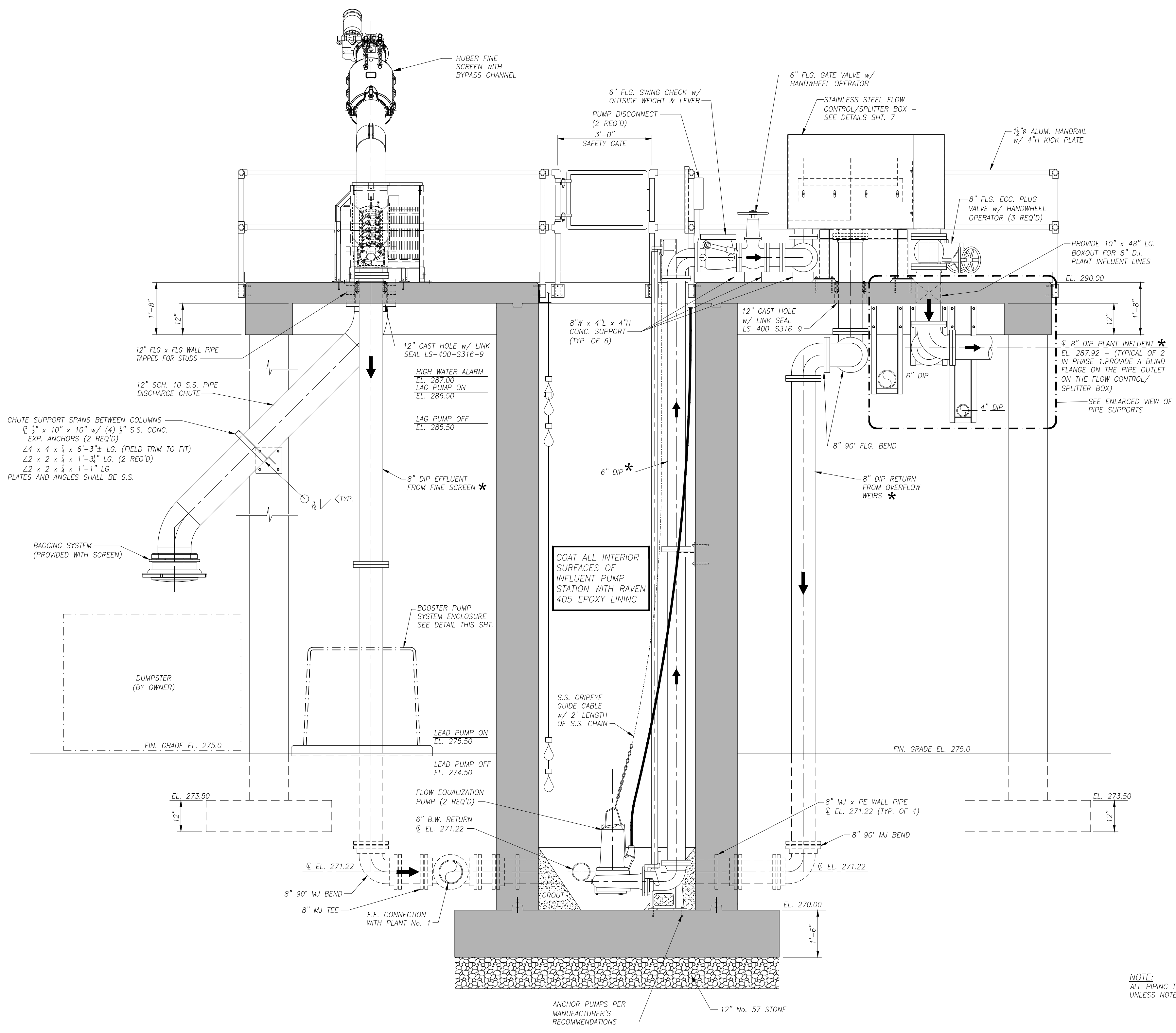


SECTIONAL PLAN

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

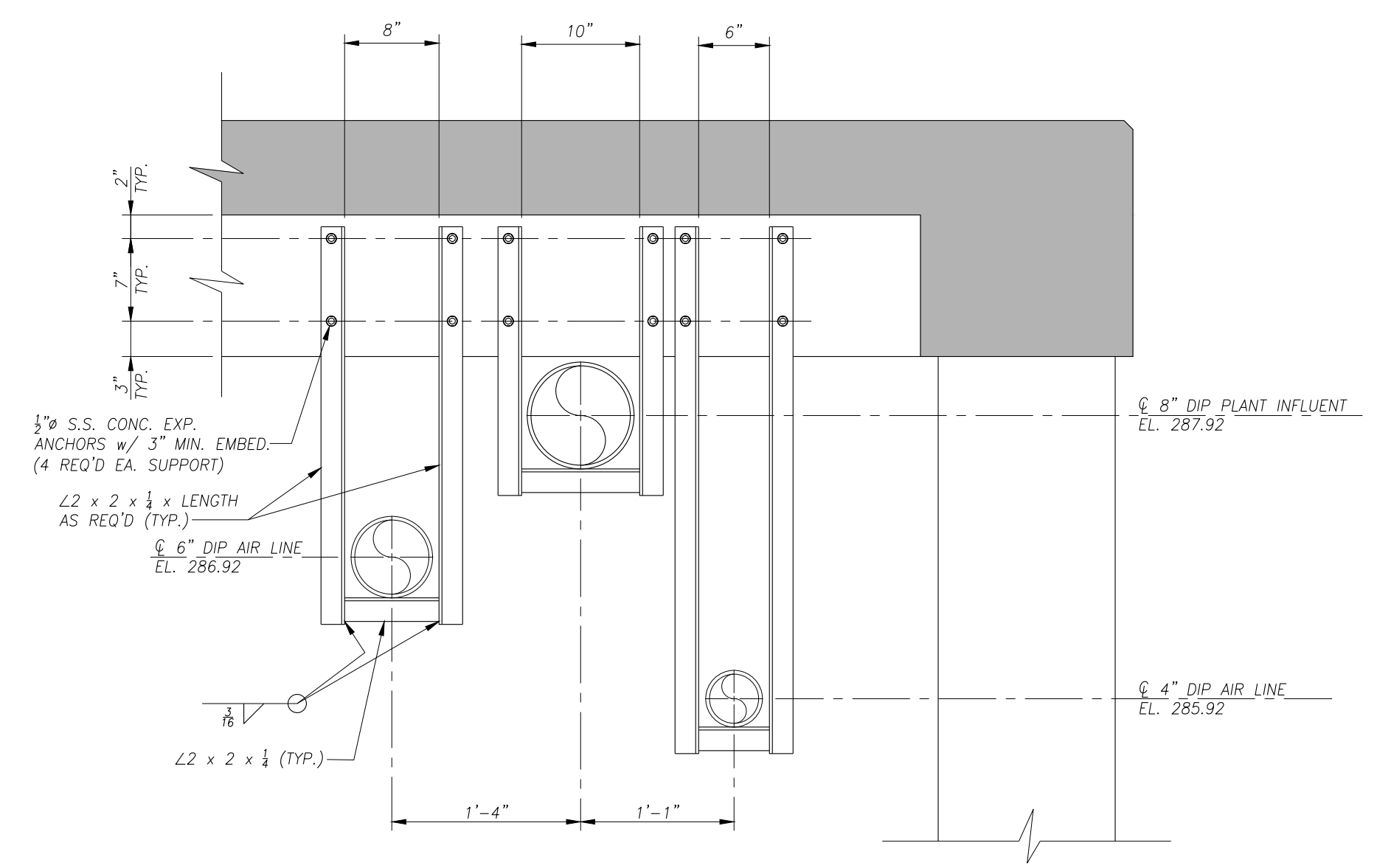
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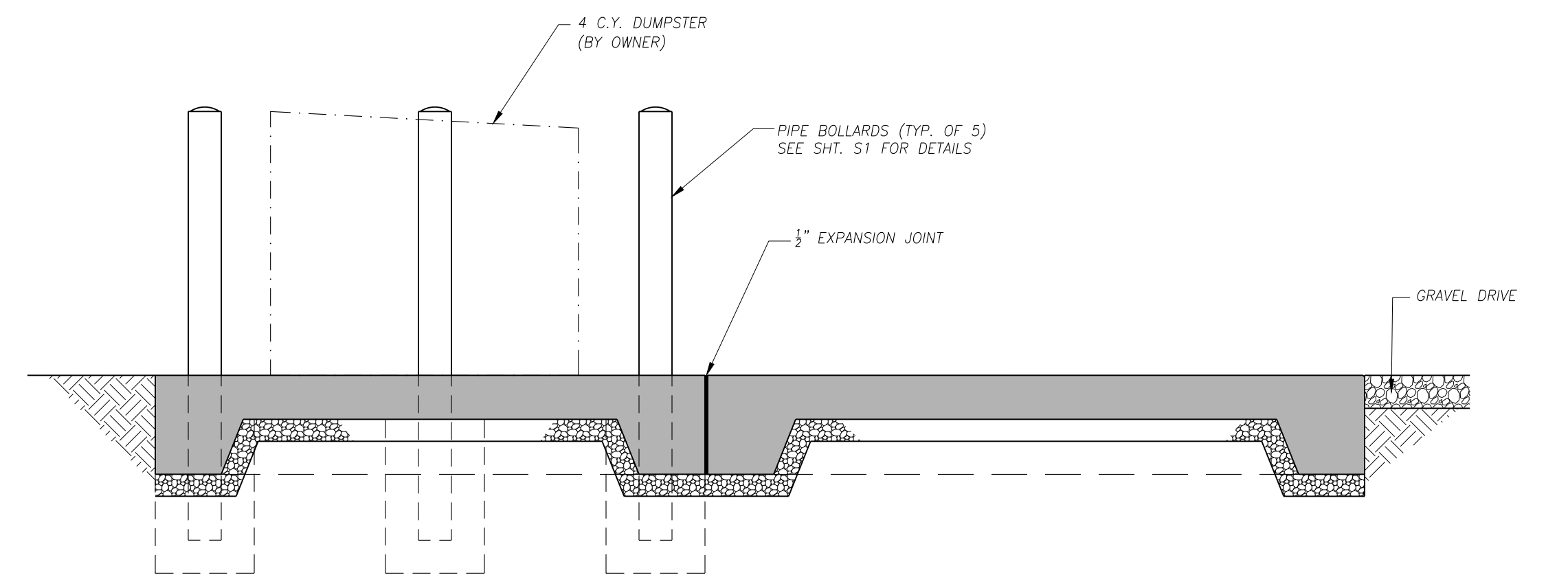


* THE INDICATED DUCTILE IRON PIPE AND FITTINGS SHALL HAVE A PROTECTO 401 LINING.

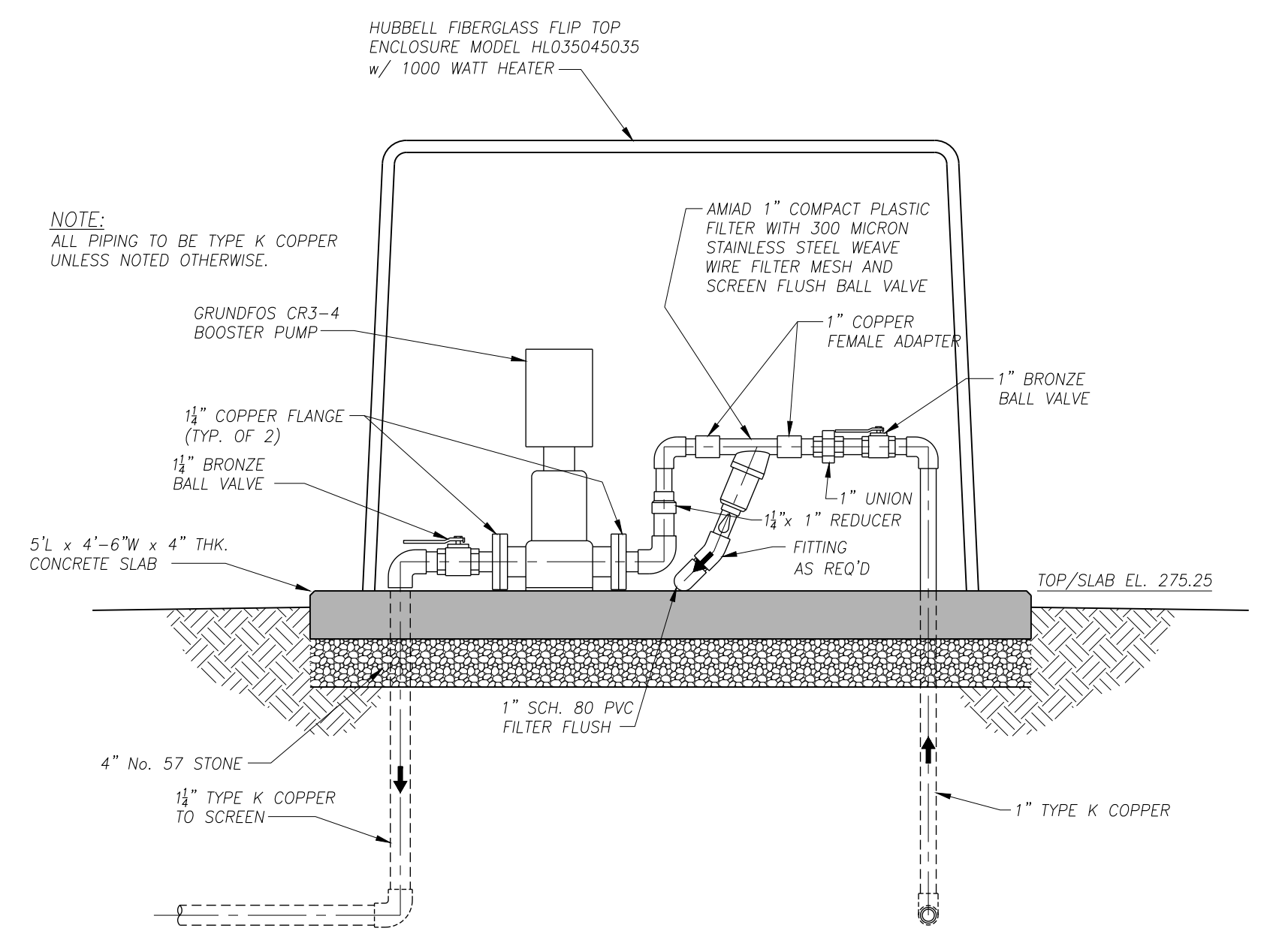
SECTION **A**
 SCALE: 1/2" = 1'-0"



ENLARGED VIEW OF PIPE SUPPORTS
 (COMPONENTS AND WELDS LISTED ARE TYPICAL FOR EACH SUPPORT - TWO 6" & 4" PIPE SUPPORTS AND THREE 8" PIPE SUPPORTS ARE REQUIRED)
 SCALE: 1" = 1'-0"

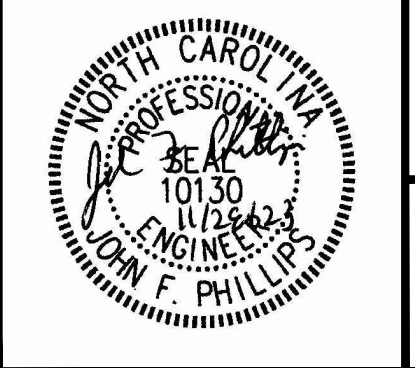


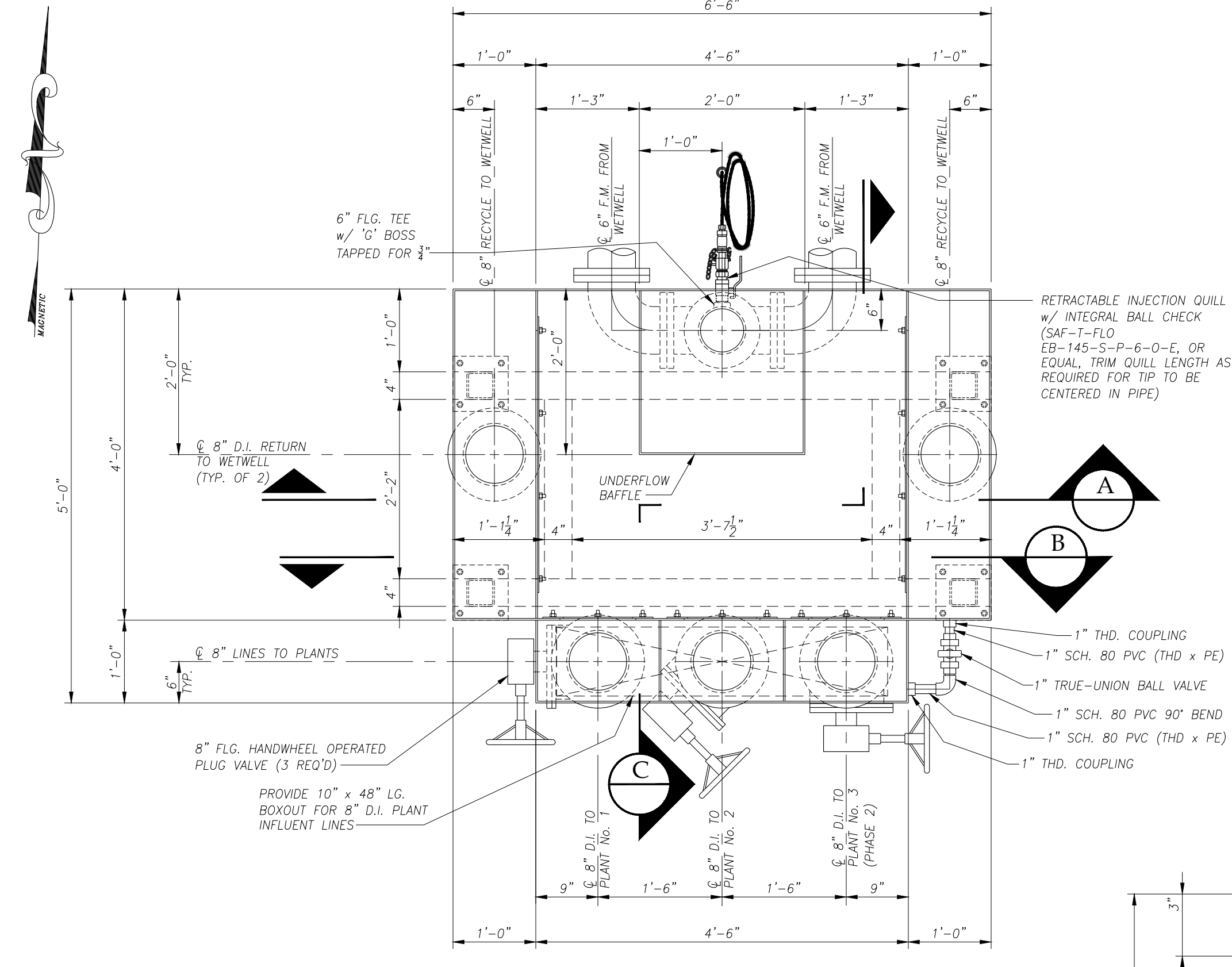
NOTE: SEE STRUCTURAL DRAWINGS FOR REINFORCING AND SLAB DETAILS.
 DUMPSTER PAD SECTION
 SCALE: 1/2" = 1'-0"



BOOSTER PUMP SYSTEM DETAIL
 SCALE: 1" = 1'-0"

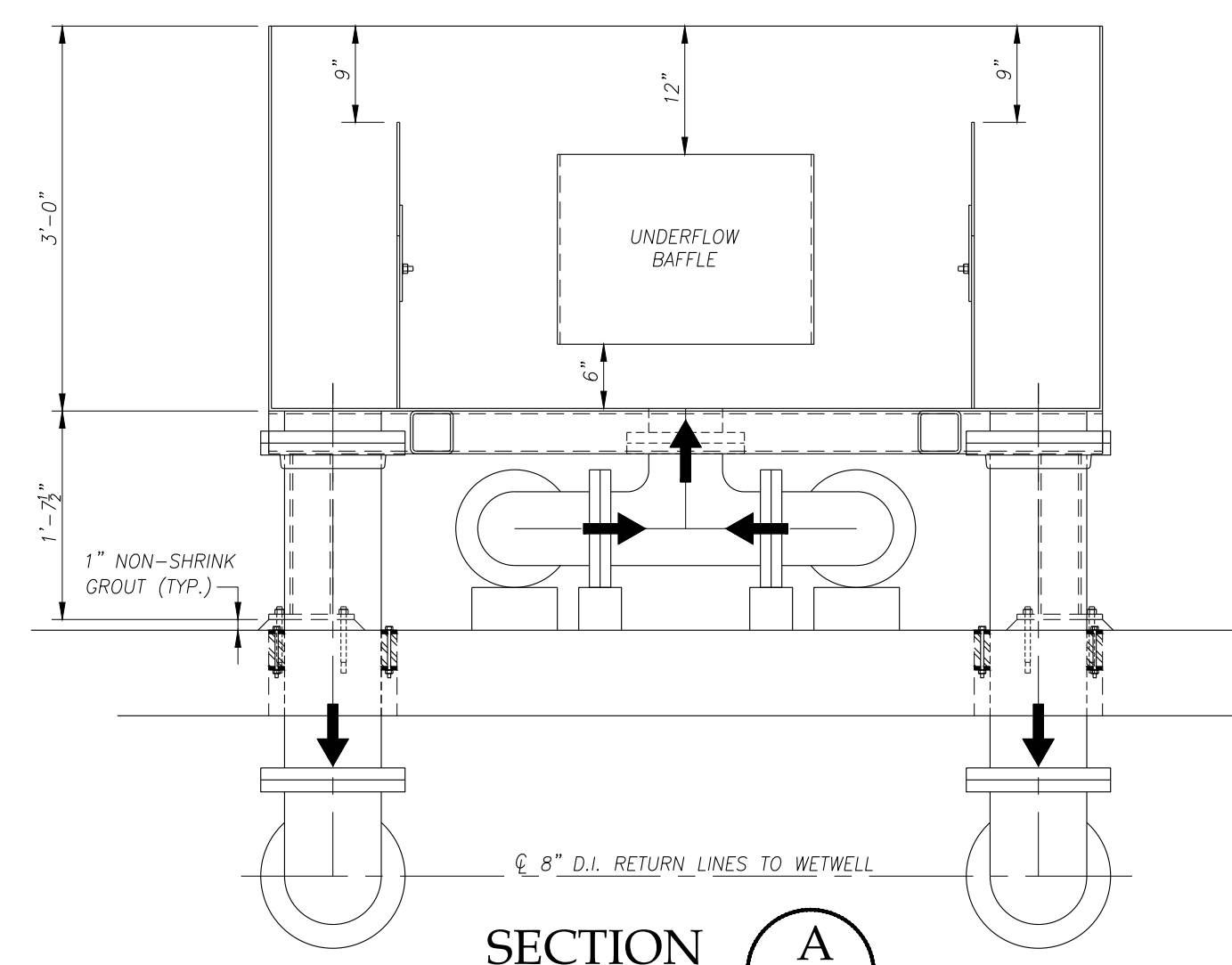
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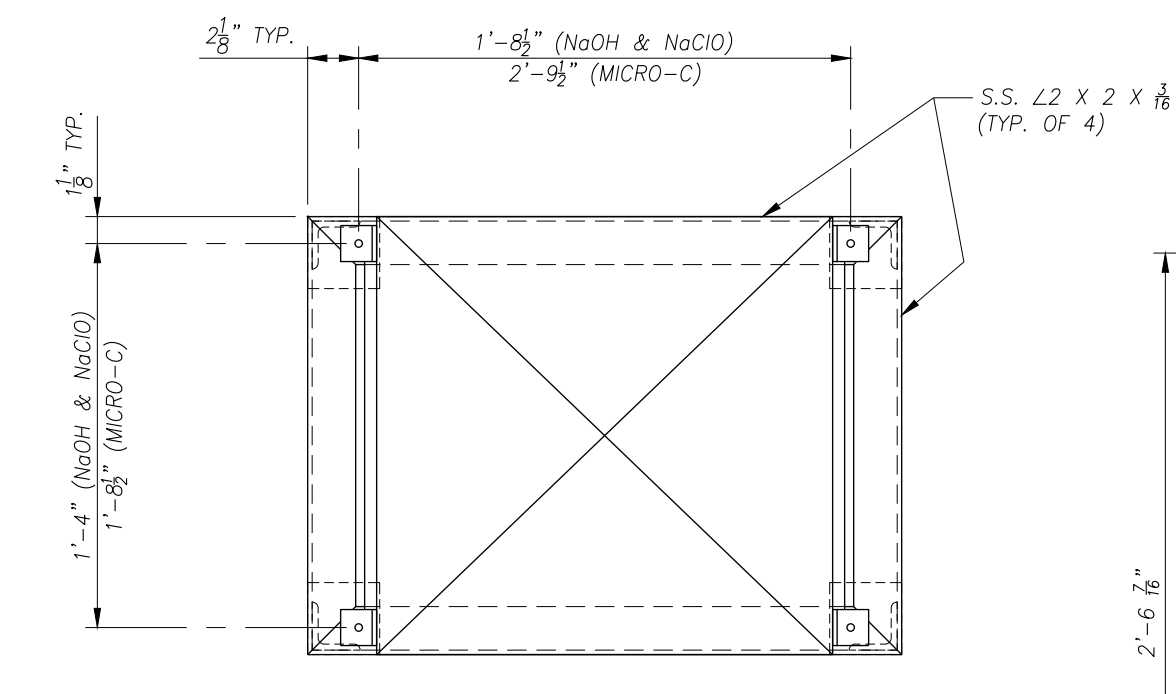


PLAN VIEW

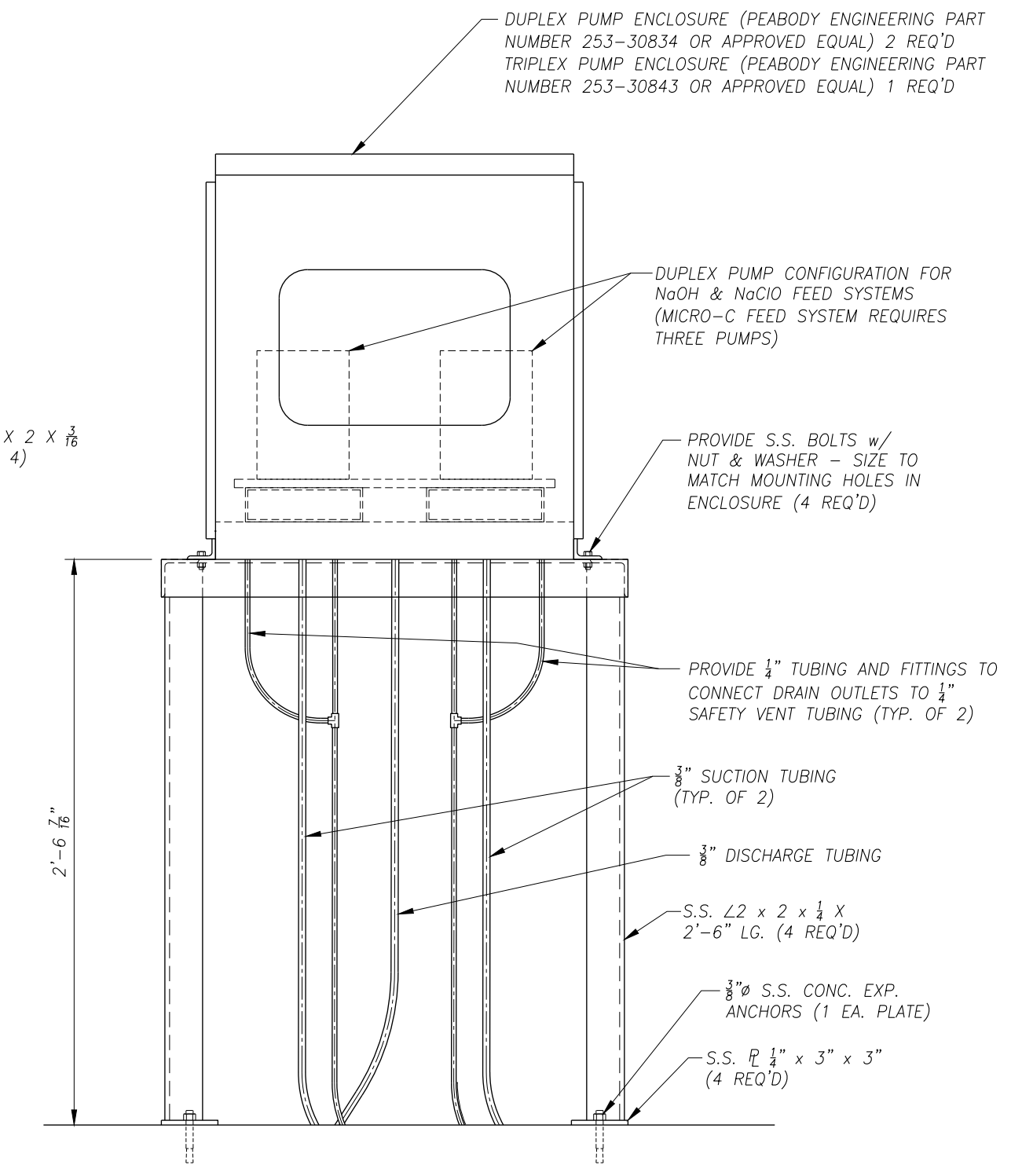
FLOW CONTROL/SPLITTER BOX SHALL BE CONSTRUCTED OF 1/4" THICK TYPE 304 STAINLESS STEEL PLATE.
SCALE: 3/4" = 1'-0"



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



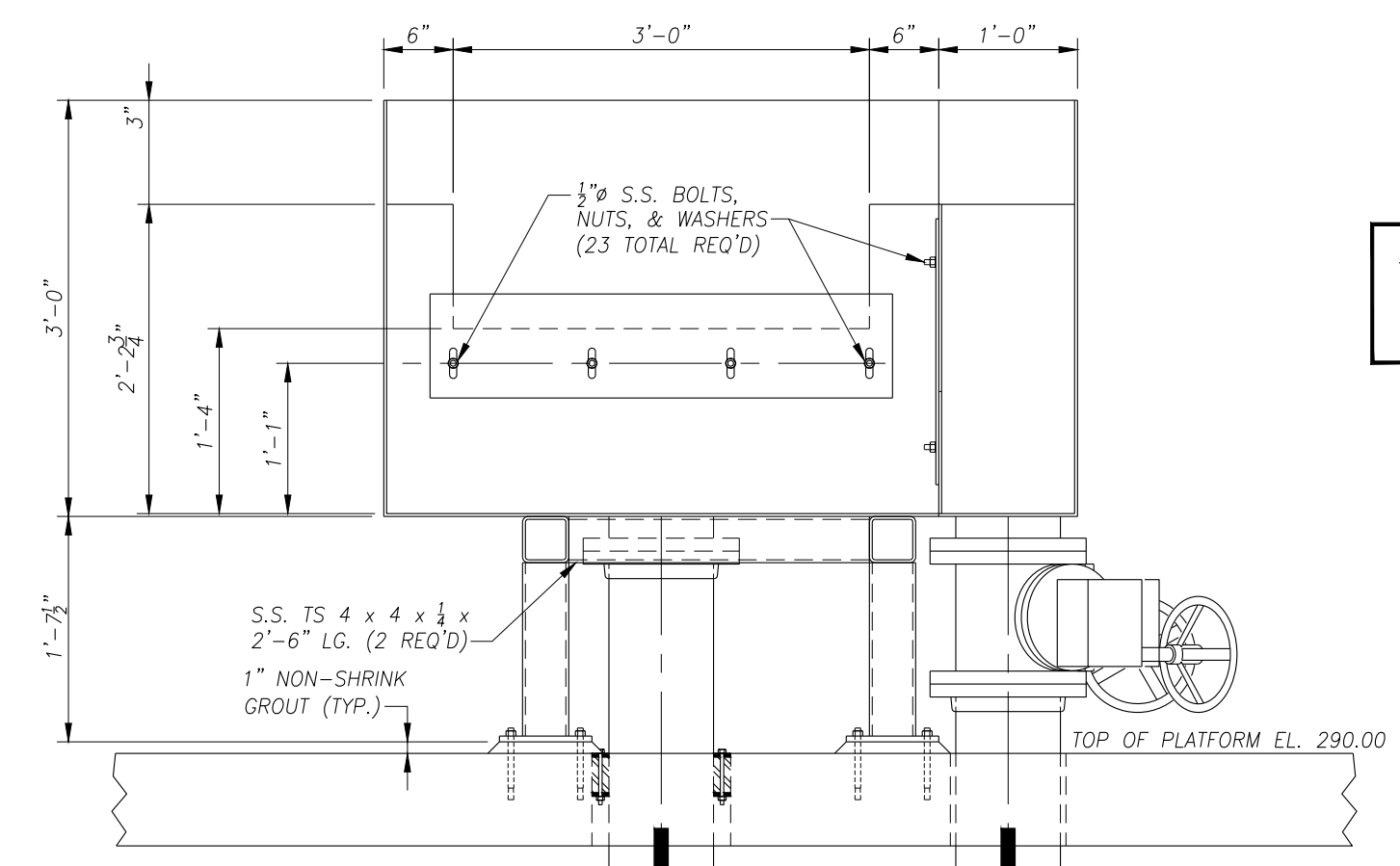
PLAN VIEW



ELEVATION

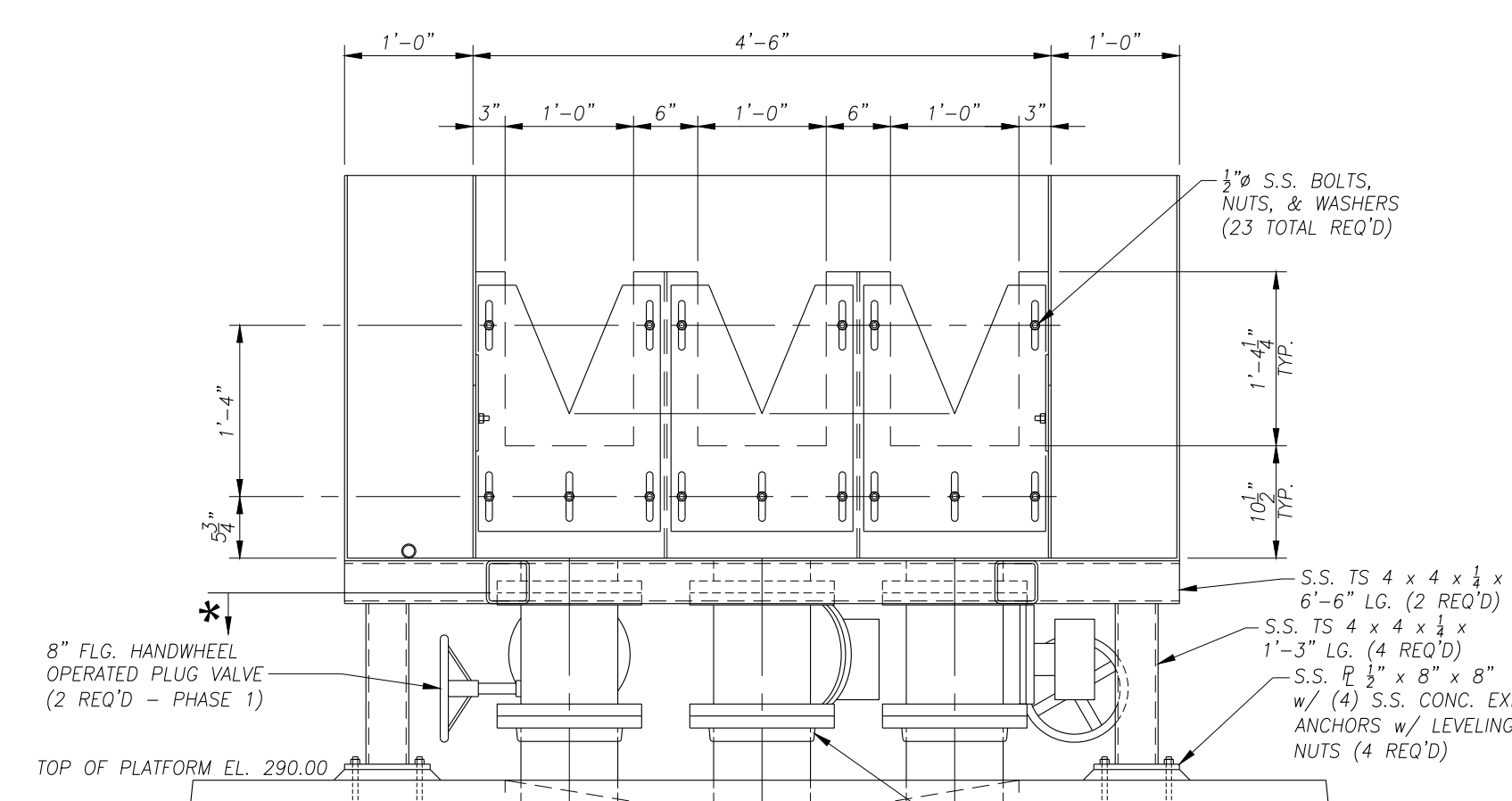
CHEMICAL FEED SYSTEM PUMP STAND

(THREE REQUIRED)
SCALE: 1 1/2" = 1'-0"



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

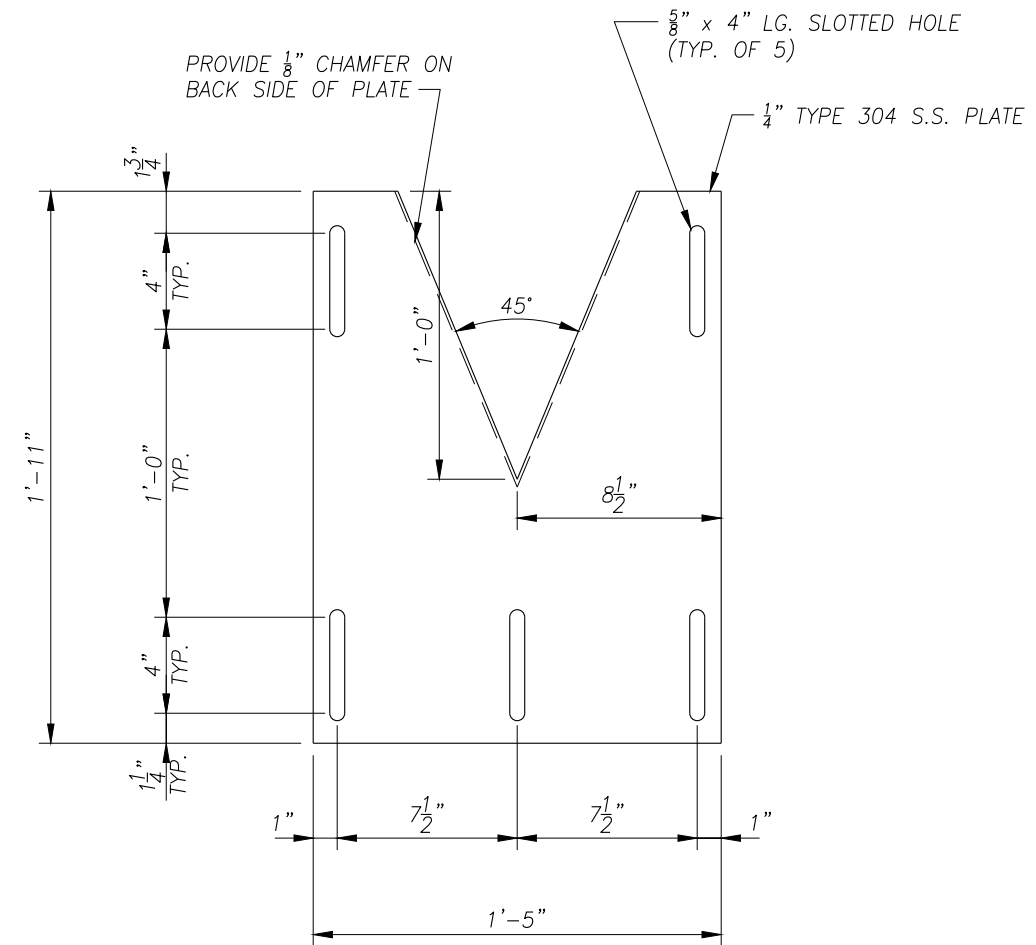
NOTE:
PROVIDE 1/8" THICK EPDM GASKET SHEETS BETWEEN WEIR PLATES AND MOUNTING WALLS.



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

PHASE 1 WEIR SETTINGS:
V-NOTCH WEIR EL. 5.0 INCHES LOWER THAN RETURN WEIR ELEVATION

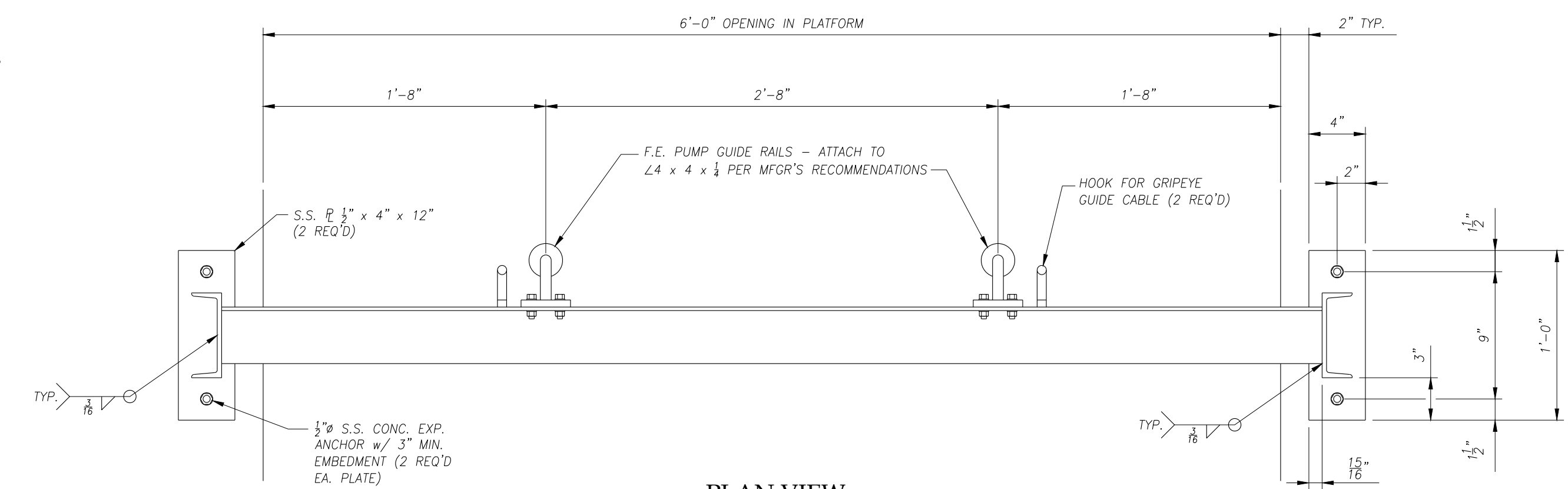
PHASE 2 WEIR SETTINGS:
V-NOTCH WEIR EL. 5.5 INCHES LOWER THAN RETURN WEIR ELEVATION



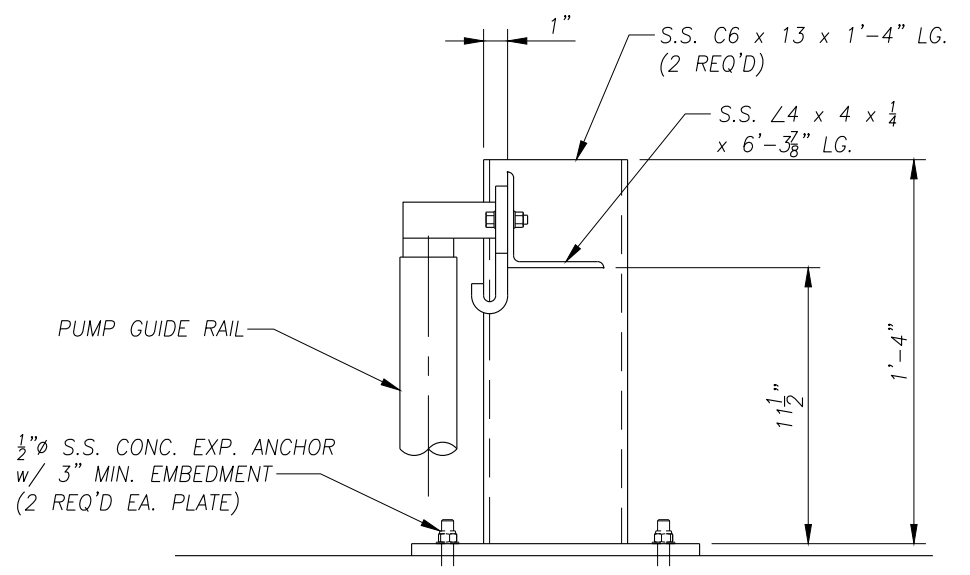
PLANT INFLUENT WEIR PLATE DETAIL

(THREE REQUIRED)
SCALE: 1 1/2" = 1'-0"

PROVIDE ONE 1/4" TYPE 304 S.S. PLATE - 1'-5" x 1'-11" WITH SLOTS AS SHOWN ABOVE, BUT NO V-NOTCH. INSTALL IN THE PLANT 3 WEIR POSITION.



PLAN VIEW



SECTION

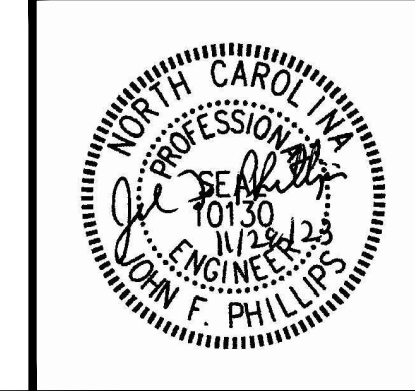
GUIDE RAIL SUPPORT DETAIL

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

RETURN WEIR PLATE DETAIL

(TWO REQUIRED)
SCALE: 1 1/2" = 1'-0"

FINAL DESIGN
NOT RELEASED
FOR
CONSTRUCTION



DESIGN: JFP
DRAWN: JLB
CHECKED: JFP
SCALE: AS SHOWN
FILE: CONSERV-PSR1

REVISIONS:

DIEHL & PHILLIPS, P.A.
CONSULTING ENGINEERS - LIC. NO. C-40465
1500 PINEY PLAINS RD., SUITE 200
CARY, N.C. 27518 • (919) 467-9972

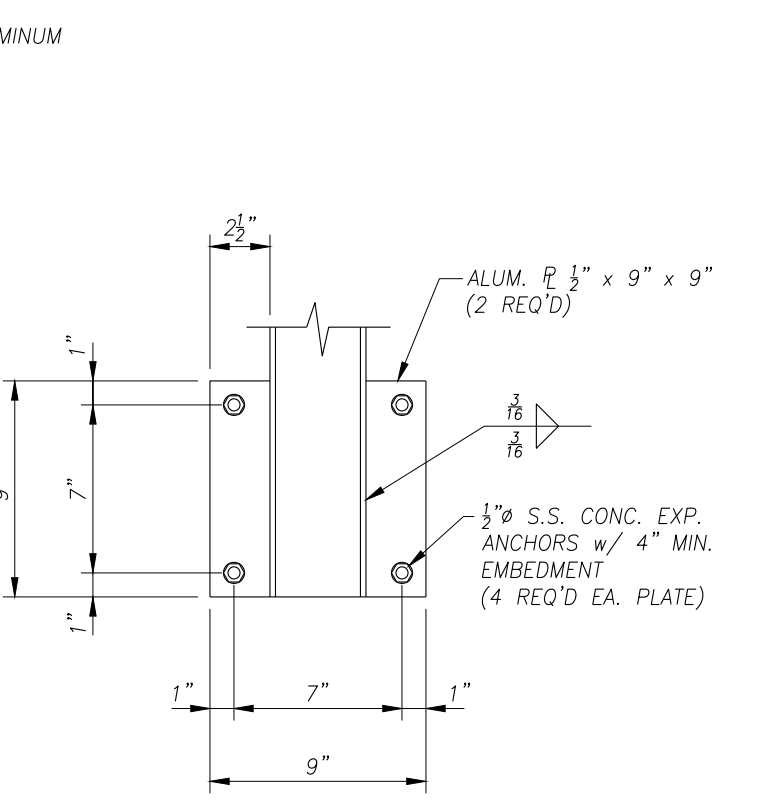
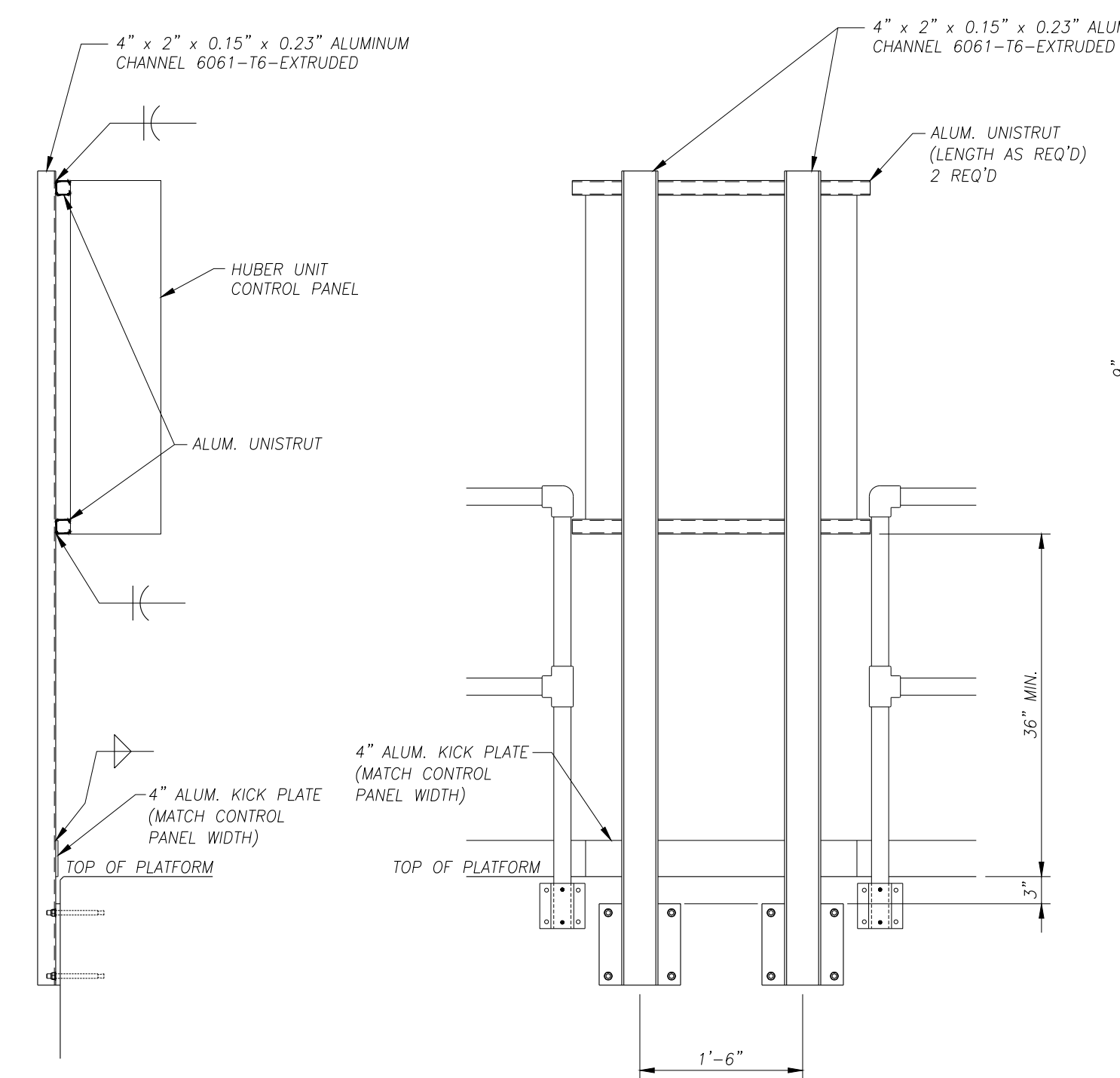
D&P

THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

FLOW CONTROL/SPLITTER BOX -
PLAN AND SECTIONS, CHEMICAL
FEED SYSTEM PUMP STAND DETAIL,
AND GUIDE RAIL SUPPORT

SHEET 7 OF 8

33

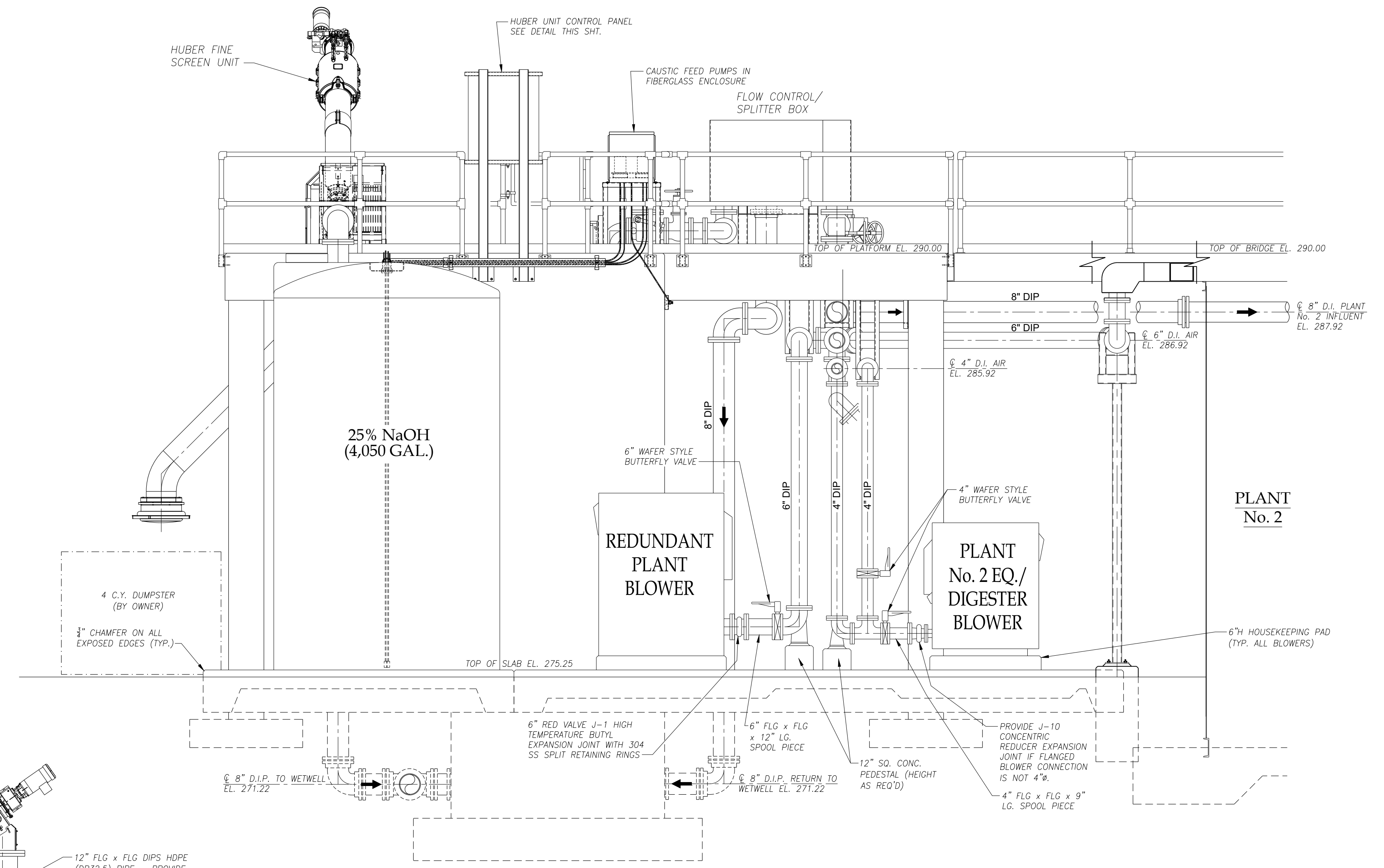


BASE PLATE DETAIL
SCALE: 1/2" = 1'-0"

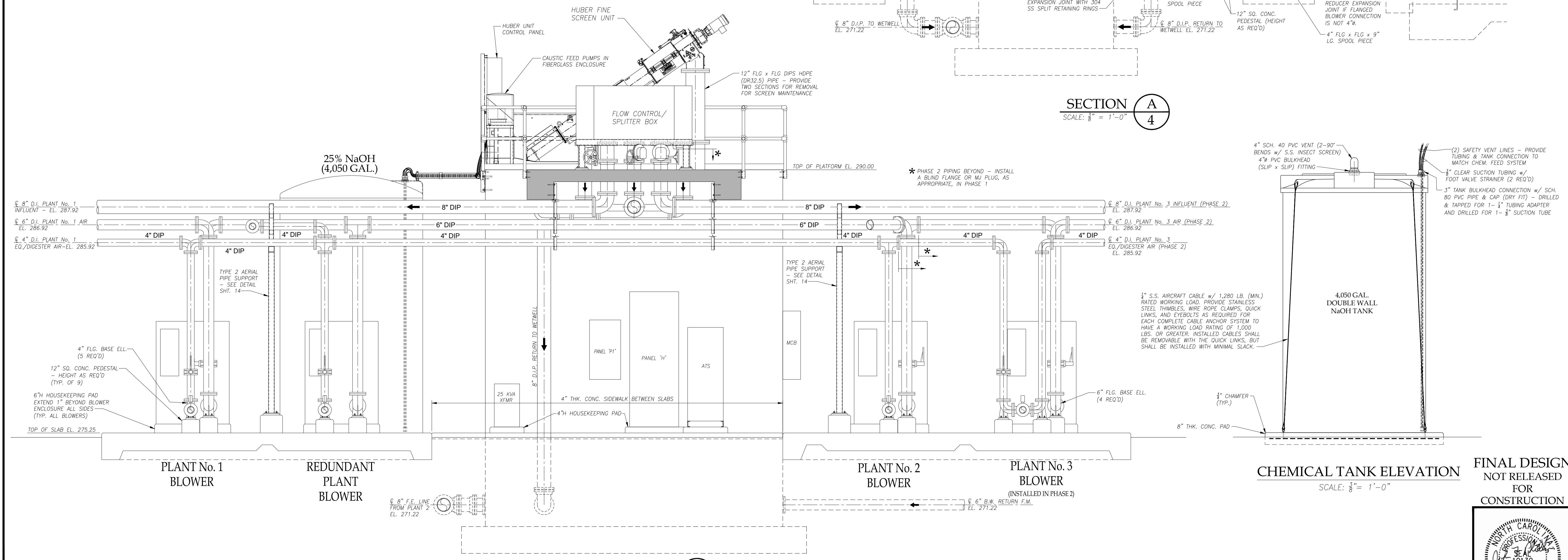
SECTION
SCALE: 1/2" = 1'-0"

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

HUBER UNIT & INFLUENT PUMP CONTROL PANEL SUPPORT DETAIL



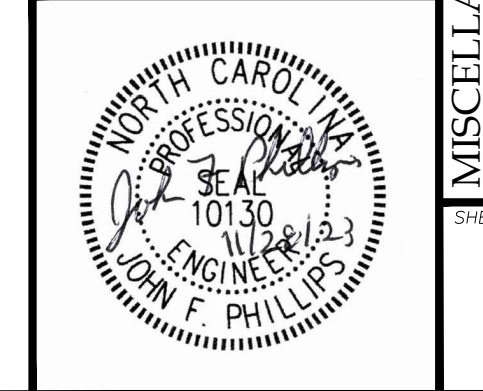
SECTION A
SCALE: 1/8" = 1'-0"



SECTION B
SCALE: 1/8" = 1'-0"

CHEMICAL TANK ELEVATION
SCALE: 1/8" = 1'-0"

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION



DESIGN: JFP
DRAWN: JLB
CHECKED: JFP
SCALE: AS SHOWN
FILE: CONSERV-PSR1

REVISIONS:

DIEHL & PHILLIPS, P.A.
CONSULTING ENGINEERS - LIC. NO. C-0465
1500 PINEY PLAINS RD., SUITE 200
CARY, N.C. 27518 • (919) 467-9972

D&P

THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

MISCELLANEOUS SECTIONS OF
AIR PIPING AND CHEMICAL
TANK ELEVATION

8

33

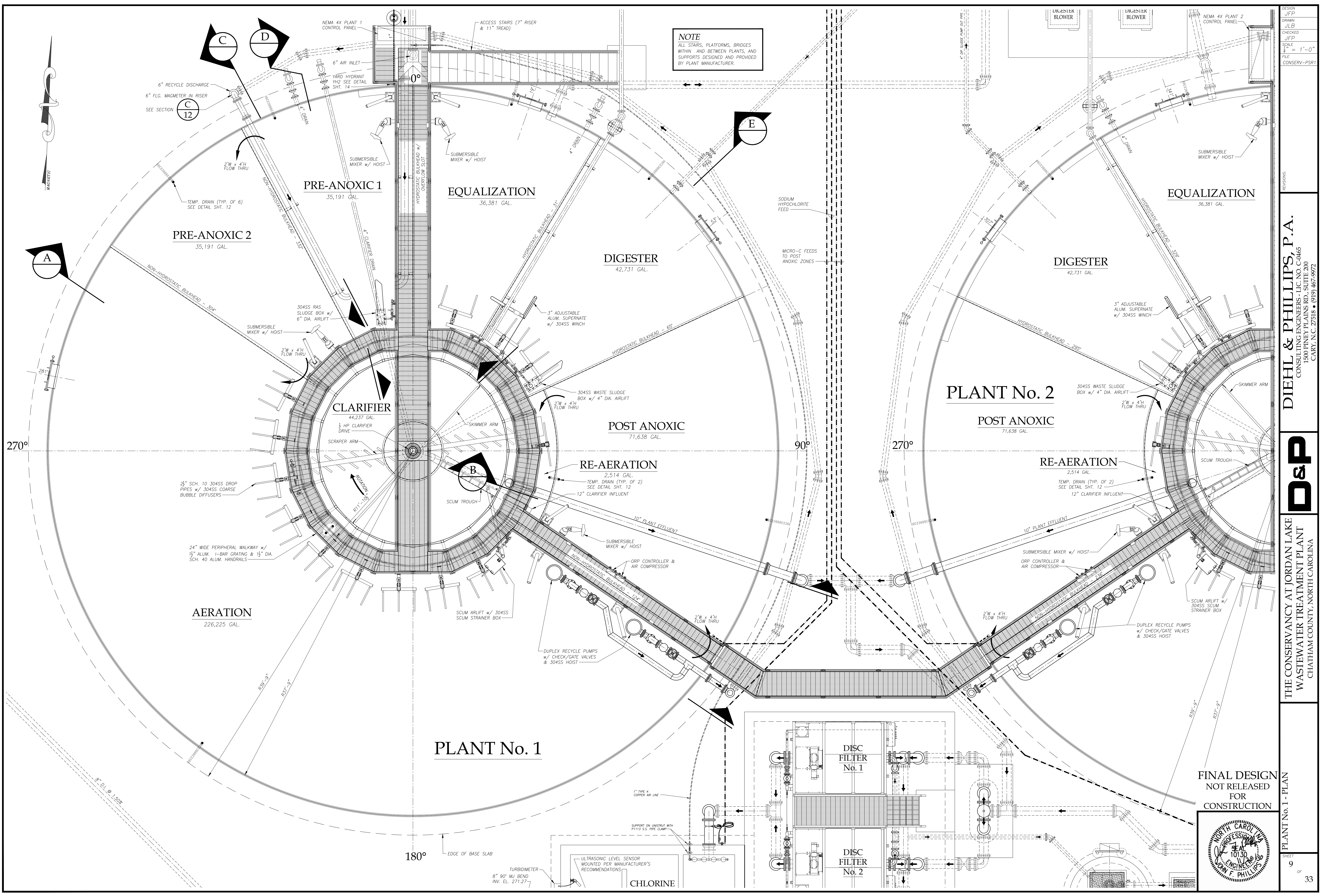
DESIGN: JFP
 DRAWN: JLB
 CHECKED: JFP
 SCALE: 1" = 1'-0"
 FILE: CONSERV-PSR1

DIEHL & PHILLIPS, P.A.
 CONSULTING ENGINEERS - LIC. NO. C-0465
 1500 PINEY PLAINS RD., SUITE 200
 CARY, N.C. 27518 • (919) 467-9972

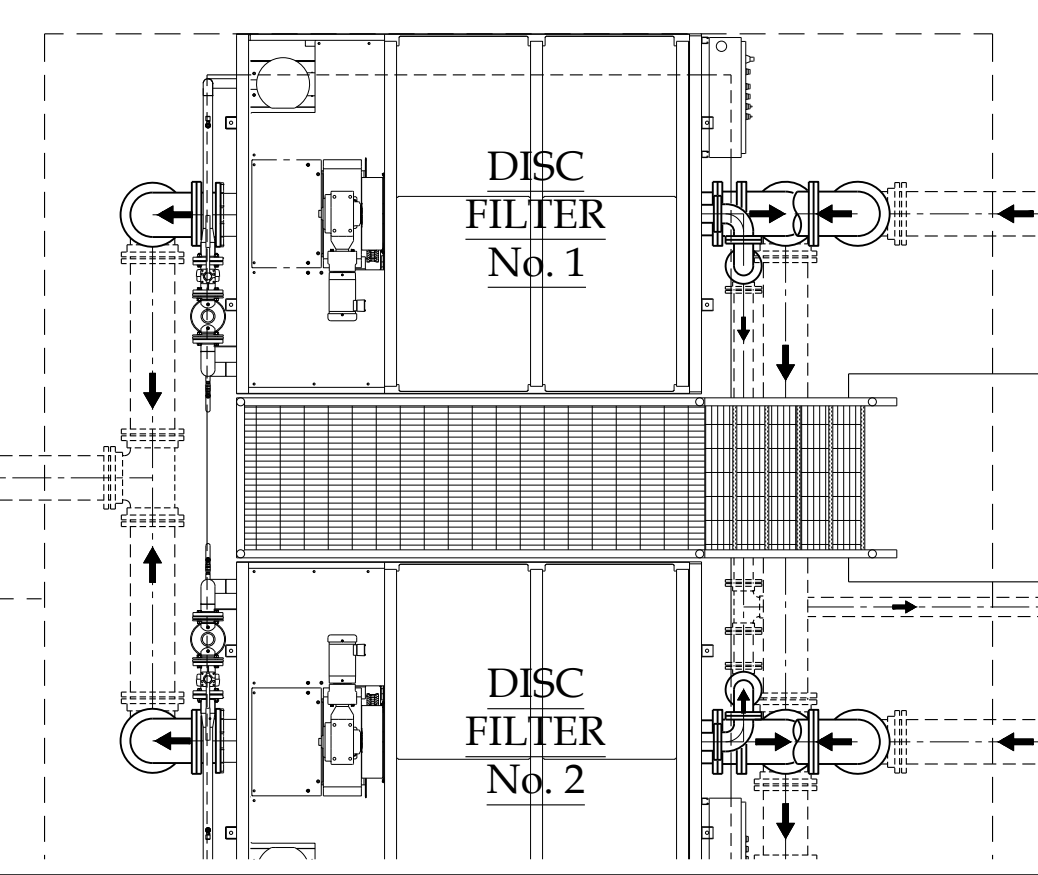
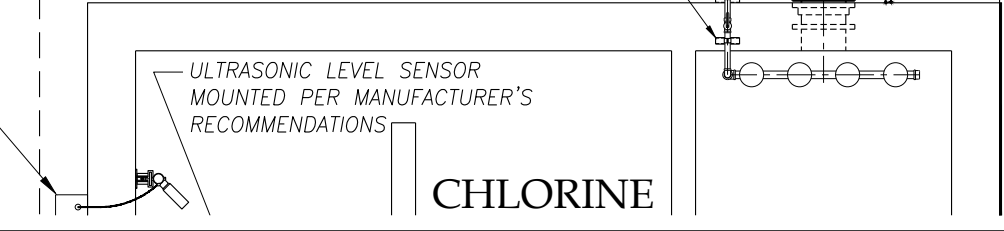
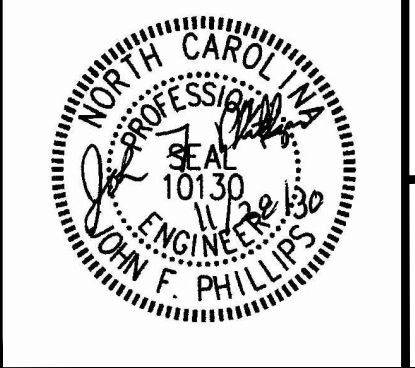
D&P
 THE CONSERVANCY AT JORDAN LAKE
 WASTEWATER TREATMENT PLANT
 CHATHAM COUNTY, NORTH CAROLINA

PLANT No. 1 - PLAN
 SHEET 9 OF 33

NOTE
 ALL STAIRS, PLATFORMS, BRIDGES
 WITHIN AND BETWEEN PLANTS, AND
 SUPPORTS DESIGNED AND PROVIDED
 BY PLANT MANUFACTURER.



**FINAL DESIGN
 NOT RELEASED
 FOR
 CONSTRUCTION**



270°

90°

270°

180°

C

D

E

A

B

PRE-ANOXIC 2
 35,191 GAL.

PRE-ANOXIC 1
 35,191 GAL.

EQUALIZATION
 36,381 GAL.

DIGESTER
 42,731 GAL.

POST ANOXIC
 71,638 GAL.

RE-AERATION
 2,514 GAL.

CLARIFIER
 44,237 GAL.

AERATION
 226,225 GAL.

EQUALIZATION
 36,381 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

POST ANOXIC
 71,638 GAL.

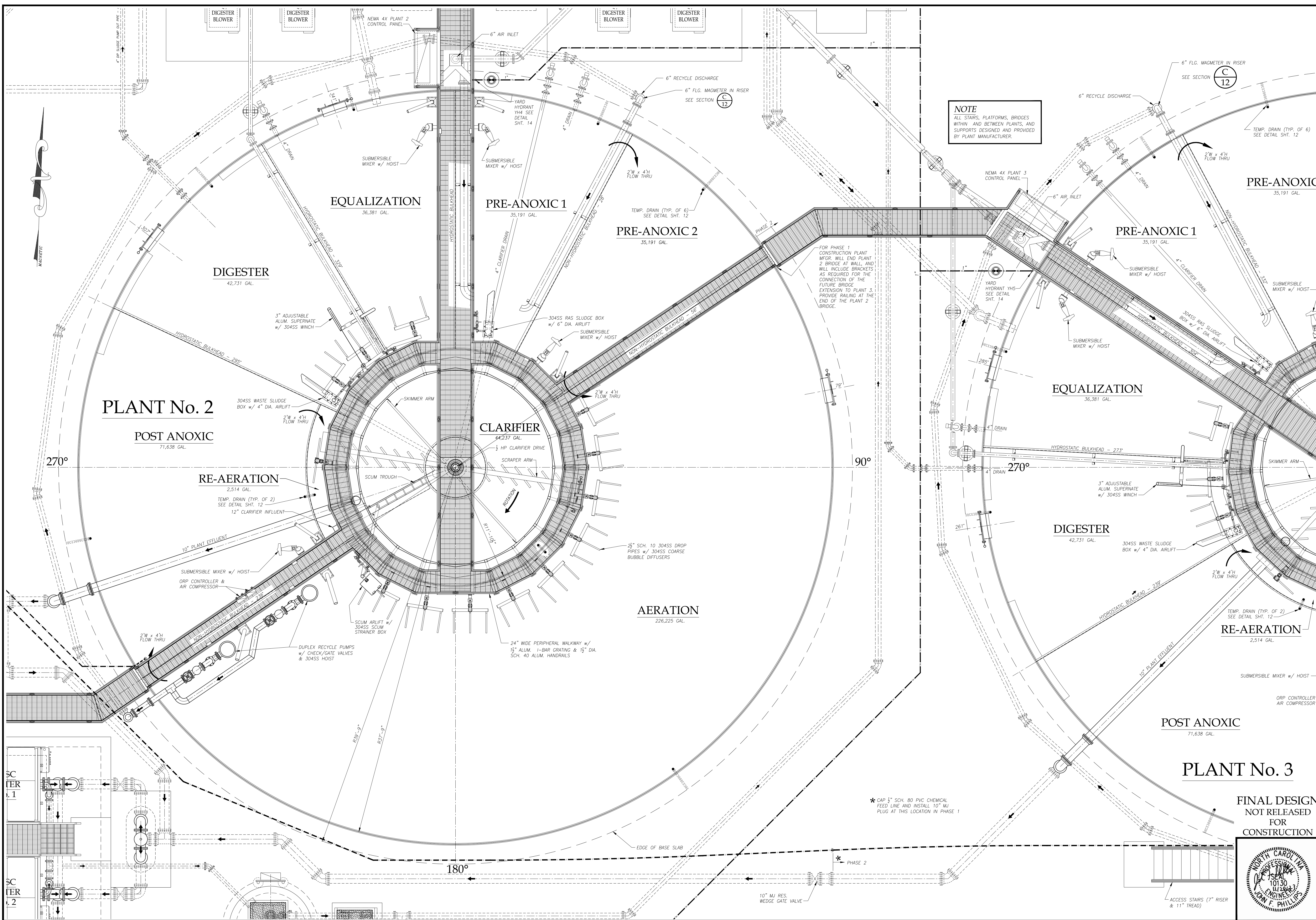
PLANT No. 2

PLANT No. 1

CHLORINE

DISC FILTER No. 1

DISC FILTER No. 2

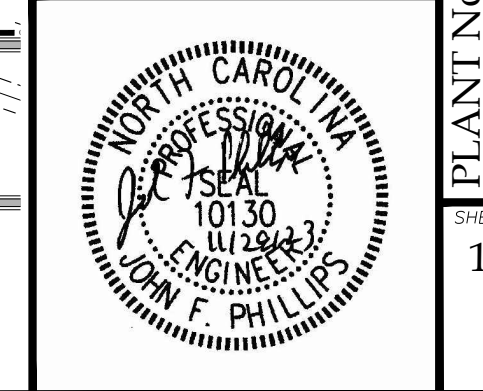


NOTE
 ALL STAIRS, PLATFORMS, BRIDGES WITHIN AND BETWEEN PLANTS, AND SUPPORTS DESIGNED AND PROVIDED BY PLANT MANUFACTURER.

FOR PHASE 1 CONSTRUCTION PLANT MFR. WILL END PLANT 2 BRIDGE AT WALL, AND WILL INCLUDE BRACKETS AS REQUIRED FOR THE CONNECTION OF THE FUTURE BRIDGE EXTENSION TO PLANT 3. PROVIDE RAILING AT THE END OF THE PLANT 2 BRIDGE.

* CAP 1/2" SCH. 80 PVC CHEMICAL FEED LINE AND INSTALL 10" MJ PLUG AT THIS LOCATION IN PHASE 1

**FINAL DESIGN
 NOT RELEASED
 FOR
 CONSTRUCTION**



ACCESS STAIRS (7" RISER & 11" TREAD)

10" MJ RES. WEDGE GATE VALVE

180°

90°

270°

270°

PLANT No. 2

POST ANOXIC
 71,638 GAL.

RE-AERATION
 2,514 GAL.

CLARIFIER
 44,237 GAL.

AERATION
 226,225 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

POST ANOXIC
 71,638 GAL.

PLANT No. 3

EQUALIZATION
 36,381 GAL.

PRE-ANOXIC 1
 35,191 GAL.

PRE-ANOXIC 2
 35,191 GAL.

PRE-ANOXIC 1
 35,191 GAL.

PRE-ANOXIC
 35,191 GAL.

EQUALIZATION
 36,381 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

CLARIFIER
 44,237 GAL.

AERATION
 226,225 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

POST ANOXIC
 71,638 GAL.

PLANT No. 3

EQUALIZATION
 36,381 GAL.

PRE-ANOXIC 1
 35,191 GAL.

PRE-ANOXIC 2
 35,191 GAL.

PRE-ANOXIC 1
 35,191 GAL.

PRE-ANOXIC
 35,191 GAL.

EQUALIZATION
 36,381 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

CLARIFIER
 44,237 GAL.

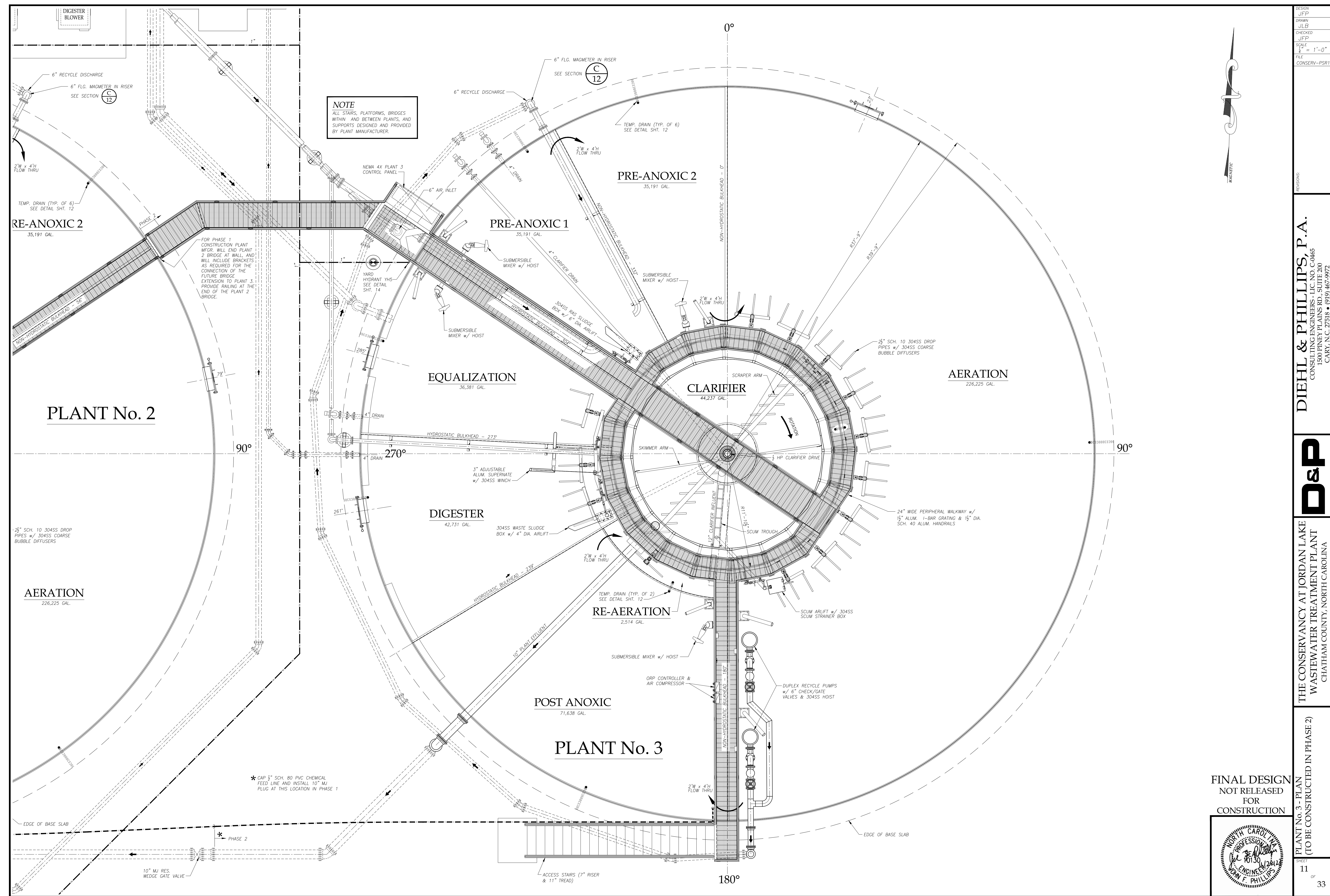
AERATION
 226,225 GAL.

DIGESTER
 42,731 GAL.

RE-AERATION
 2,514 GAL.

POST ANOXIC
 71,638 GAL.

PLANT No. 3

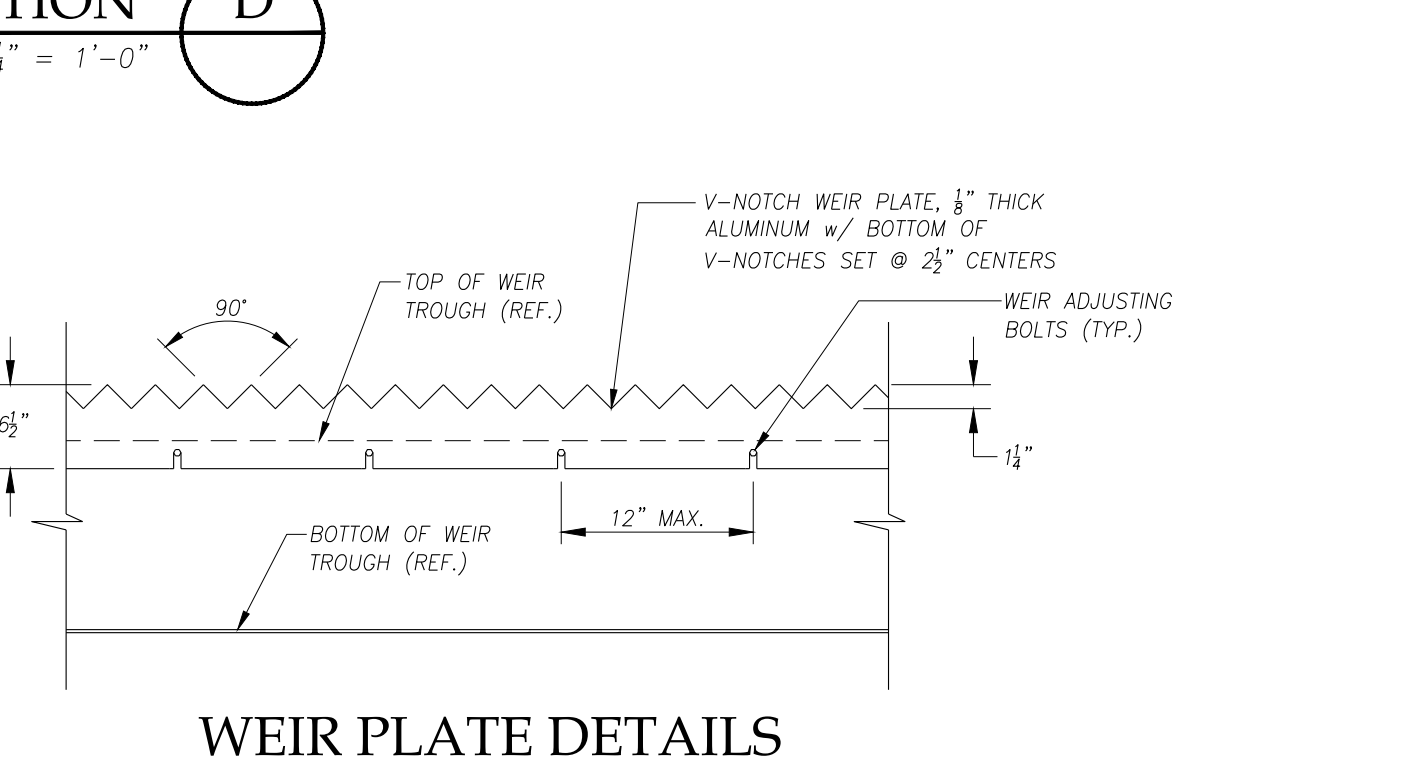
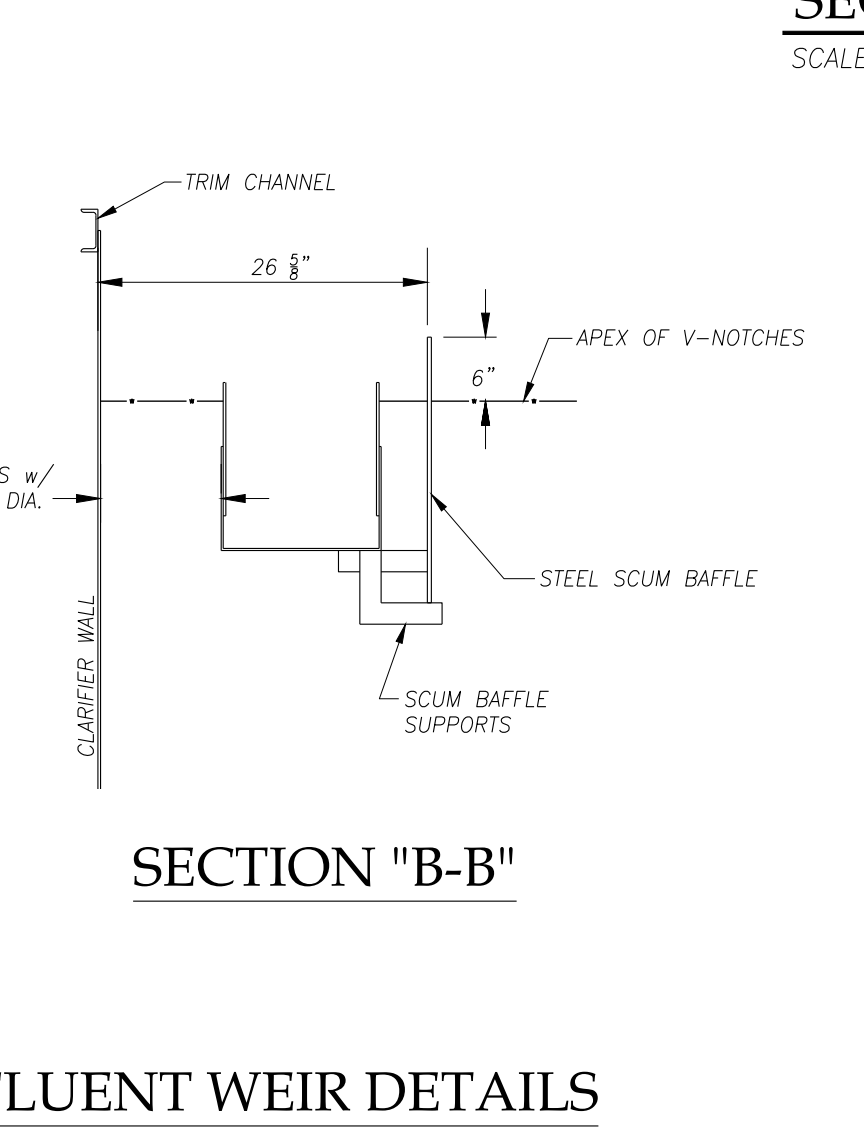
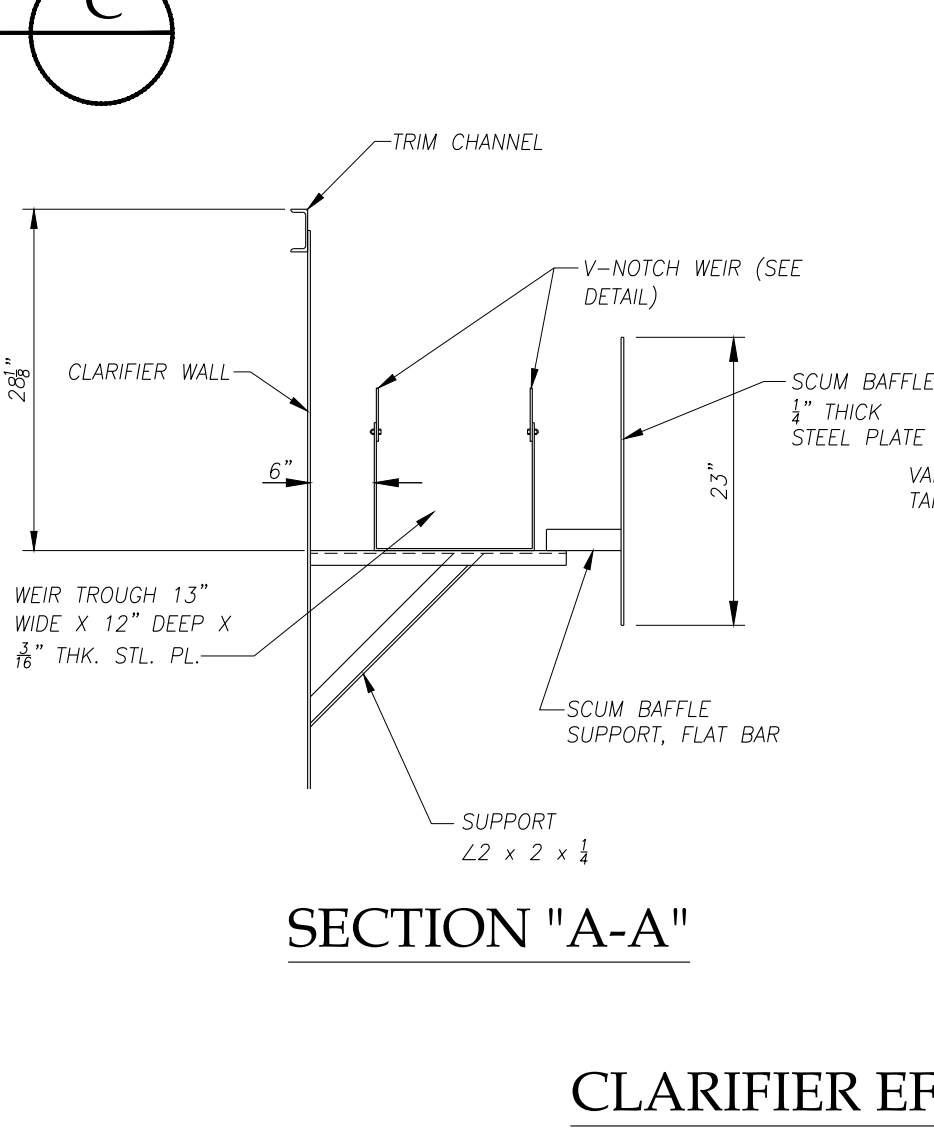
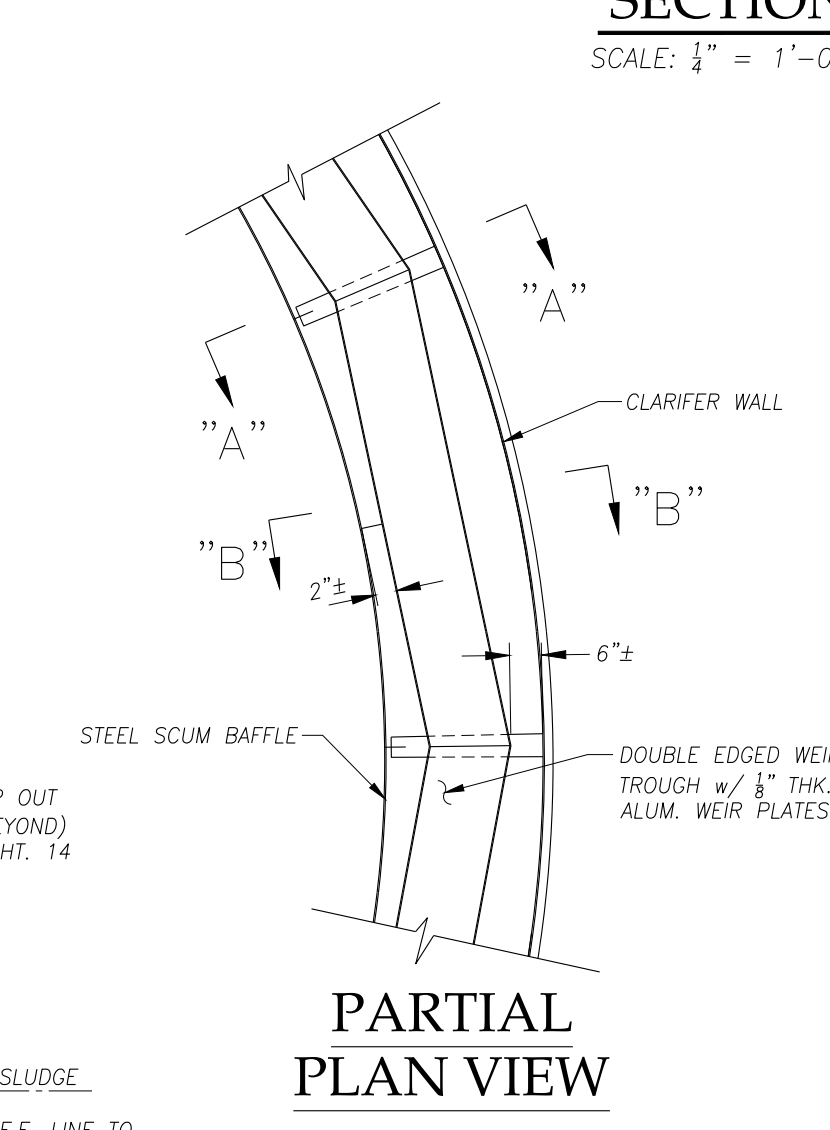
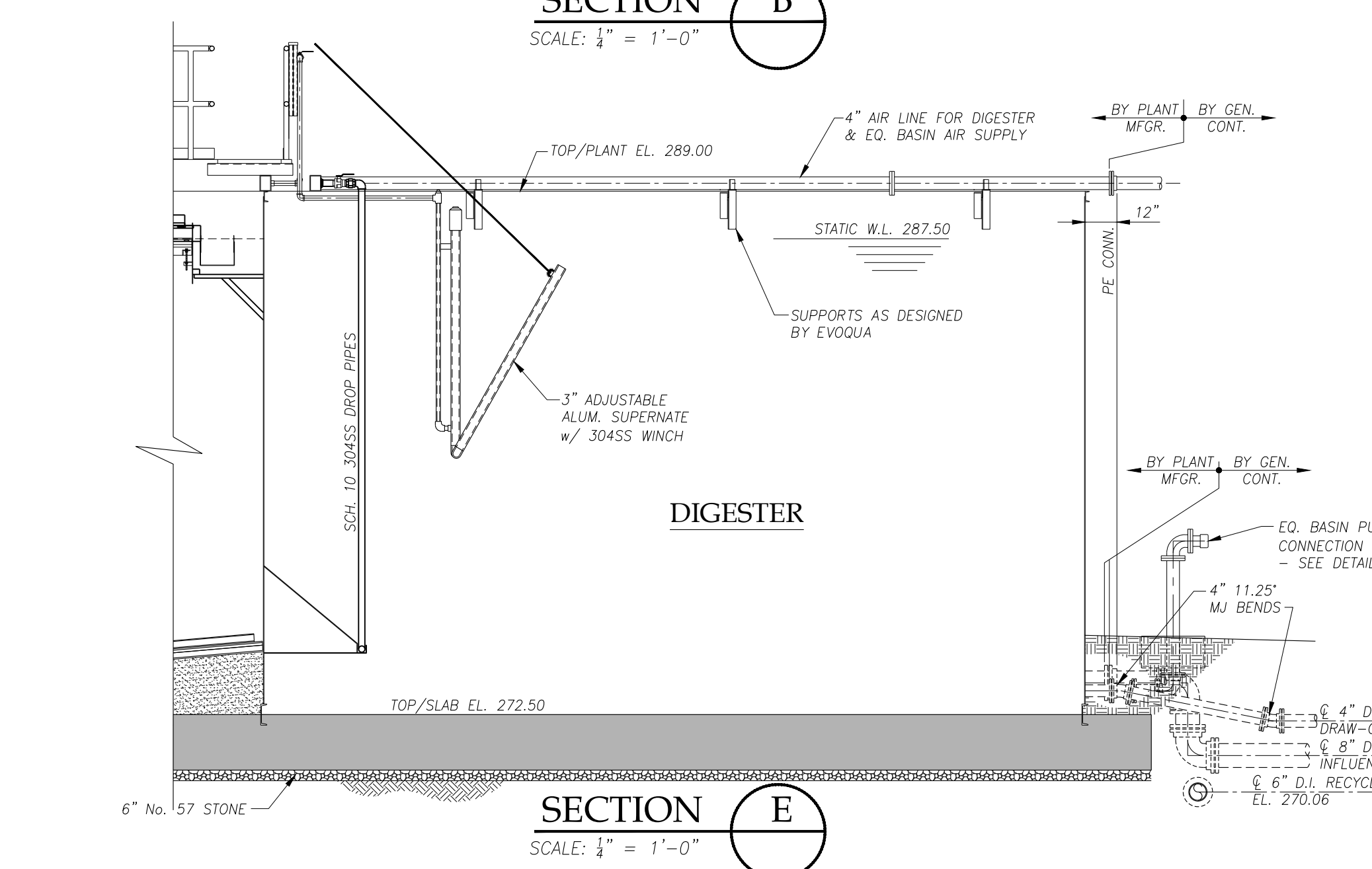
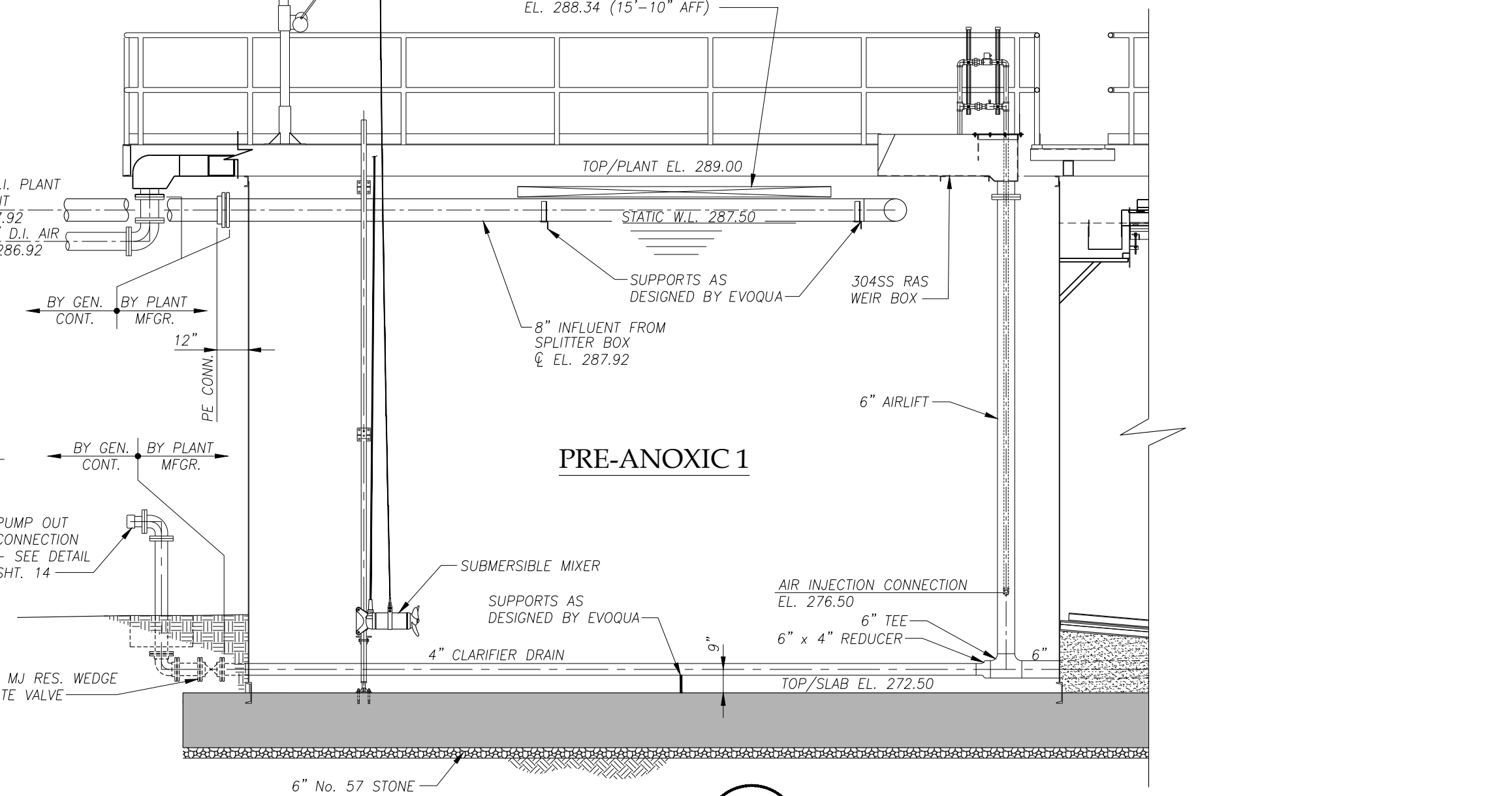
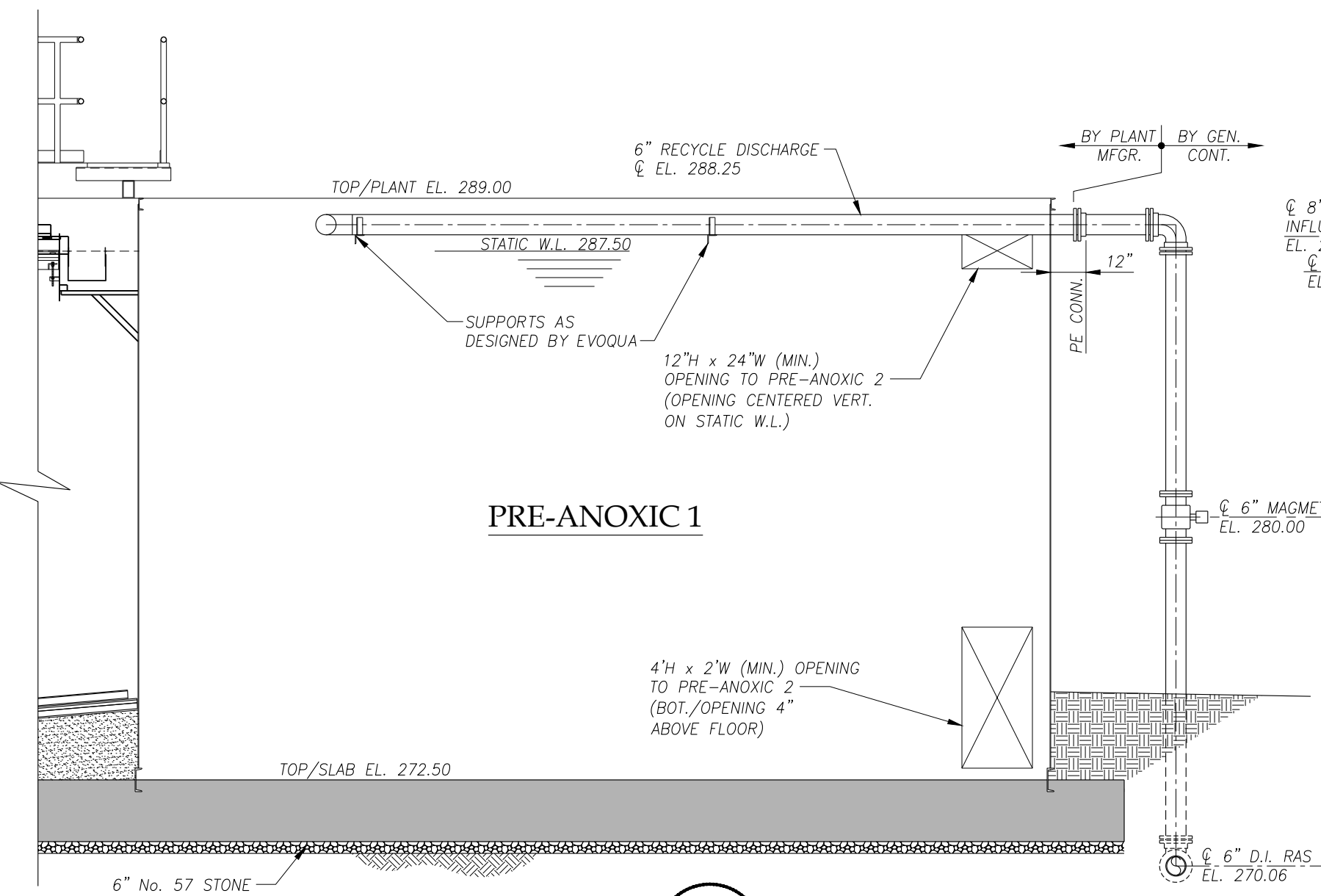
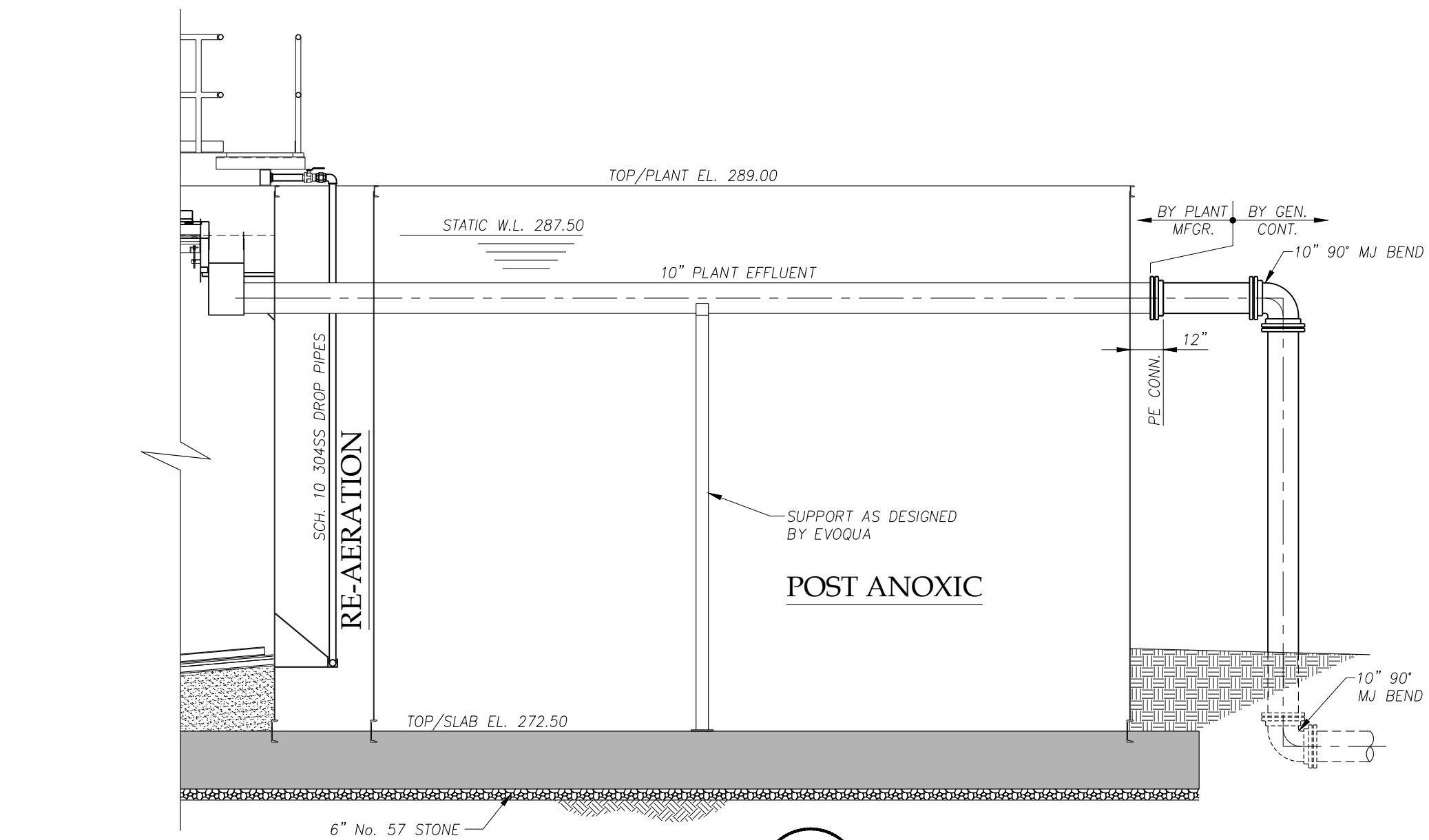
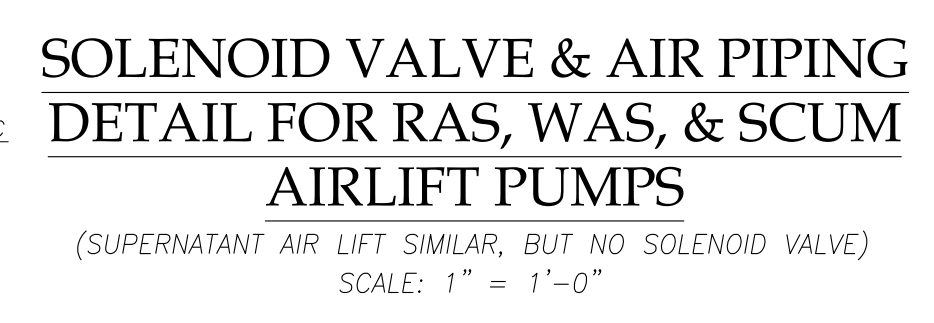
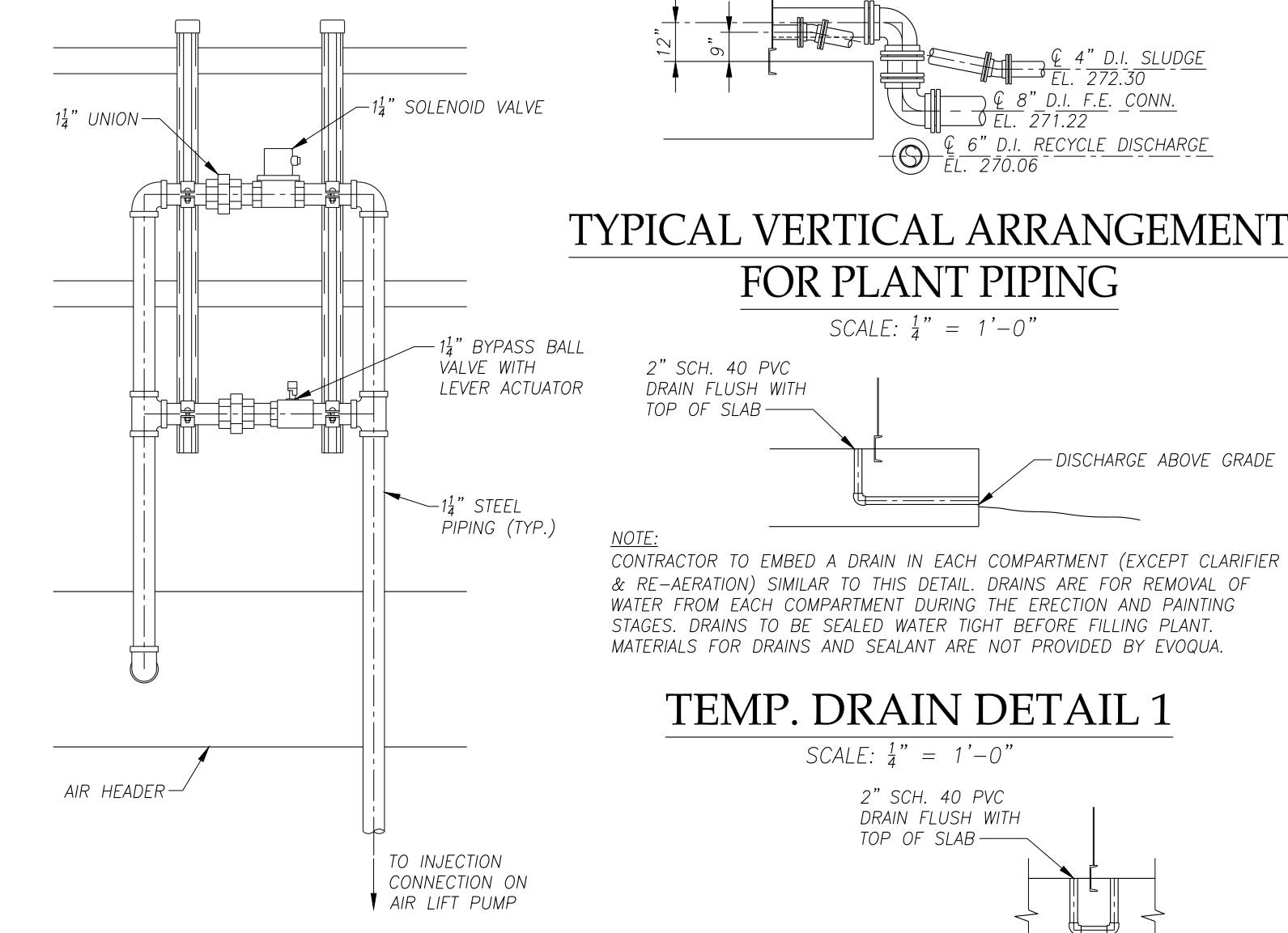
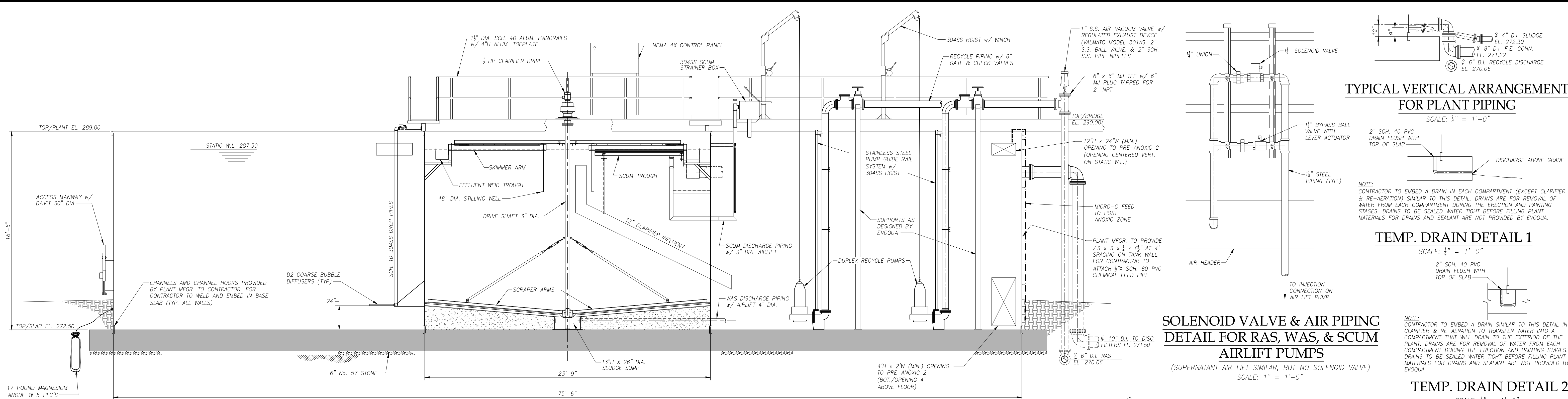


NOTE
 ALL STAIRS, PLATFORMS, BRIDGES
 WITHIN AND BETWEEN PLANTS, AND
 SUPPORTS DESIGNED AND PROVIDED
 BY PLANT MANUFACTURER.

FOR PHASE 1
 CONSTRUCTION PLANT
 2 BRIDGE AT WALL AND
 WILL INCLUDE BRACKETS
 AS REQUIRED FOR THE
 CONNECTION OF THE
 FUTURE BRIDGE
 EXTENSION TO PLANT 3.
 PROVIDE RAILING AT THE
 END OF THE PLANT 2
 BRIDGE.

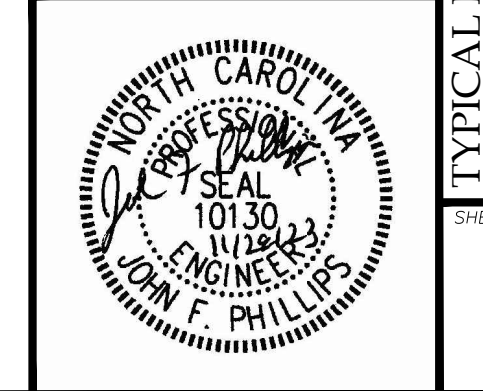
* CAP 1/2" SCH. 80 PVC CHEMICAL
 FEED LINE AND INSTALL 10" MJ
 PLUG AT THIS LOCATION IN PHASE 1

DESIGN JFP	DIEHL & PHILLIPS, P.A. CONSULTING ENGINEERS - LIC. NO. C-4045 1500 PINEY PLAINS RD., SUITE 200 CARY, N.C. 27518 • (919) 467-9972
DRAWN JLB	
CHECKED JFP	
SCALE 1" = 1'-0"	
FILE CONSERV-PSR1	
D&P	
THE CONSERVANCY AT JORDAN LAKE WASTEWATER TREATMENT PLANT CHATHAM COUNTY, NORTH CAROLINA	
PLANT No. 3 - PLAN (TO BE CONSTRUCTED IN PHASE 2)	
FINAL DESIGN NOT RELEASED FOR CONSTRUCTION	
11 OF 33	



CLARIFIER EFFLUENT WEIR DETAILS

FINAL DESIGN
NOT RELEASED
FOR
CONSTRUCTION



DESIGN: JFP
DRAWN: JLB
CHECKED: JFP
DATE: 11/28/23
SCALE: 1/4" = 1'-0"
FILE: CONSERV-PSR1

REVISIONS:

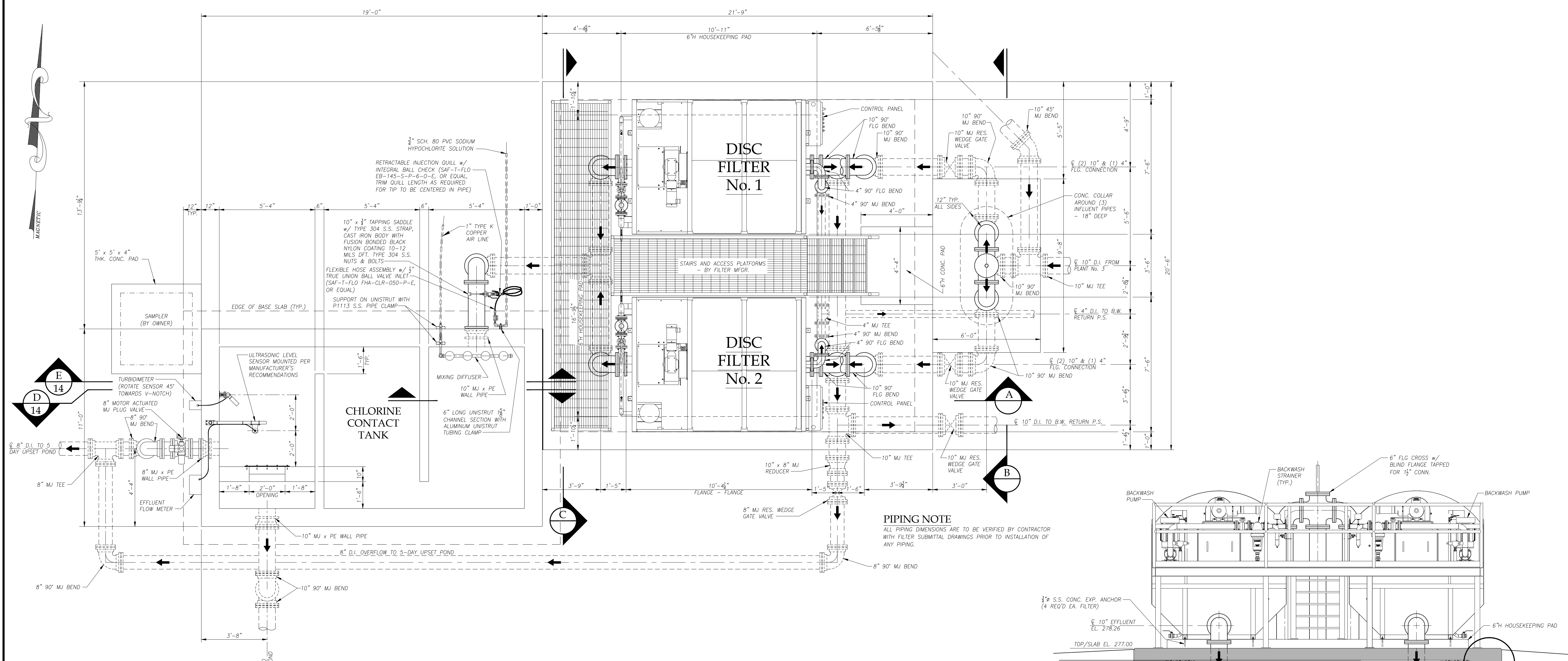
DIEHL & PHILLIPS, P.A.
CONSULTING ENGINEERS - LIC. NO. C-40465
1500 PINEY PLAINS RD., SUITE 200
CARY, N.C. 27518 • (919) 467-9972

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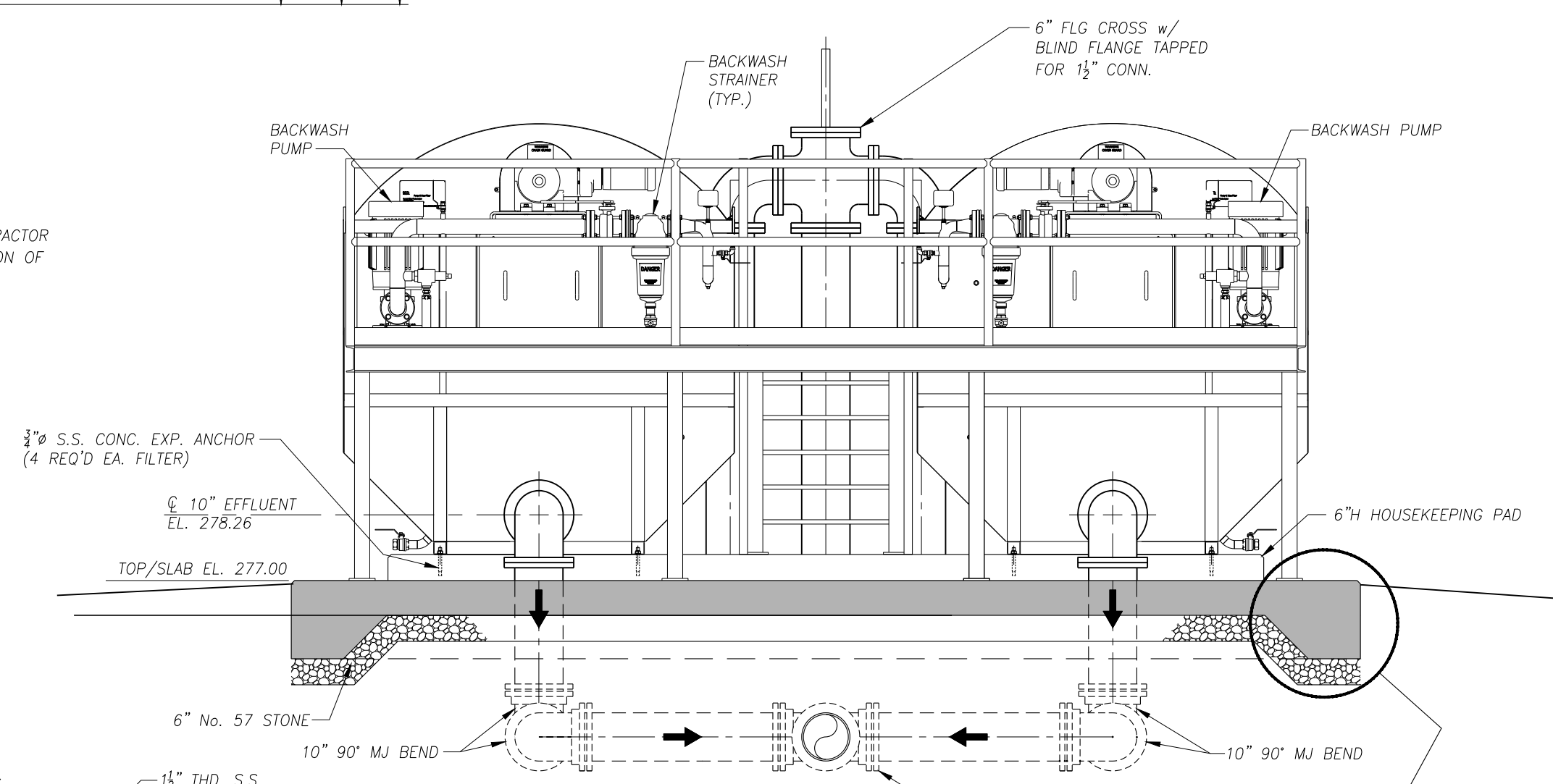
THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

TYPICAL PLANT SECTIONS AND DETAILS

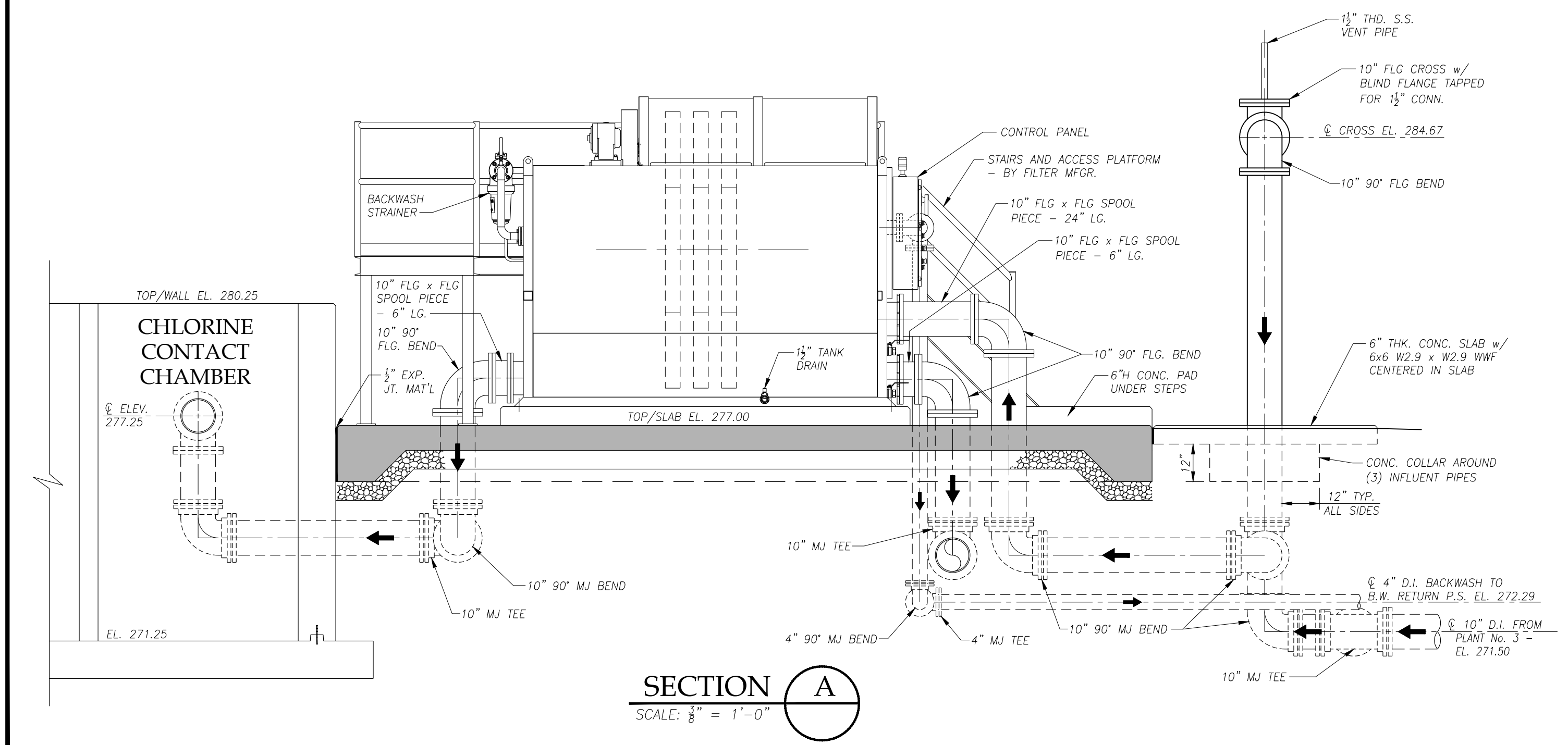
SHEET 12 OF 33



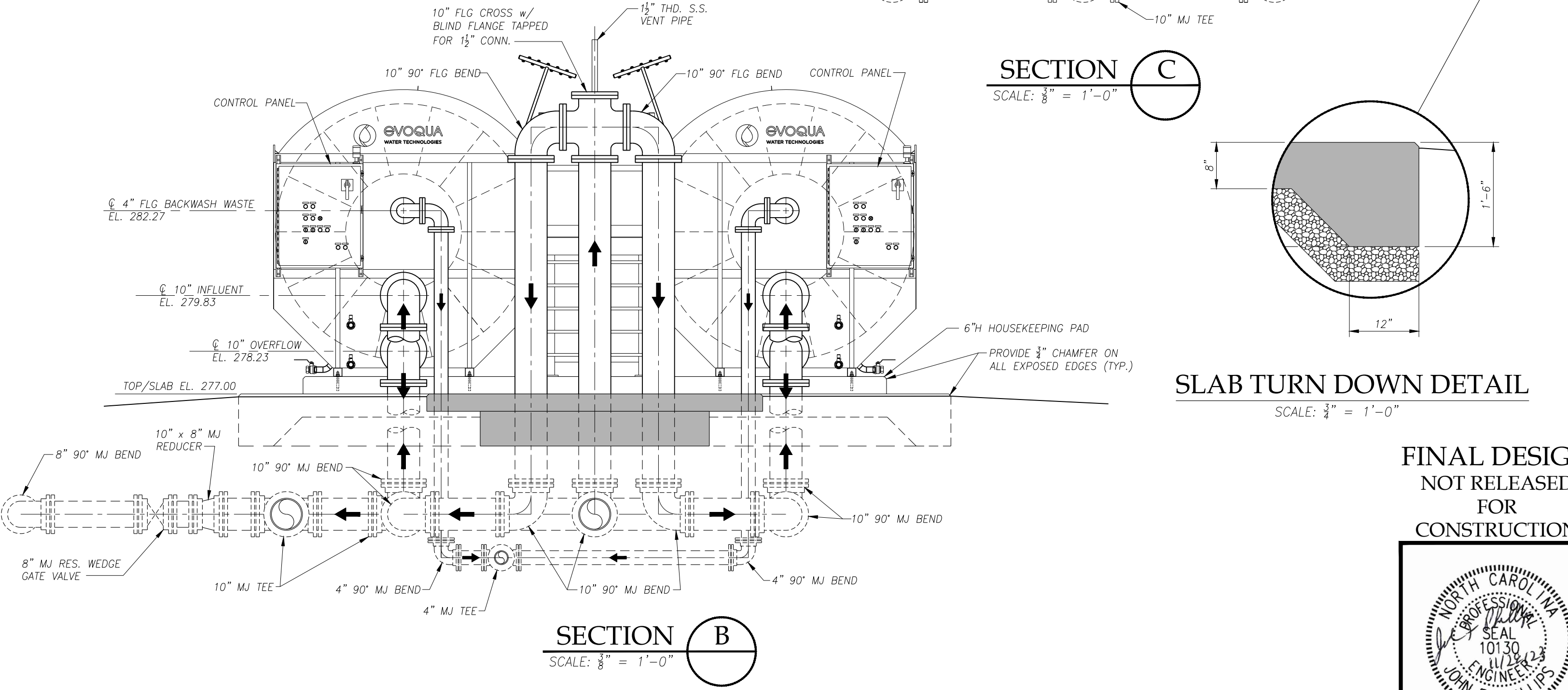
ENLARGED PLAN OF FILTERS & CHLORINE CONTACT
 SCALE: 3/8" = 1'-0"



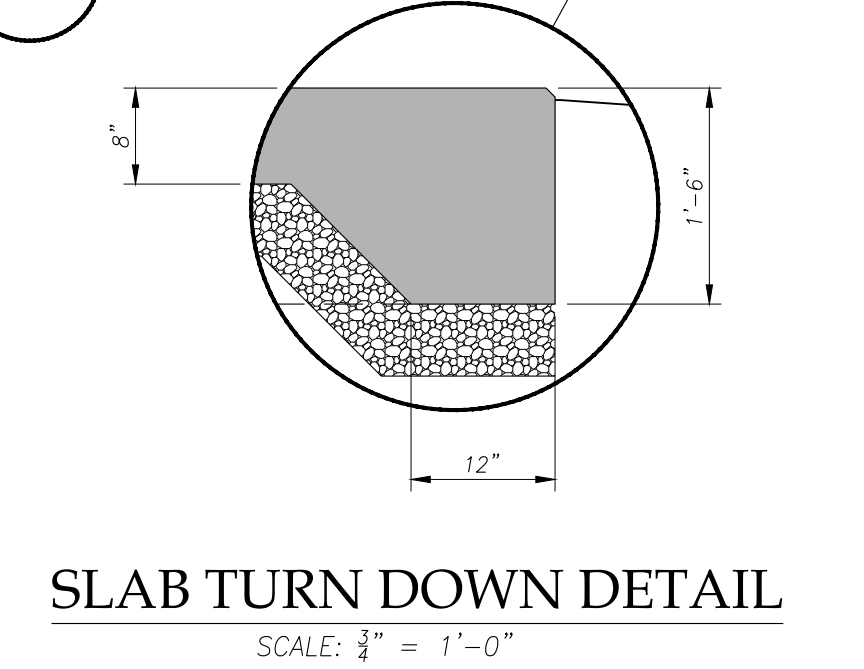
SECTION C
 SCALE: 3/8" = 1'-0"



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



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

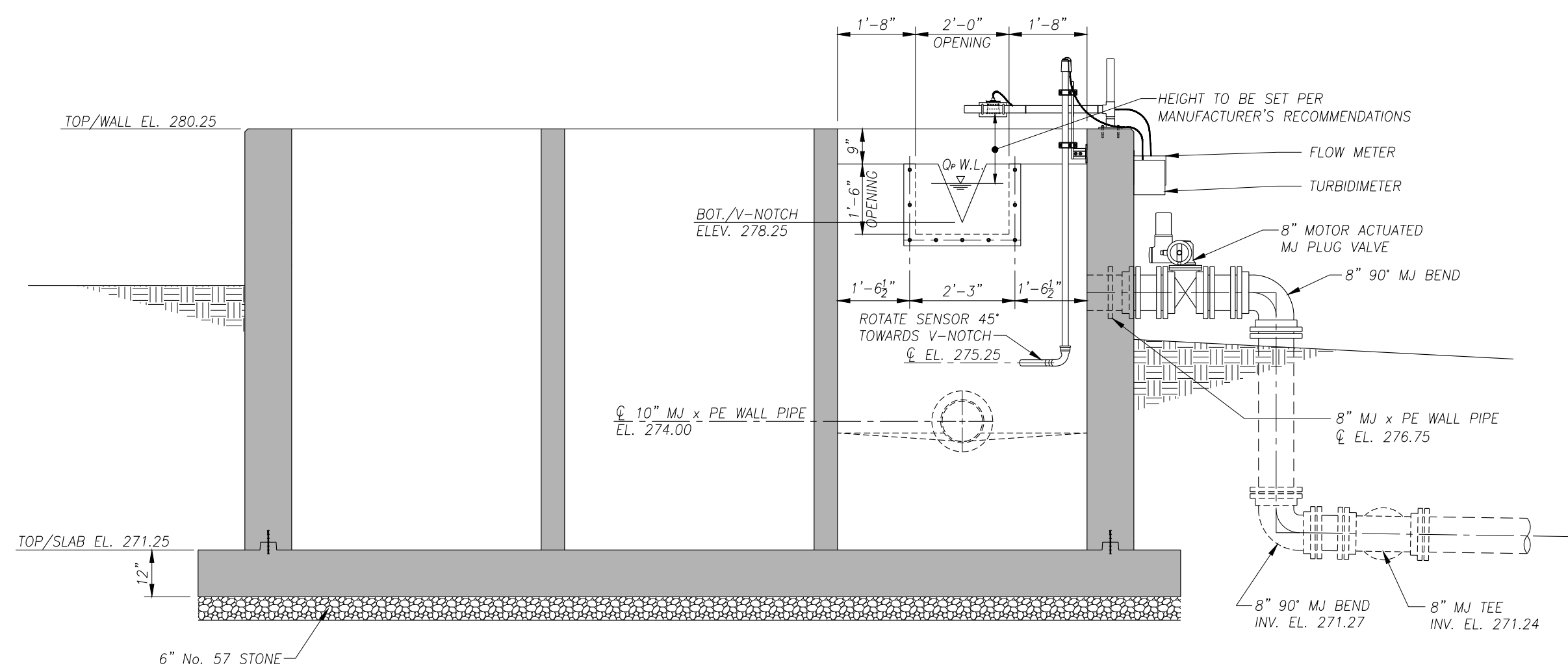


SLAB TURN DOWN DETAIL
 SCALE: 3/4" = 1'-0"

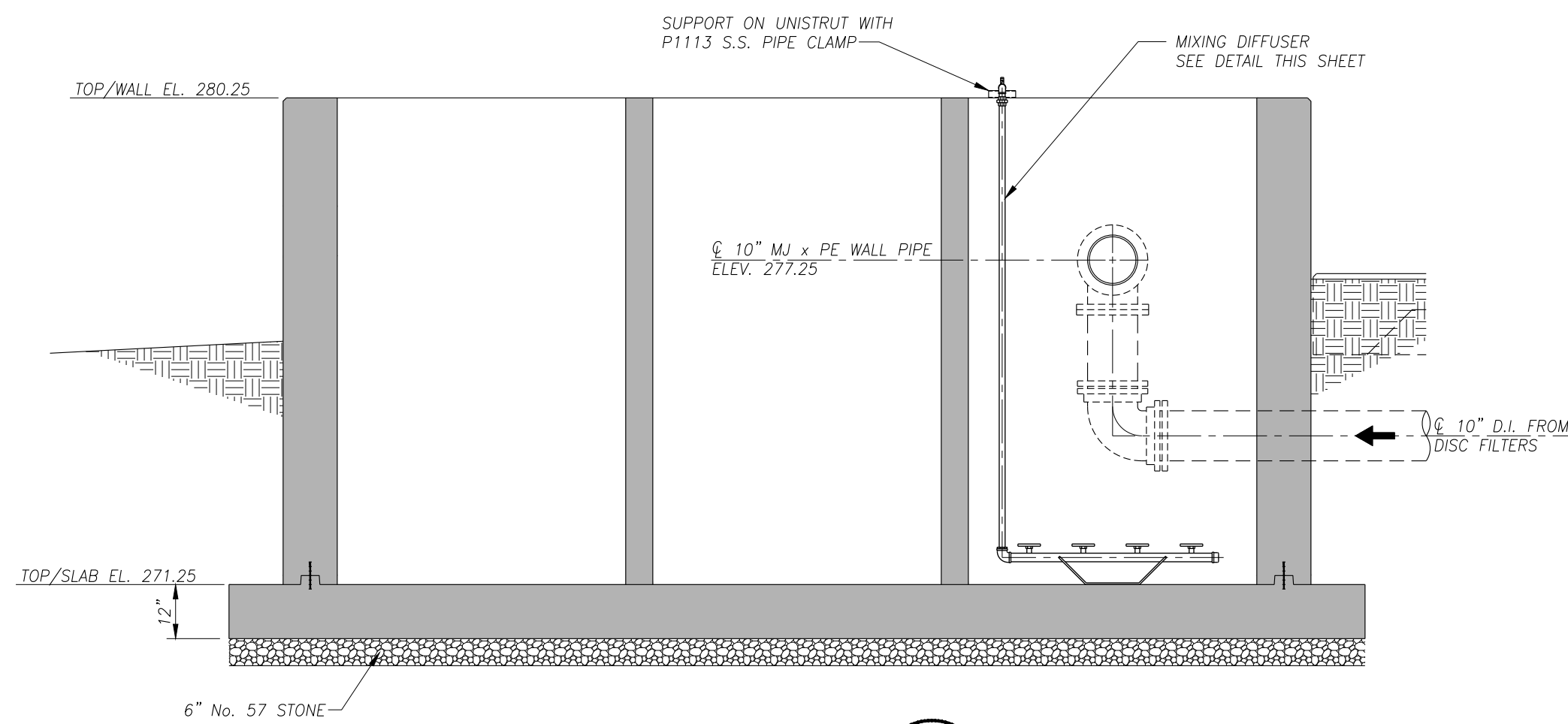
PIPING NOTE
 ALL PIPING DIMENSIONS ARE TO BE VERIFIED BY CONTRACTOR WITH FILTER SUBMITTAL DRAWINGS PRIOR TO INSTALLATION OF ANY PIPING.

FINAL DESIGN
 NOT RELEASED
 FOR
 CONSTRUCTION

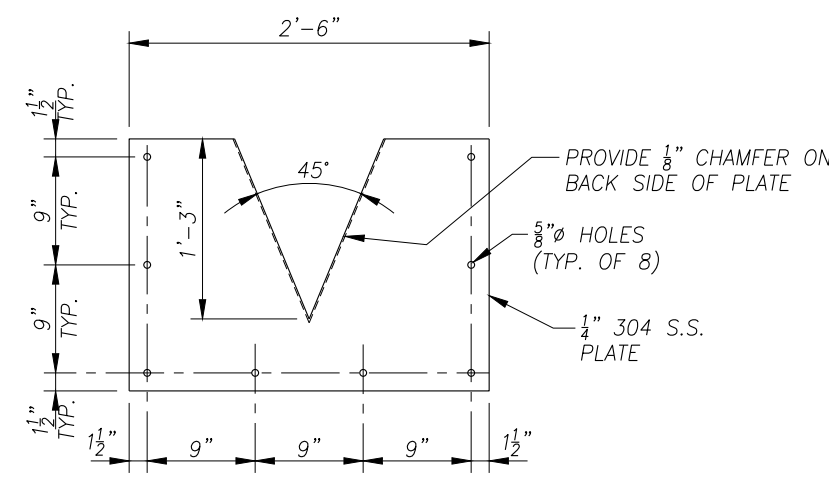




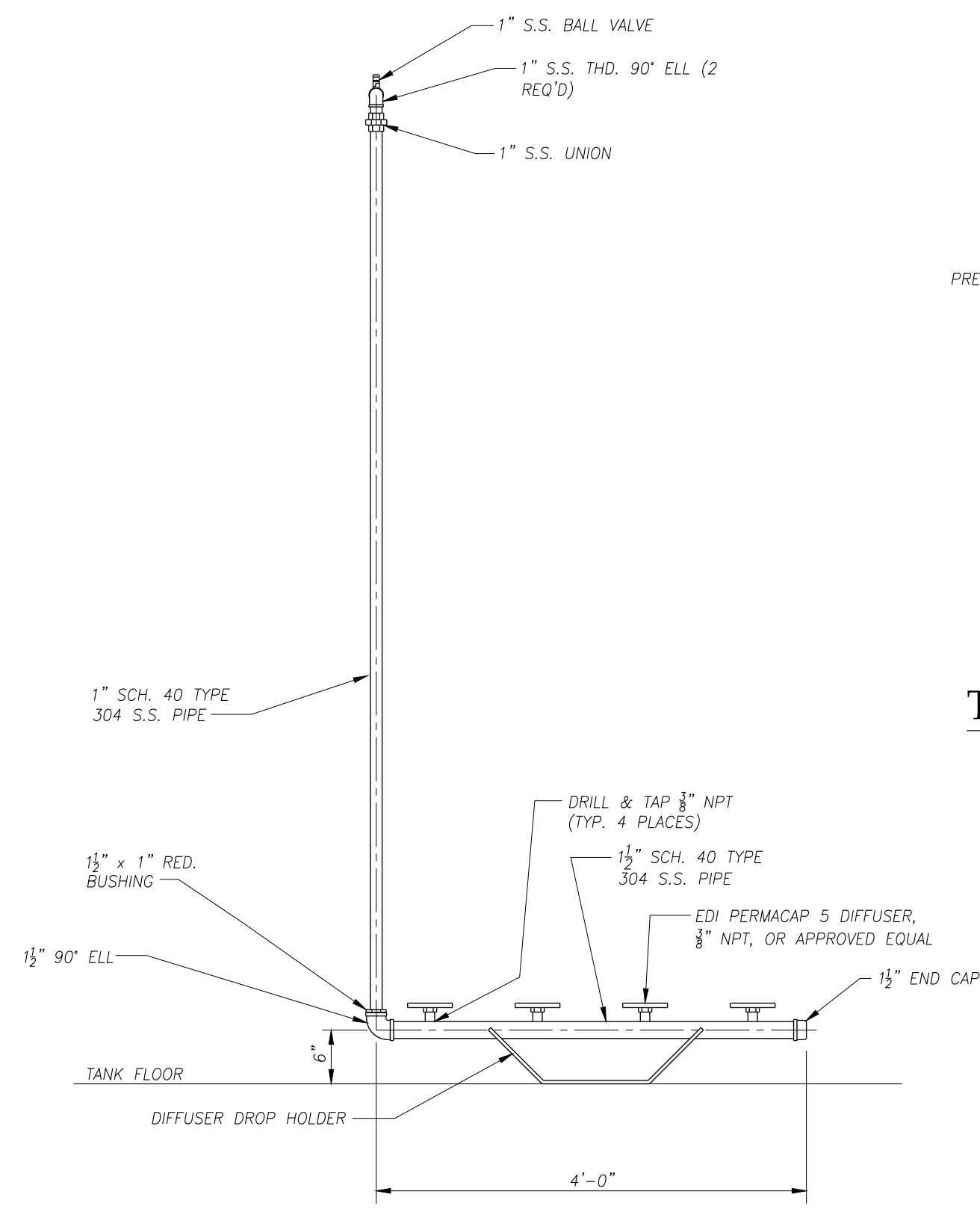
SECTION D
SCALE: 3/8" = 1'-0"



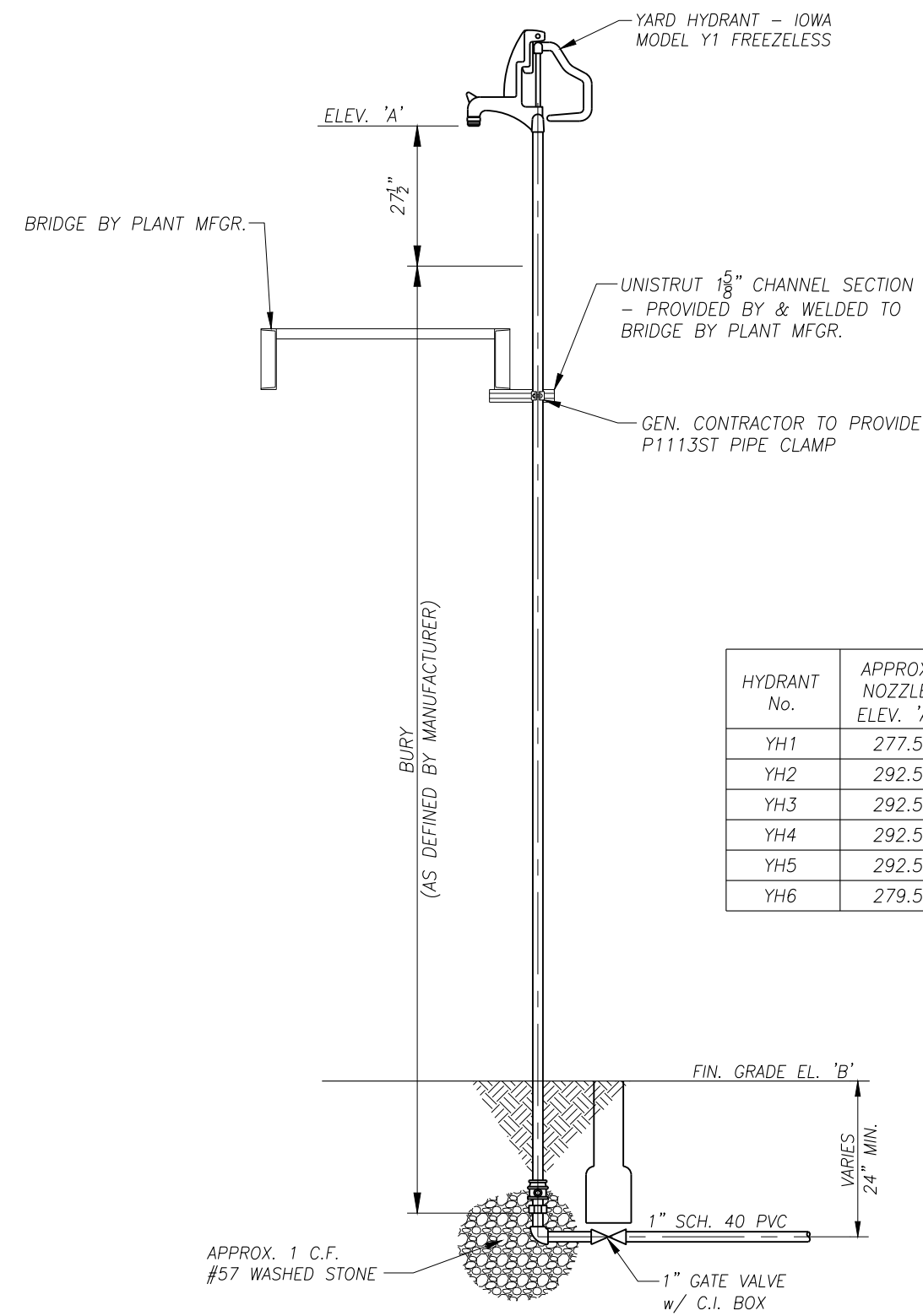
SECTION E
SCALE: 3/8" = 1'-0"



OUTLET WEIR PLATE
SCALE: 3/8" = 1'-0"

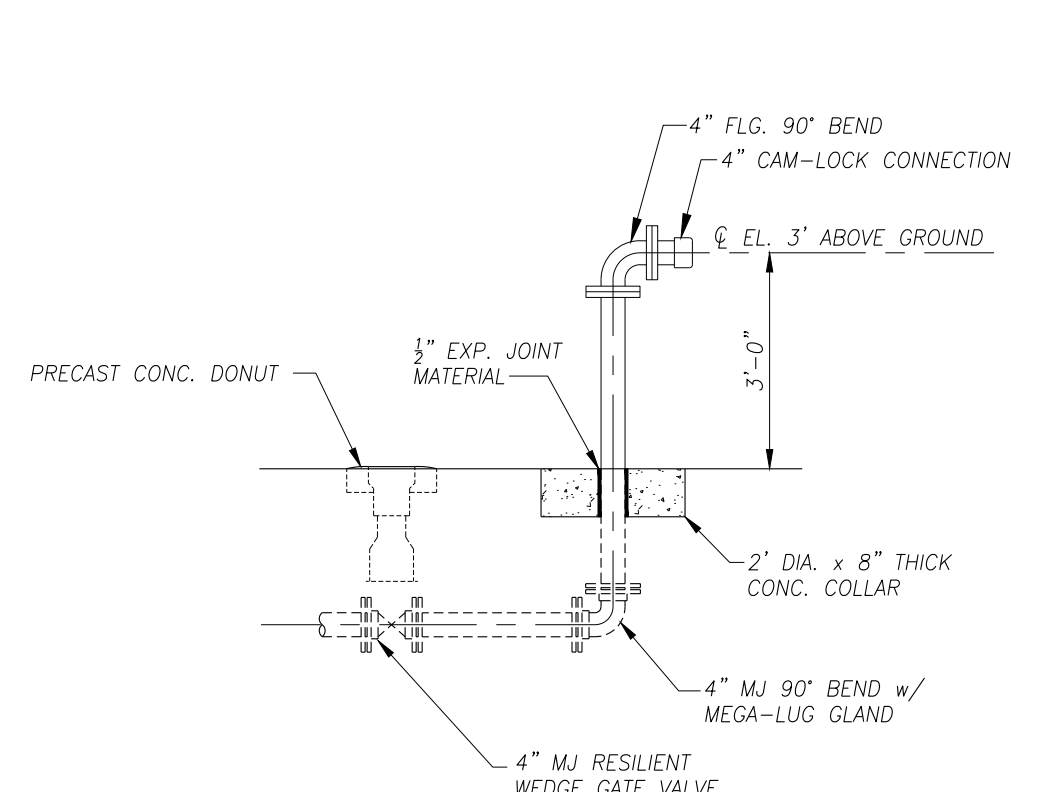


MIXING DIFFUSER DETAIL
SCALE: 3/8" = 1'-0"

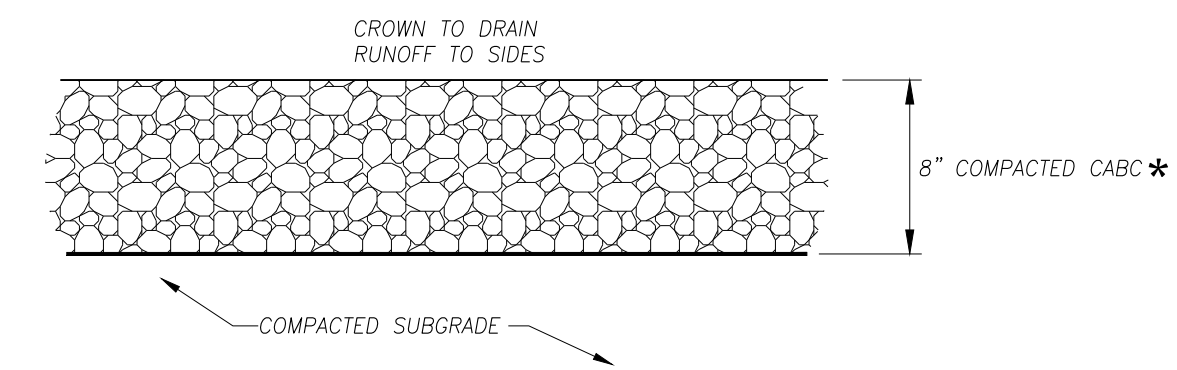


YARD HYDRANT DETAIL
NO SCALE

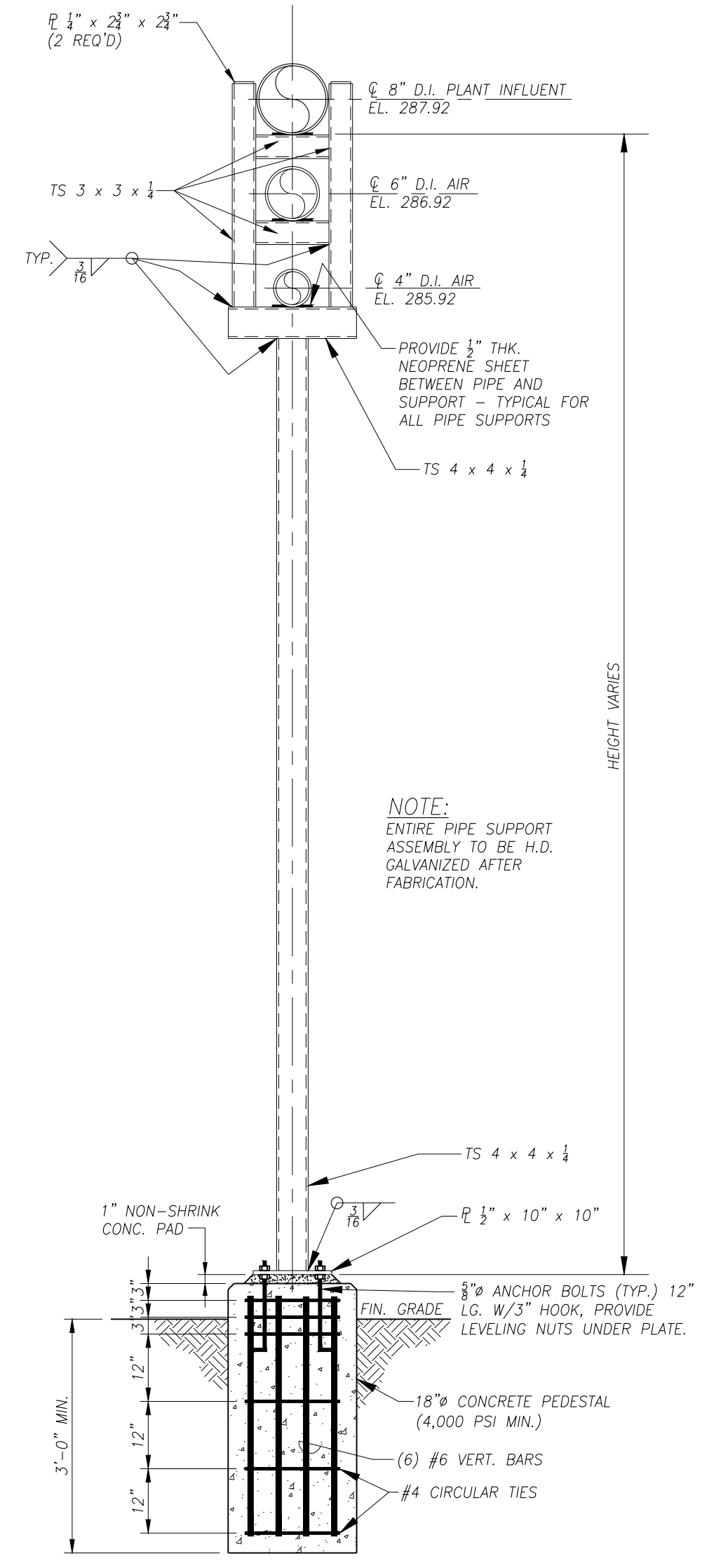
HYDRANT No.	APPROX. NOZZLE ELEV. 'A'	APPROX. FIN. GRADE ELEV. 'B'
YH1	277.5	275.25
YH2	292.5	274.9
YH3	292.5	275.0
YH4	292.5	275.25
YH5	292.5	275.25
YH6	279.5	276.5



SLUDGE PUMP OUT AND TANK DRAIN CONNECTION DETAIL
NO SCALE

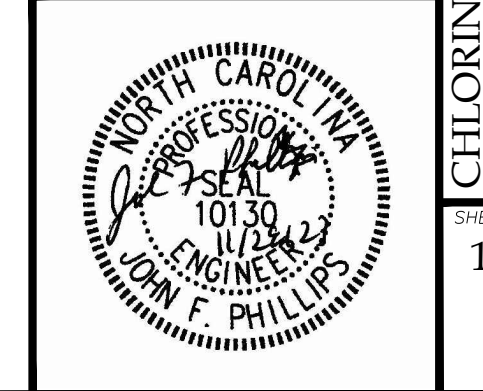


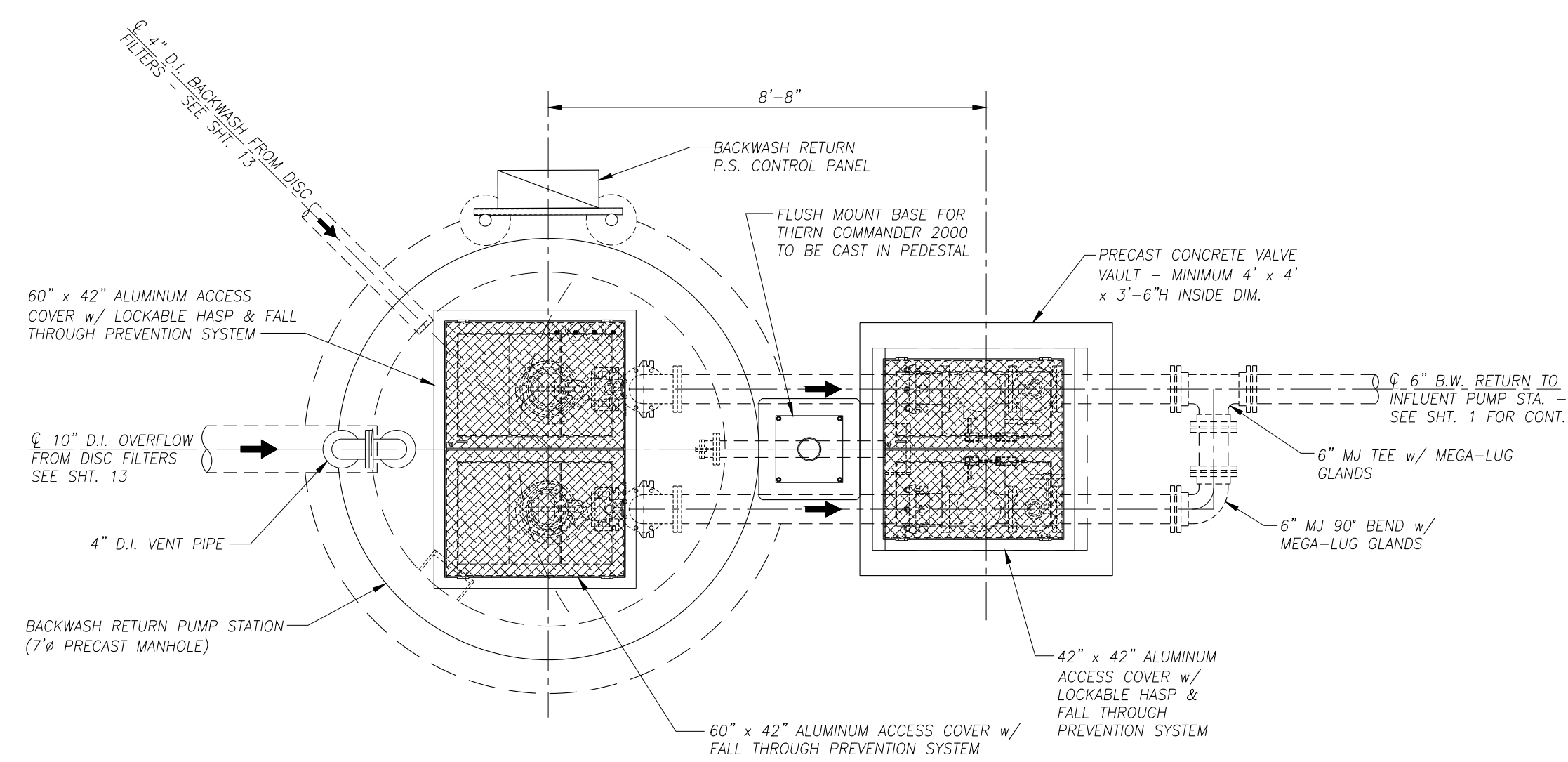
GRAVEL DRIVEWAY DETAIL
*TO BE CONFIRMED IN FIELD BY GEOTECHNICAL ENGINEER.
NO SCALE



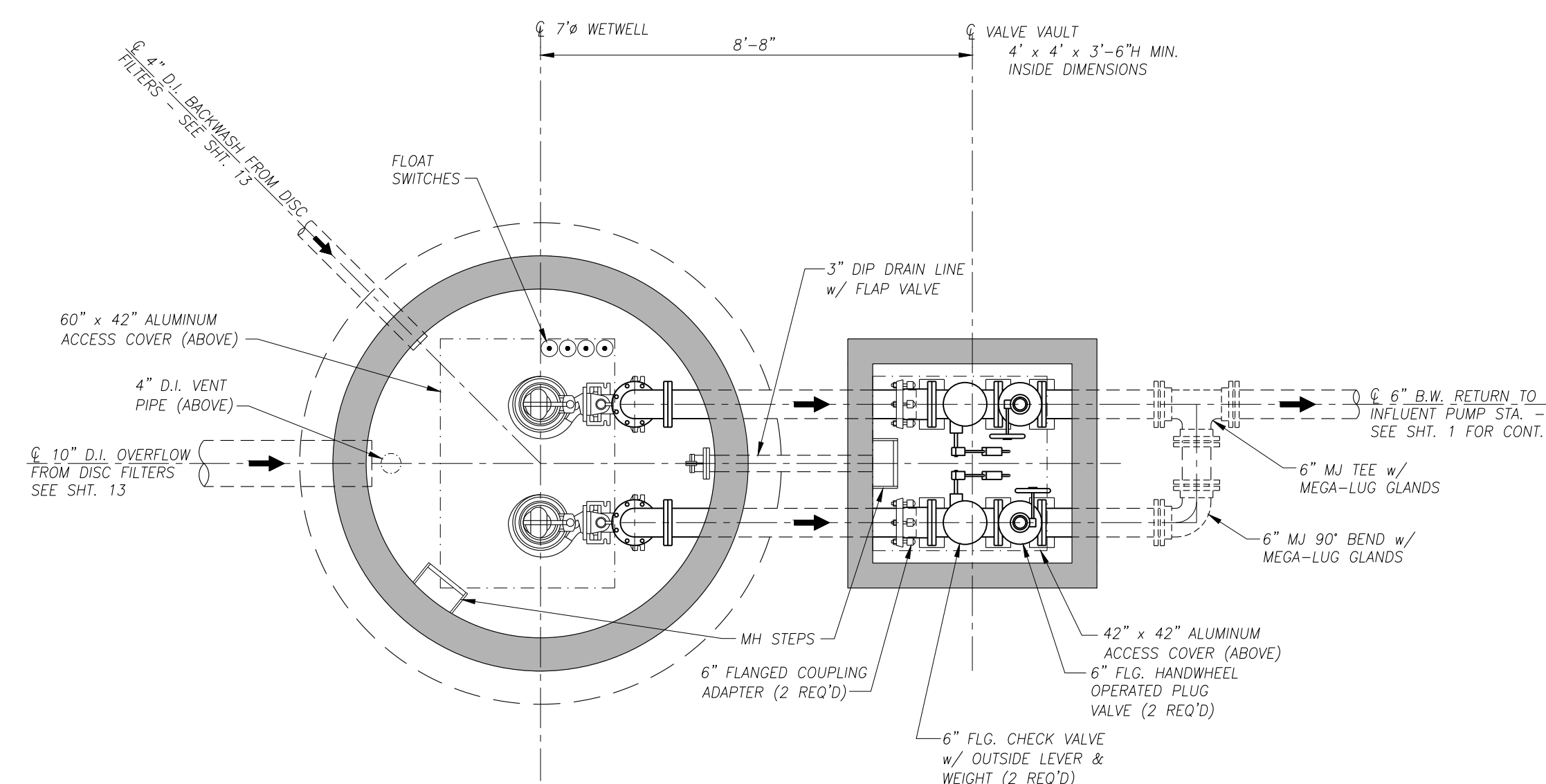
AERIAL PIPE SUPPORT DETAIL
NO SCALE

FINAL DESIGN
NOT RELEASED
FOR
CONSTRUCTION

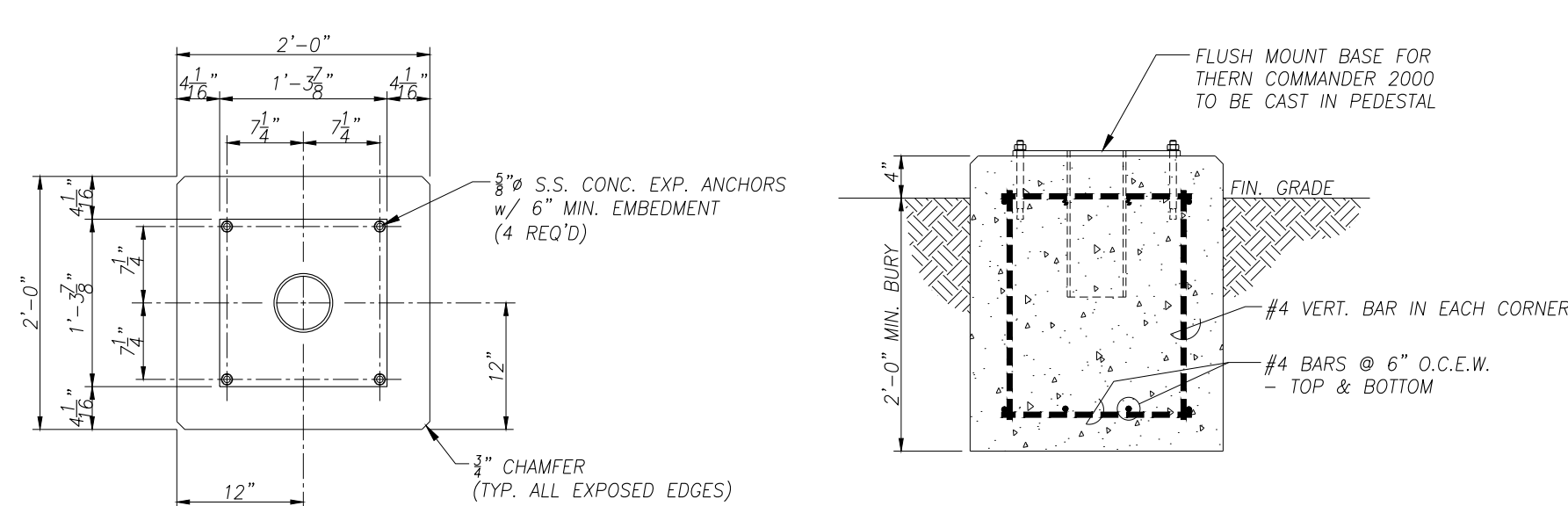




TOP PLAN
SCALE: 3/8" = 1'-0"

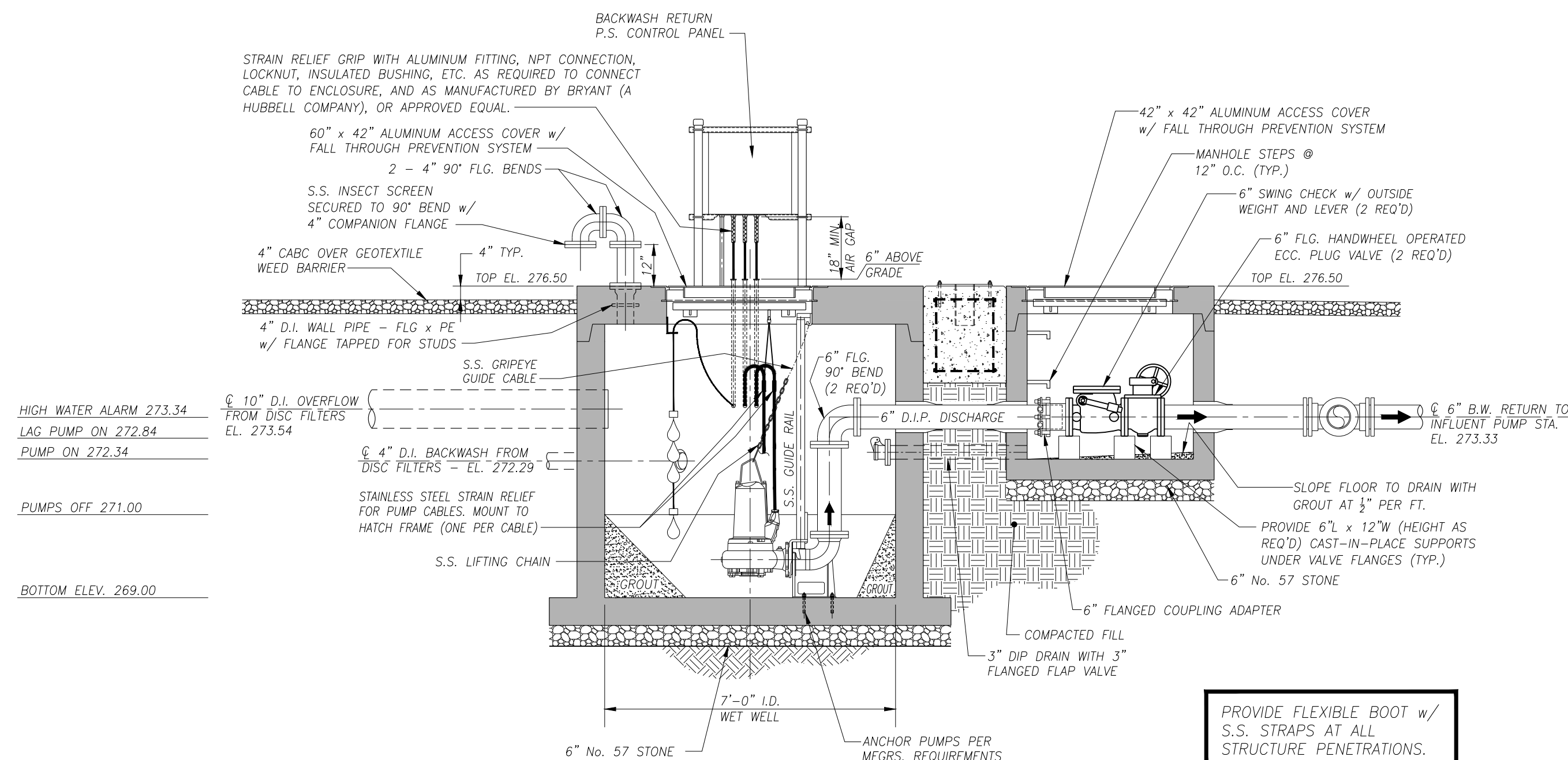


SECTIONAL PLAN
SCALE: 3/8" = 1'-0"

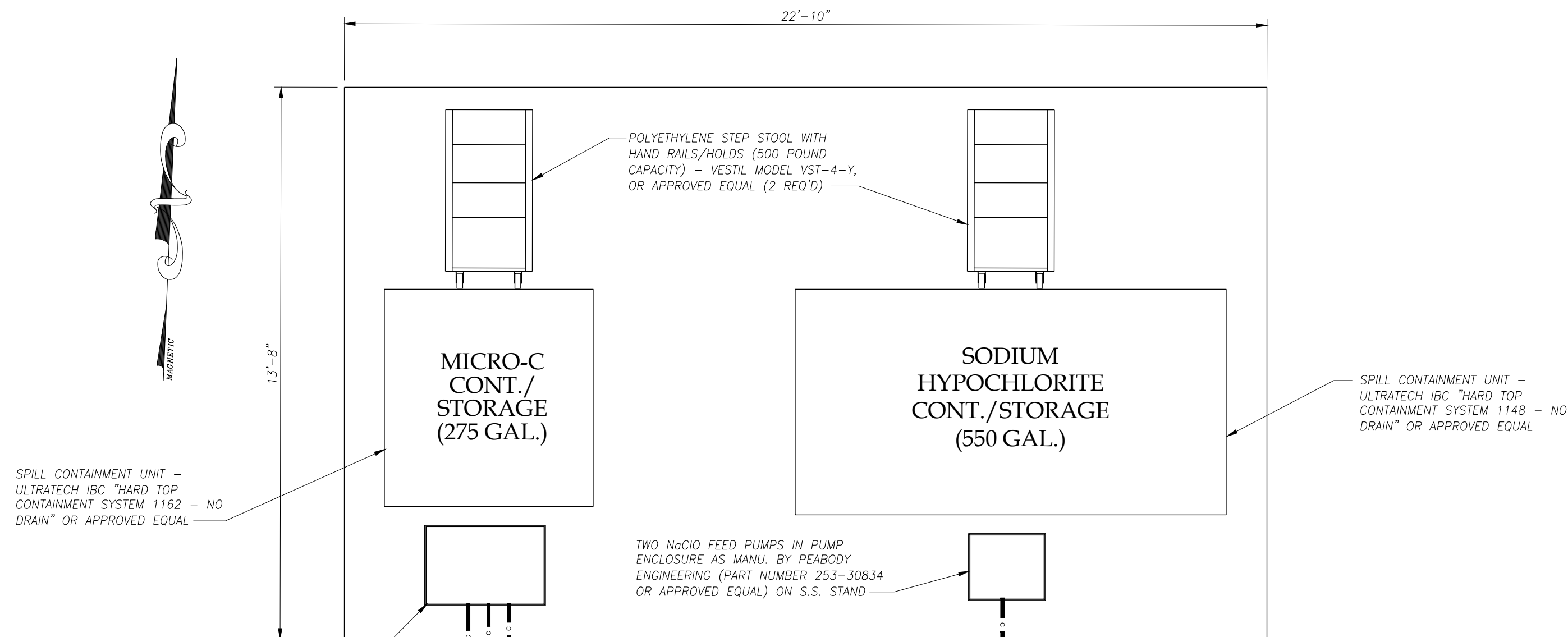


PORTABLE HOIST SOCKET FOOTING DETAIL
SCALE: 3/4" = 1'-0"

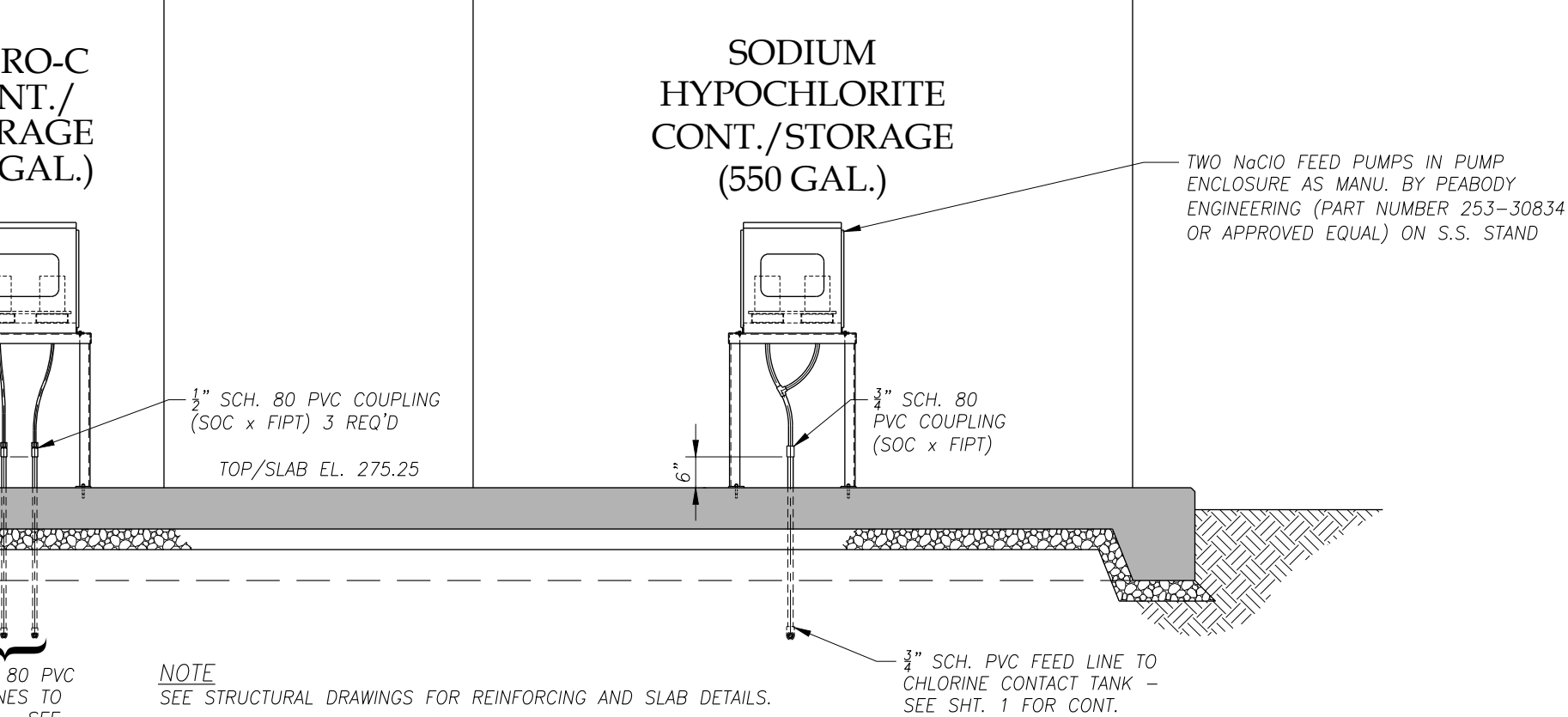
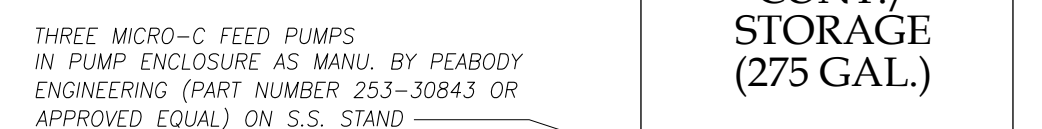
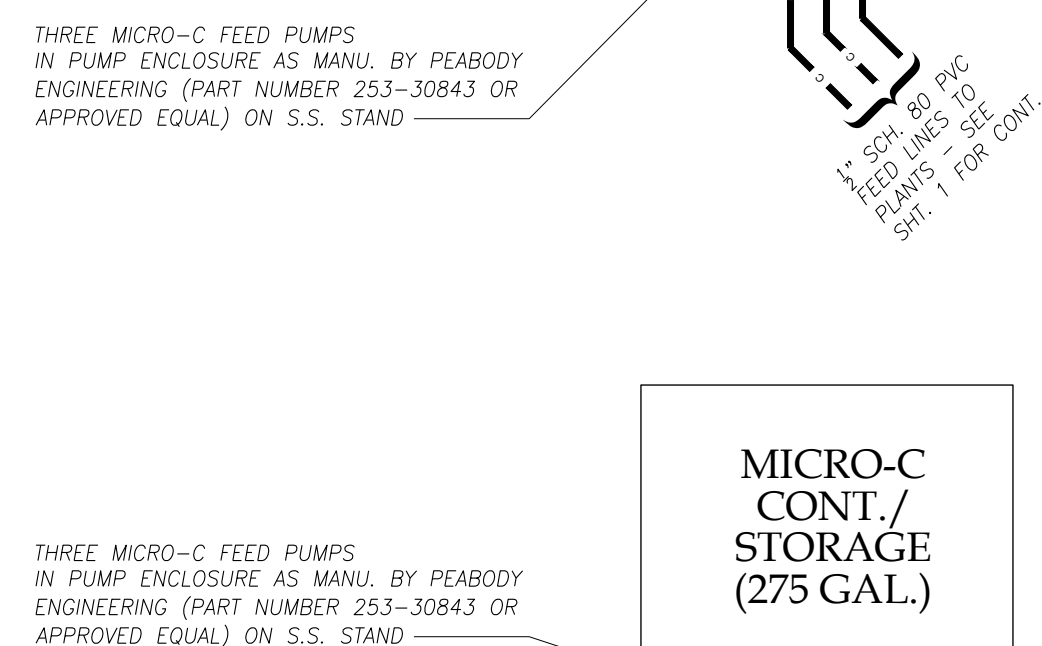
- NOTES**
1. PROVIDE ONE THERN COMMANDER HOIST & WINCH FOR PUMP STATION.
 2. PROVIDE PLUG FOR HOIST SOCKET WHEN HOIST IS OUT OF SERVICE.



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

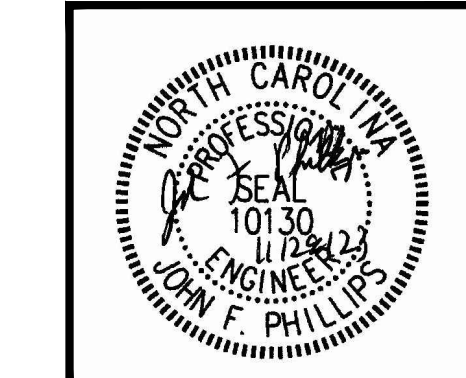


PLAN



SECTION
CHEMICAL FEED SYSTEMS DETAIL
SCALE: 3/8" = 1'-0"

FINAL DESIGN
NOT RELEASED
FOR
CONSTRUCTION



DESIGN: JFP
DRAWN: JLB
CHECKED: JFP
SCALE: AS SHOWN
FILE: CONSERV-PSR1

REVISIONS:

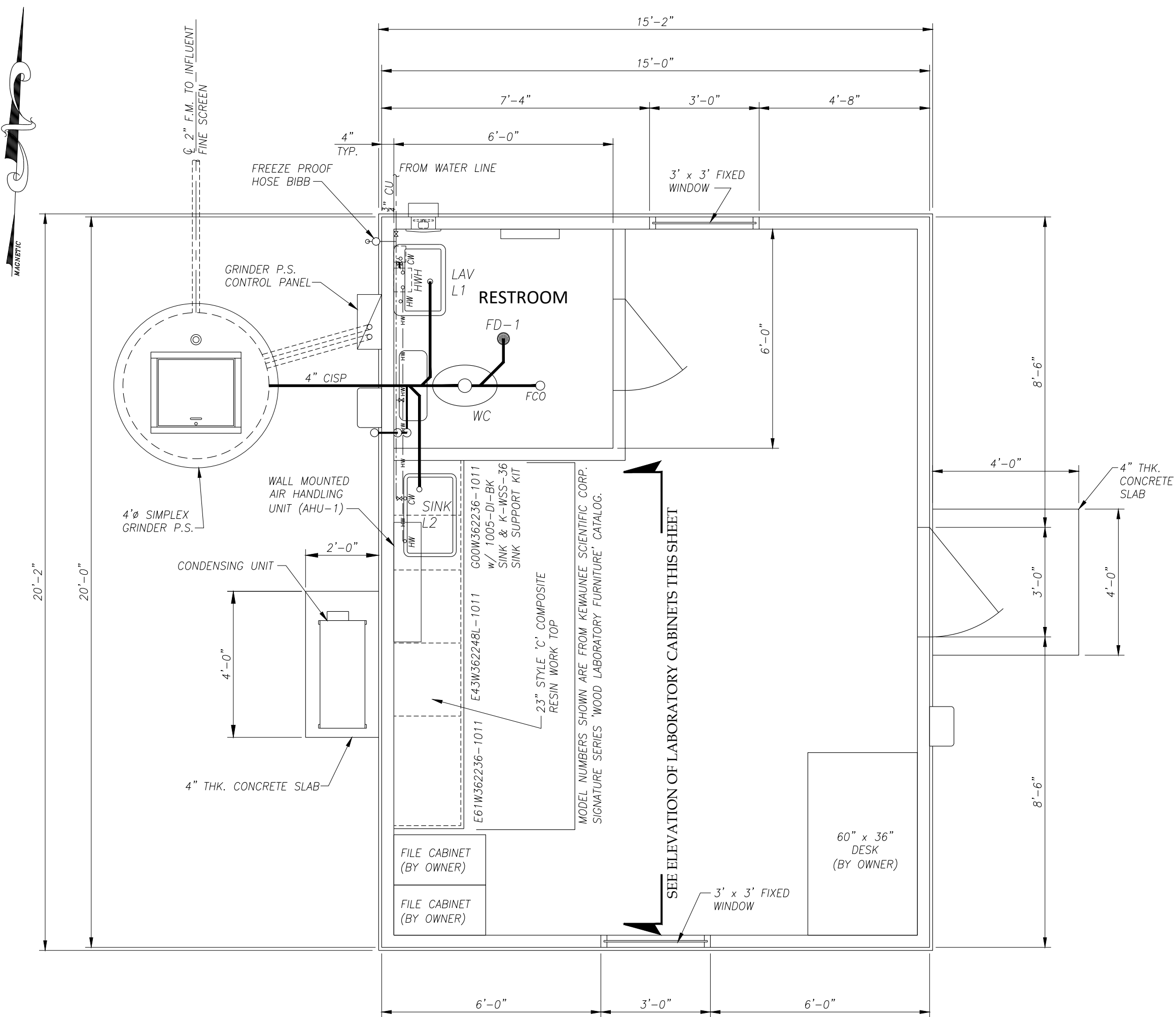
DIEHL & PHILLIPS, P.A.
CONSULTING ENGINEERS - LIC. NO. C-4045
1500 PINEY PLAINS RD., SUITE 200
CARY, N.C. 27518 • (919) 467-9972

D&P

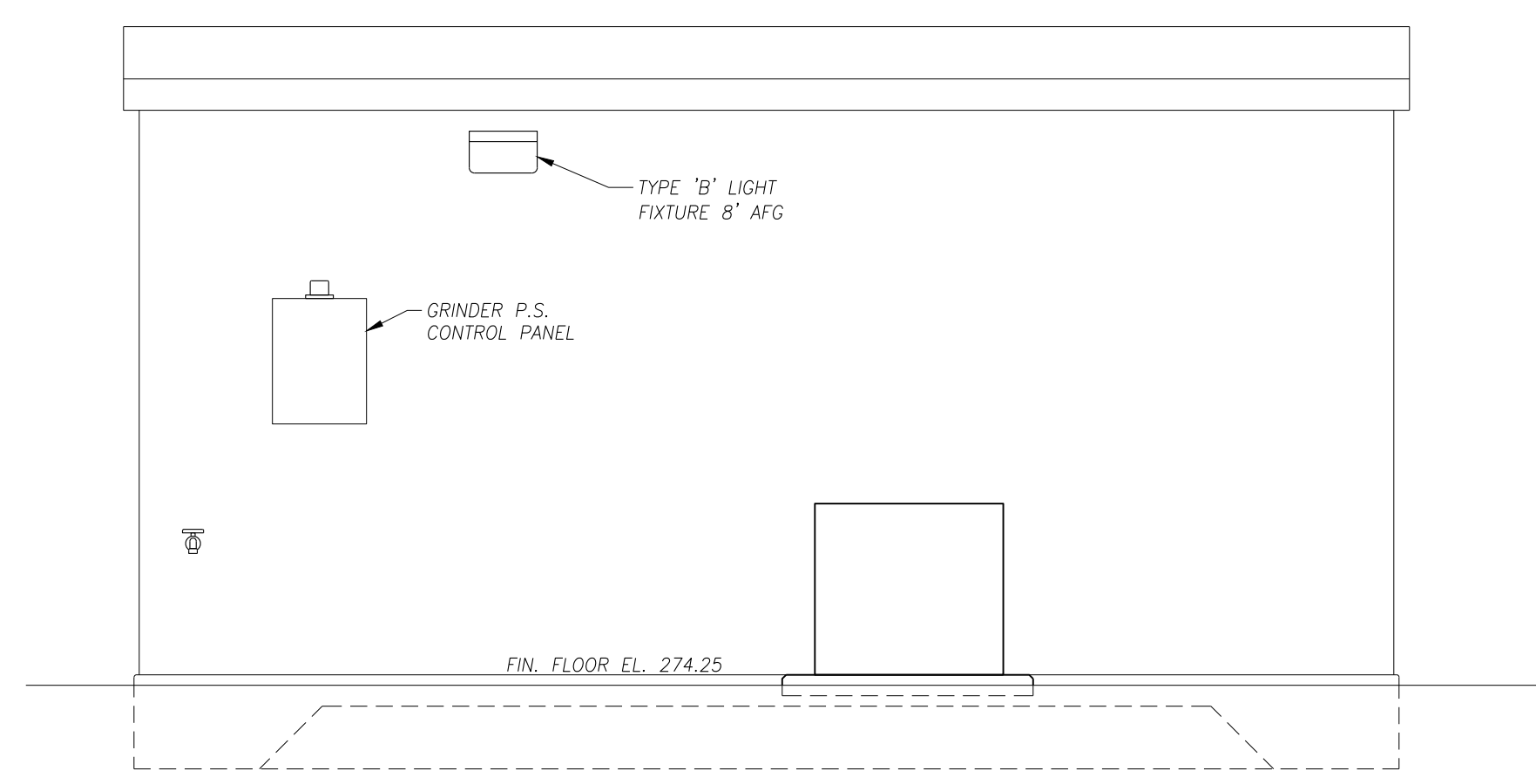
THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

BACKWASH RETURN PUMP
STATION - PLAN, SECTIONAL PLAN,
AND SECTION AND CHEMICAL
FEED SYSTEMS DETAIL

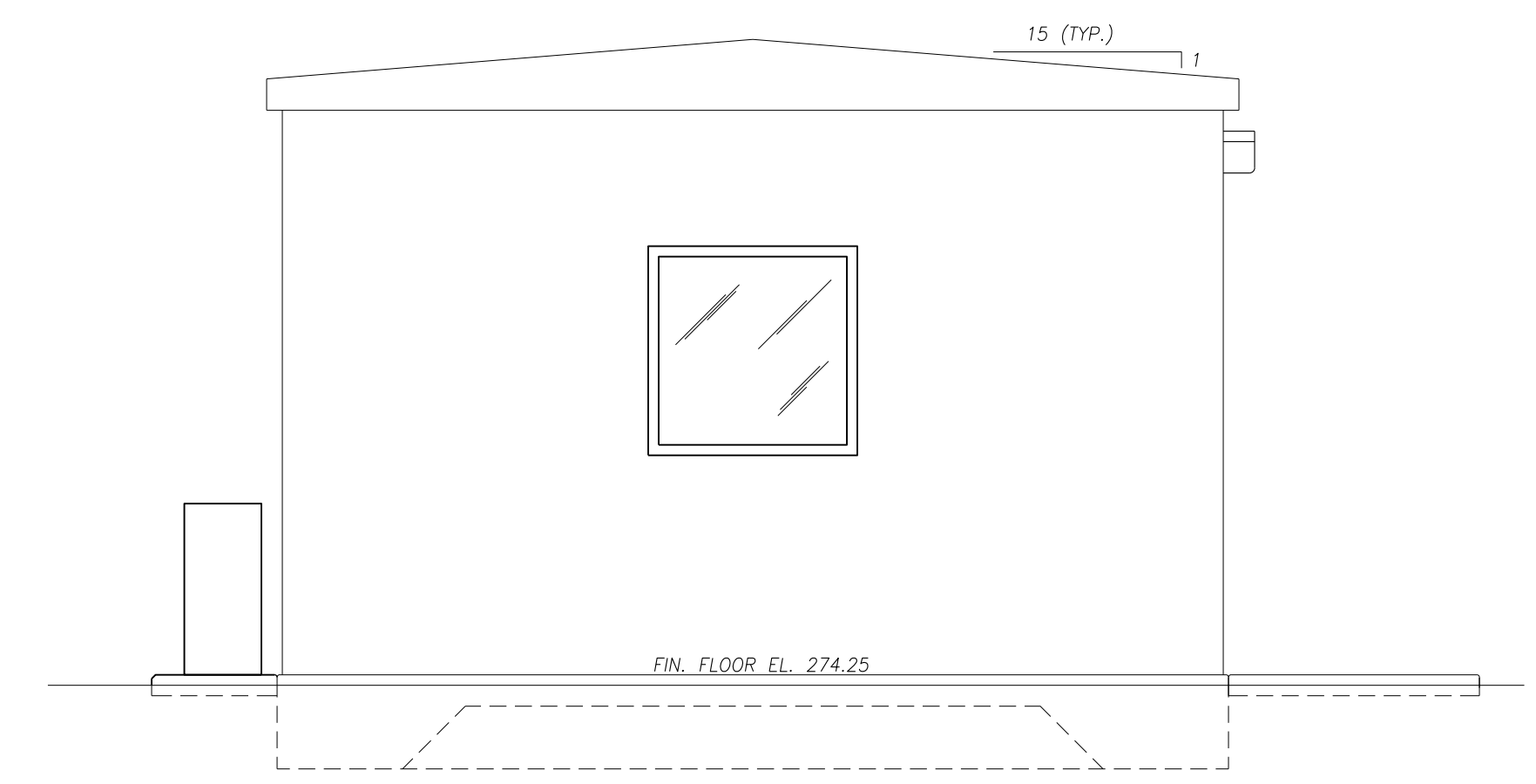
SHEET: 15 OF 33



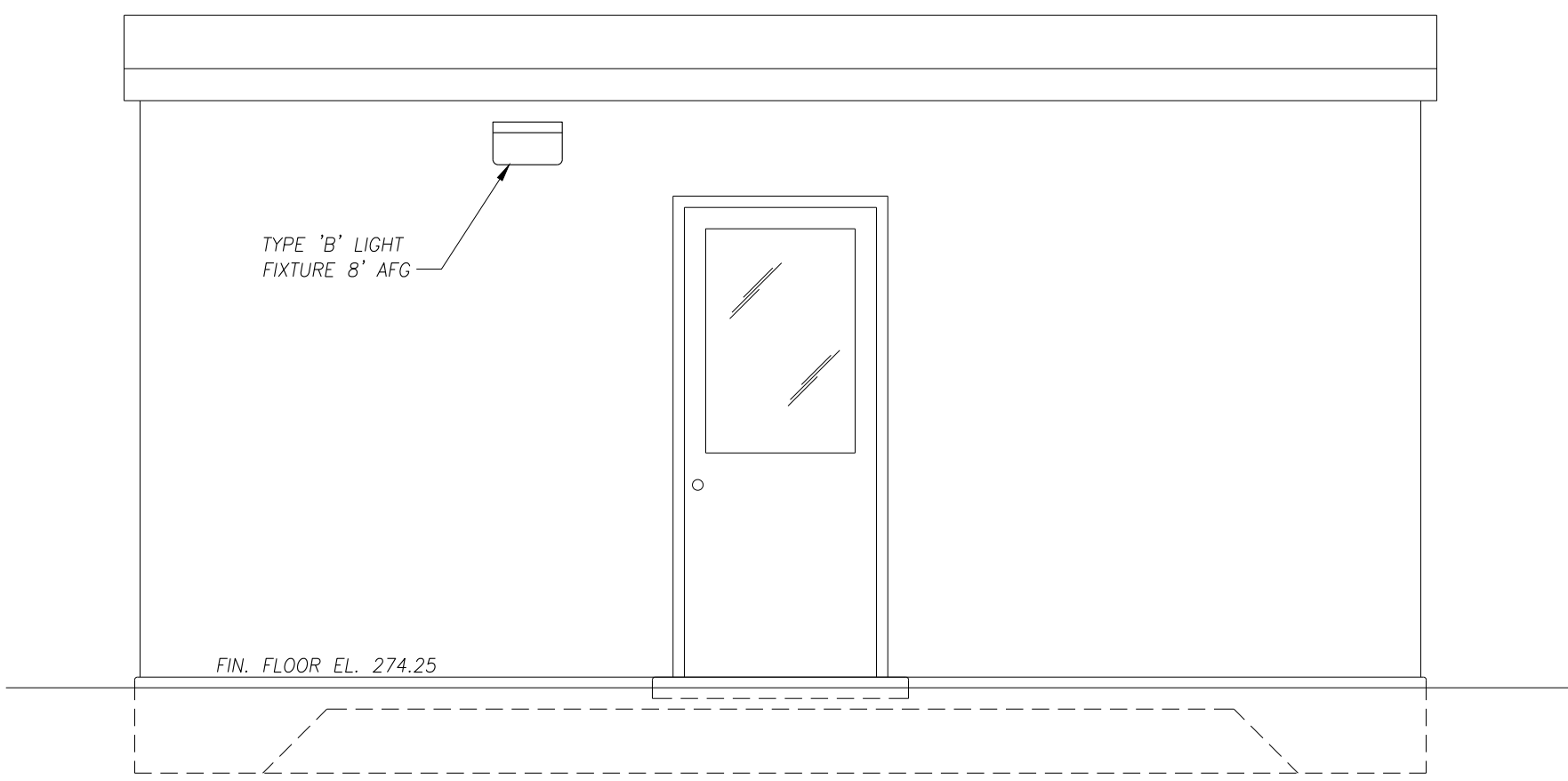
LAB BUILDING - PLAN VIEW
SCALE: 3/8" = 1'-0"



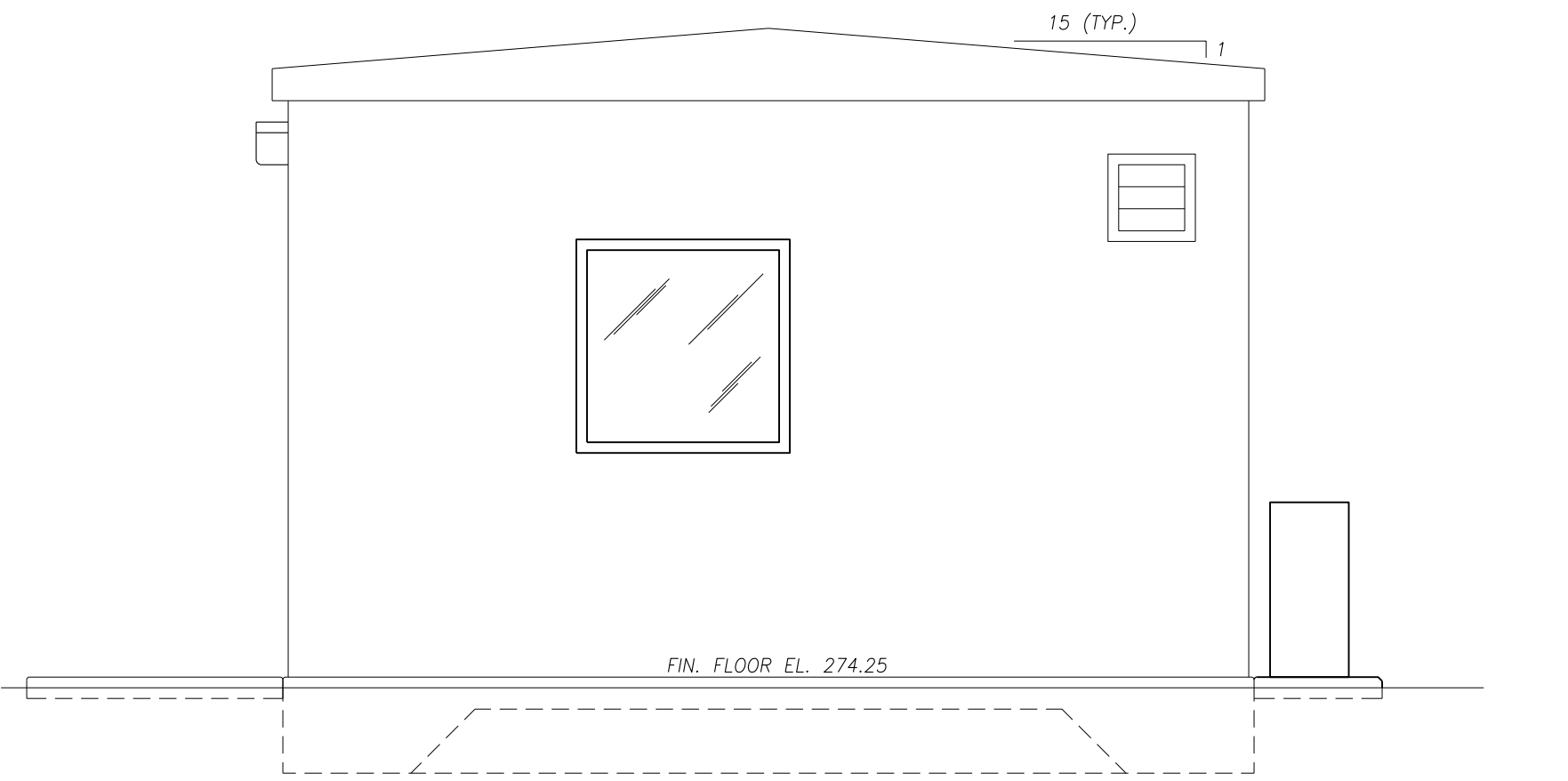
WEST ELEVATION
SCALE: 3/8" = 1'-0"



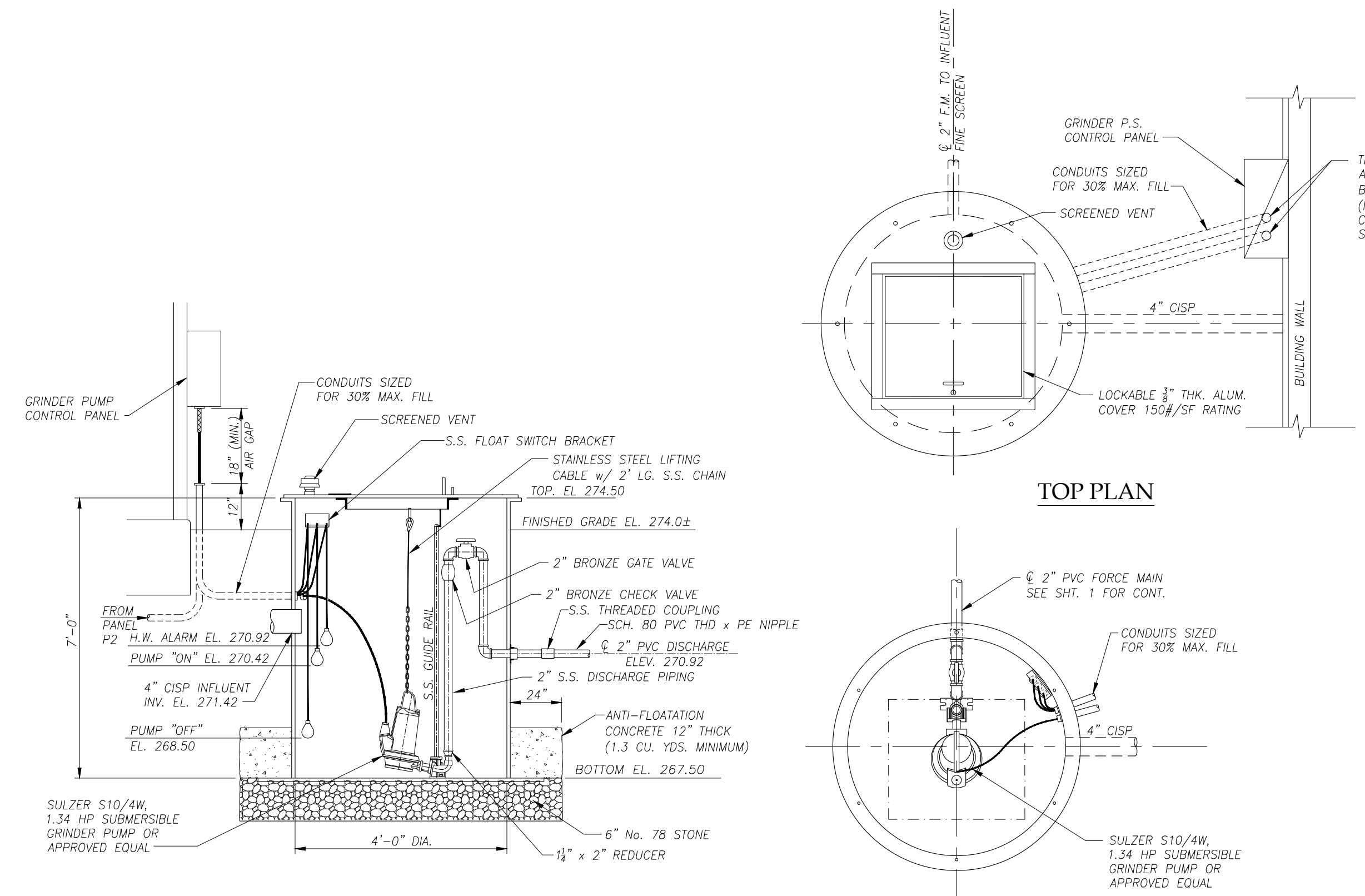
SOUTH ELEVATION
SCALE: 3/8" = 1'-0"



EAST ELEVATION
SCALE: 3/8" = 1'-0"

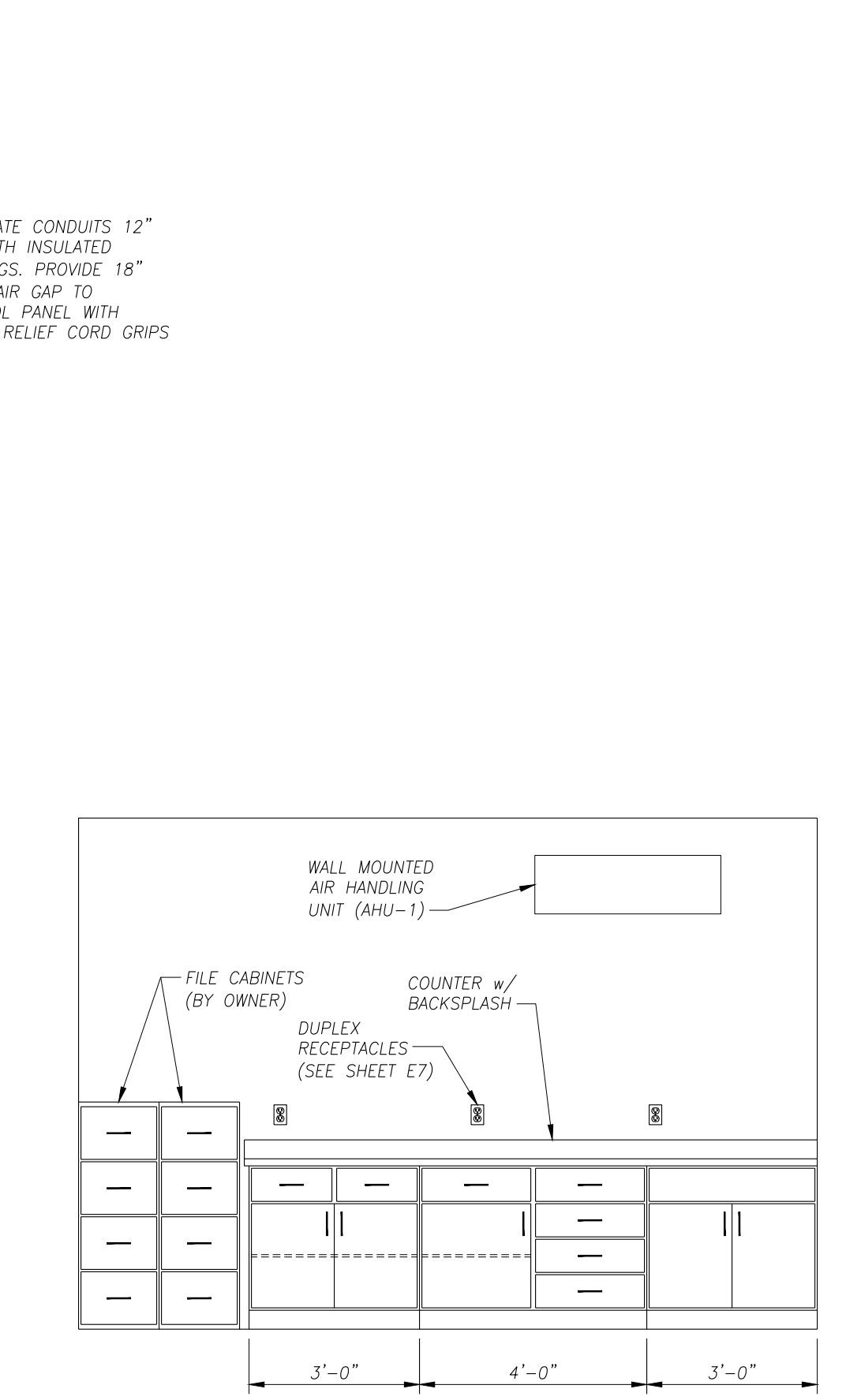


NORTH ELEVATION
SCALE: 3/8" = 1'-0"

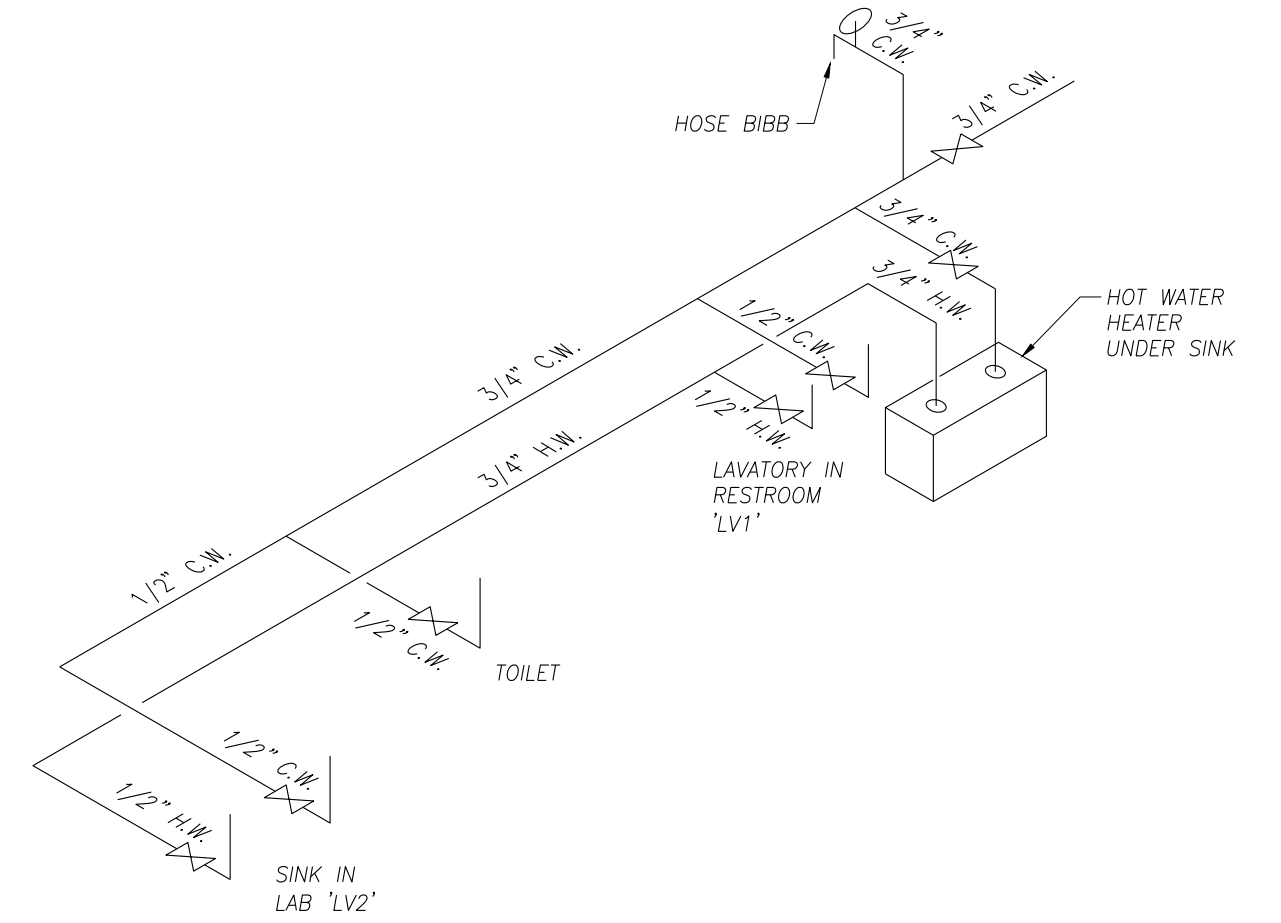


NOTES:
1. SOME ITEMS SHOWN ROTATED IN SECTION FOR CLARITY.
2. NO JUNCTION BOXES OR SPLICES PERMITTED IN WETWELL.

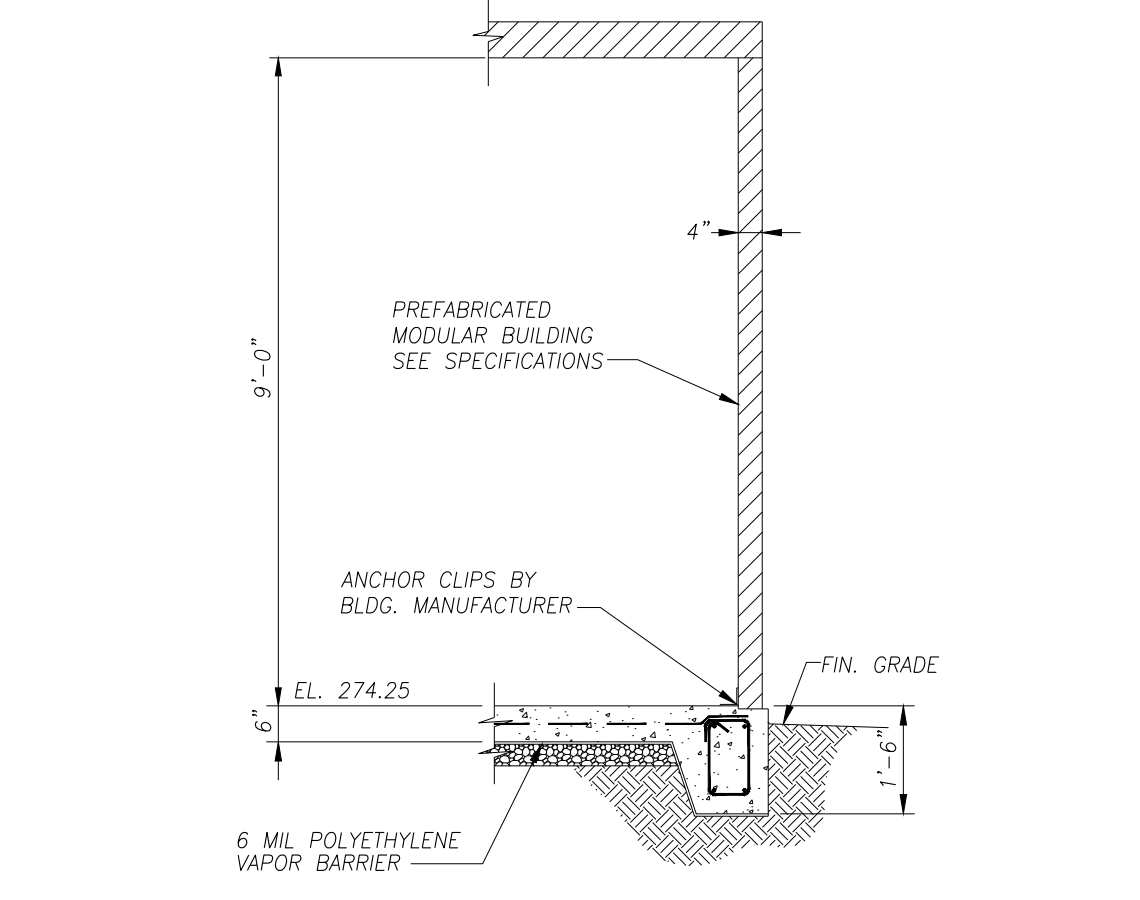
SIMPLEX GRINDER PUMP STATION
NO SCALE



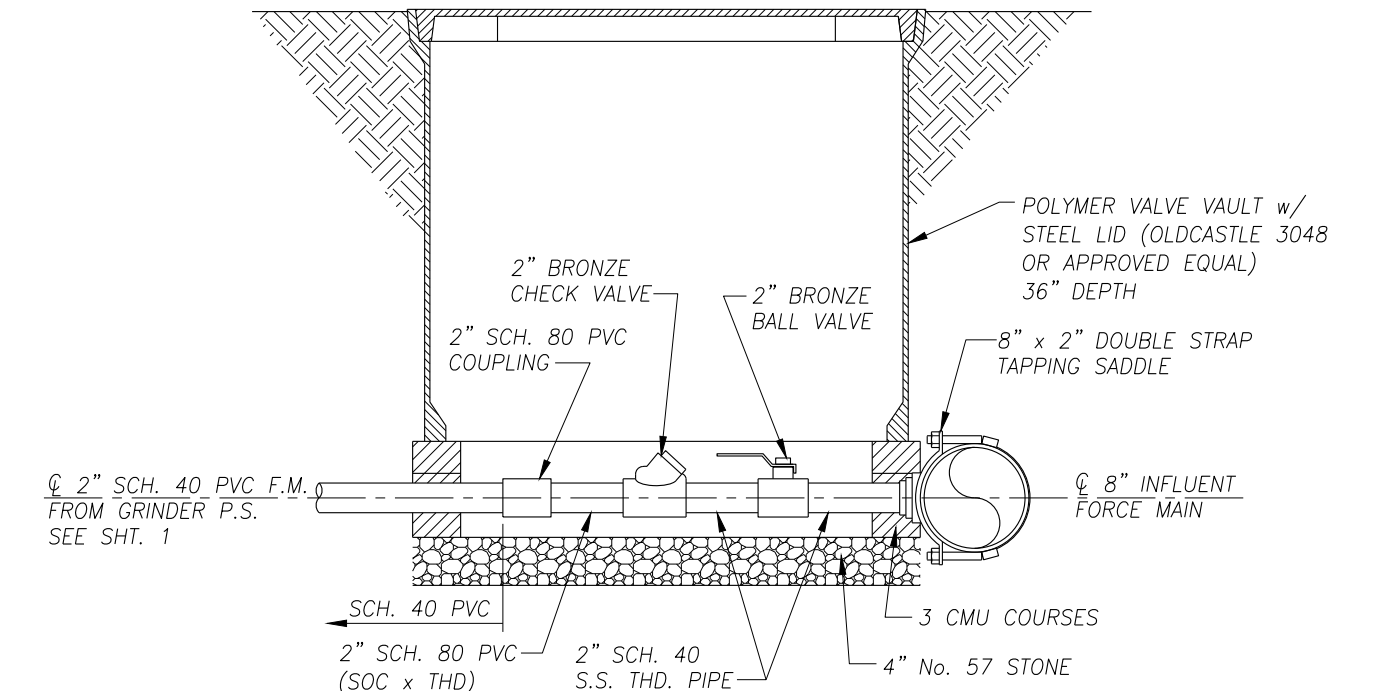
ELEVATION OF LABORATORY CABINETS
NO SCALE



WATER - PLUMBING RISER DIAGRAM
NO SCALE

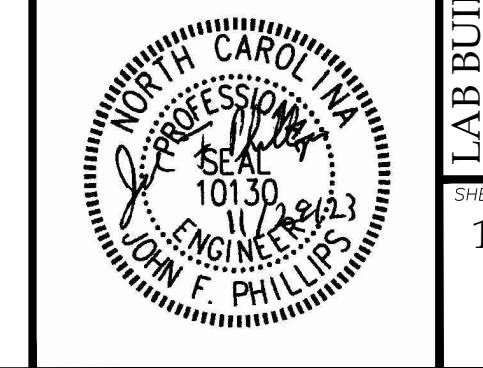


TYPICAL WALL SECTION
SCALE: 3/8" = 1'-0"



GRINDER P.S. FORCE MAIN CONNECTION DETAIL
NO SCALE

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CONSTRUCTION**



DESIGN: JFP
DRAWN: JLEB
CHECKED: JFP
SCALE: 3/8" = 1'-0"
FILE: CONSERV-PSR1

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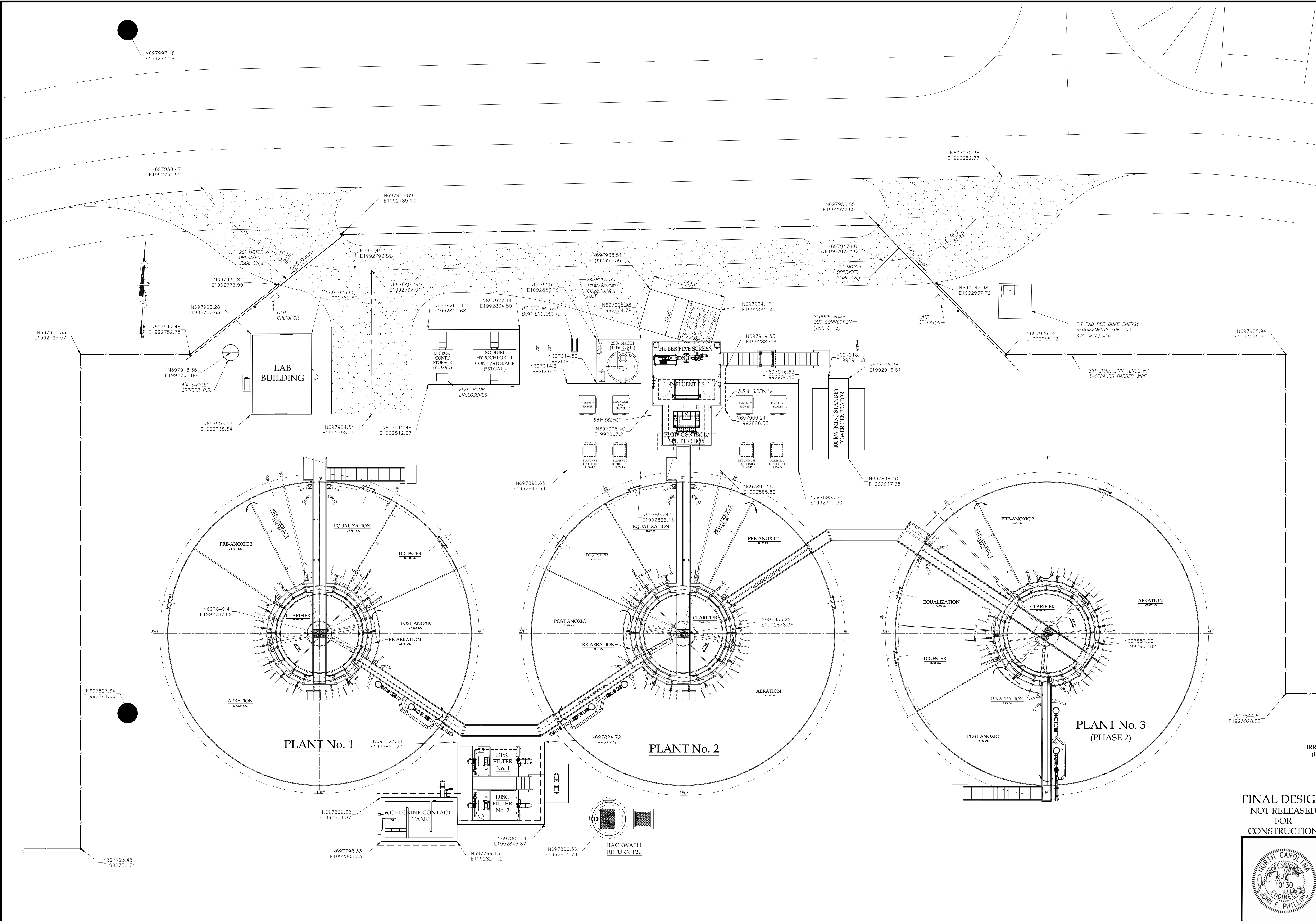
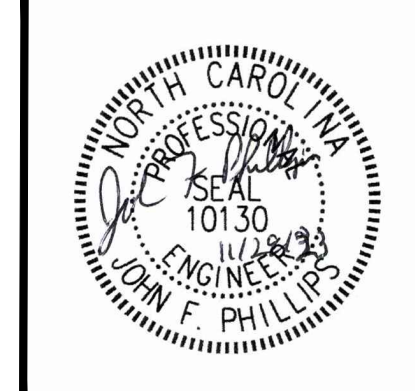
D&P

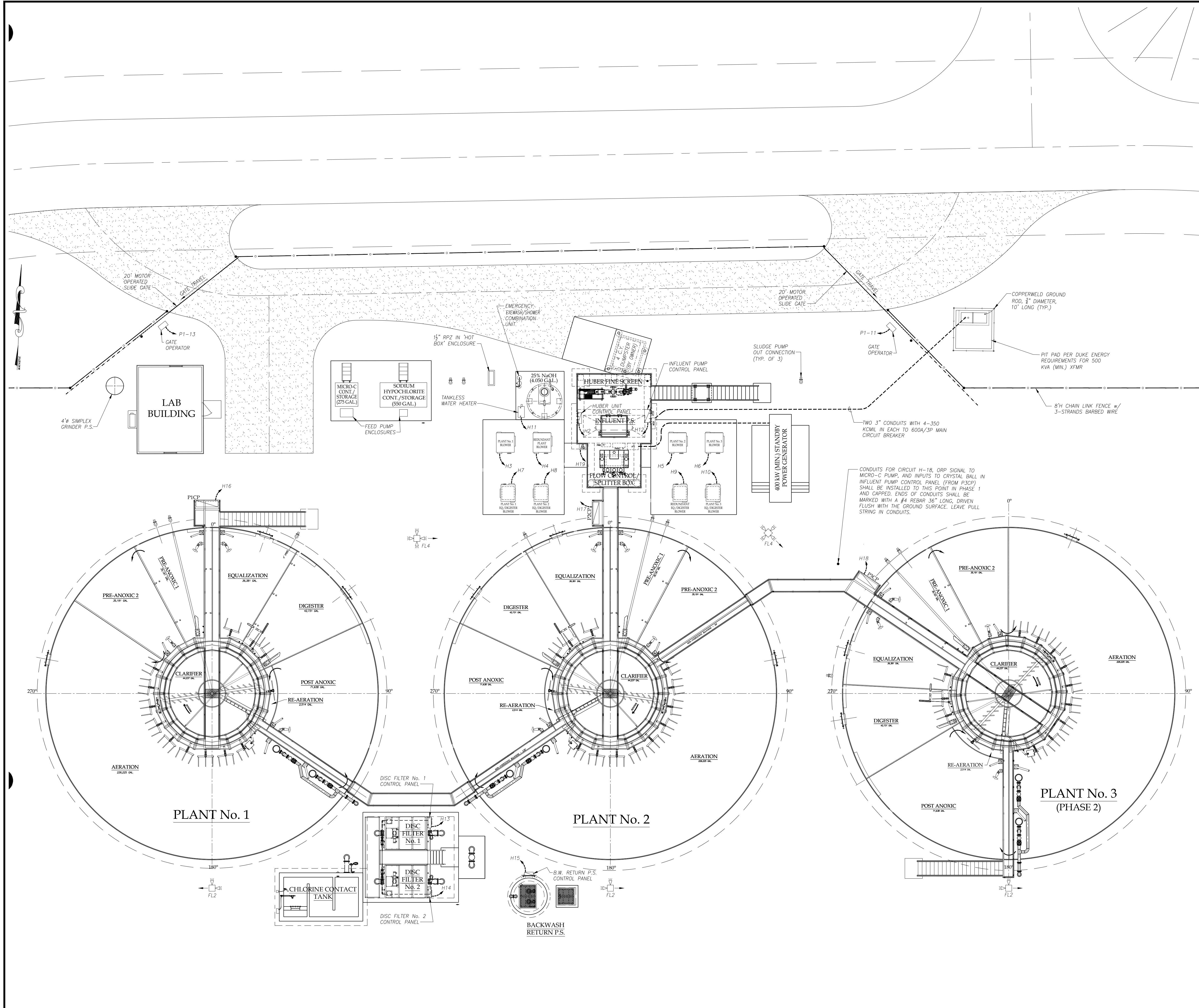
THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

LAB BUILDING - PLAN, ELEVATIONS,
AND TYPICAL WALL SECTION

SHEET 16 OF 33

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 FOR
 CONSTRUCTION





LEGEND

⊕	DUPLEX RECEPTACLE
⊕ _{WP}	DUPLEX RECEPTACLE IN WEATHERPROOF WHILE-IN-USE BOX
⊕ _{GF}	GROUND FAULT TYPE RECEPTACLE
⊕ _{70/30}	CIRCUIT BREAKER, NUMERALS INDICATE AMPS/POLES
⊕ _J	JUNCTION, CAST METAL WITH GASKETED COVER AND THREADED CONDUIT HUBS
⊕ _{XJ}	EXPLOSION PROOF JUNCTION, CAST METAL WITH GASKETED COVER AND THREADED CONDUIT HUBS
⊕ _H	CAST ALUMINUM NEMA 4 HEAT TRACE SPLICE BOX
⊕ _{XH}	EXPLOSION PROOF CAST ALUMINUM NEMA 4 HEAT TRACE SPLICE BOX
⊕ _M	MANUAL MOTOR STARTER WITH PILOT LIGHT
⊕ _S	SINGLE POLE LIGHT SWITCH
⊕ _{S_{WP}}	WEATHERPROOF SINGLE POLE LIGHT SWITCH
⊕ _{S₃}	3 WAY SINGLE POLE LIGHT SWITCH
⊕ _{X_{S₃}}	EXPLOSION PROOF 3 WAY SINGLE POLE LIGHT SWITCH
⊕ _S	SAFETY DISCONNECT SWITCH, NUMERALS INDICATE AMPERE RATING/POLES/FUSE RATING OR NF IF NON-FUSIBLE
⊕ ₅	MOTOR, HORSEPOWER INDICATED
⊕ _{60/3/40}	COPPERWELD GROUND ROD, 3/4" DIAMETER, 10' LONG
⊕ _S	CONNECTION TO GROUNDING ELECTRODE
⊕ _C	AWG # 2/0 COPPER GROUND WIRE 30" BELOW GRADE
⊕ _{FP}	PORTABLE CABLE FURNISHED TERMINATED TO PUMP OR CONTROL DEVICE
⊕ ₋₋₋	WIRE IN CONDUIT, EXPOSED UNLESS OTHERWISE INDICATED
⊕ ₋₋₋	WIRE IN CONDUIT, BELOW GRADE, OR EMBEDDED IN CONCRETE STRUCTURE
⊕ ₋₋₋	EXPLOSION PROOF CONDUIT SEAL FITTING
⊕ _{P1}	HOME RUN TO PANEL
⊕ _{WP}	CIRCUIT BREAKER PANELBOARD
⊕ _{AIC}	WATERPROOF
⊕ _{AFF}	RMS AMPERES INTERRUPTING RATING
⊕ _{AFG}	ABOVE FINISHED FLOOR
⊕ _{TSP}	ABOVE FINISHED GRADE
⊕ _{HDBC}	TWISTED, SHIELDED PAIR AWG #16 INSTRUMENTATION CABLE
⊕ _{ATS}	HARD DRAWN BARE COPPER
⊕ _{NEU}	AUTOMATIC TRANSFER SWITCH
⊕ _{GND}	NEUTRAL
⊕ ₋₋₋	GROUND
⊕ ₋₋₋	SOLENOID VALVE
⊕ ₋₋₋	MOTOR ACTUATED VALVE
⊕ ₋₋₋	LIMIT SWITCH
⊕ ₋₋₋	FLOW TRANSMITTER
⊕ ₋₋₋	FLOAT SWITCH
⊕ ₋₋₋	LEVEL TRANSDUCER
⊕ ₋₋₋	CONTROL PANEL SUPPLIED BY EQUIPMENT MANUFACTURER - SEE NOTE 2
⊕ ₋₋₋	TWO FLOODLIGHTS ON HINGED POLE
⊕ ₋₋₋	FOUR FLOODLIGHTS ON HINGED POLE, ARROW DENOTES THE DIRECTION THE UPPER HALF OF THE HINGED POLE ROTATES TO LOWER THE FIXTURE
⊕ ₋₋₋	WALL MOUNTED LUMINAIRE

- NOTES:**
1. Electrical equipment, materials, and installation shall be in accordance with the latest edition of the National Electrical Code. (NEC)
 2. External wiring to control panels is shown as typical. Final wiring as required by the control panel shop drawings shall be furnished and installed.
 3. Equipment grounding shall be continuous and secure throughout the project implemented by a green TW insulated copper conductor installed in each conduit.
 4. Wire shall be THWN insulated stranded copper.
 5. Conduit shall be PVC below grade, and rigid aluminum conduit for all exposed exterior locations. Use PVC conduit where embedded in concrete. Use PVC coated rigid conduit where transitioning out of the ground or out of concrete embedment.
 6. Device boxes shall be cast and gasketed, with threaded conduit hubs and weatherproof covers.

DESIGN: JFP
 DRAWN: JLB
 CHECKED: JFP
 SCALE: 1" = 10'
 FILE: CONSERV-SPR1

REVISIONS:

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THE CONSERVANCY AT JORDAN LAKE
 WASTEWATER TREATMENT PLANT
 CHATHAM COUNTY, NORTH CAROLINA

ELECTRICAL SITE PLAN

FINAL DESIGN
 NOT RELEASED
 FOR
 CONSTRUCTION

10/30/2013
 JOHN F. PHILLIPS
 PROFESSIONAL ENGINEER

SHEET: ET
 OF: 33

VFD CABLES

VFD Cable 1 - Belden Cat. No. 29502

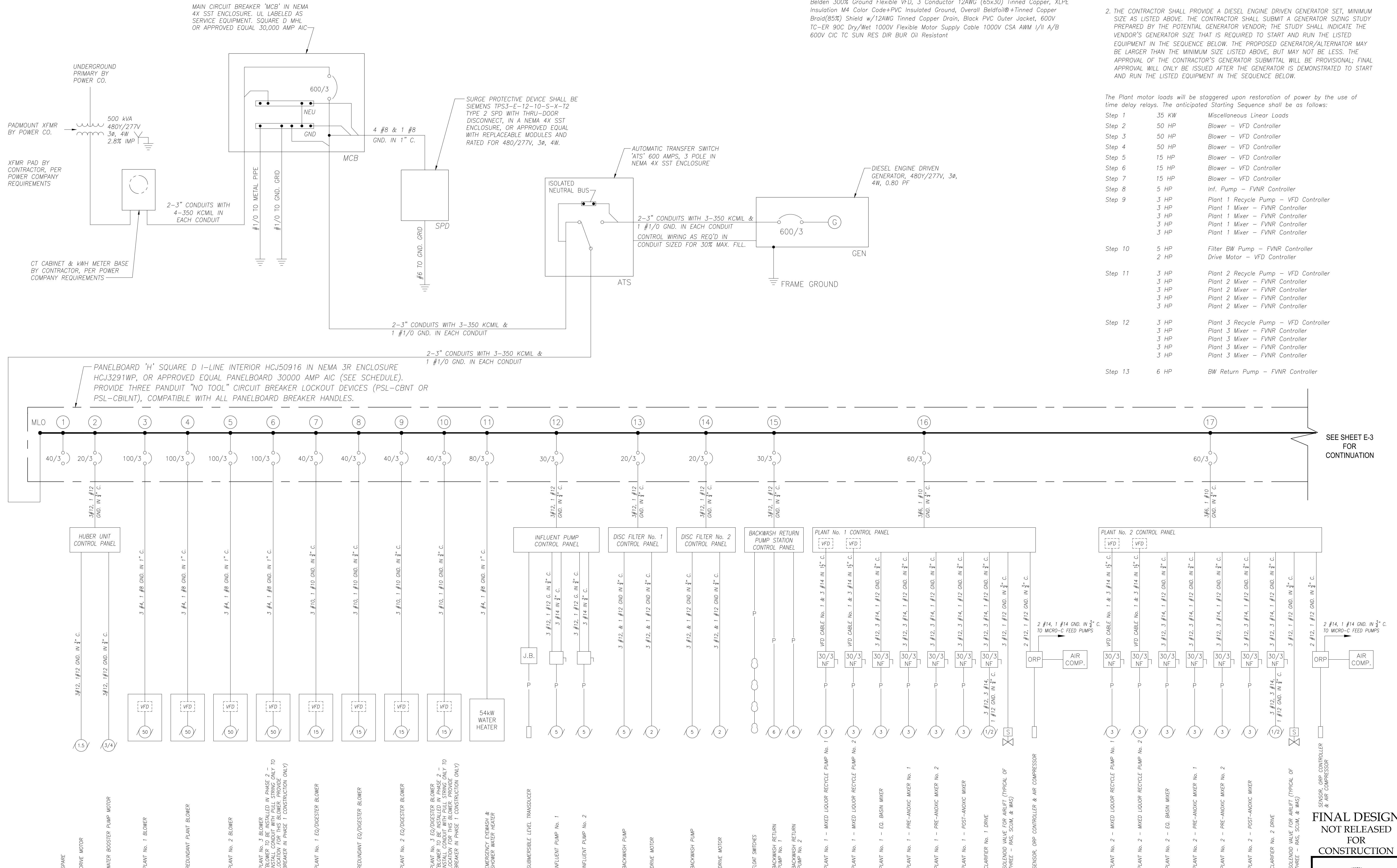
Belden 300% Ground Flexible VFD, 3 Conductor 12AWG (65x30) Tinned Copper, XLPE Insulation M4 Color Code+PVC Insulated Ground, Overall Beldfoil®+Tinned Copper Braid(85%) Shield w/12AWG Tinned Copper Drain, Black PVC Outer Jacket, 600V TC-ER 90C Dry/Wet 1000V Flexible Motor Supply Cable 1000V CSA AWM 1/II A/B 600V CIC TC SUN RES DIR BUR Oil Resistant

GENERATOR NOTES:

- THE MINIMUM SIZE GENERATOR SHALL BE 400 KW, 480Y/277V, 3ø, 4W, 0.80 PF.
- THE CONTRACTOR SHALL PROVIDE A DIESEL ENGINE DRIVEN GENERATOR SET, MINIMUM SIZE AS LISTED ABOVE. THE CONTRACTOR SHALL SUBMIT A GENERATOR SIZING STUDY PREPARED BY THE POTENTIAL GENERATOR VENDOR; THE STUDY SHALL INDICATE THE VENDOR'S GENERATOR SIZE THAT IS REQUIRED TO START AND RUN THE LISTED EQUIPMENT IN THE SEQUENCE BELOW. THE PROPOSED GENERATOR/ALTERNATOR MAY BE LARGER THAN THE MINIMUM SIZE LISTED ABOVE, BUT MAY NOT BE LESS. THE APPROVAL OF THE CONTRACTOR'S GENERATOR SUBMITTAL WILL BE PROVISIONAL; FINAL APPROVAL WILL ONLY BE ISSUED AFTER THE GENERATOR IS DEMONSTRATED TO START AND RUN THE LISTED EQUIPMENT IN THE SEQUENCE BELOW.

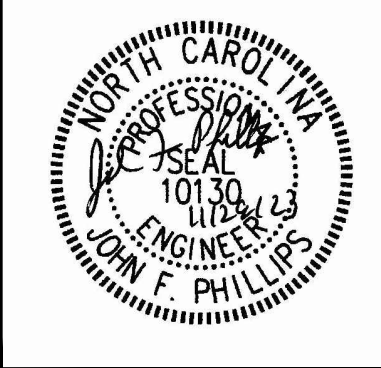
The Plant motor loads will be staggered upon restoration of power by the use of time delay relays. The anticipated Starting Sequence shall be as follows:

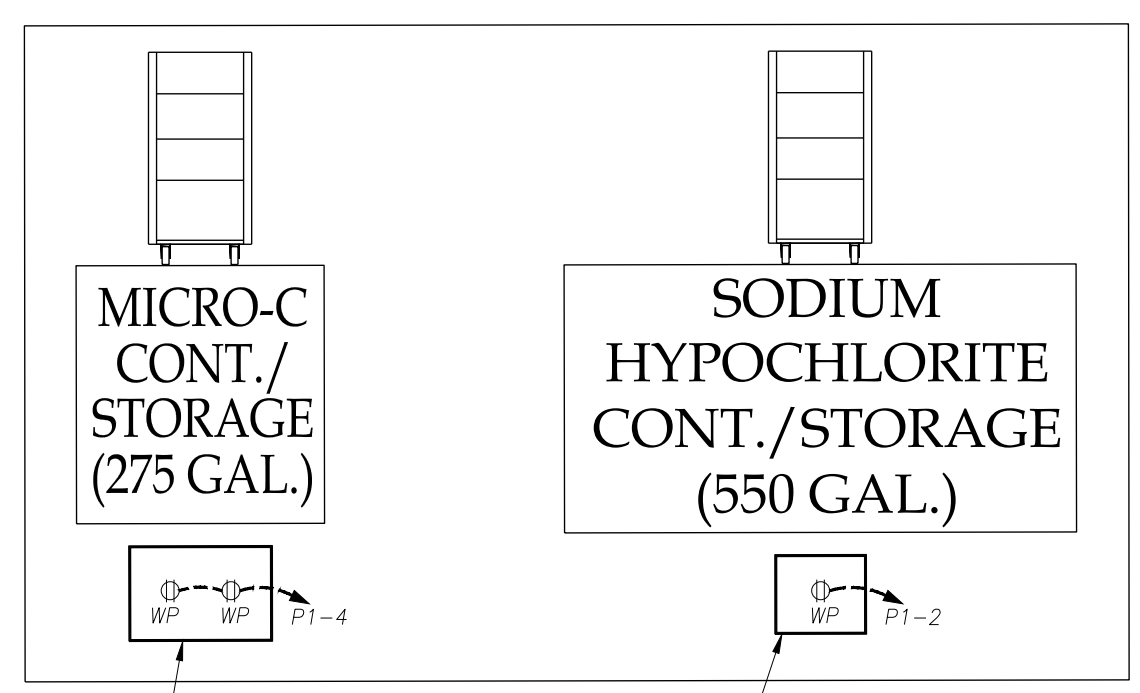
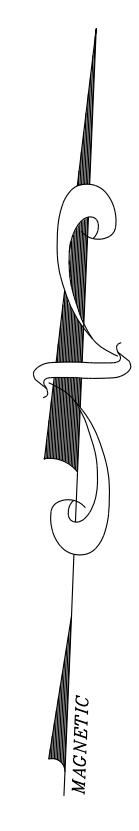
Step	Motor/Load	Control/Type
Step 1	35 KW	Miscellaneous Linear Loads
Step 2	50 HP	Blower - VFD Controller
Step 3	50 HP	Blower - VFD Controller
Step 4	50 HP	Blower - VFD Controller
Step 5	15 HP	Blower - VFD Controller
Step 6	15 HP	Blower - VFD Controller
Step 7	15 HP	Blower - VFD Controller
Step 8	5 HP	Inf. Pump - FVNR Controller
Step 9	3 HP	Plant 1 Recycle Pump - VFD Controller
	3 HP	Plant 1 Mixer - FVNR Controller
	3 HP	Plant 1 Mixer - FVNR Controller
	3 HP	Plant 1 Mixer - FVNR Controller
	3 HP	Plant 1 Mixer - FVNR Controller
Step 10	5 HP	Filter BW Pump - FVNR Controller
	2 HP	Drive Motor - VFD Controller
Step 11	3 HP	Plant 2 Recycle Pump - VFD Controller
	3 HP	Plant 2 Mixer - FVNR Controller
	3 HP	Plant 2 Mixer - FVNR Controller
	3 HP	Plant 2 Mixer - FVNR Controller
	3 HP	Plant 2 Mixer - FVNR Controller
Step 12	3 HP	Plant 3 Recycle Pump - VFD Controller
	3 HP	Plant 3 Mixer - FVNR Controller
	3 HP	Plant 3 Mixer - FVNR Controller
	3 HP	Plant 3 Mixer - FVNR Controller
	3 HP	Plant 3 Mixer - FVNR Controller
Step 13	6 HP	BW Return Pump - FVNR Controller



ONE-LINE DIAGRAM
 NO SCALE

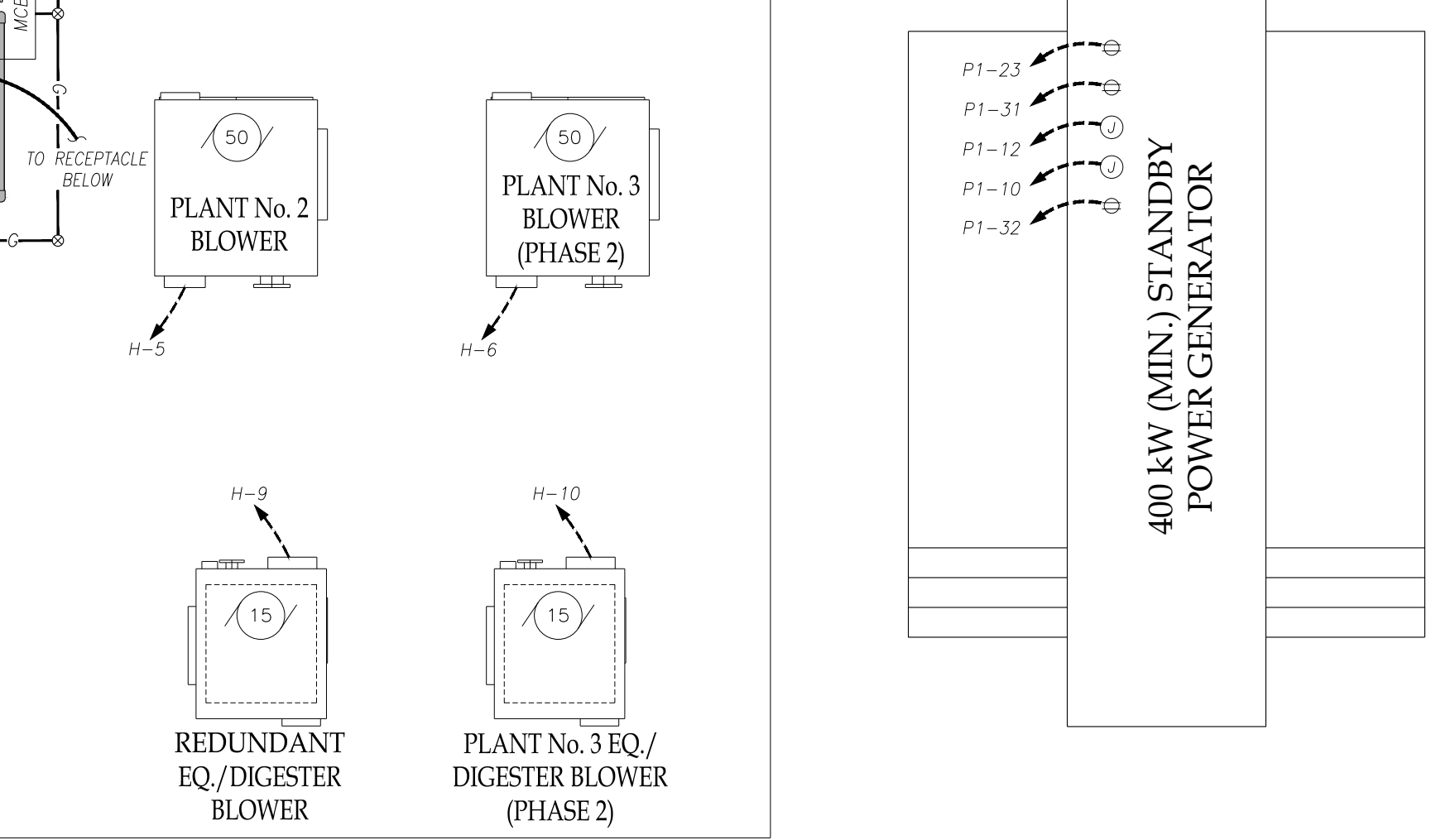
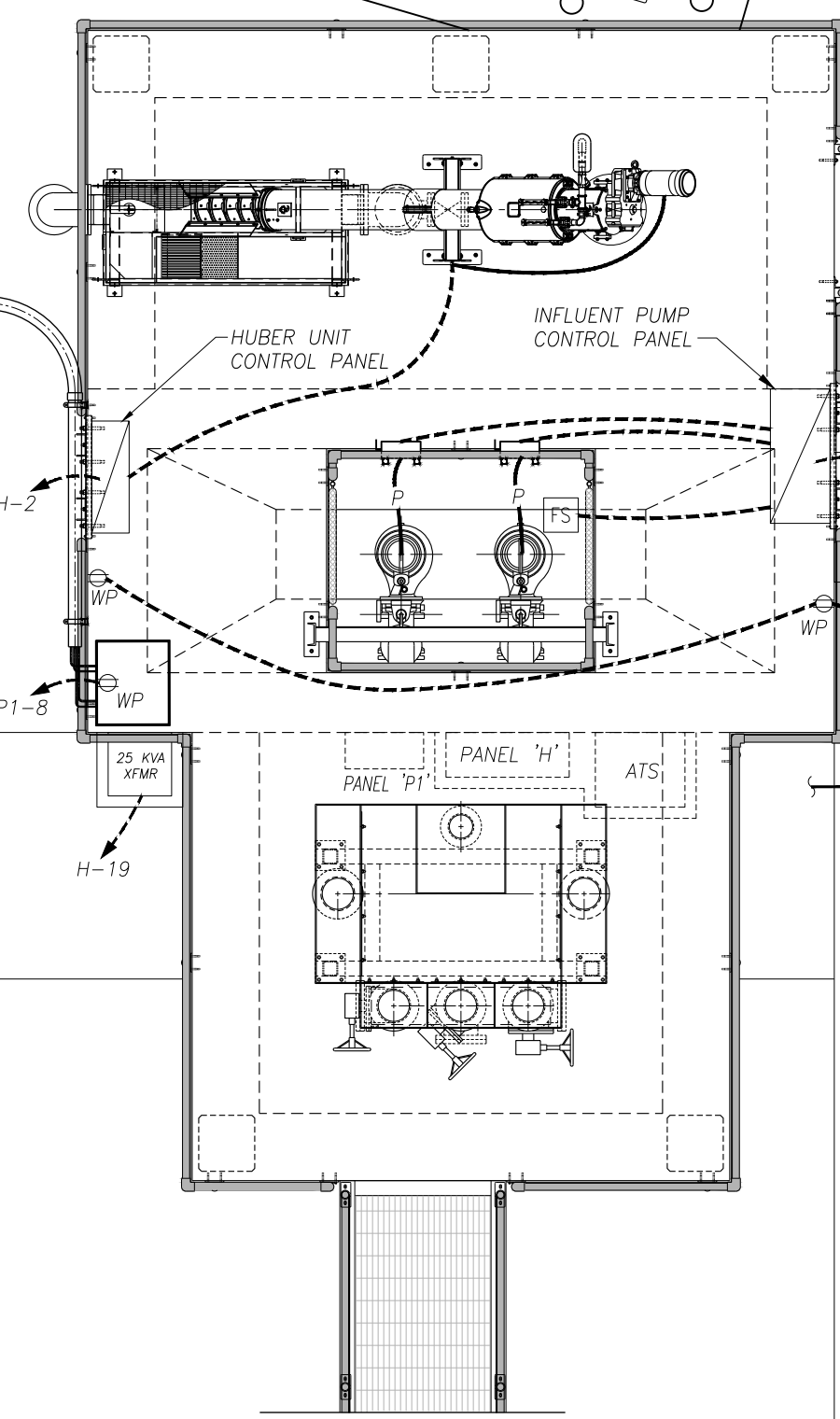
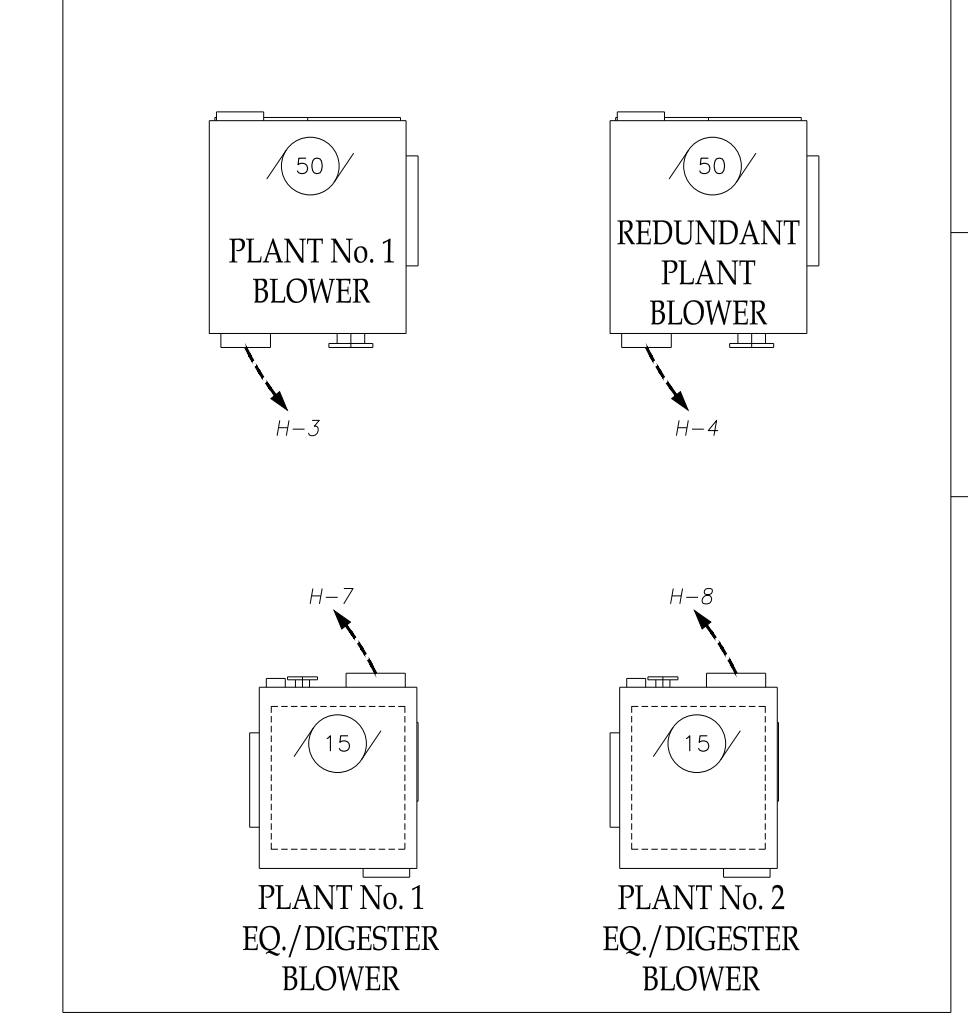
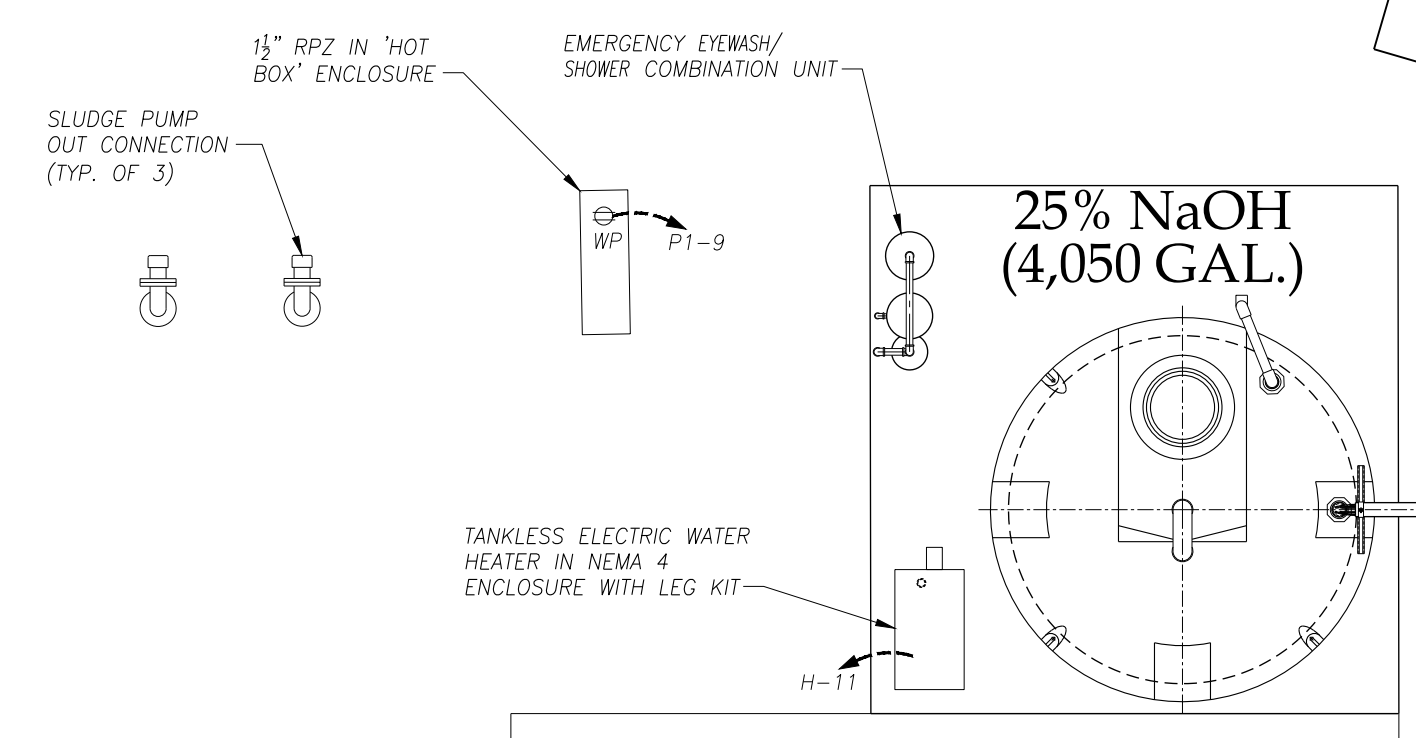
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THREE MICRO-C FEED PUMPS IN PUMP ENCLOSURES AS MANU. BY PEABODY ENGINEERING (PART NUMBER 253-30843 OR APPROVED EQUAL) ON S.S. STAND

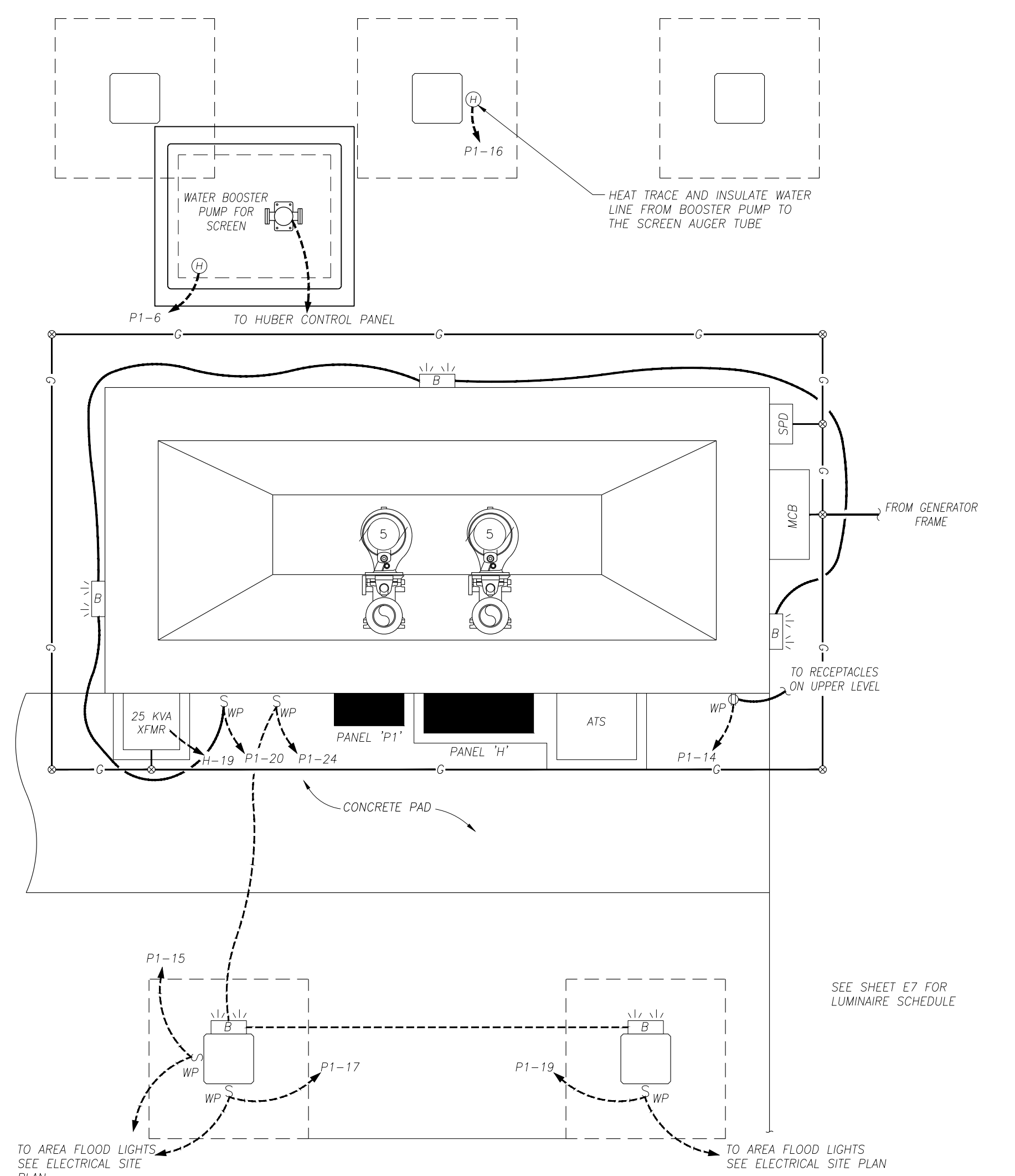
TWO NaClO FEED PUMPS IN PUMP ENCLOSURES AS MANU. BY PEABODY ENGINEERING (PART NUMBER 253-30834 OR APPROVED EQUAL) ON S.S. STAND



NOTE
 CONTRACTOR TO VERIFY
 CIRCUIT BREAKER
 GROUPS REQUIRED FOR
 PROPOSED GENERATOR.

ENLARGED PLAN - INFLUENT P.S., BLOWERS & CHEM. FEED SYSTEMS

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



INFLUENT PUMP STATION - SECTIONAL PLAN

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

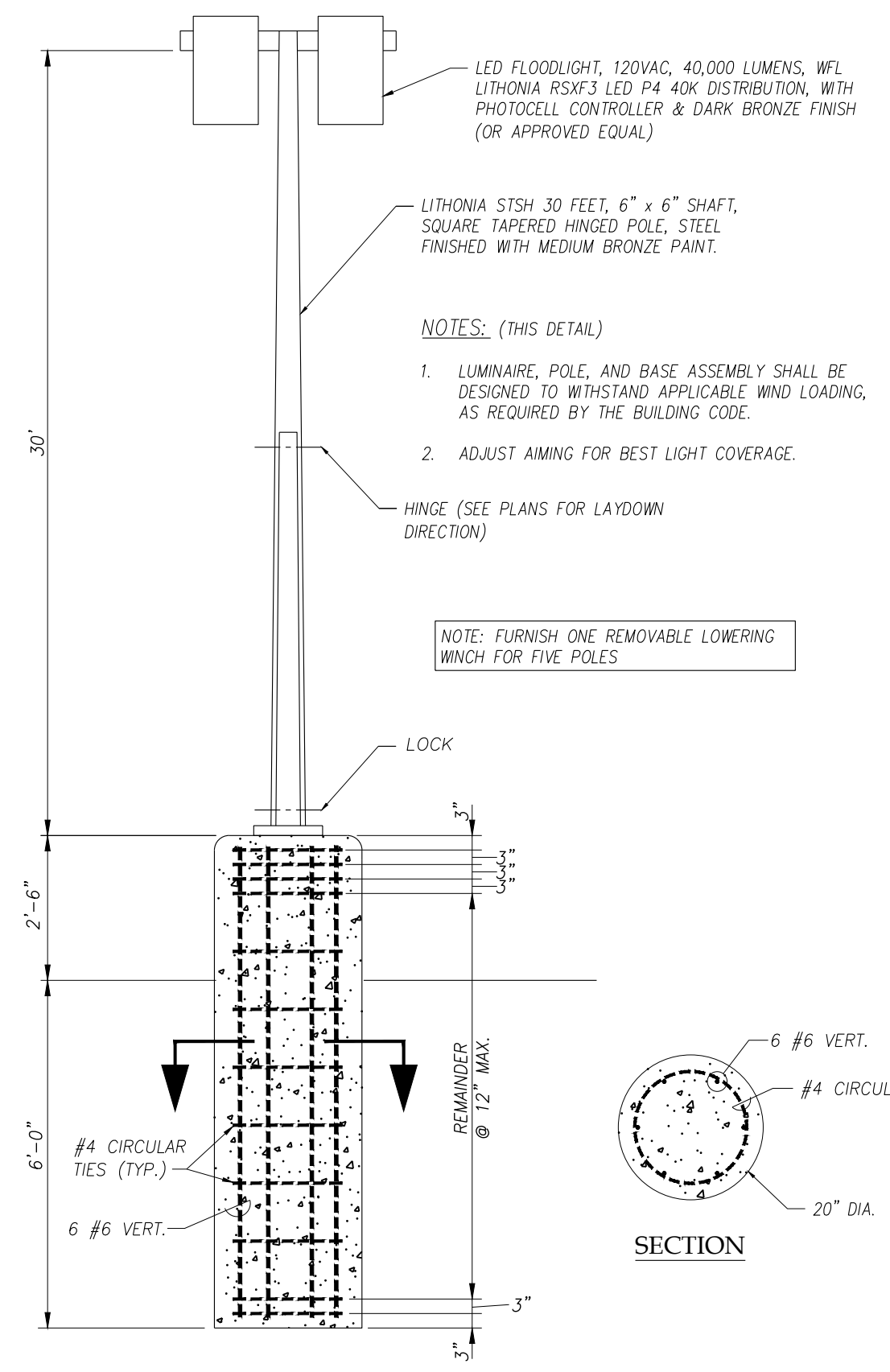
HEAT TRACING & INSULATION SPECIFICATION

APPLIES TO ALL EXTERIOR, ABOVE GROUND PIPES NOTED TO RECEIVE HEAT TRACE AND INSULATION

HEAT TRACE
 SELF REGULATING HEATING CABLES APPLIED TO PREVENT FREEZING AT MINUS 10 DEGREES F. AMBIENT TEMPERATURE, BASED ON 1 1/2" THICK FIBERGLASS INSULATION. HEATING CABLES SHALL BE CHEMELEX (RAYCHEM) BTY.

INSULATION
 MICRO-LOK HP FIBERGLASS PRE-FORMED PIPE INSULATION (BY JOHNS-MANVILLE), 1 1/2" THICK, WITH ALL JOINTS SEALED WITH THE FACTORY APPLIED, SELF-SEAL LAP & BUTT STRIPS.

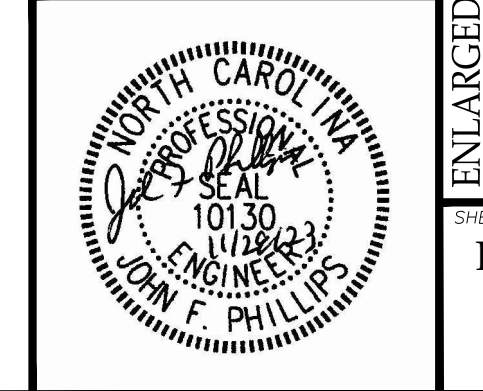
PVC JACKET
 INSULATION SHALL BE ENCLOSED IN A WATER TIGHT PVC JACKET. JACKET SHALL BE ZESTON 2000 SERIES PVC (FORMERLY CEEL-COS50 PVC). JACKETING SHALL BE 30 MIL "CUT & CURLED" GLOSS WHITE, UV RESISTANT PVC. FITTINGS SHALL BE COVERED WITH PVC FITTINGS COVERS SPECIFICALLY DESIGNED FOR THE FITTING TYPE & INSULATION THICKNESS. ALL JOINTS SHALL BE SEALED WITH ZESTON PERMA-WELD SOLVENT WELDING ADHESIVE, PER THE MANUFACTURER'S DIRECTION. THE USE OF NYLON TIES OR TAPES IS PROHIBITED.

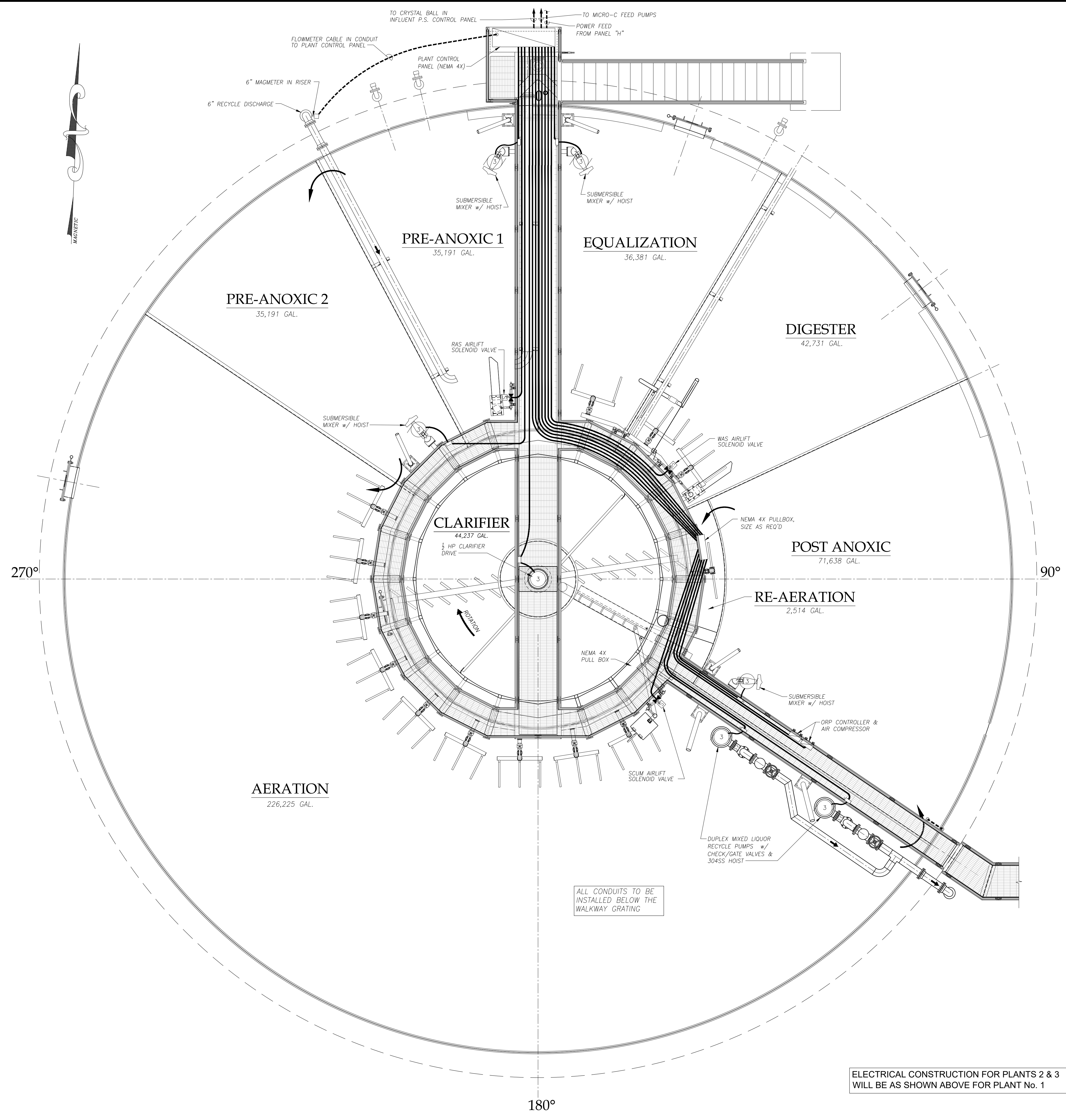


AREA LUMINAIRE TYPE 'FL'

NO SCALE
 FL2 - TWO FLOODLIGHTS ON POLE - 3 REQ'D
 FL4 - FOUR FLOODLIGHTS ON POLE - 2 REQ'D
 SEE SHEET E1 FOR FLOODLIGHT ORIENTATION

FINAL DESIGN
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 FOR
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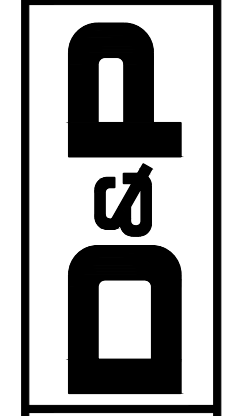




ELECTRICAL CONSTRUCTION FOR PLANTS 2 & 3
WILL BE AS SHOWN ABOVE FOR PLANT No. 1

DESIGN
JFP
DRAWN
JLB
CHECKED
JFP
SCALE
1" = 1'-0"
FILE
CONSERV-ELECR1

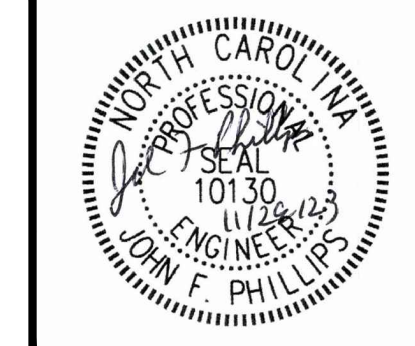
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CONSULTING ENGINEERS - LIC. NO. C-0465
1500 PINNEY PLAINS RD., SUITE 200
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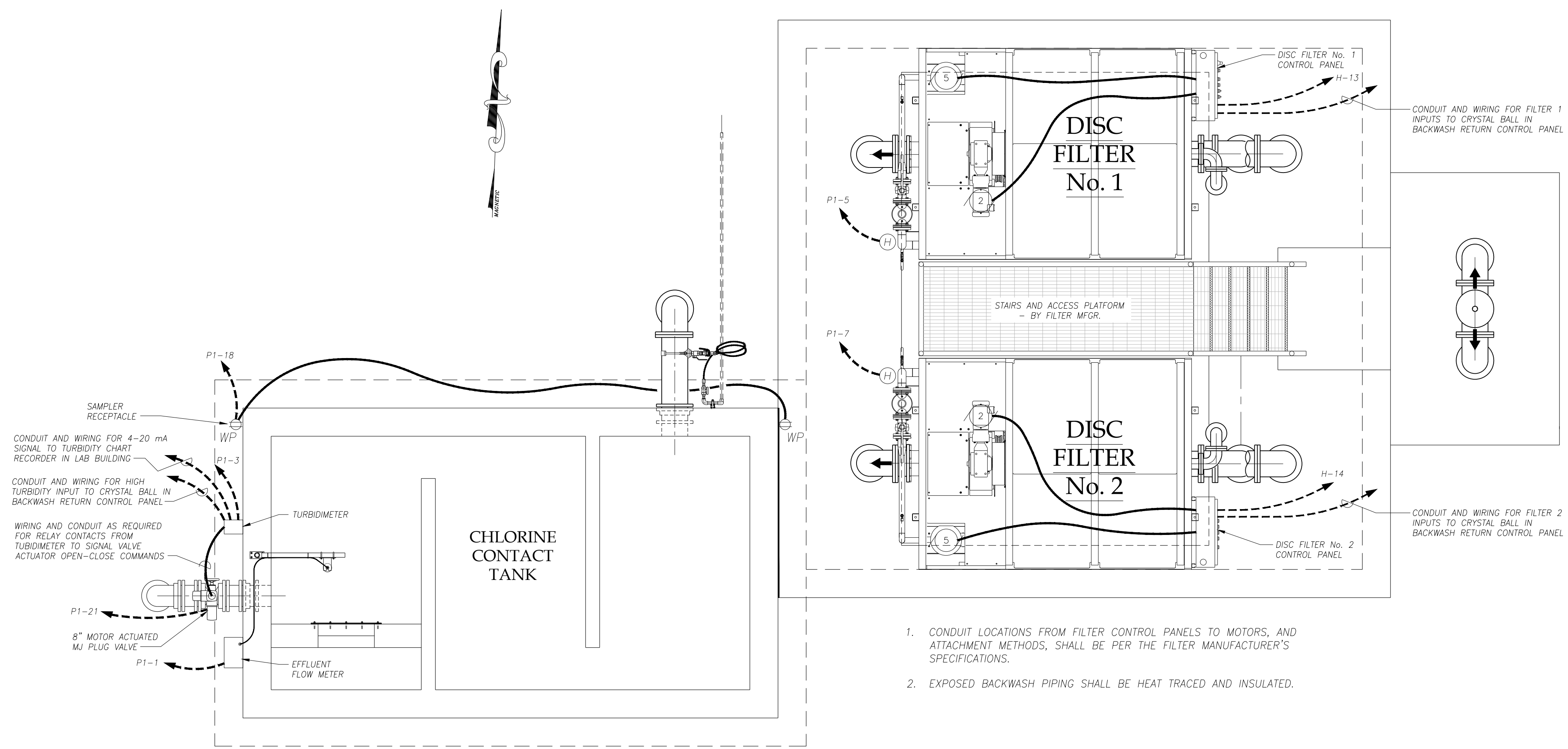


THE CONSERVANCY AT JORDAN LAKE
WASTEWATER TREATMENT PLANT
CHATHAM COUNTY, NORTH CAROLINA

PLANT No. 1 - ELECTRICAL
SHEET
E5
OF
33

FINAL DESIGN
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FOR
CONSTRUCTION



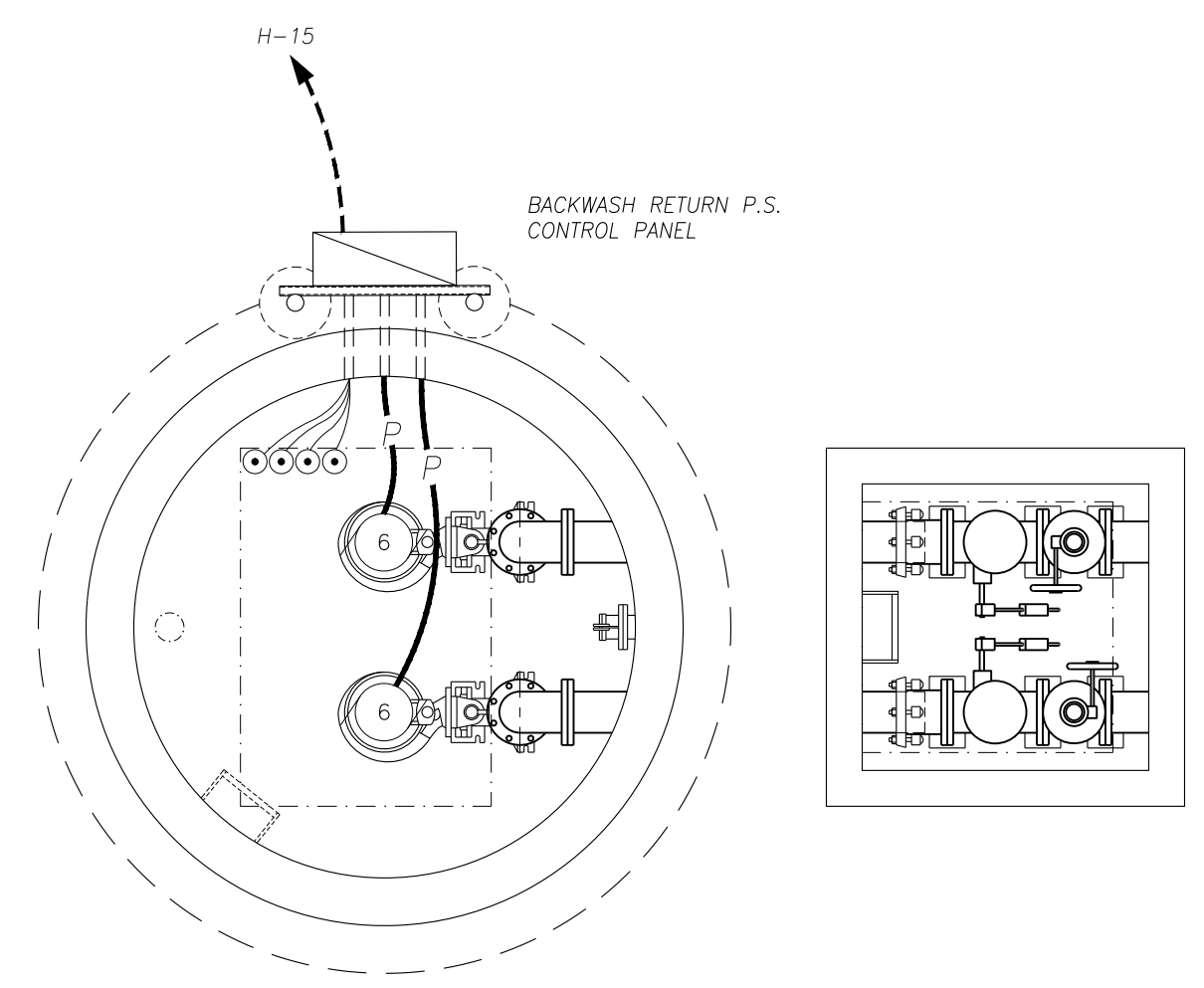


1. CONDUIT LOCATIONS FROM FILTER CONTROL PANELS TO MOTORS, AND ATTACHMENT METHODS, SHALL BE PER THE FILTER MANUFACTURER'S SPECIFICATIONS.
2. EXPOSED BACKWASH PIPING SHALL BE HEAT TRACED AND INSULATED.

NOTE:
FLOWMETER & TURBIDIMETER ARE TO
BE MOUNTED 1\"/>

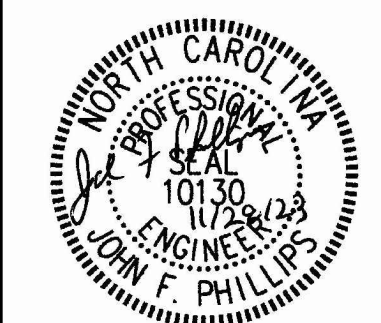
ENLARGED PLAN OF FILTERS & CHLORINE CONTACT CHAMBER

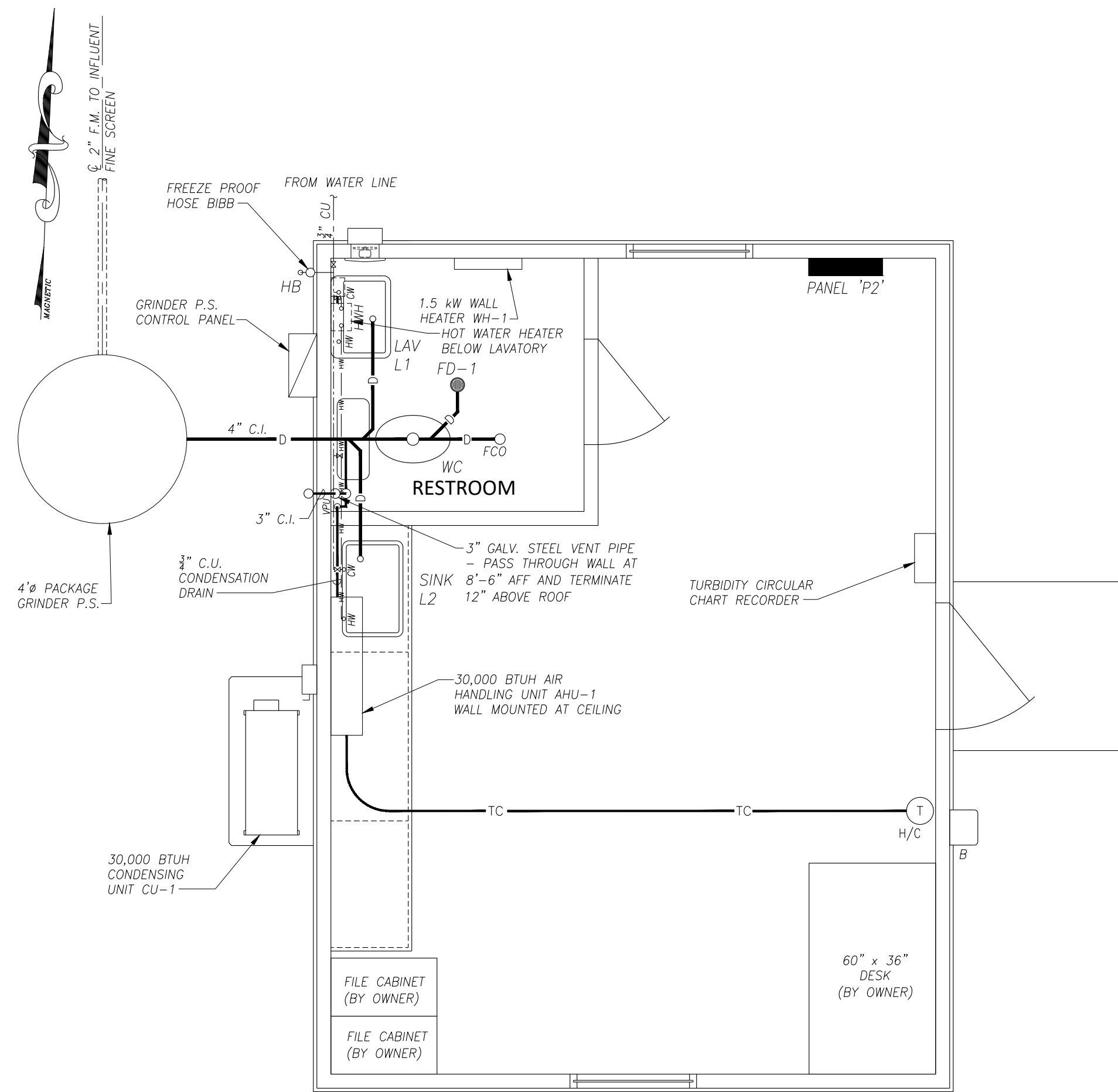
SCALE: 1/8" = 1'-0"



BACKWASH RETURN PUMP STATION

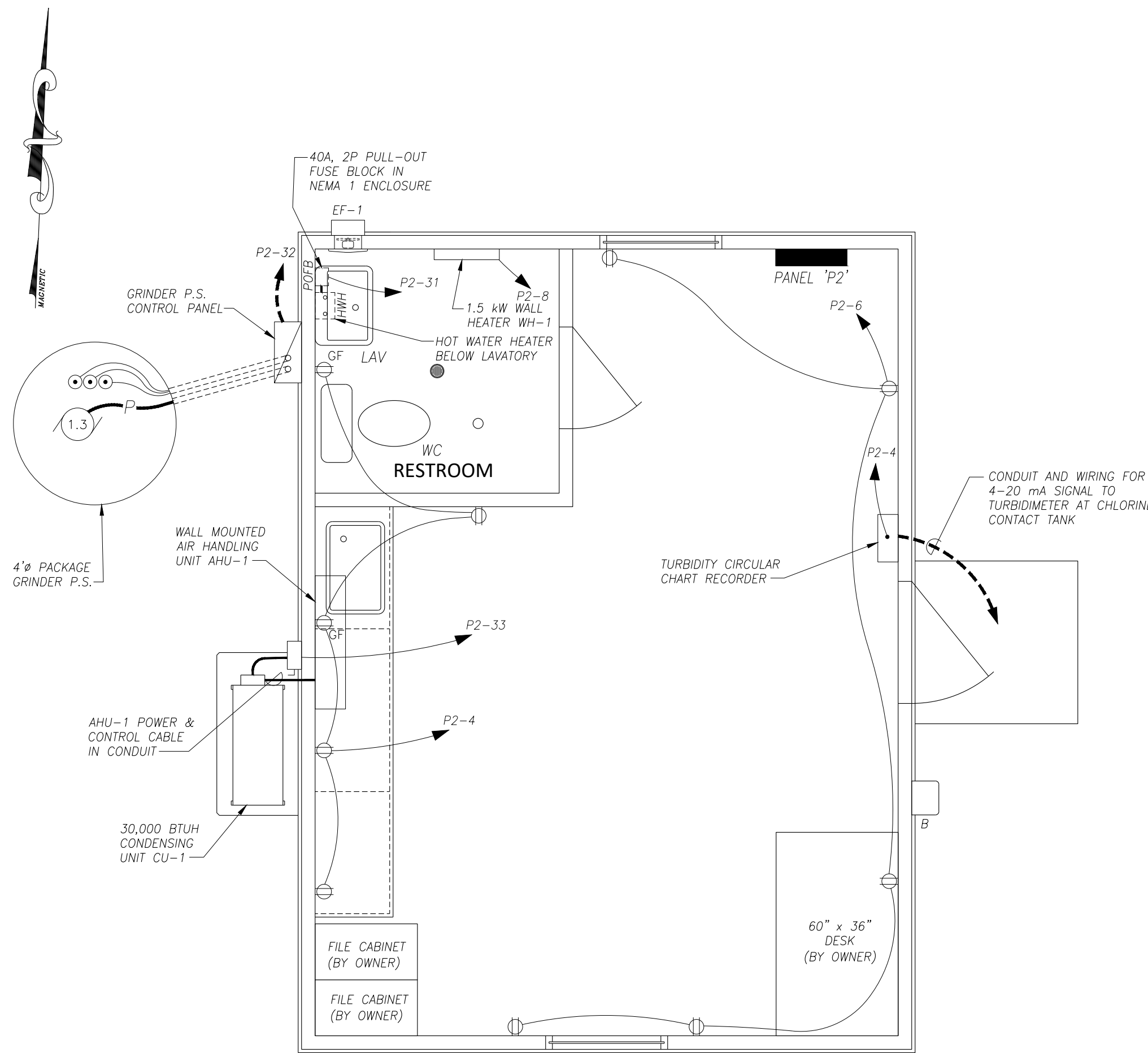
FINAL DESIGN
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FOR
CONSTRUCTION





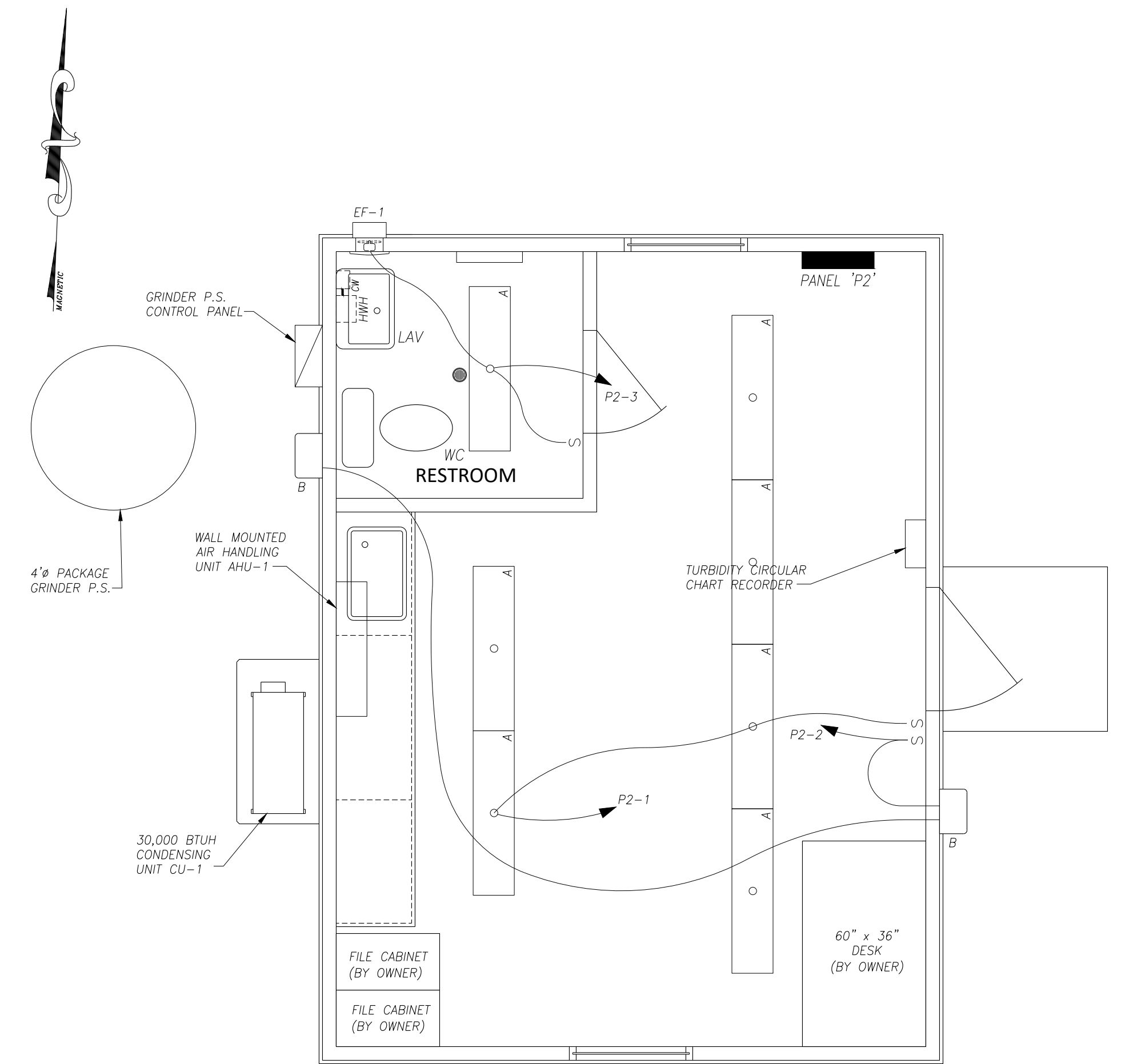
LAB BUILDING - PLUMBING/HVAC PLAN

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



LAB BUILDING - POWER PLAN

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



LAB BUILDING - LIGHTING PLAN

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

LEGEND

- DRAIN, WASTE AND VENT PIPING
- COLD WATER PIPING
- HOT WATER PIPING
- VPU VENT PIPE UP
- C.I. CAST IRON
- CU COPPER
- PVC PVC PIPE
- FCO FLOOR CLEANOUT
- FD FLOOR DRAIN
- WC WATER CLOSET
- LAV LAVATORY
- HWH HOT WATER HEATER
- ⊗ BRONZE GATE VALVE, LINE SIZE
- Ⓢ THERMOSTAT (HEATING/COOLING PROGRAMMABLE TYPE)
- EF EXHAUST FAN
- AFF ABOVE FINISHED FLOOR
- CU CONDENSING UNIT
- AHU AIR HANDLING UNIT
- CFM CUBIC FEET PER MINUTE
- TC TEMPERATURE CONTROL WIRING IN CONDUIT

GENERAL PLUMBING NOTES:

- INSTALL SHUTOFF VALVES AT EACH FIXTURE. INSTALL ISOLATION VALVES AT ALL BRANCHES SERVING TWO OR MORE PIECES OF EQUIPMENT. LOCATE AND ORIENT VALVE OPERATORS FOR EASE OF ACCESS AND FULL LIMITS OF OPERATION.
- PIPING AND SUPPORTS AS SPECIFIED BELOW:
DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH BRAZED JOINTS. SIZE 1/2" - 1 1/4" PROVIDE HORIZONTAL PIPE SUPPORTS EVERY 5 FEET.
SANITARY DWV PIPE SHALL BE CAST IRON SOIL PIPE. SIZE 1 1/2" - 4"
- INSULATION AND VAPOR BARRIER SHALL BE PROVIDED ON ALL HOT WATER, COLD WATER PIPING.
- PROVIDE CLEANOUTS AT INTERVALS REQUIRED BY CODE AND WHERE SHOWN ON DRAWINGS, WHERE SERVICES EXIT BUILDINGS, AT ENDS OF MAINS, AT ALL REQUIRED CHANGES OF DIRECTIONS.
- ALL PLUMBING SYSTEMS SHALL BE TESTED.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE PLUMBING CODES.

PLUMBING FIXTURE SCHEDULE

TAG	TYPE	MOUNTING	CONNECTIONS			MANUFACTURER & MODEL NO.	NOTE
			DRAIN	COLD WATER	HOT WATER		
WC	FLUSH TANK WATER CLOSET	FLOOR	3"	1/2"	-	AMERICAN STANDARD CADET PRO, WHITE VITREOUS CHINA, ELONGATED, 270CA.001.020	1,4
L1	WALL HUNG LAVATORY	WALL	2"	1/2"	1/2"	AMERICAN STANDARD REGALYN 4869.004.020 WALL MOUNTED, PORCELAIN FINISHED CAST IRON KANSAS 1005-DP-BK	2
L2	DROP-IN SINK	CABINET	2"	1/2"	1/2"	-	2
FD-1	FLOOR DRAIN	FLOOR	3"	-	-	ZURN Z4T5BZ, POLISHED BRONZE TOP 2" PIPE	3
HB	HOSE BIBB	EXTERIOR WALL	-	3/4"	-	ZURN 1341 POLISHED CHROME, WITH BACKFLOW PREVENTER	3
HWH	HOT WATER HEATER	UNDER LAV.	-	1/2"	1/2"	PREHEM WHEX-08, TEMP. RISE OF 27° AT 2.0 GPM, 7.3 KW, 240V SINGLE PHASE, 1/2" NPT WATER CONNECTIONS	-

NOTES: (PLUMBING FIXTURE SCHEDULE ONLY)

- PROVIDE COLD WATER STOP VALVE UNDER TANK.
- PROVIDE LAVATORY DRAIN, TRAP, AND FAUCET SET.
- PROVIDE TRAPS FOR FLOOR DRAINS.
- PROVIDE SEAT, CHURCH OR AMERICAN STANDARD.

SPLIT SYSTEM HEAT PUMP SCHEDULE

CONDENSING UNIT		AIR HANDLING UNIT			TOTAL HEATING & COOLING SYSTEM RATING	MANUFACTURER AND CATALOG NO.'S
TAG	ELECTRICAL	TAG	AIRFLOW	TYPE		
CU-1	240V, 1 PHASE	AHU-1	677 CFM	INVERTER DRIVEN	30,000 BTUH	FUJITSU 30RLXB

NOTES: (SPLIT SYSTEM HEAT PUMP SCHEDULE ONLY)

- PROVIDE FILTER SECTION FOR THROW-AWAY FILTER.
- SYSTEM RATINGS INDICATED ABOVE ARE BASED ON STANDARD ARI RATINGS.
- PROVIDE COIL GUARDS FOR CONDENSING UNITS.
- PROVIDE A PROGRAMMABLE HEATING/COOLING THERMOSTAT MOUNTED IN THE CONDITIONED SPACE. INSTALL CONTROL WIRING IN CONCEALED CONDUIT.
- PROVIDE INSULATED REFRIGERANT PIPING FROM THE CONDENSING UNIT TO THE AIR HANDLING UNIT. INSTALL EXTERIOR LINE SET IN EXPANDABLE PLASTIC COVER (COVER GUARD OR EQUAL).
- PROVIDE POWER & CONTROL CABLE TO INTERCONNECT CU WITH AHU.

ELECTRIC HEATER SCHEDULE

TAG	TYPE	CAPACITY (BTUH)	AIRFLOW (CFM)	ELECTRICAL			MANUFACTURER AND MODEL NO.
				VOLT	PHASE	KW	
WH-1	WALL FORCED AIR	5,120	100	120	1	1.5	RAYWALL E305512DWB

NOTES: (ELECTRIC HEATER SCHEDULE ONLY)

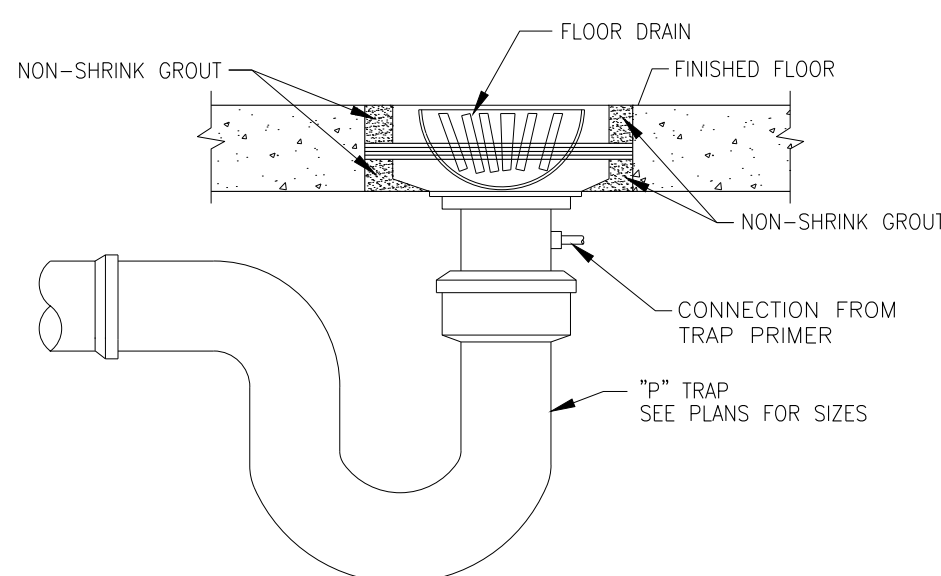
- HEATER TO HAVE INTEGRAL CONTROLS.
- MOUNT WALL HEATER IN SURFACE MOUNTING FRAME SUPPLIED BY THE MANUFACTURER OF THE WALL HEATER.

EXHAUST FAN SCHEDULE

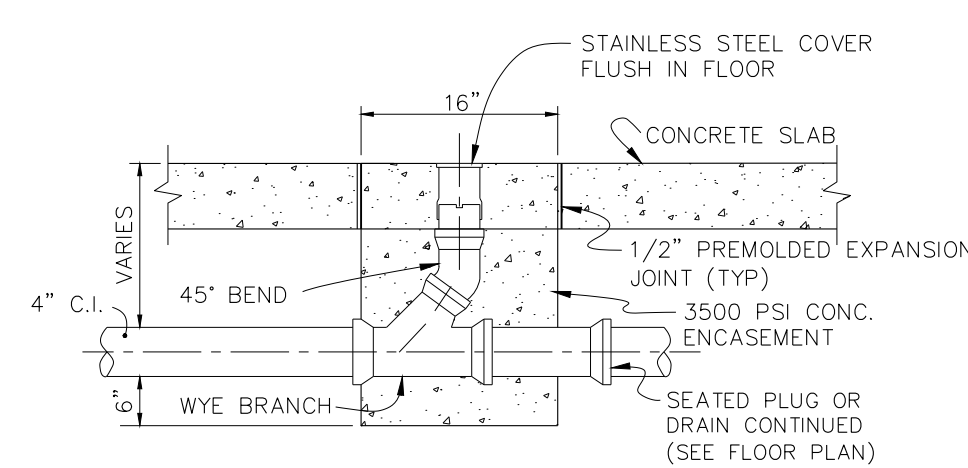
TAG	TYPE	DRIVE	CFM	S.P. IN WATER	VOLTS	HP	MANUFACTURER AND MODEL NO.	SERVICE
EF-1	PROPELLER	DIRECT	120	0.1	120	1/3W	BROAN 509	TOILET

NOTES: (EXHAUST FAN SCHEDULE ONLY)

- PROVIDE EF-1 WITH BROAN MODEL 643 WALL CAP WITH BACKDRAFT DAMPER.



FLOOR DRAIN DETAIL
NO SCALE

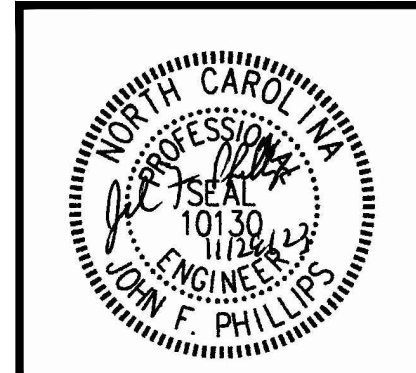


FLOOR CLEANOUT DETAIL
NO SCALE

LUMINAIRE SCHEDULE:

- Type A: Enclosed and gasketed LED, 4 ft. long, fiberglass housing 6000 lumens, 120 vac, clear acrylic lens mounted to ceiling surface, Lithonia Cat. No. FEM L48 6000LM IMACD MD MVOLT 40K.
- Type B: Wet location wall bracket, LED, 6850 Lumens, enclosed and gasketed, Lithonia Cat. No. TWX2 P4 40K MVOLT PE DDBXD (6 Required), or approved equal.
- Type C: Wet location wall bracket, LED, 2950 Lumens, enclosed and gasketed, Lithonia Cat. No. TWX1 P4 40K MVOLT PE DDBXD (2 Required), or approved equal.
- Type FL: See Area Luminaire Detail Sheet E4

FINAL DESIGN
NOT RELEASED
FOR
CONSTRUCTION



DESIGN: JFP
 DRAWN: JLB
 CHECKED: JFP
 SCALE: 1/8" = 1'-0"
 FILE: CONSERV-ELECR1

DIEHL & PHILLIPS, P.A.
 CONSULTING ENGINEERS - LIC. NO. C-0465
 1500 PINEY PLAINS RD., SUITE 200
 CARY, N.C. 27518 • (919) 467-9972

THE CONSERVANCY AT JORDAN LAKE
 WASTEWATER TREATMENT PLANT
 CHATHAM COUNTY, NORTH CAROLINA

LAB BUILDING - POWER, LIGHTING,
 AND PLUMBING/HVAC PLAN -
 ELECTRICAL

SHEET
 E7
 OF
 33