

# TUSCARORA TOWNSHIP

## WASTEWATER TREATMENT PLANT EXPANSION

### PROJECT OVERVIEW

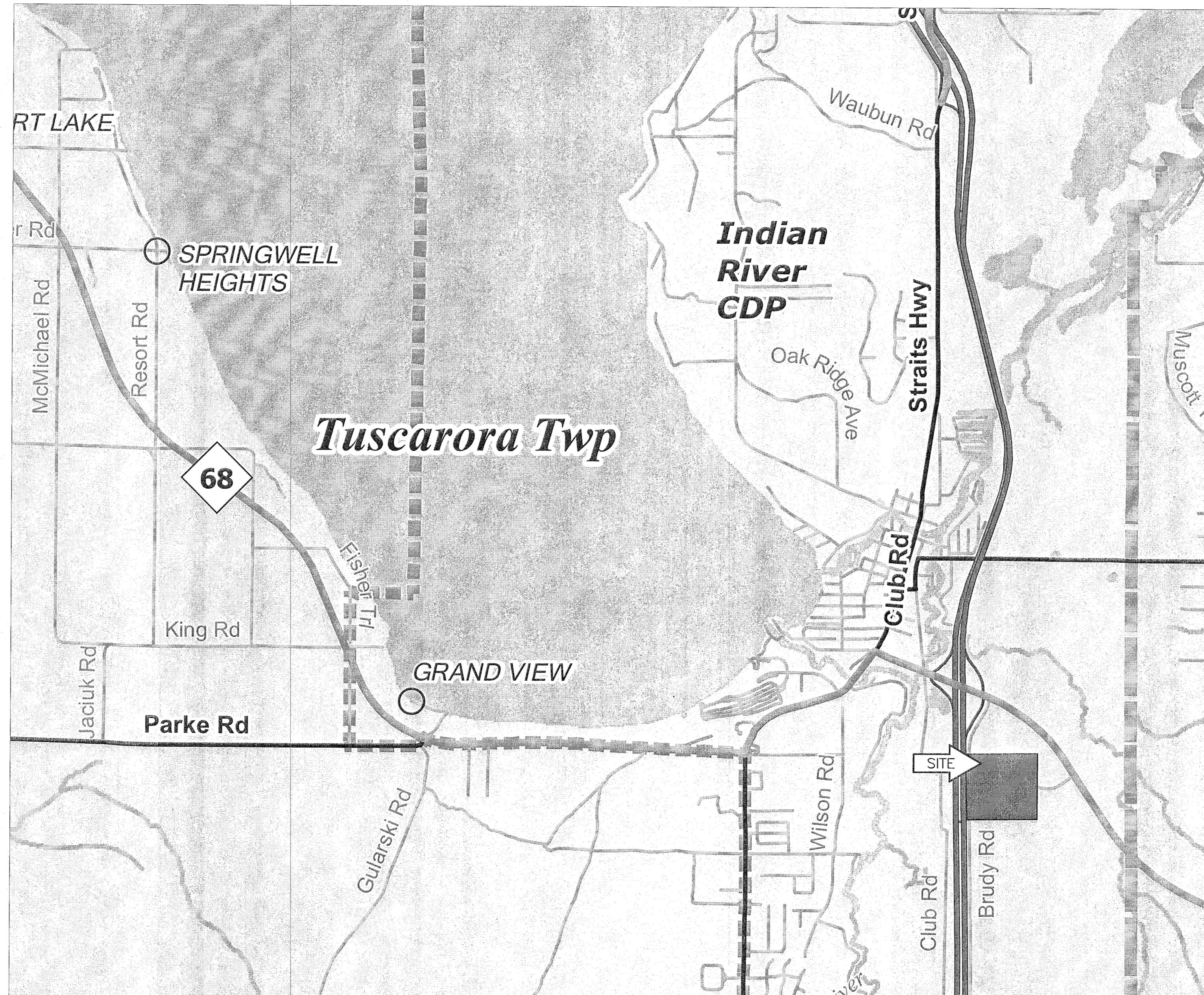
THE PURPOSE OF THIS PROJECT IS TO EXPAND THE EXISTING WASTEWATER TREATMENT PLANT CAPACITY, APPROXIMATELY DOUBLING THE PLANT FROM 95,000 GPD TO 190,000 GPD. THE EXISTING PLANT UTILIZES A PROPRIETARY SBR SYSTEM, AEROMOD SEQUOX PLUS. THE SAME SYSTEM WILL BE UTILIZED IN THE NEW EXPANSION DESIGN, ALONG WITH AN EQUALIZATION/SURGE TANK OF APPROXIMATELY 150,000 GALLONS TO ACCOMMODATE THE INCREASED FLOW.

THE EXISTING RAPID INFILTRATION BASINS ARE ALREADY APPROPRIATELY SIZED TO DISCHARGE 190,000 GPD.

PROJECT NUMBER: 22-6036

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N



LOCATION MAP  
1:2000



COUNTY KEY

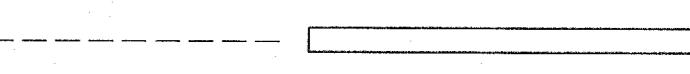
### TITLE SHEET LEGEND

#### PROPOSED PROJECT

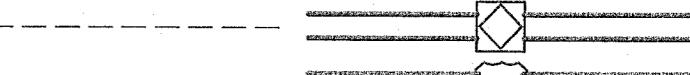


#### EXISTING ROADS

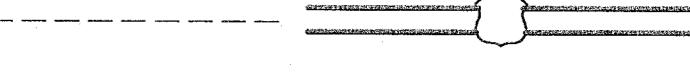
CITY STREET



STATE ROUTES



FEDERAL ROUTES



#### CITY, VILLAGE LIMITS

#### TOWNSHIP LIMITS

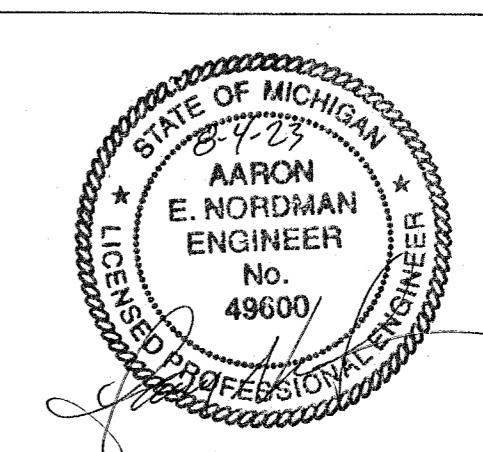
#### COUNTY LINE



Know what's below.  
Call before you dig.

TUSCARORA TOWNSHIP	WASTEWATER TREATMENT PLANT EXPANSION	CONTRACT NUMBER	23-6036
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CONTRACT FOR: TUSCARORA TOWNSHIP WASTEWATER TREATMENT PLANT EXPANSION



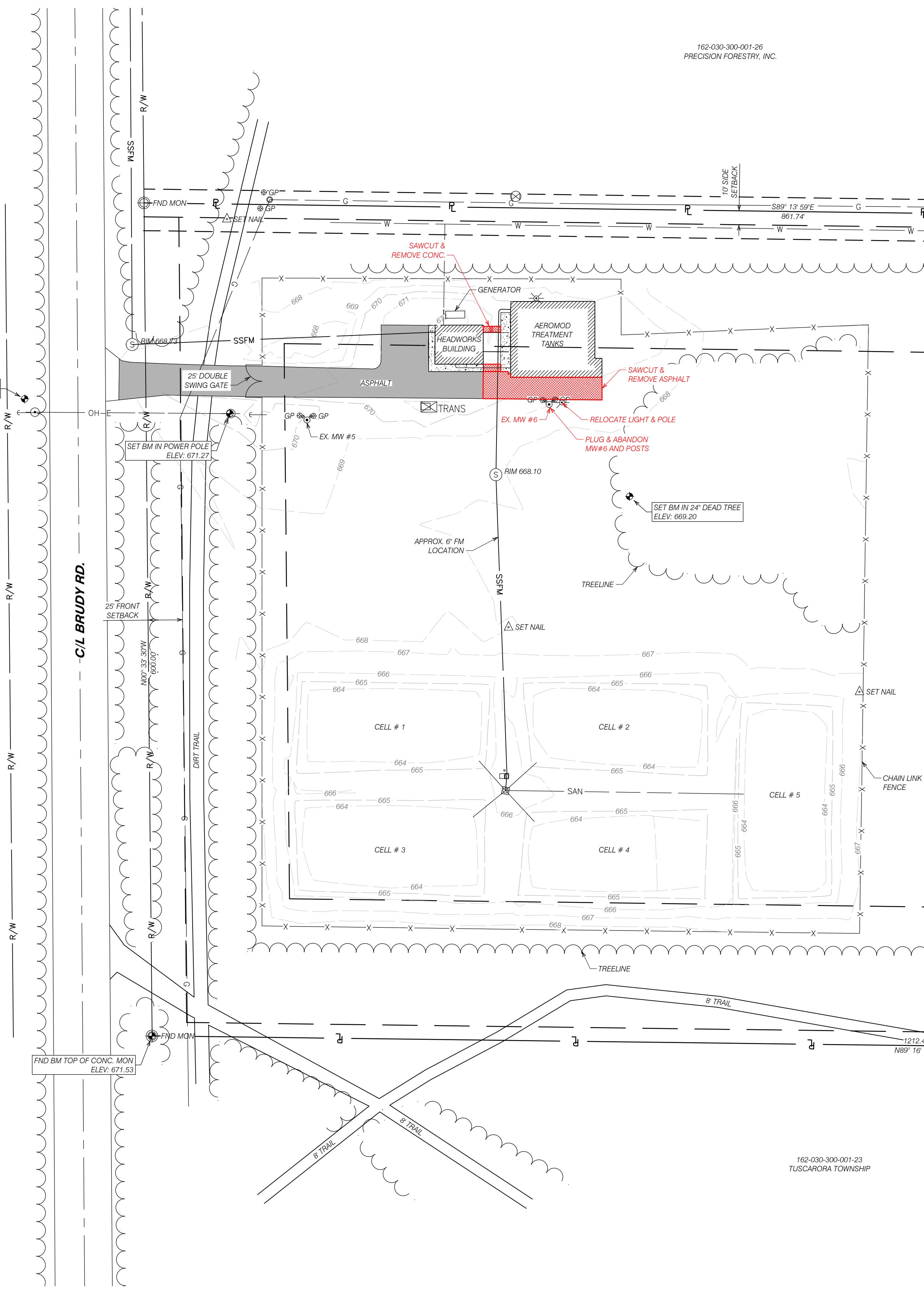
MARK DATE DESCRIPTION  
0 7/28/23 PERMIT SUBMITTAL

SEAL

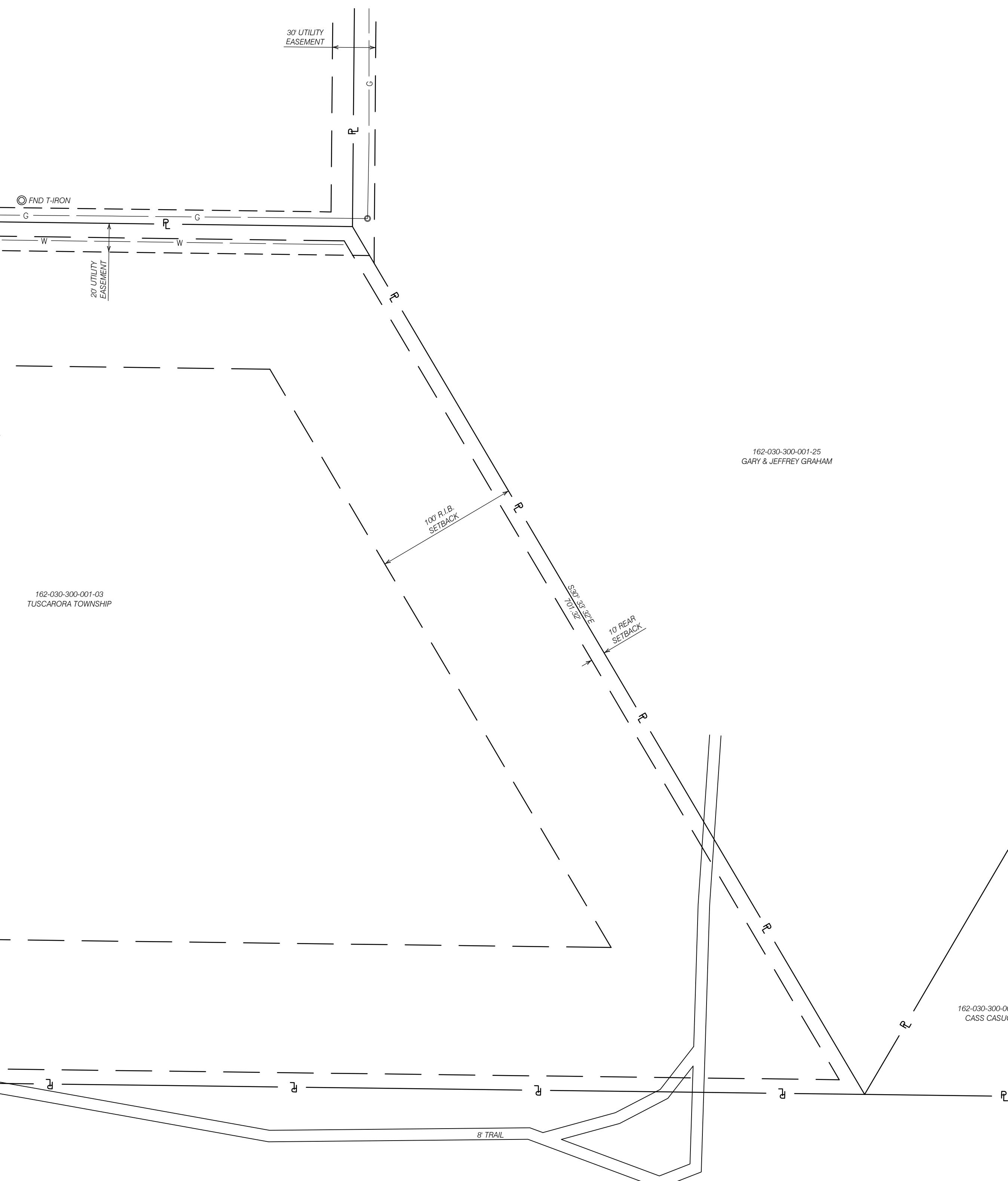
**Performance Engineers, Inc.**  
Civil / Structural Engineering

406 Petoskey Avenue  
Charlevoix, Michigan 49720  
Phone: (231) 547-2121  
Fax: (231) 547-0084  
www.performanceeng.com

WATER AND SEWER SYMBOLS		PLAN SHEET PATTERNS		UNDERGROUND UTILITY LINESTYLES	
● PROPOSED CATCH BASIN	CONCRETE PAVEMENT/DRIVE APPROACH	ST	ST	EXISTING STORM SEWER	
○ EXISTING CATCH BASIN		ST	ST	PROPOSED STORM SEWER	
ST PROPOSED STORM MANHOLE		SAN	SAN	EXISTING SANITARY SEWER	
ST EXISTING STORM MANHOLE		W	W	PROPOSED WATER LINE	
○ PROPOSED SANITARY MANHOLE		W	W	EXISTING WATER LINE	
○ EXISTING SANITARY MANHOLE		G	G	PROPOSED NATURAL GAS LINE	
○ PROPOSED SANITARY CLEANOUT		U/E	U/E	EXISTING NATURAL GAS LINE	
○ EXISTING SANITARY CLEANOUT		U/E	U/E	PROPOSED ELECTRIC	
W PROPOSED WATER MANHOLE		U/T	U/T	EXISTING ELECTRIC	
W EXISTING WATER MANHOLE		U/CATV	U/CATV	PROPOSED TELEPHONE	
● PROPOSED FIRE HYDRANT		F/O	F/O	EXISTING TELEPHONE	
○ EXISTING FIRE HYDRANT		F/O	F/O	PROPOSED CABLE TV	
● PROPOSED WATER VALVE AND BOX				EXISTING CABLE TV	
○ EXISTING WATER VALVE				PROPOSED FIBER OPTIC	
● PROPOSED WATER SHUTOFF				EXISTING FIBER OPTIC	
○ EXISTING WATER SHUTOFF					
W PROPOSED WATER WELL					
W EXISTING WATER WELL					
UTILITIES SYMBOLS		ROAD SURFACE PATTERNS		ABOVE GROUND UTILITY LINESTYLES	
○ EXISTING TELEPHONE MANHOLE	ASPHALT	SEASONAL	GRAVEL	OHE	PROPOSED ELECTRIC
TV EXISTING CABLE TV MANHOLE				OHE	EXISTING ELECTRIC
G EXISTING NATURAL GAS MANHOLE				OHT	PROPOSED TELEPHONE
G EXISTING GAS METER				OHT	EXISTING TELEPHONE
GV EXISTING GAS VALVE				CATV	PROPOSED CABLE TV
E EXISTING ELECTRICAL MANHOLE				CATV	EXISTING CABLE TV
EP PROPOSED PRIMARY ELECT. HAND HOLE					
EP EXIST. PRIMARY ELECT. HAND HOLE					
HP PROPOSED SECONDARY ELECT. HAND HOLE					
HP EXIST. SECONDARY ELECT. HAND HOLE					
TRANS EXISTING TRANSFORMER					
● PROPOSED UTILITY POLE					
○ EXISTING UTILITY POLE					
● PROPOSED LIGHT POST					
○ EXISTING LIGHT POST					
→ PROPOSED GUY WIRE					
→ EXISTING GUY WIRE					
LANDSCAPING SYMBOLS		PROPERTY/EASEMENT LINESTYLES		TOPO LINESTYLES	
● PROPOSED TREE				600	PROPOSED MAJOR CONTOUR
○ EXISTING TREE				599	PROPOSED MINOR CONTOUR
● PROPOSED CONIFER TREE				600	EXISTING MAJOR CONTOUR
○ EXISTING CONIFER TREE				599	EXISTING MINOR CONTOUR
● PROPOSED SHRUB					PROPOSED TREE LINE
○ EXISTING SHRUB					EXISTING TREE LINE
PROPERTY SYMBOLS					PROPOSED SWALE
MONUMENT BOX					EXISTING SWALE
MONUMENT					
● NEW PROPERTY CORNER					
○ EXISTING PROPERTY CORNER					
◆ BENCH MARK					
△ NAIL SET					
MISCELLANEOUS SYMBOLS		ABBREVIATIONS		SOIL EROSION AND STORM WATER CONTROL NOTES	
SB SOIL BORING INDICATOR		ABS - ACRYLONITRILE BUTADIENE STYRENE	HYD - HYDRANT	1. THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER P.A. 451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES, THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT.	
ADJ ADJUST STRUCTURE		ADA - AMERICANS WITH DISABILITIES ACT	INV - INVERT ELEVATION	2. INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PROVIDE THE REQUIRED PERMIT THROUGH CHEBOYGAN COUNTY, IF NECESSARY.	
ADJ-FH ADJUST FIRE HYDRANT		ALT - ALTERNATE	IRR - IRRIGATION WATER	3. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS OR CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE ENGINEER.	
ADJ-BO ADJUST BY OTHERS		ASPH - ASPHALT	LCY - LOOSE CUBIC YARD	4. ALL DISTURBED NON-HARD SURFACE AREAS ARE TO BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOPSOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES. SLOPES BETWEEN 1 ON 3 AND 1 ON 2 SHALL BE SODDED AND STAKED OR RECEIVE SEED WITH MULCH BLANKET.	
RELOC-BO RELOCATE BY OTHERS		BC - BACK OF CURB	LP - LIGHT POLE	5. ALL STORM DRAINAGE PIPE SHALL BE CORRUGATED GALVANIZED STEEL PIPE, HDPE, OR APPROVED EQUAL.	
DRIVETYPE DRIVETYPE		BLDG - BUILDING	LFT - LINEAR FOOT	6. A MINIMUM OF TWO (2) FEET OF COVER FROM FINISHED ELEVATIONS SHALL BE MAINTAINED OVER ALL STORM DRAIN PIPES.	
SIDEWALK RAMP TYPE		BM - BENCHMARK	LS - LUMP SUM	7. ALL DRAINAGE PIPES THAT OUTLET AT GROUND SURFACE SHALL INCLUDE END SECTIONS.	
SALV SALVAGE		CB - CATCH BASIN	MB - MAIL BOX	8. EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.	
PROPOSED BUILDING		CIP - CAST IRON PIPE	MH - MANHOLE	9. THE CONTRACTOR SHALL REMOVE OR CAUSE TO BE REMOVED ALL SEDIMENT OR SOILS THAT HAVE BEEN DROPPED, WASHED ONTO, OR TRACKED OUT ONTO PUBLIC RIGHT-OF-WAY OR PRIVATE ROADS AT THE END OF EACH WORKING DAY OR AFTER EACH RAIN EVENT ON NON-WORK DAYS.	
EXISTING BUILDING		CL - CENTER LINE	N - NORTH	10. ALL REMOVED TOPSOIL WILL BE STOCKPILED WITHIN THE PROJECT AREA. IF ADDITIONAL TOPSOIL IS AVAILABLE AFTER TOPSOILING THE CONSTRUCTION AREA, IT WILL BE STOCKPILED WITHIN 1000 FEET OF THE CONSTRUCTION AREA AT A LOCATION DIRECTED BY THE OWNER OR ENGINEER.	
ABANDON		CMP - CORRUGATED METAL PIPE	NTS - NOT TO SCALE	11. THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE OWNER.	
BULKHEAD		CONC - CONCRETE	PC - POINT OF CURVE		
CLEARING		CFT - CUBIC FEET	PED - PEDESTAL		
REMOVAL		CYD - CUBIC YARD	PERF - PERFORATED		
SAVE		DIP - DOUBLE IRON PIPE	PL - PIPING LINE		
		E - EAST	PP - POWER POLE		
		EL - ELEVATION	PROP - PROPOSED		
		FFE - FINISH FLOOR ELEVATION	PVC - POLY(VINYL CHLORIDE) (PLASTIC)		
		FH - FIRE HYDRANT	R - RADIUS		
		FC - FACE OF CURB	RCP - REINFORCED CONCRETE PIPE		
		CO - CLEANOUT	RD - ROAD		
		CONC - CONCRETE	ROW - RIGHT OF WAY		
		CFT - CUBIC FEET	REQD - REQUIRED		
		CYD - CUBIC YARD	ROW - RIGHT OF WAY		
		DIP - DOUBLE IRON PIPE	S - SOUTH		
		E - EAST	SALV - SALVAGE		
		EL - ELEVATION	SAN - SANITARY		
		FFE - FINISH FLOOR ELEVATION	SB-xx - SOIL BORING-XX (E.G., SB-01)		
		FH - FIRE HYDRANT	SCHD - SCHEDULE (PIPE)		
		FC - FACE OF CURB	SFT - SQUARE FOOT		
		CO - CLEANOUT			
		CONC - CONCRETE			
		CFT - CUBIC FEET			
		CYD - CUBIC YARD			
		DIP - DOUBLE IRON PIPE			
		E - EAST			
		EL - ELEVATION			
		FFE - FINISH FLOOR ELEVATION			
		FH - FIRE HYDRANT			
		FC - FACE OF CURB			
		CO - CLEANOUT			
		CONC - CONCRETE			
		CFT - CUBIC FEET			
		CYD - CUBIC YARD			
		DIP - DOUBLE IRON PIPE			
		E - EAST			
		EL - ELEVATION			
		FFE - FINISH FLOOR ELEVATION			
		FH - FIRE HYDRANT			
		FC - FACE OF CURB			
		CO - CLEANOUT			
		CONC - CONCRETE			
		CFT - CUBIC FEET			
		CYD - CUBIC YARD			
		DIP - DOUBLE IRON PIPE			
		E - EAST			
		EL - ELEVATION			
		FFE - FINISH FLOOR ELEVATION			
		FH - FIRE HYDRANT			
		FC - FACE OF CURB			
		CO - CLEANOUT			
		CONC - CONCRETE			
		CFT - CUBIC FEET			
		CYD - CUBIC YARD			
		DIP - DOUBLE IRON PIPE			
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		DIP - DOUBLE IRON PIPE			
		E - EAST			
		EL - ELEVATION			
		FFE - FINISH FLOOR ELEVATION			
		FH - FIRE HYDRANT			
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		CONC - CONCRETE			
		CFT - CUBIC FEET			
		CYD - CUBIC YARD			
		DIP - DOUBLE IRON PIPE			
		E - EAST			
		EL - ELEVATION			
		FFE - FINISH FLOOR ELEVATION			
		FH - FIRE HYDRANT			
		FC - FACE OF CURB			
		CO - CLEANOUT			
		CONC - CONCRETE			
		CFT - CUBIC FEET			



EXISTING CONDITIONS



1. SURVEY DATA IS BASED ON THE MICHIGAN STATE PLAN COORDINATE SYSTEM AND AN ELEVATION DATUM OF NAD83.  
 2. LOCATION OF EXISTING UTILITIES IS BASED ON AVAILABLE INFORMATION, CONTRACTOR SHALL MAKE NOTICE TO THE MISS DIG SYSTEM PRIOR TO EXCAVATION.  
 3. EXISTING WWTP IS ACTIVE AND SHALL REMAIN IN-SERVICE WHILE CONDUCTING ALL NEW WORK. CONTRACTOR SHALL COORDINATE WITH WWTP STAFF FOR ACCESS, TIMING OF CONSTRUCTION ACTIVITIES, AND ANY DISRUPTION OF UTILITY SERVICE.  
 4. SPECIAL CARE SHALL BE TAKEN WHEN EXCAVATING AROUND THE EXISTING TANKS, PIPING, BUILDINGS, ETC. CONTRACTOR SHALL INCLUDE ANY SHORING REQUIRED TO MAINTAIN THE INTEGRITY OF THESE EXISTING FACILITIES.

NOTES

**Performance Engineers, Inc.**

Civil / Structural Engineering

406 Petoskey Avenue  
Charlevoix, Michigan 49720  
www.performanceeng.com

TUSCARORA TOWNSHIP  
WWTP EXPANSION  
PART OF SECT 30 T3EN R2W INDIAN RIVER  
TUSCARORA TOWNSHIP  
CHEBONGAN COUNTY, MICHIGAN  
OWNER  
TUSCARORA TOWNSHIP

MARK	DATE	DESCRIPTION	PERMIT SUBMITTAL
0	7-28-23		

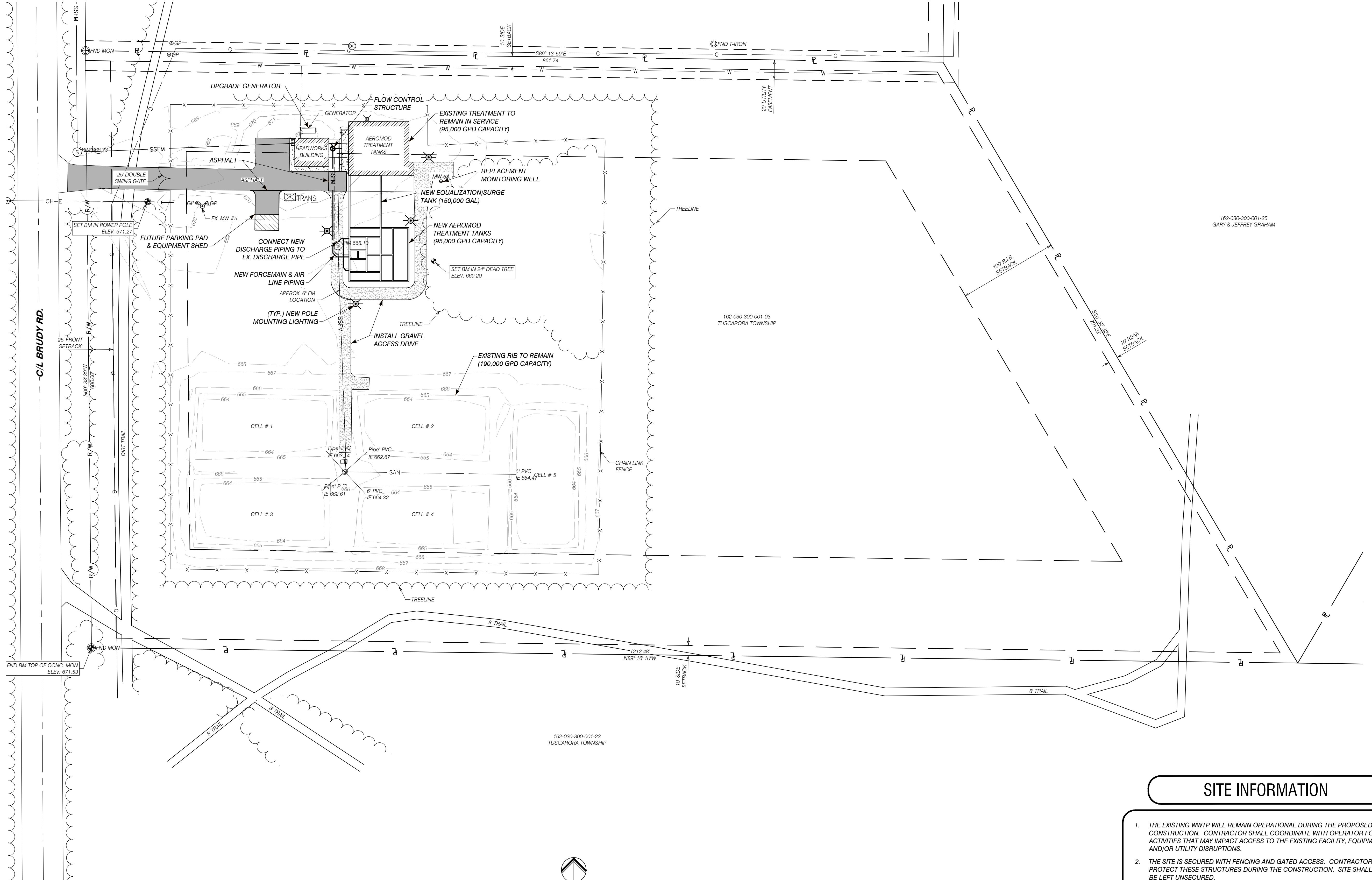
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CAD DWG FILE:	5797 BASE
DRAWN BY:	PEI
DESIGNED BY:	AEN
CHECKED BY:	PEI

SEAL

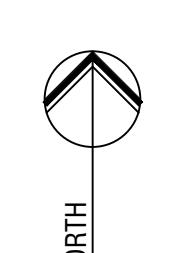
EX. CONDITIONS  
& DEMO PLAN

C300

SHEET 3 OF 21



**SITE PLAN LAYOUT**  
1'-0"  
0 50' 100'  
GRAPHIC SCALE



### SITE INFORMATION

1. THE EXISTING WWTP WILL REMAIN OPERATIONAL DURING THE PROPOSED CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH OPERATOR FOR ALL ACTIVITIES THAT MAY IMPACT ACCESS TO THE EXISTING FACILITY, EQUIPMENT, AND/OR UTILITY DISRUPTIONS.
2. THE SITE IS SECURED WITH FENCING AND GATED ACCESS. CONTRACTOR SHALL PROTECT THESE STRUCTURES DURING THE CONSTRUCTION. SITE SHALL NOT BE LEFT UNSECURED.
3. THE CONSTRUCTION WILL INCLUDE A NEW HEADWORKS, WHERE A BY-PASS LINE WILL BE TEMPORARILY INSTALLED DURING CONSTRUCTION. THE EXISTING 6-INCH FORCEMAIN WILL BE CUT, ISOLATION VALVES INSTALLED AND THEN TEMPORARILY RE-ROUTED AROUND THE NEW HEADWORKS TO KEEP THE EXISTING HEADWORKS IN-SERVICE DURING CONSTRUCTION.
4. THE NEW HEADWORKS WILL BE RELOCATED OUTSIDE WITHIN A HEAT TRACED CONCRETE SLAB.
5. THE CONSTRUCTION INCLUDES A NEW 150,000 GAL EQUALIZATION TANK AS PART OF THE PLANT EXPANSION.
6. THE CONSTRUCTION INCLUDES AN APPROXIMATE DOUBLING OF THE TREATMENT PLANT TANKS. THE SAME AEROMOD TECHNOLOGY WILL BE USED FOR THE NEW EXPANSION.
7. THE EXISTING RIBS WILL REMAIN IN THE EXISTING CONFIGURATION.

**Performance Engineers, Inc.**

Civil / Structural Engineering  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
www.performanceeng.com

Aero - Mod, Inc.  
7071 U.S. Highway 24  
Marquette, Michigan 49852  
PHONE: (716) 537-4995  
FAX: (716) 537-0153

TUSCARORA TOWNSHIP  
WWTP EXPANSION  
460 BRUDY RD.  
INDIAN RIVER, MI 49749

TUSCARORA TOWNSHIP  
CHEBONIAN COUNTY, MICHIGAN  
OWNER

MARK	DATE	DESCRIPTION	PERMIT SUBMITTAL
0	7/28/23		

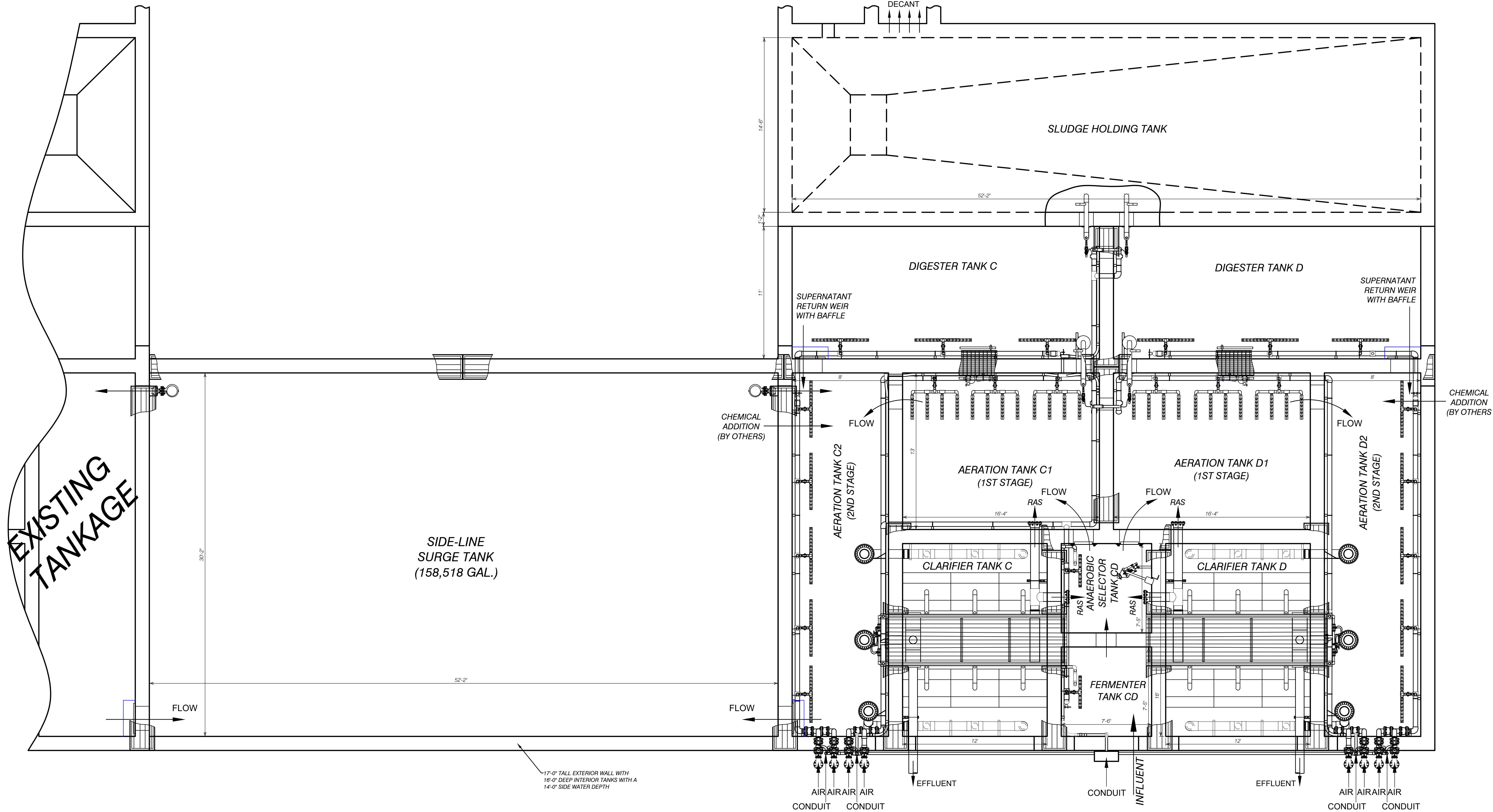
PROJECT NO: 23-6036  
CAD DWG FILE: 6036 SITE.DWG  
DRAWN BY: PEI  
DESIGNED BY: AEN  
CHECKED BY:

SEAL

SHEET TITLE  
**SITE PLAN**

C301

SHEET 4 OF 21



**NOTE:**

1. ALL TANK PIPING REQUIREMENTS SHOWN ON TANK PIPING LAYOUT.
2. ALL WALKWAY REQUIREMENTS SHOWN ON WALKWAY AND HANDRAIL LAYOUT.

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Civil / Structural Engineering  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
www.performanceeng.com

**Aero - Mod, Inc.**

PHONE: (781) 537-4995  
7801 U.S. Highway 24  
Natick, Massachusetts 01760  
FAX: (781) 537-0802

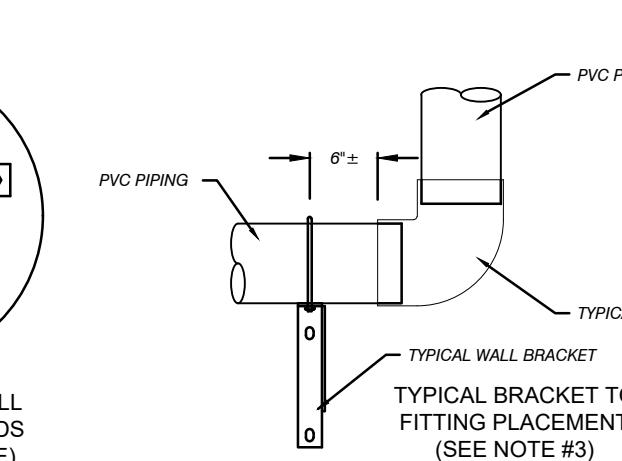
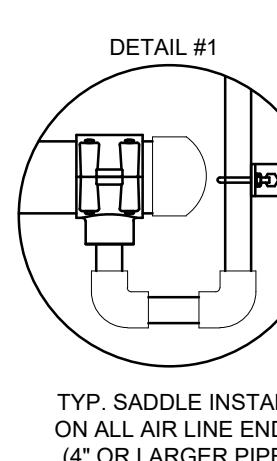
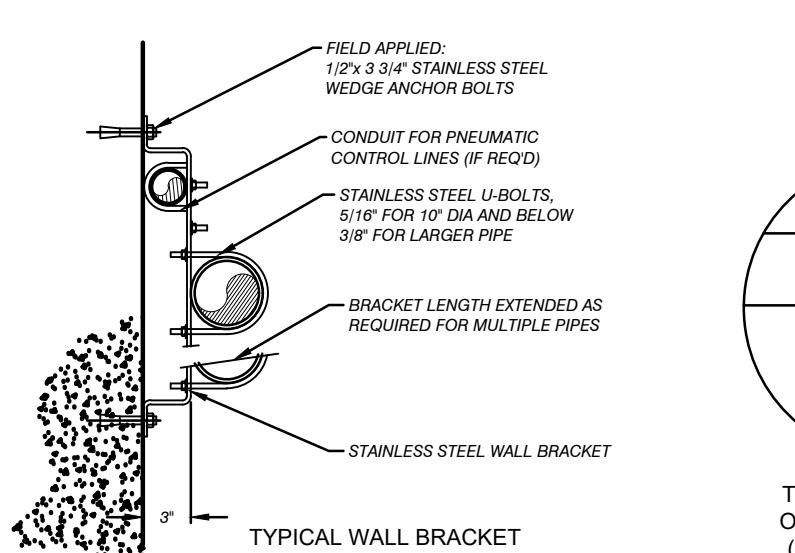
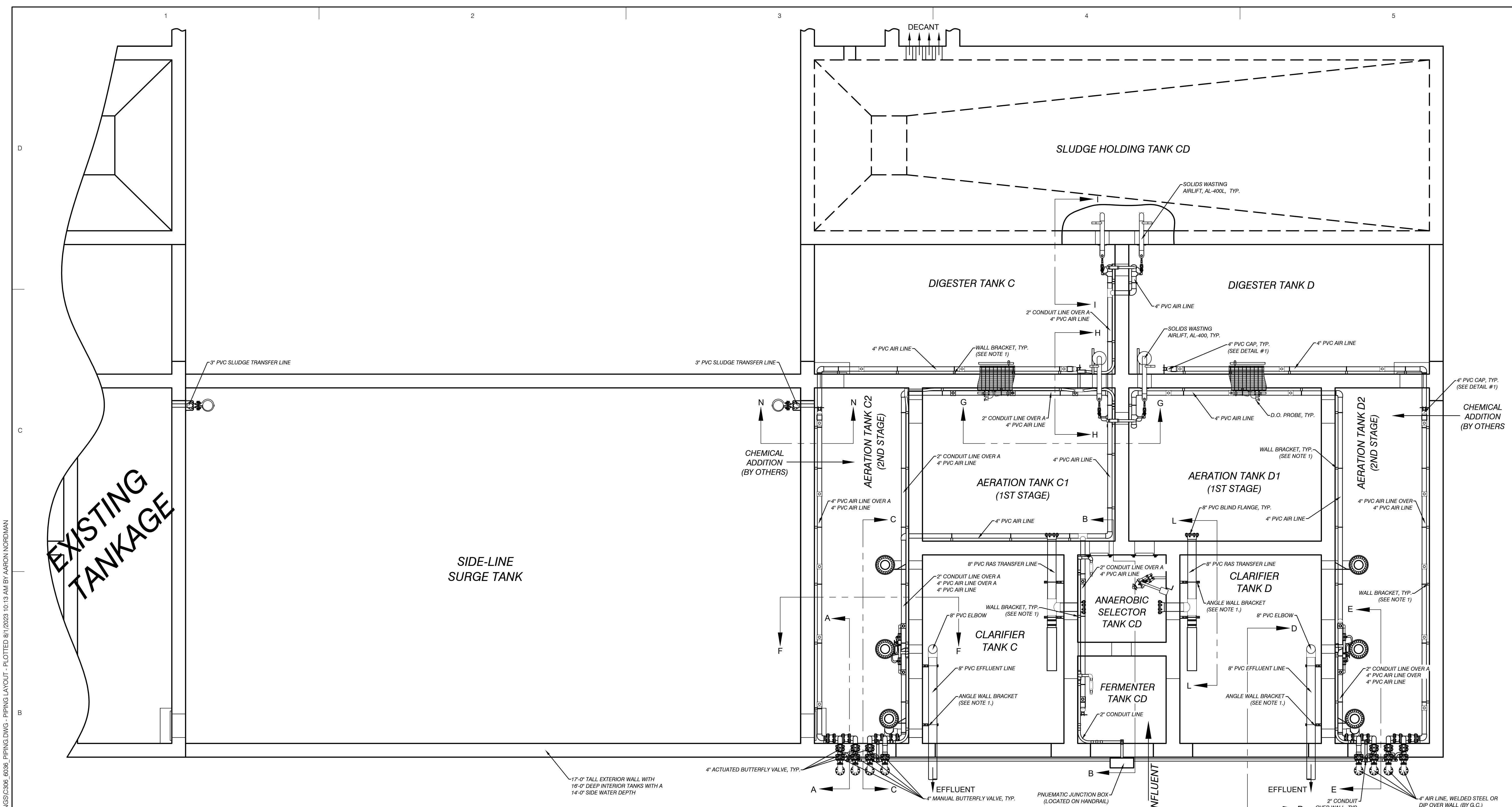
**TUSCARORA TOWNSHIP**  
**WWTP EXPANSION**  
460 BRIDY RD.  
INDIAN RIVER, MI 49749  
**OWNER**  
TUSCARORA TOWNSHIP

MARK	DATE	DESCRIPTION	PERMIT SUBMITTAL
0	7/28/23		
<b>PROJECT NO:</b> 23-6036			
CAD DWG FILE:	6036PLANT.DWG		
DRAWN BY:	PEI		
DESIGNED BY:	AMI		
CHECKED BY:	AEN		
SEAL			

**PLANT EXPANSION LAYOUT**

**C305**

**SHEET 8 OF 21**



**NOTE:**

- 1. STAINLESS STEEL WALL BRACKETS AND ANGLE WALL BRACKETS ARE TYPICALLY SPACED 5'-0" APART. (SUPPLIED BY AERO-MOD) UNLESS NOTED PIPE IS SECURED TO WALL BRACKETS WITH A STAINLESS STEEL U-BOLT.**

**2. EXPANSION JOINTS AND LOCATIONS TO BE DETERMINED AND SUPPLIED BY G.C.**

3. PLACE WALL BRACKETS IN PROPER LOCATIONS TO SUPPORT PIPE WITHOUT PUTTING UNNECESSARY STRESS ON PIPE FITTINGS & EXPANSION JOINTS

## **SUPPORT PIPE WITHOUT PUTTING UNNECESSARY STRESS ON PIPE FITTINGS & EXPANSION JOINTS**

1

# Performance Engineers, Inc.

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# Civil / Structural Engineering

406 Petoskey Avenue  
Charlevoix, Michigan 49720

Phone: (231) 547-2121  
Fax: (231) 547-0084

**Aero - Mod, Inc.**

# TUSCARORA TOWNSHIP WWTP EXPANSION

4649 BRUDY RD.  
INDIAN RIVER, MI 49749

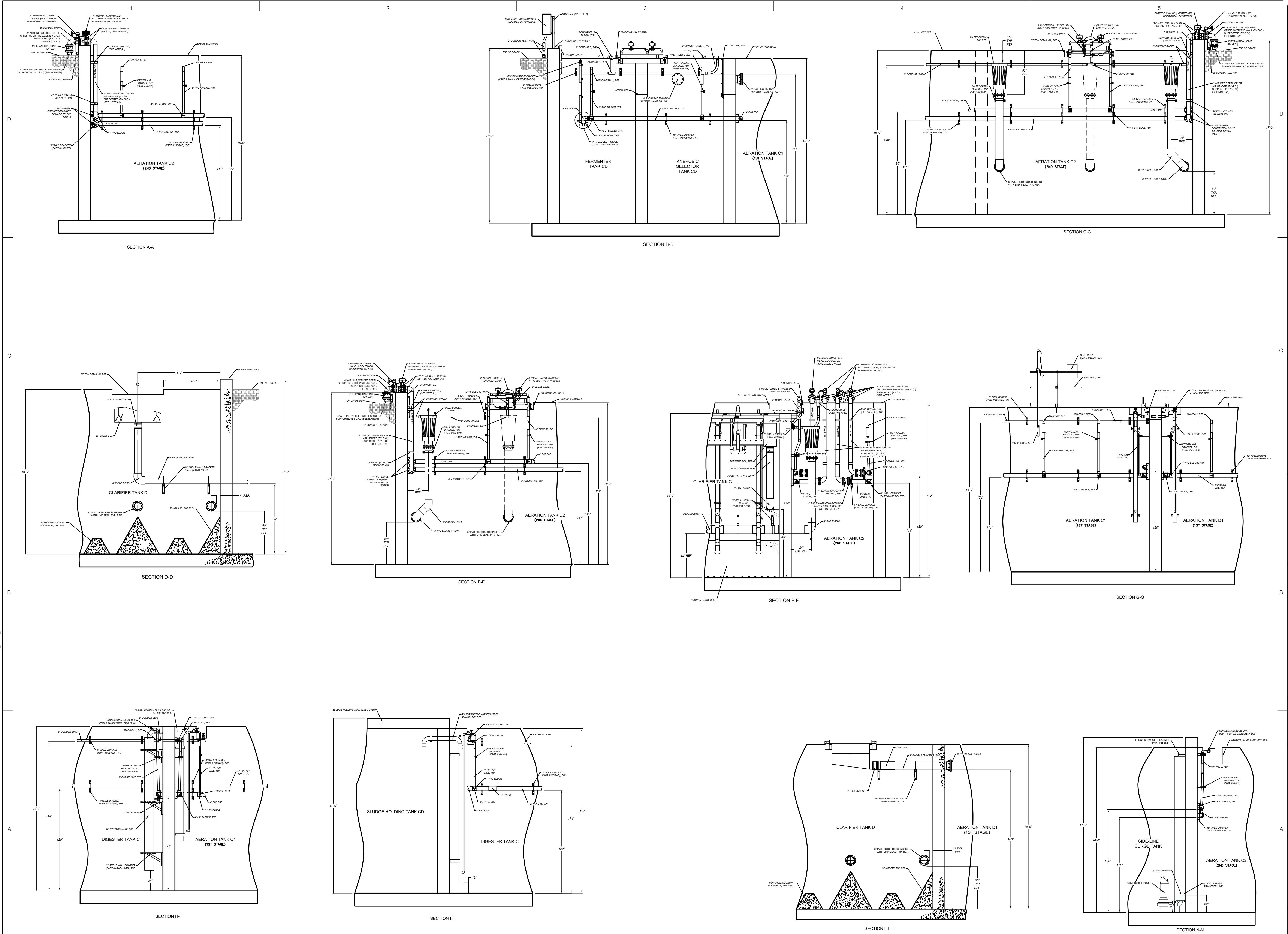
		DATE	DESCRIPTION	OWNER
		7/28/23	PERMIT SUBMITTAL	

PROJECT NO:	23-6036
CAD DWG FILE:	C306_6036_PIPING.DW
DRAWN BY:	AMI
DESIGNED BY:	AMI
CHECKED BY:	

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SHEET TITLE

C30



**TANK PIPING DETAILS**

C307

SHEET 10 OF 21

**TUSCARORA TOWNSHIP  
WWTP EXPANSION**

460 BRYD RD.  
INDIAN RIVER, MI 48749OWNER  
TUSCARORA TOWNSHIP  
CHEBONGAN COUNTY  
MICHIGAN

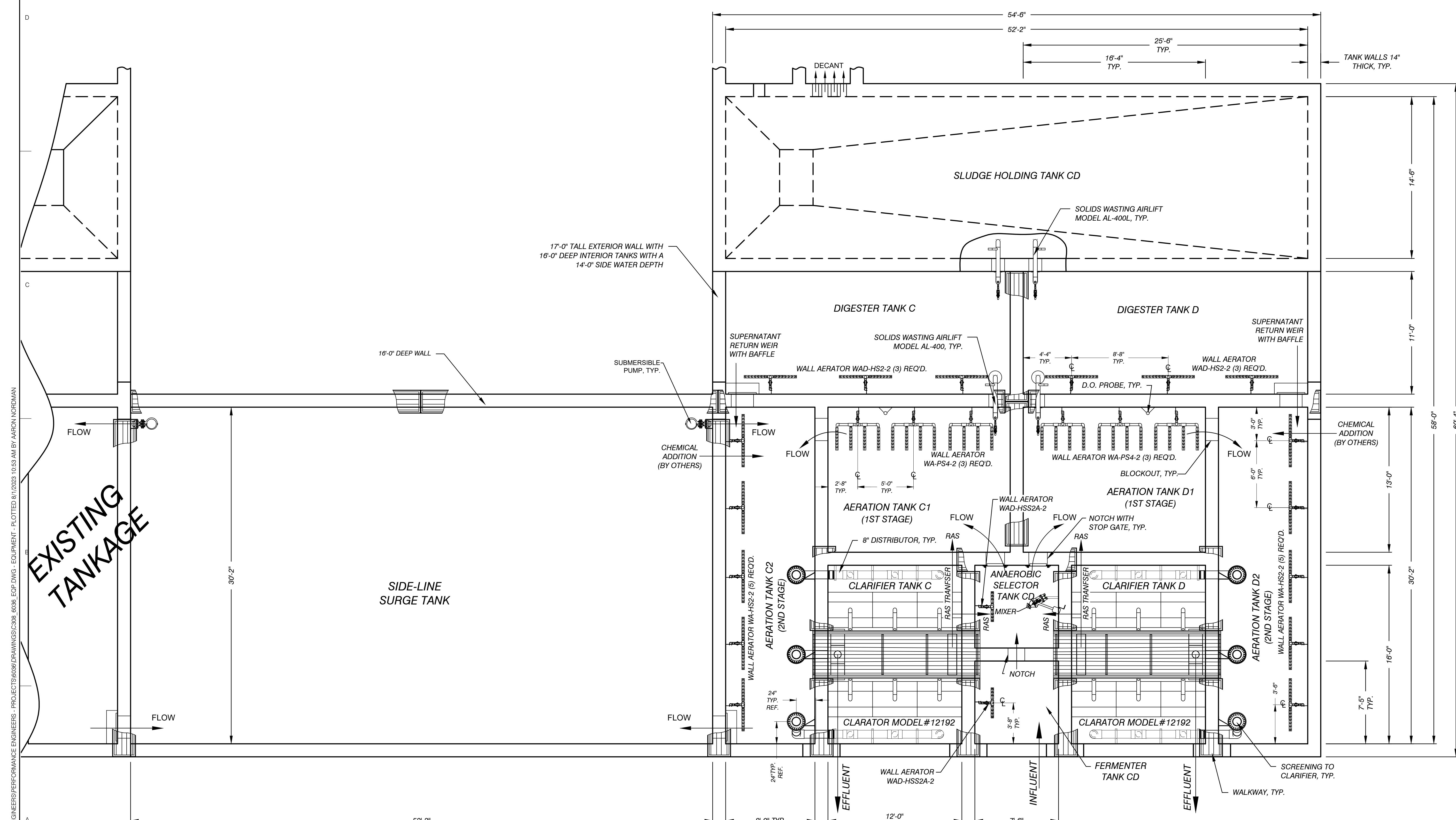
**Aero - Mod, Inc.**  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
PHONE: (786) 537-4995  
(786) 537-0802  
FAX: (786) 537-0802

CONSULTANTS

**Performance, Inc.**  
Civil / Structural Engineering  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
Phone: (231) 547-2121  
Fax: (231) 547-0084  
www.performanceeng.com

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Civil / Structural Engineering  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
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A schematic diagram of a piping system. On the left, a curved pipe segment is shown. A horizontal pipe segment extends from the top of this curve. A vertical pipe segment extends downwards from the horizontal pipe. A horizontal pipe segment extends from the top of the vertical pipe. A valve is located on the horizontal pipe at the top of the vertical pipe. A flow indicator arrow points to the left, indicating the direction of flow. A large, bold, diagonal text overlay reads "EXISTING TANKAGE".



NOTE:

1. ALL TANK PIPING REQUIREMENTS SHOWN ON TANK PIPING LAYOUT.
2. ALL WALKWAY REQUIREMENTS SHOWN ON WALKWAY AND HANDRAIL LAYOUT.

# Performance Engineers, Inc.

---

# **Civil / Structural Engineering**

**406 Petoskey Avenue**  
**Charlevoix, Michigan 49720**

**Phone: (231) 547-2121**  
**Fax: (231) 547-0084**

# TUSCARORA TOWNSHIP WWTP EXPANSION

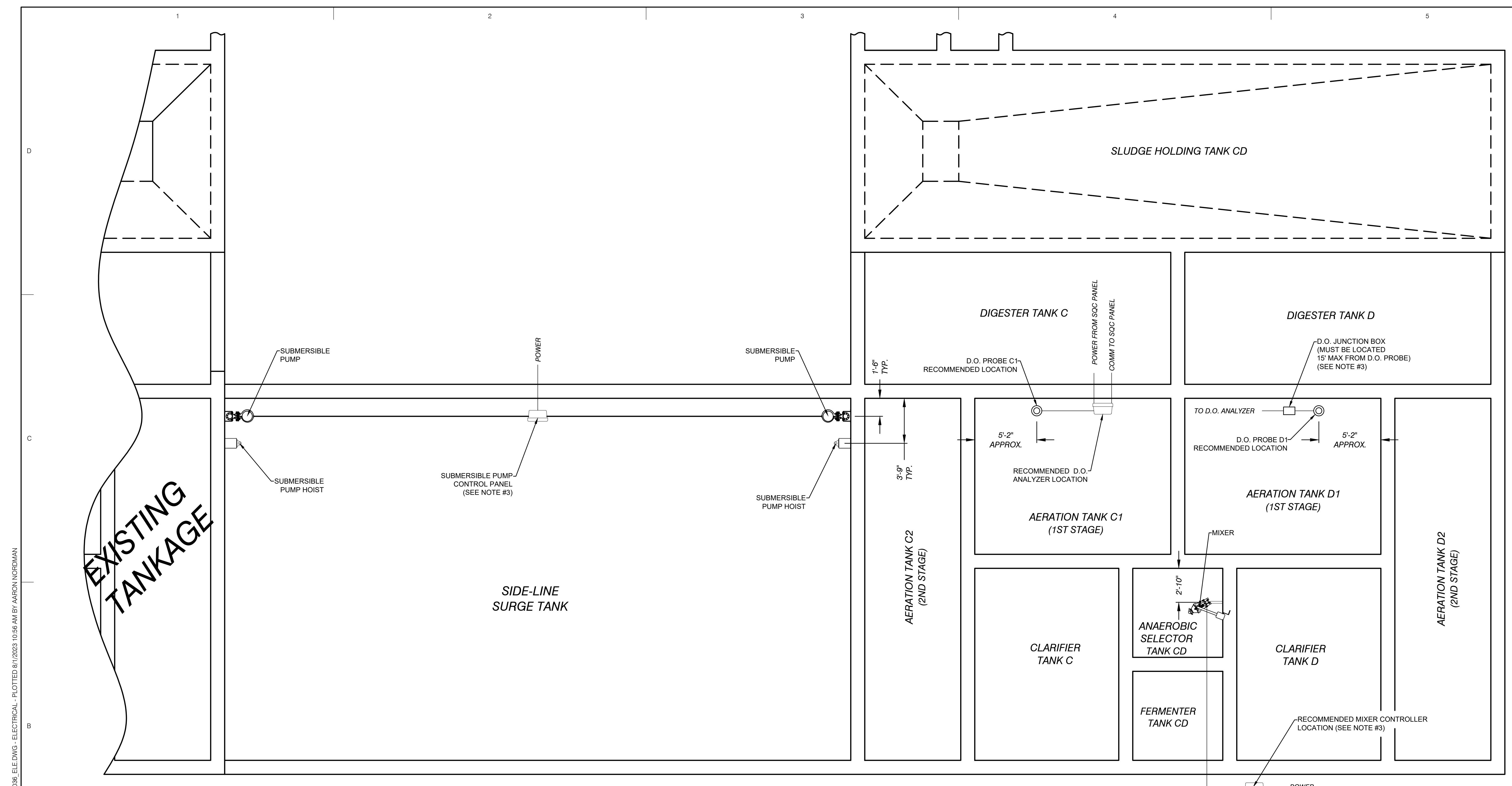
TUSCARORA T  
OWNER

# HEET TITLE

# EQUIPMENT PLAN

## VIEW

C308

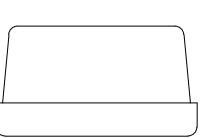


C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\c309 6036 ELE.DWG - ELECTRICAL - PLOTTED 8/1/2023 10:56 AM BY AARON NORDMAN

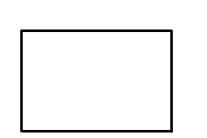
NOTE:

1. ALL POWER FROM DISTRIBUTION PANEL UNLESS OTHERWISE NOTED
2. EXTENSION CABLES WILL REQUIRE ADDITIONAL CONDUIT (1") TO D.O. PROBE CONTROLLER VIA THE JUNCTION BOX. (GENERAL CONTRACTOR)
3. HEIGHT AND LOCATION OF PANEL/JUNCTION BOX TO BE DETERMINED BY ELECTRICAL ENGINEER

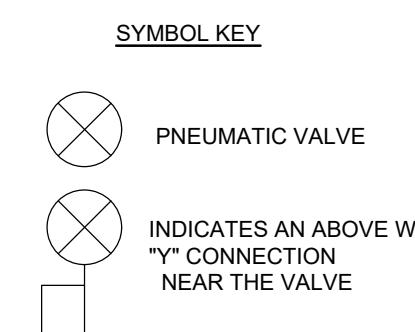
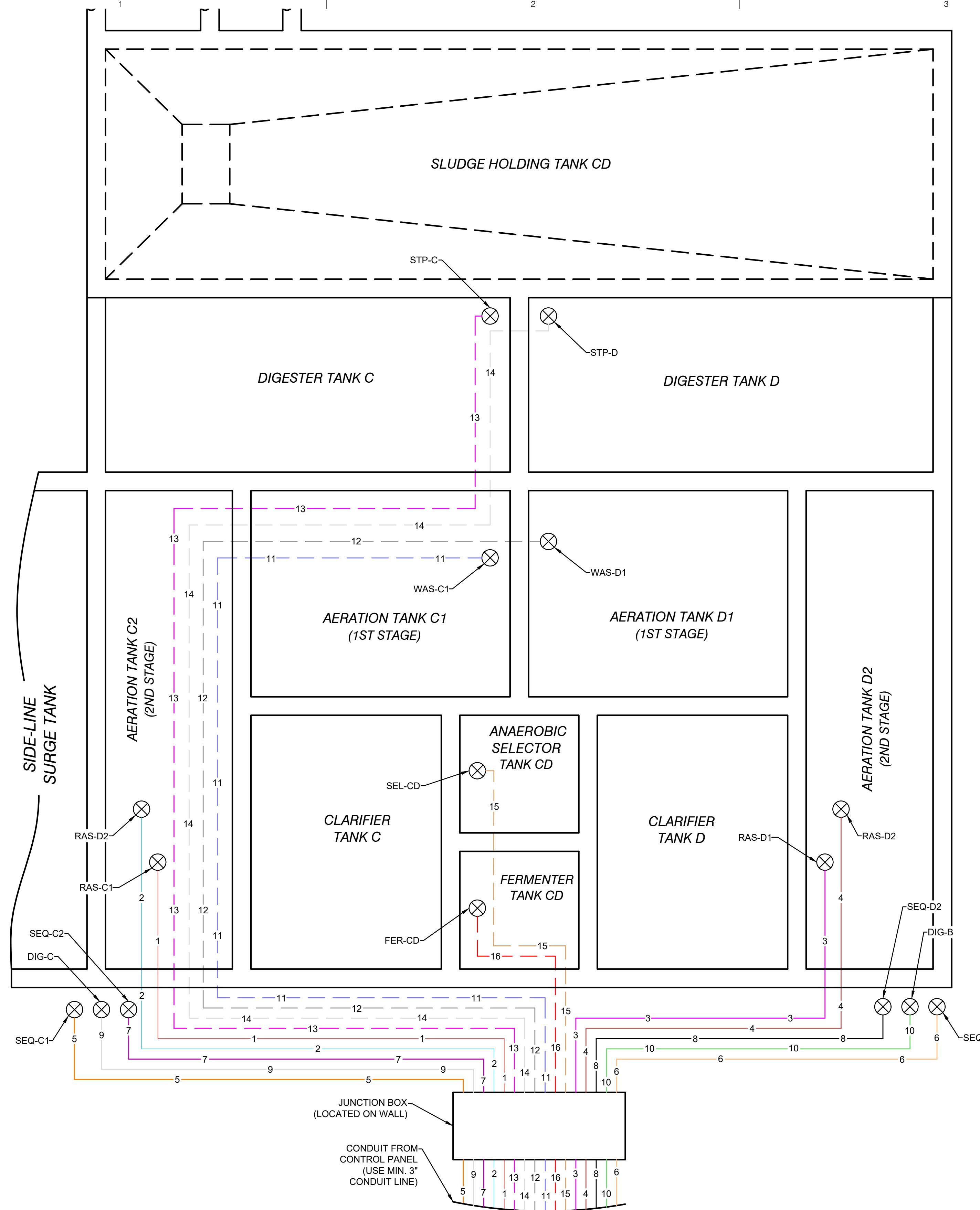
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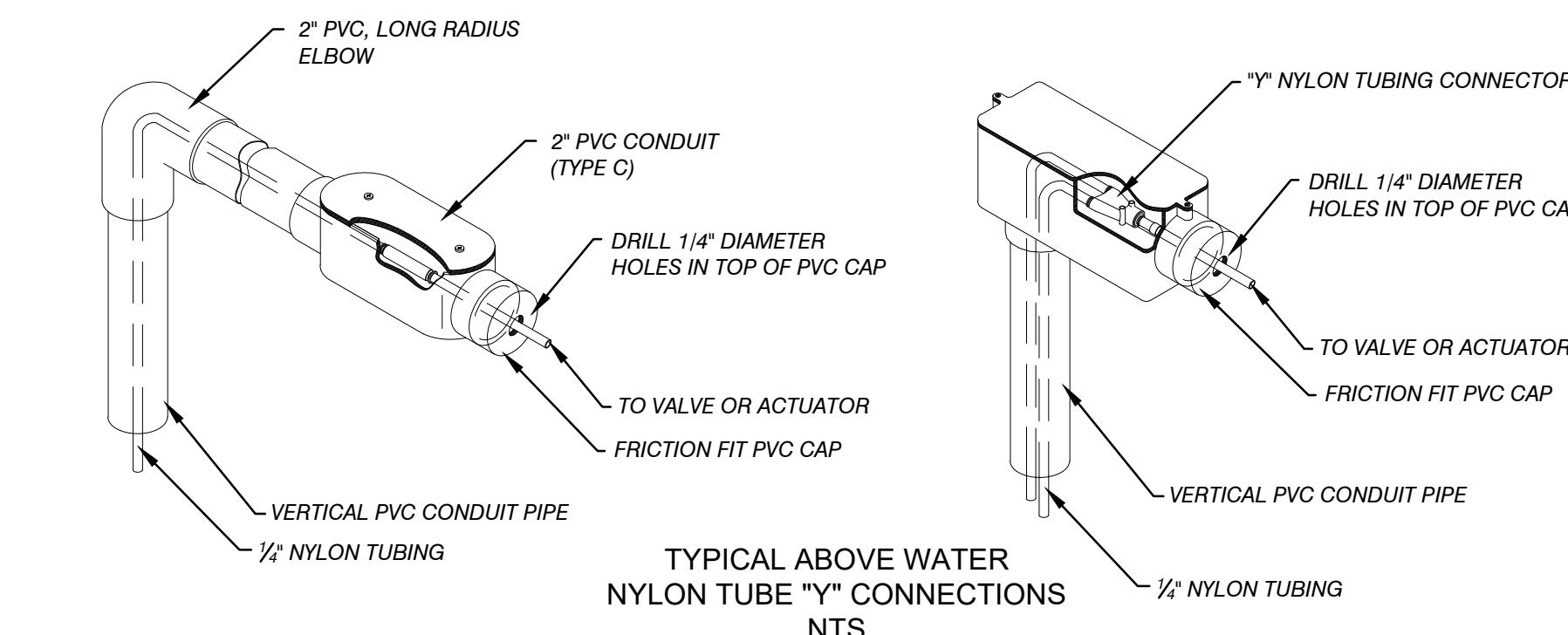
CONTROL PANEL



#### UNCTION BOX



NYLON TUBING GUIDE FOR PNEUMATIC SCHEMATICS				
PNEUMATIC LINE NUMBER	NYLON TUBE COLOR AND ITEM NUMBER	NUMBER OF TUBES	DESCRIPTION AND VALVE NO.	NORMAL VALVE POSITION
1	RED (04126)	TWO	CYCLE VALVE RAS-C1	CLOSED
2	BLUE (04166)	TWO	CYCLE VALVE RAS-C2	CLOSED
3	PINK (041G6)	TWO	CYCLE VALVE RAS-D1	CLOSED
4	BROWN (041C6)	TWO	CYCLE VALVE RAS-D2	CLOSED
5	ORANGE (04136)	TWO	SEQUOX VALVE SEQ-C1	OPEN
6	NATURAL (04176)	TWO	SEQUOX VALVE SEQ-D1	OPEN
7	PURPLE (041D6)	TWO	SEQUOX VALVE SEQ-C2	OPEN
8	BLACK (04106)	TWO	SEQUOX VALVE SEQ-D2	OPEN
9	WHITE (04116)	TWO	DIGESTER VALVE DIG-A	OPEN
10	GREEN (04156)	TWO	DIGESTER VALVE DIG-B	OPEN
11	VIOLET (04186)	ONE	WASTING VALVE WAS-C1	CLOSED
12	GREY (04196)	ONE	WASTING VALVE WAS-D1	CLOSED
13	PINK (041G6)	ONE	WASTING VALVE STP-D	CLOSED
14	SILVER (041F6)	ONE	WASTING VALVE STP-D	CLOSED
15	TAN (041E6)	ONE	SELECTOR SEL-CD	CLOSED
16	RED (04126)	ONE	SELECTOR FER-CD	CLOSED



VALVE ABBREVIATION GUIDE	
XXX - X(X#) #	INDICATES CYCLE/STAGE/ VALVE OR EQUIPMENT NUMBER
	INDICATES CYCLE/STAGE
	INDICATES TRAIN(S)/LOCATION
	INDICATES TYPE/FUNCTION FOR VALVE OR EQUIPMENT
RAS	RETURN ACTIVATED SLUDGE (RAS) VALVE
SEQ	SEQUOX VALVE
DIG	DIGESTER VALVE
WAS	AIR LIFT VALVE
SEL	SELECTOR VALVE (MAY HAVE BIO-P AS A PREFIX)
SHT	SLUDGE HOLDING VALVE
STP	SLUDGE TRANSFER VALVE
FER	FERMENTOR VALVE

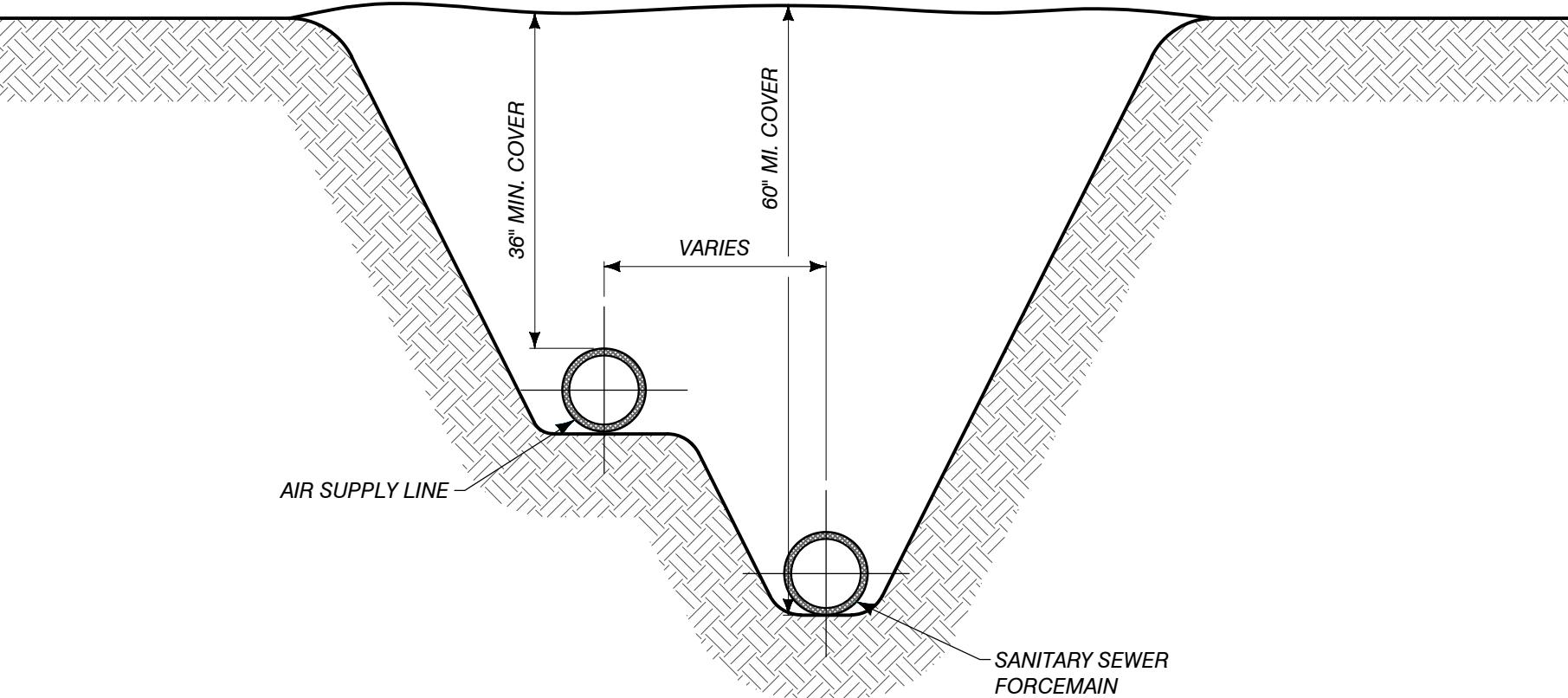
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DRAWN BY: AMI  
DESIGNED BY: AMI  
CHECKED BY: PEI

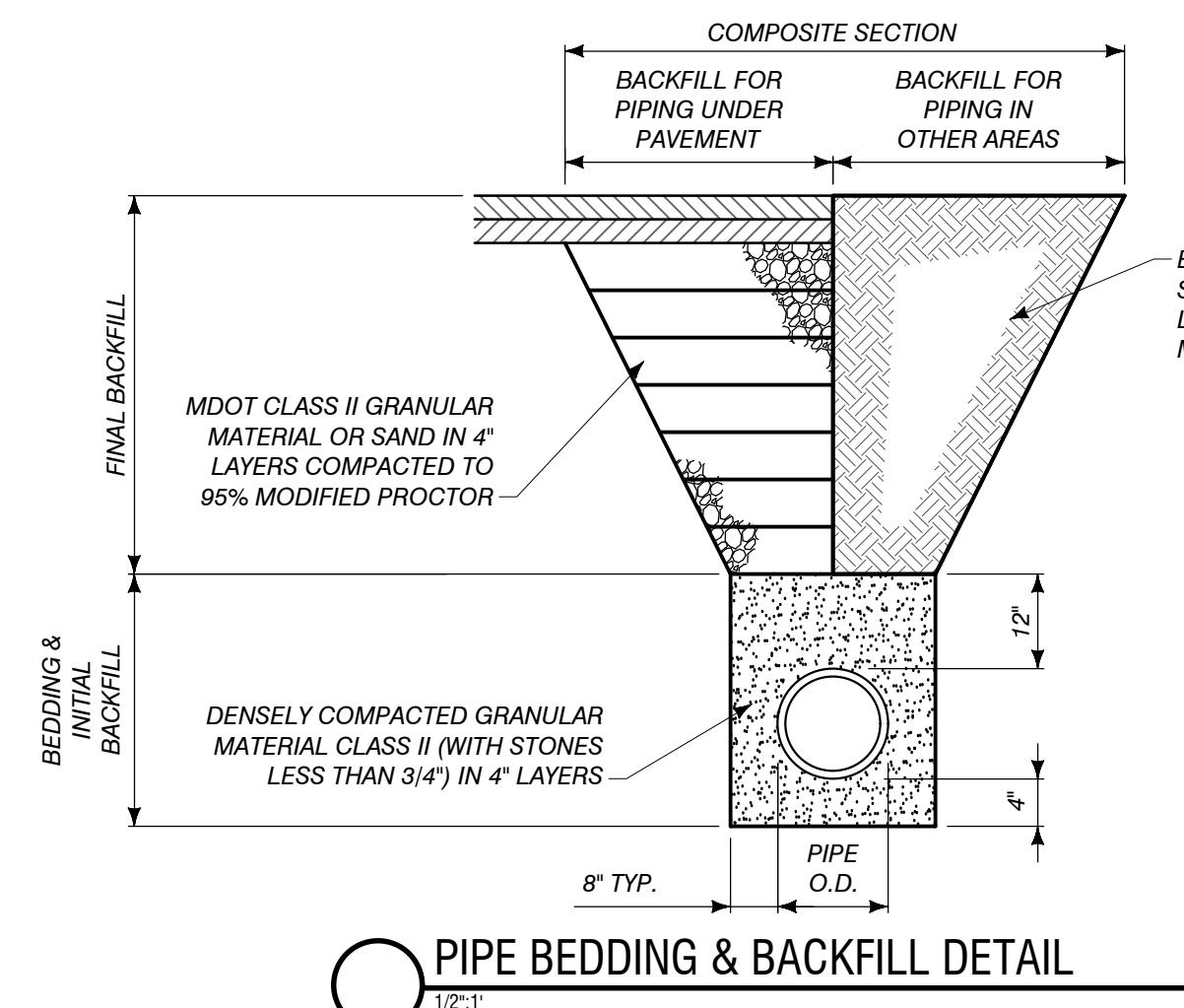
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SHEET TITLE  
PNEUMATIC EQUIPMENT  
PLACEMENT

C310



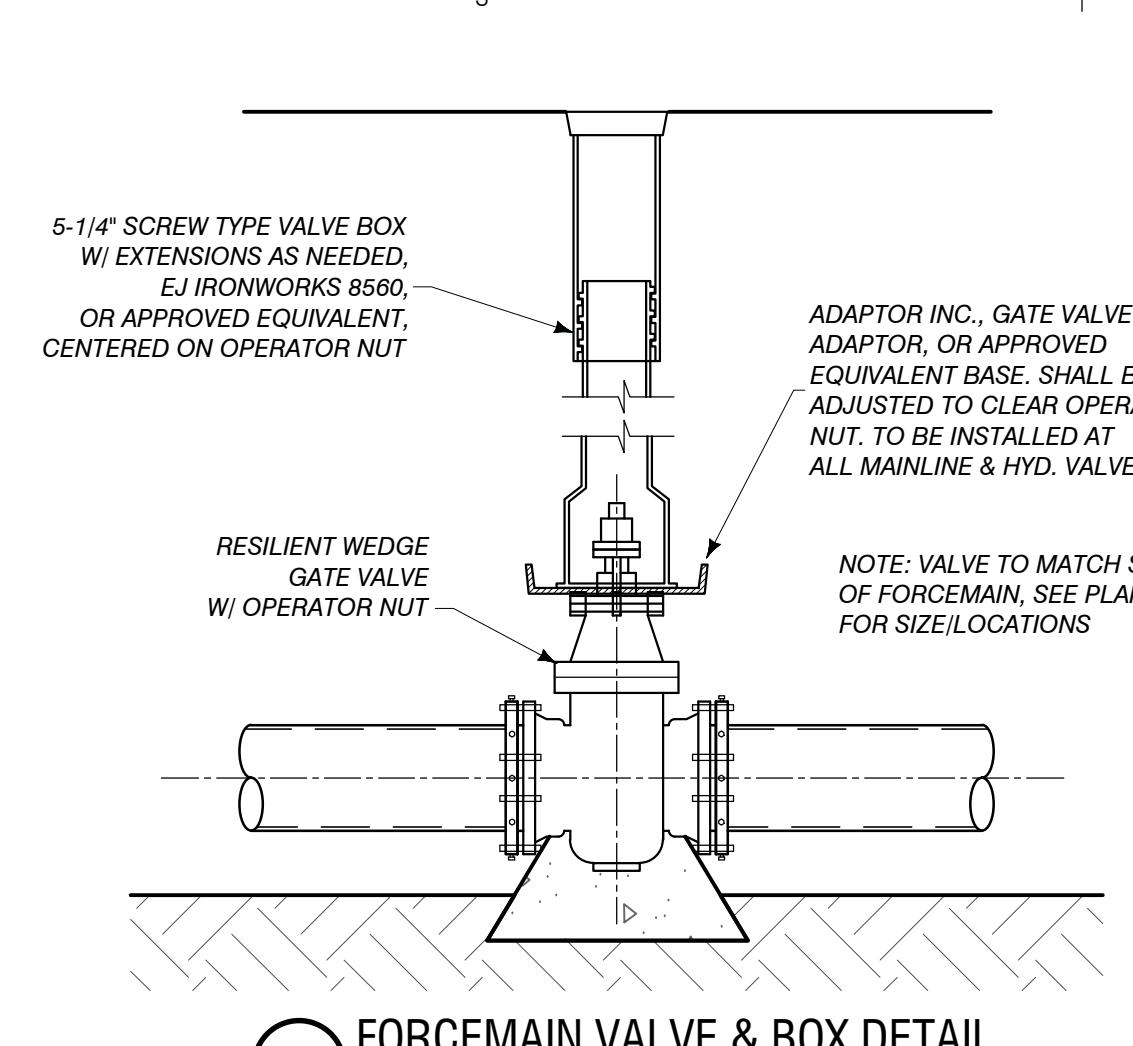
2 PIPE TRENCH DETAIL



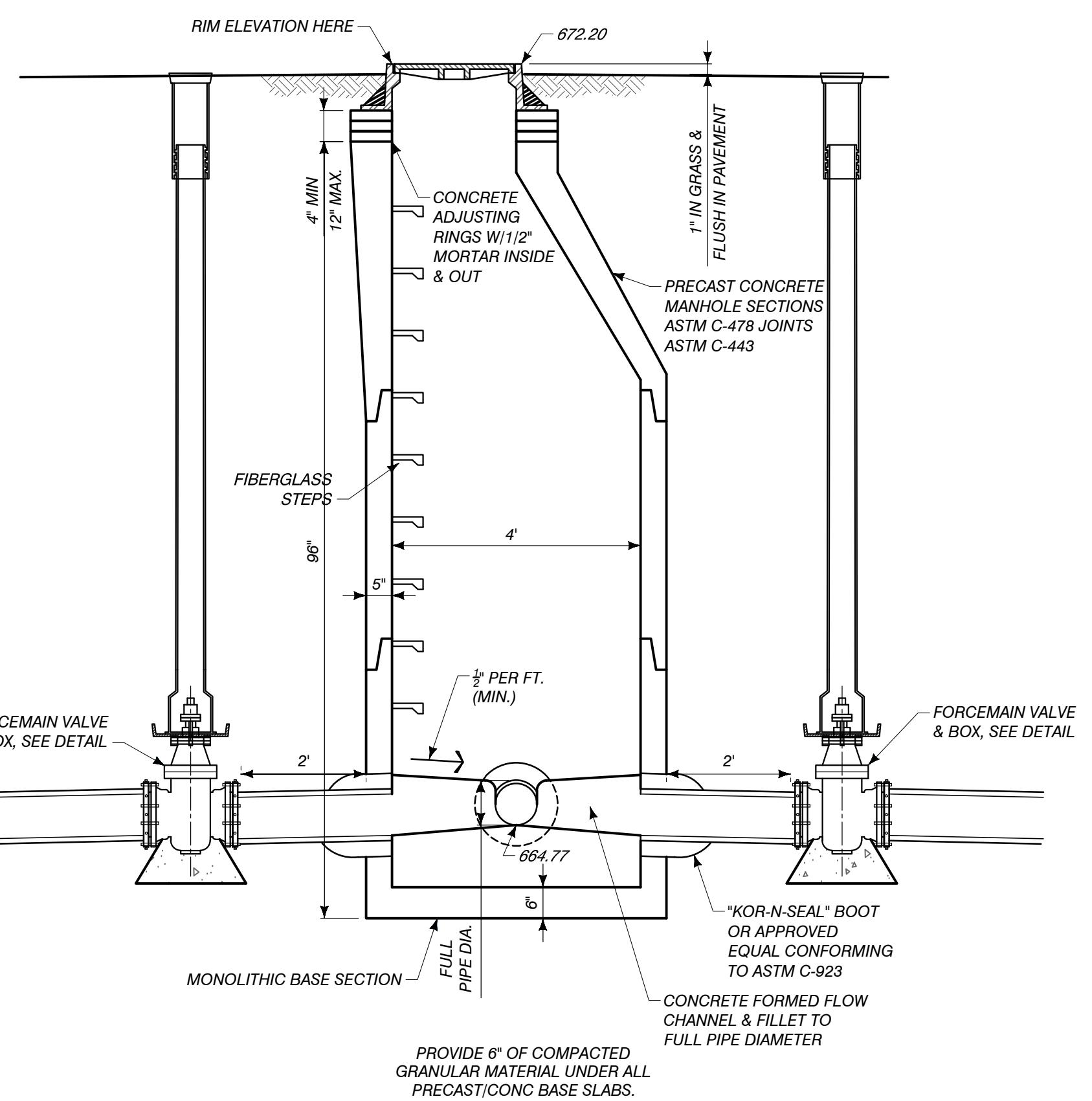
PIPE BEDDING &amp; BACKFILL DETAIL

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE STATE OF MICHIGAN, EGLE. INSTALLATION OF PVC PIPING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D2321, THE PLANS AND SUPPLEMENTAL SPECIFICATIONS PROVIDED.
- THE OWNER WILL PROVIDE THE CONTRACTOR WITH THE REQUIRED EGLE PERMIT FOR THE SANITARY SEWER CONSTRUCTION. CONSTRUCTION IS NOT TO BEGIN UNTIL THIS PERMIT HAS BEEN OBTAINED.
- ALL SANITARY SEWER GRAVITY PIPING SHALL BE PVC SDR-26 WITH GASKET JOINTS, PIPING LESS THAN 24-INCH DIA. SHALL BE SET BY LASER ALIGNMENT.
- ALL SANITARY FORCEMAIN SEWER PIPING SHALL BE HDPE, DR-11 IPS PIPE SIZE. WHERE PVC FORCEMAIN IS TO BE INSTALLED IN AN OPEN TRENCH, IT SHALL BE A MINIMUM OF SDR-21. ALL FORCEMAIN PIPING SHALL BE INSTALLED WITH A TRACER WIRE FOR LOCATING.
- THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE FOR CONSTRUCTION INSPECTION BY THE ENGINEER AND PROVIDE ACCEPTANCE TESTING OF THE COMPLETED PIPING SYSTEM, PRIOR TO BEING ACCEPTED BY THE OWNER.
- NO INDIVIDUAL SERVICES SHALL BE CONNECTED UNTIL SEWER MAIN HAS BEEN ACCEPTED BY THE OWNER AND PLACED IN-SERVICE.
- SANITARY SERVICE LOCATIONS SHOWN ARE BASED UPON THE BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ENSURE THAT EVERY HOME IS PROVIDED A CONNECTION TO THE NEW MAINS. THIS WORK IS INCIDENTAL TO THE SERVICE INSTALLATION.

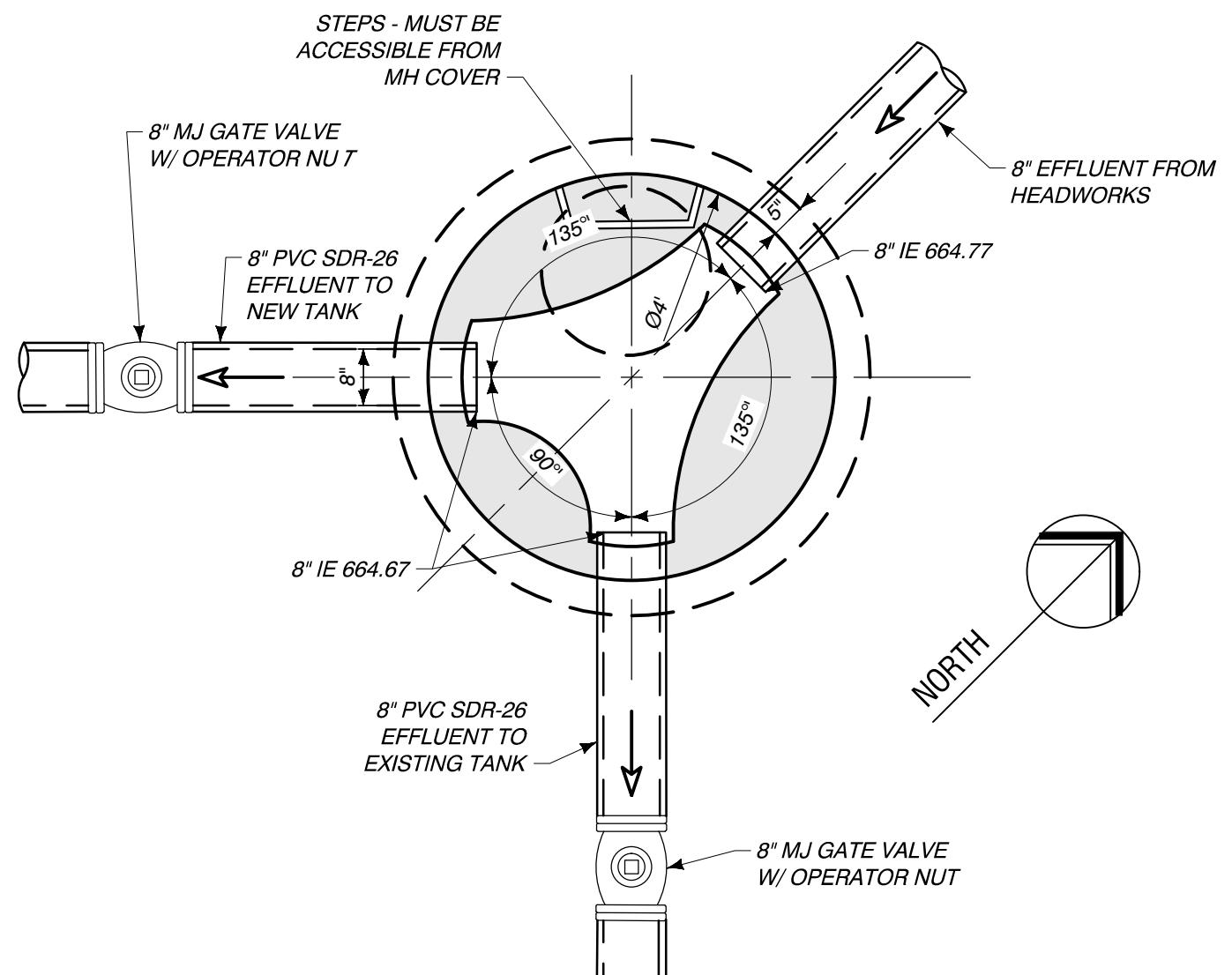
SANITARY CONSTRUCTION NOTES



FORCEMAIN VALVE &amp; BOX DETAIL



FLOW CONTROL STRUCTURE



FLOW CONTROL SANITARY X-SECTION

# Performance, Inc. / E

Civil / Structural Engineering  
406 Petoskey Avenue  
Charlevoix, Michigan 49720  
Phone: (231) 547-2121  
Fax: (231) 547-0084  
www.performanceeng.com

Aero - Mod, Inc.  
7071 U.S. Highway 24  
Muskegon, Michigan 49442  
Phone: (781) 537-4995  
(781) 537-0802  
FAX:

TUSCARORA TOWNSHIP  
WWTP EXPANSION  
460 BRYDY RD.  
INDIAN RIVER, MI 49749  
OWNER  
TUSCARORA TOWNSHIP  
CHEBONIAN COUNTY, MICHIGAN

MARK	DATE	DESCRIPTION	PERMIT SUBMITTAL
0	7/28/23		

PROJECT NO: 23-6036  
CAD DWG FILE: D400 6036 DETL.DWG

DRAWN BY: PEI

DESIGNED BY: PEI

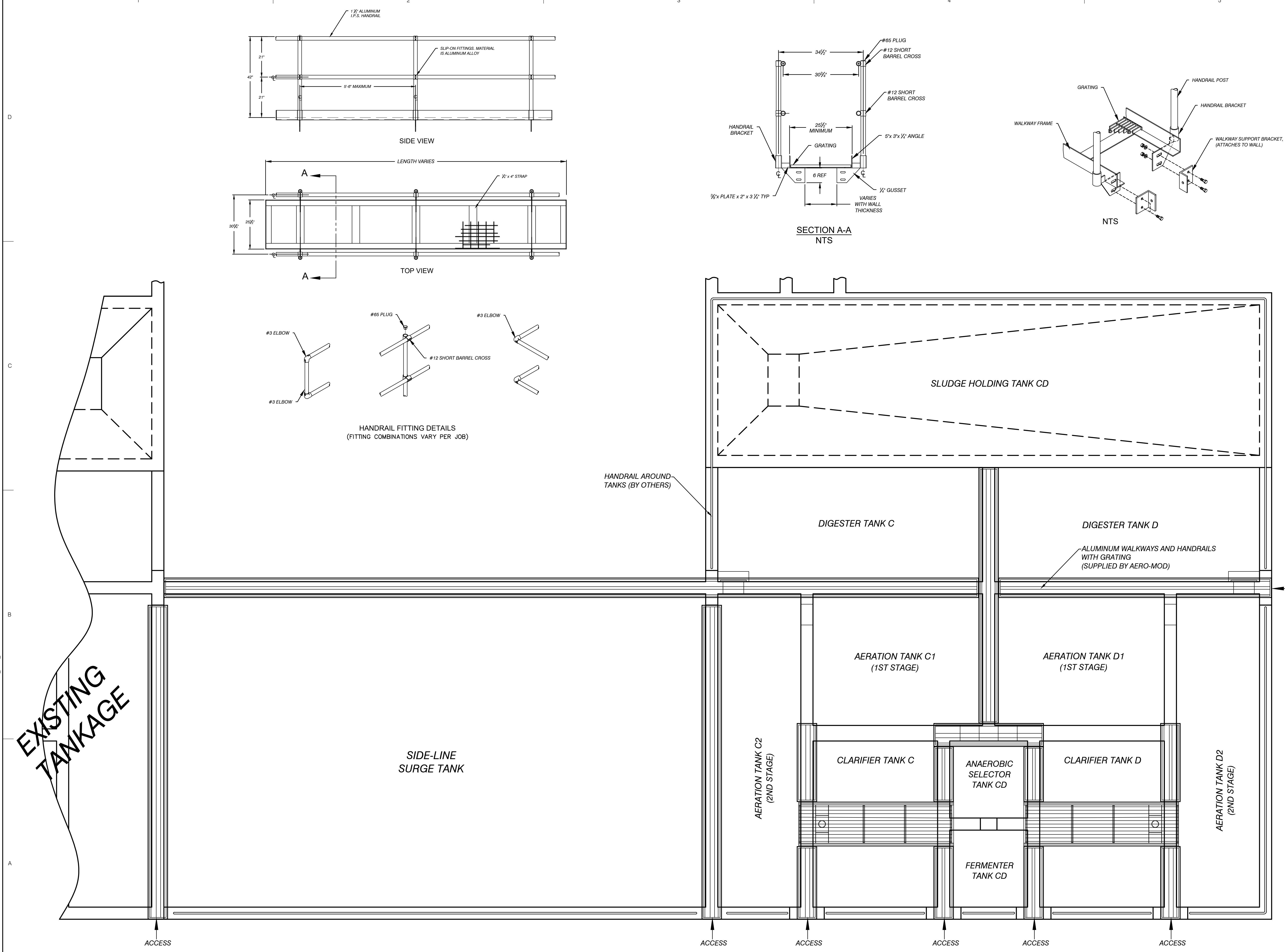
CHECKED BY:

SEAL

SHEET TITLE  
SANITARY DETAILS

D400

SHEET 14 OF 21



D

1

TOP VIEW OF CLARATOR MODEL #12192

## TOP VIEW OF CLARATOR MODEL #1

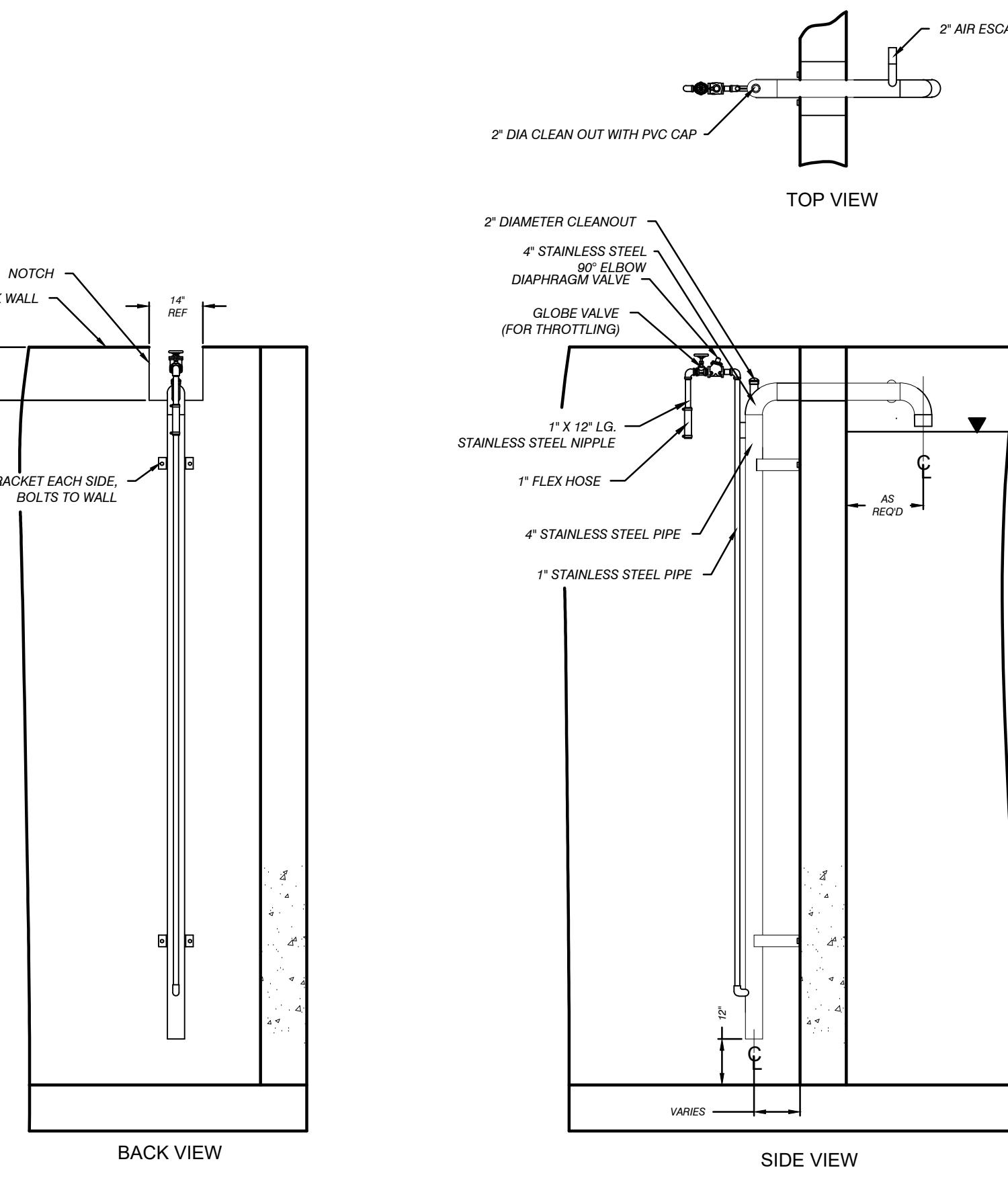
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## TYPICAL CROSS SECTION THROUGH CLARIFIER TANK

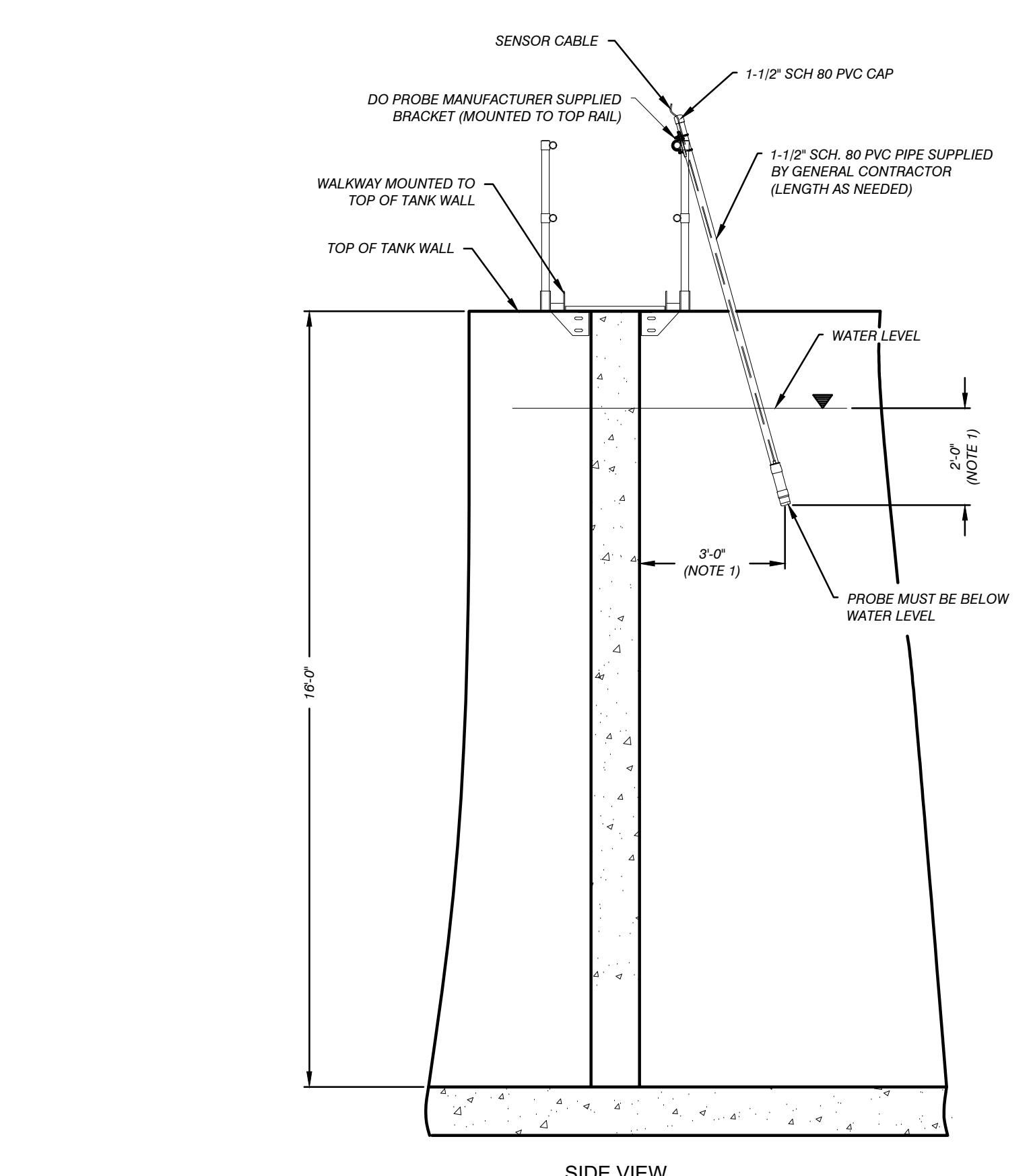
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# CLARATOR DETAILS

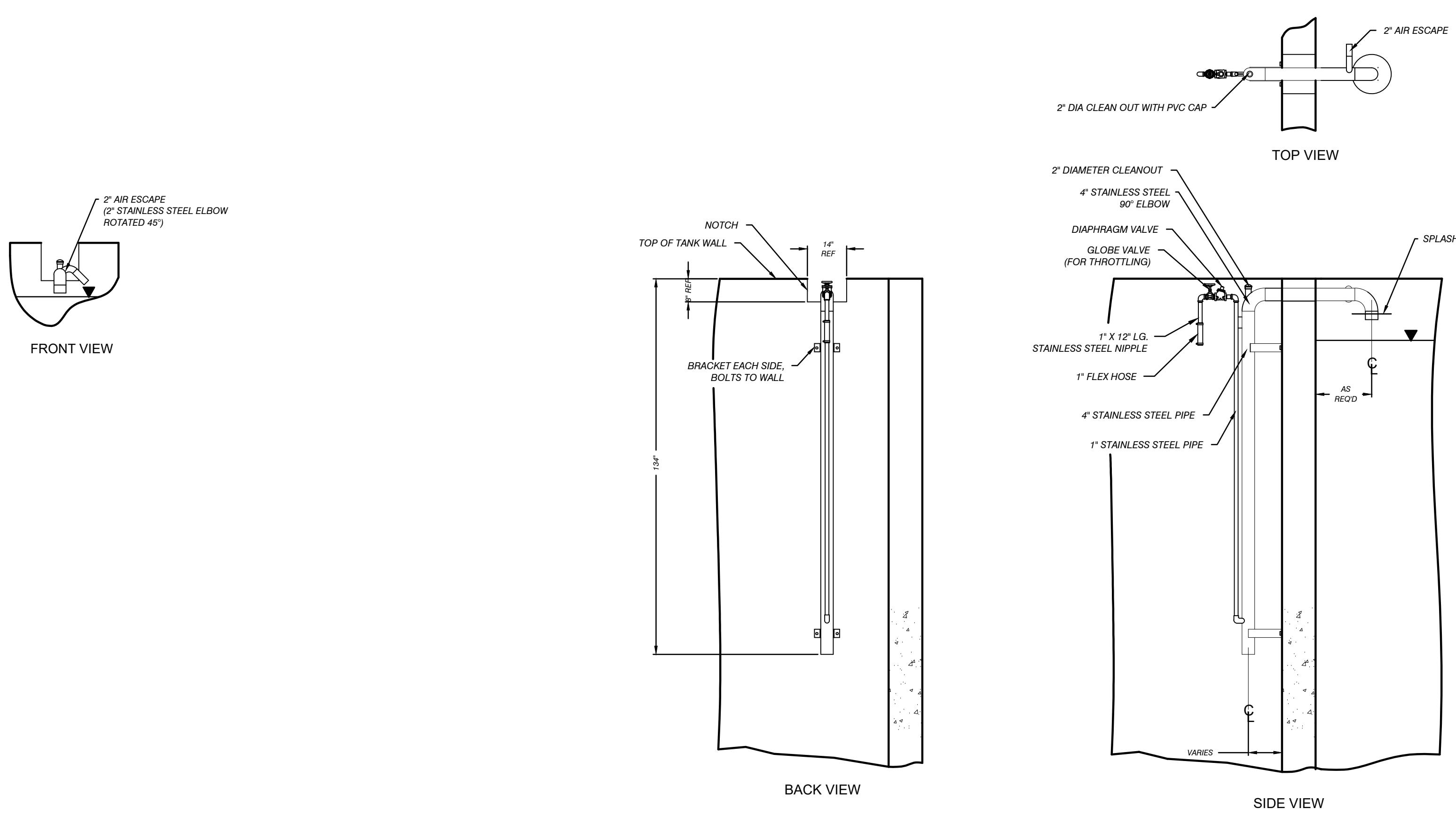
D402



MODEL AL-400L  
SOLIDS WASTING AIRLIFT  
EQUIPMENT DETAIL



D.O. PROBE  
EQUIPMENT DETAIL



MODEL AL-400  
SOLIDS WASTING AIRLIFT  
EQUIPMENT DETAIL

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Civil / Structural Engineering

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Charlevoix, Michigan 49720  
www.performanceeng.com

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Fax: (231) 547-0084

Aero - Mod, Inc.

7071 U.S. Highway 24  
Mackinaw, Ontario N8X 2Z2



PHONE: (781) 537-4995  
FAX: (781) 537-0313

TUSCARORA TOWNSHIP  
WWTP EXPANSION  
460 BRIARY RD.  
INDIAN RIVER, MI 49749

OWNER  
TUSCARORA TOWNSHIP  
CHEBONGAN COUNTY, MICHIGAN

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0	7/28/23	PERMIT SUBMITAL

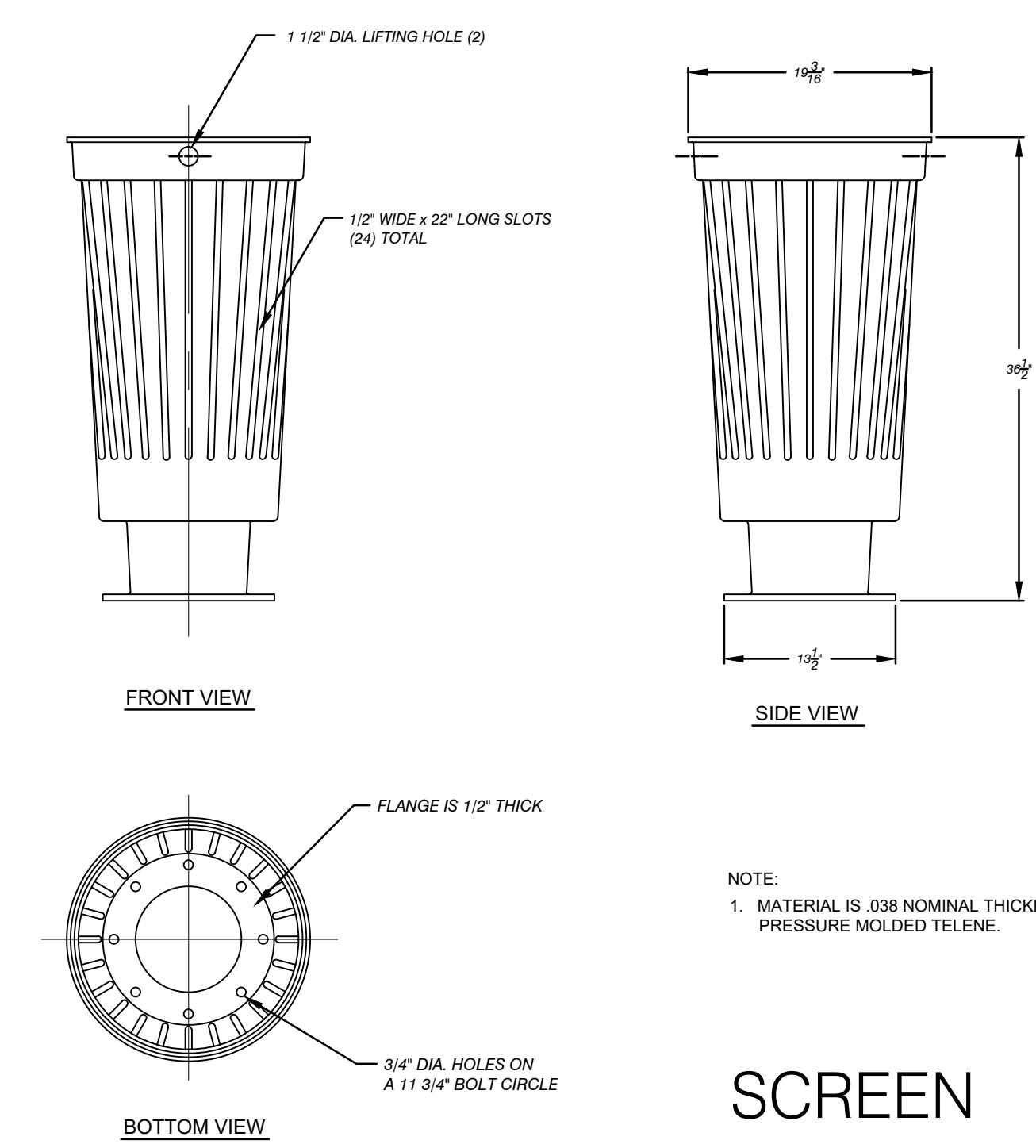
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SEAL

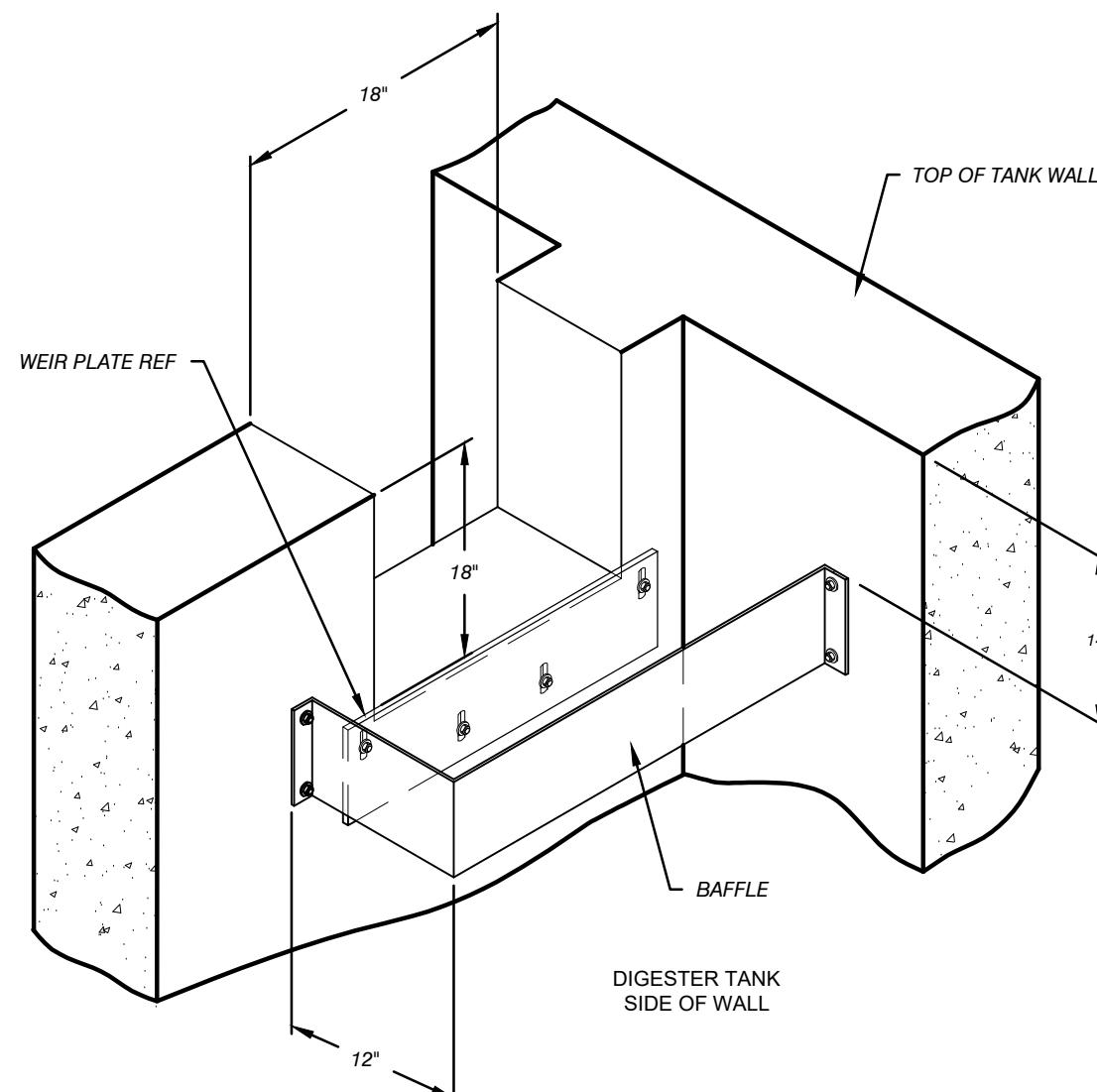
EQUIPMENT  
DETAIL 1

D403

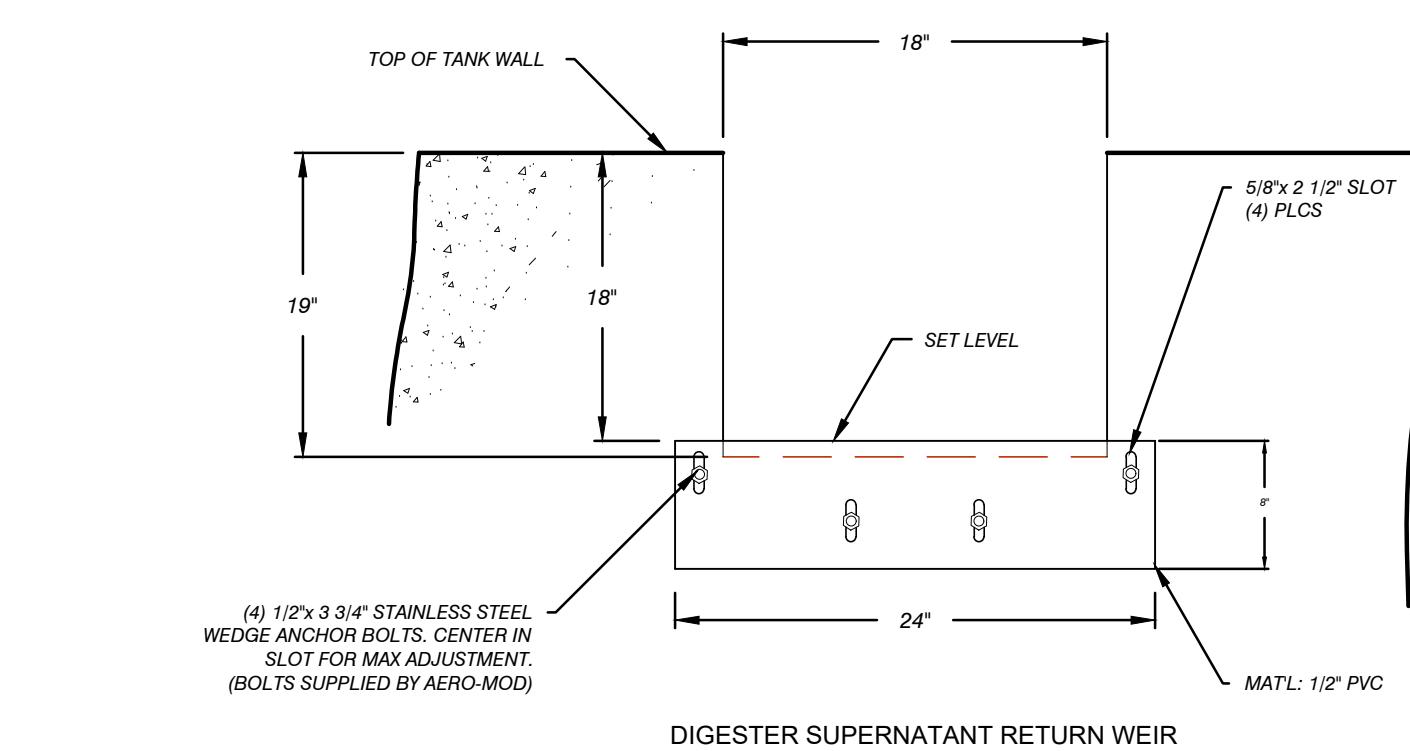
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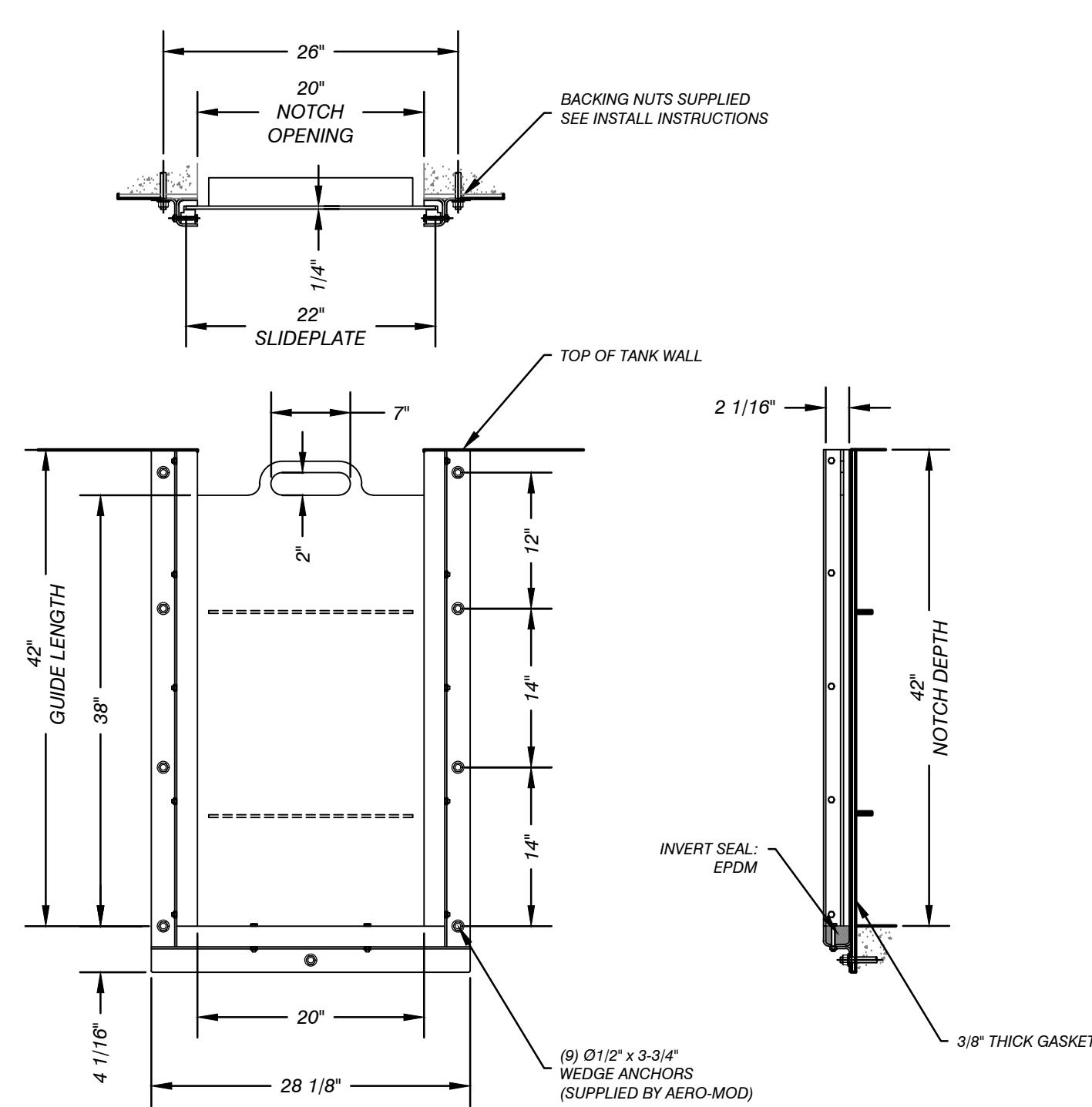
**SCREEN EQUIPMENT DETAIL**



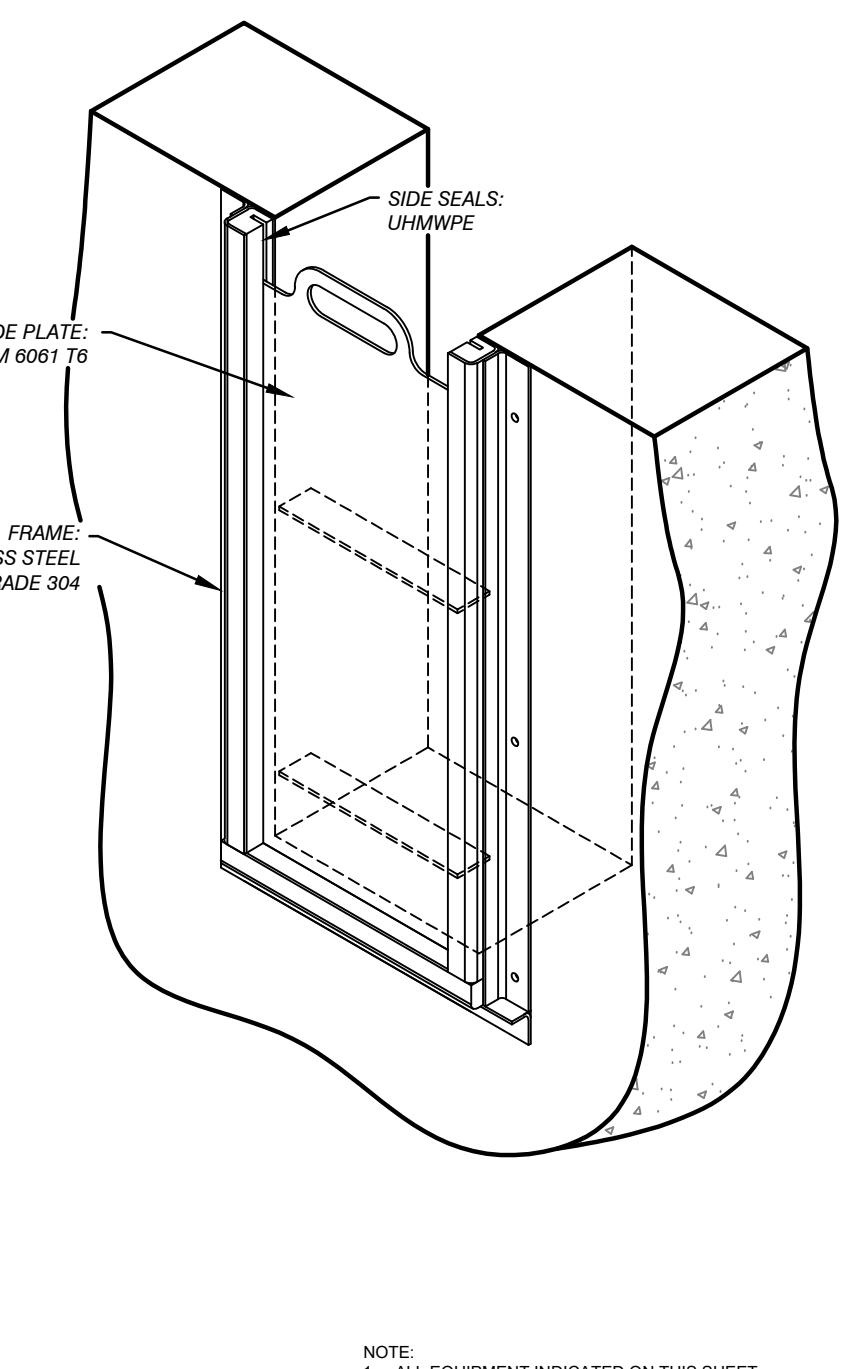
**DIGESTER SUPERNATANT WEIR EQUIPMENT DETAIL**



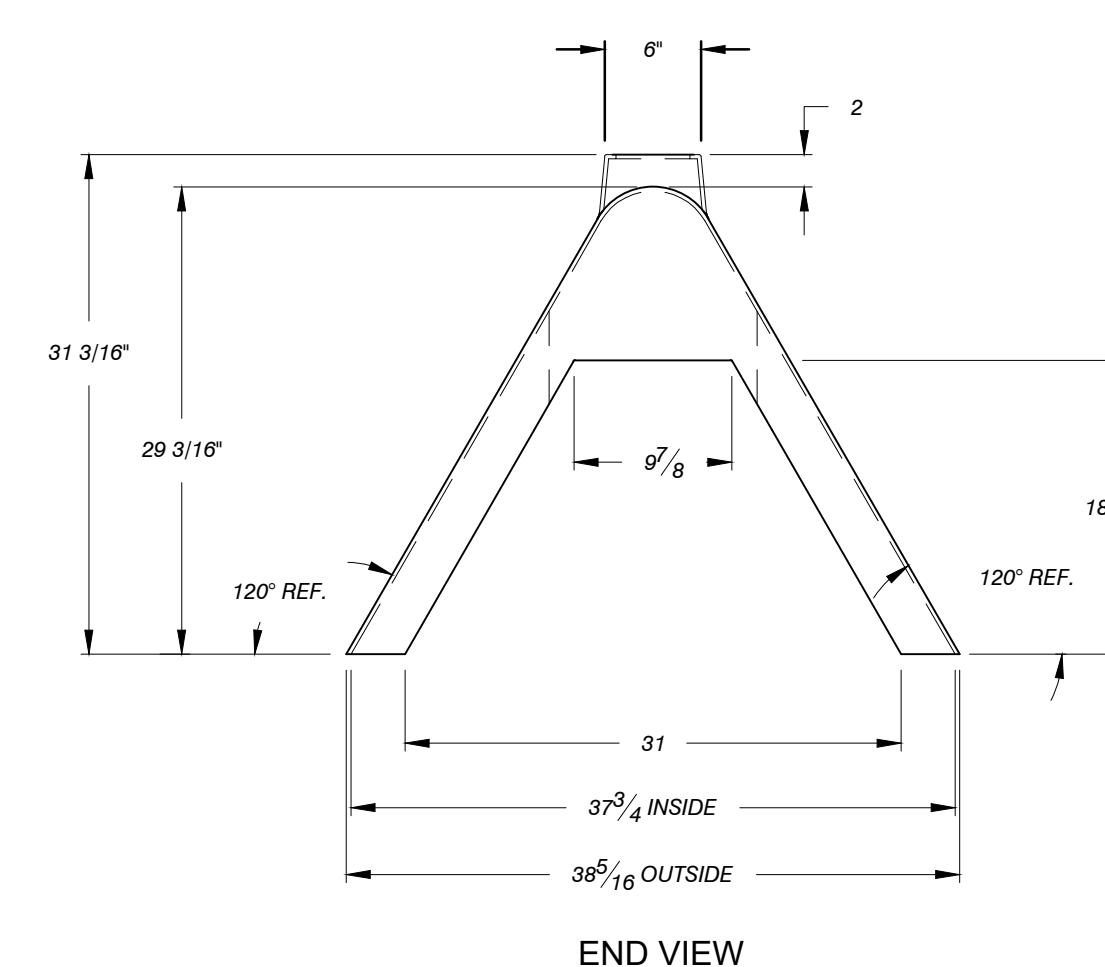
**DIGESTER SUPERNATANT RETURN WEIR EQUIPMENT DETAIL**



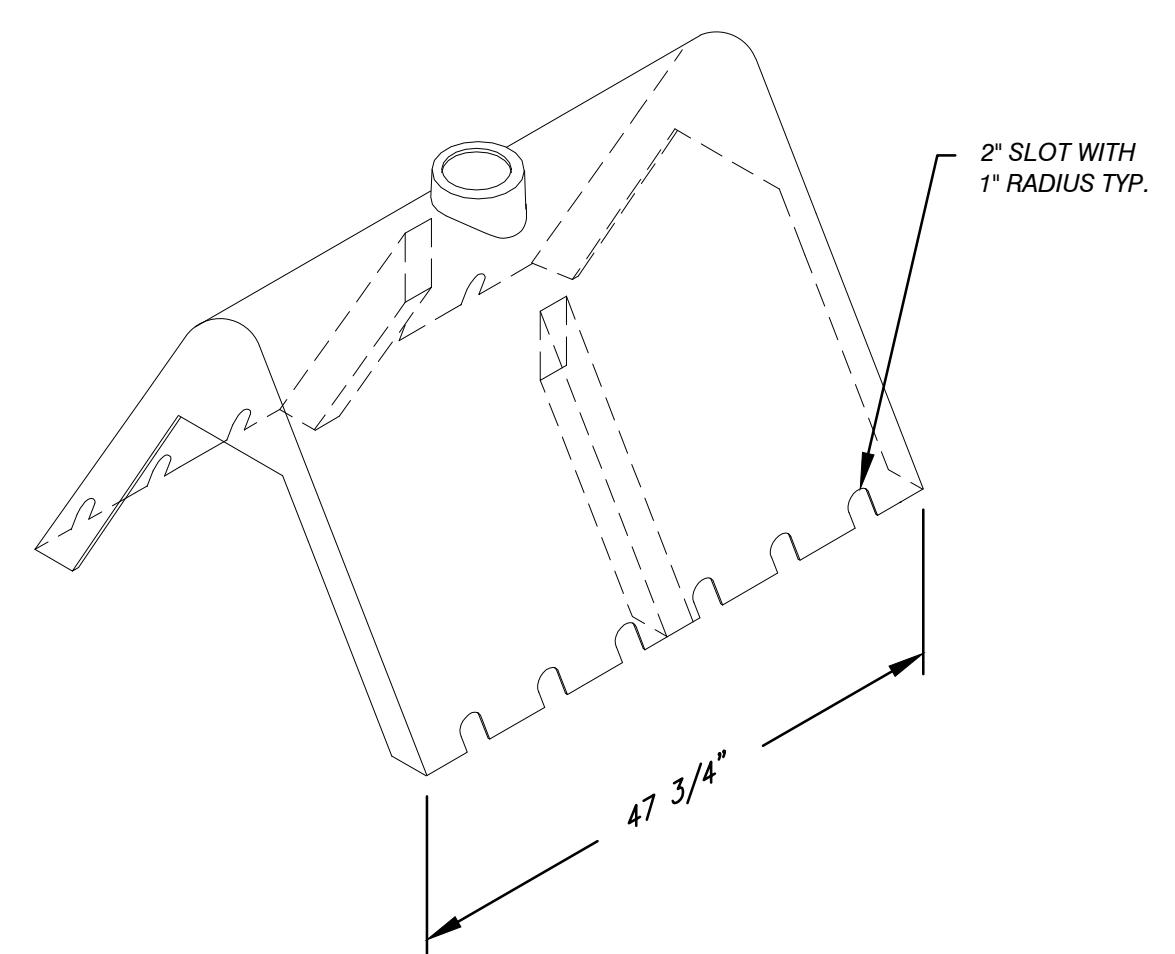
**STOP GATE EQUIPMENT DETAIL**



**STOP GATE EQUIPMENT DETAIL**



**SUCTION HOOD EQUIPMENT DETAIL**



**TYPICAL SUCTION HOOD**

MARK	DATE	DESCRIPTION	PERMIT SUBMITTAL
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PROJECT NO: 23-6036			
CAD DWG FILE: C308_6036_EQP.DWG			
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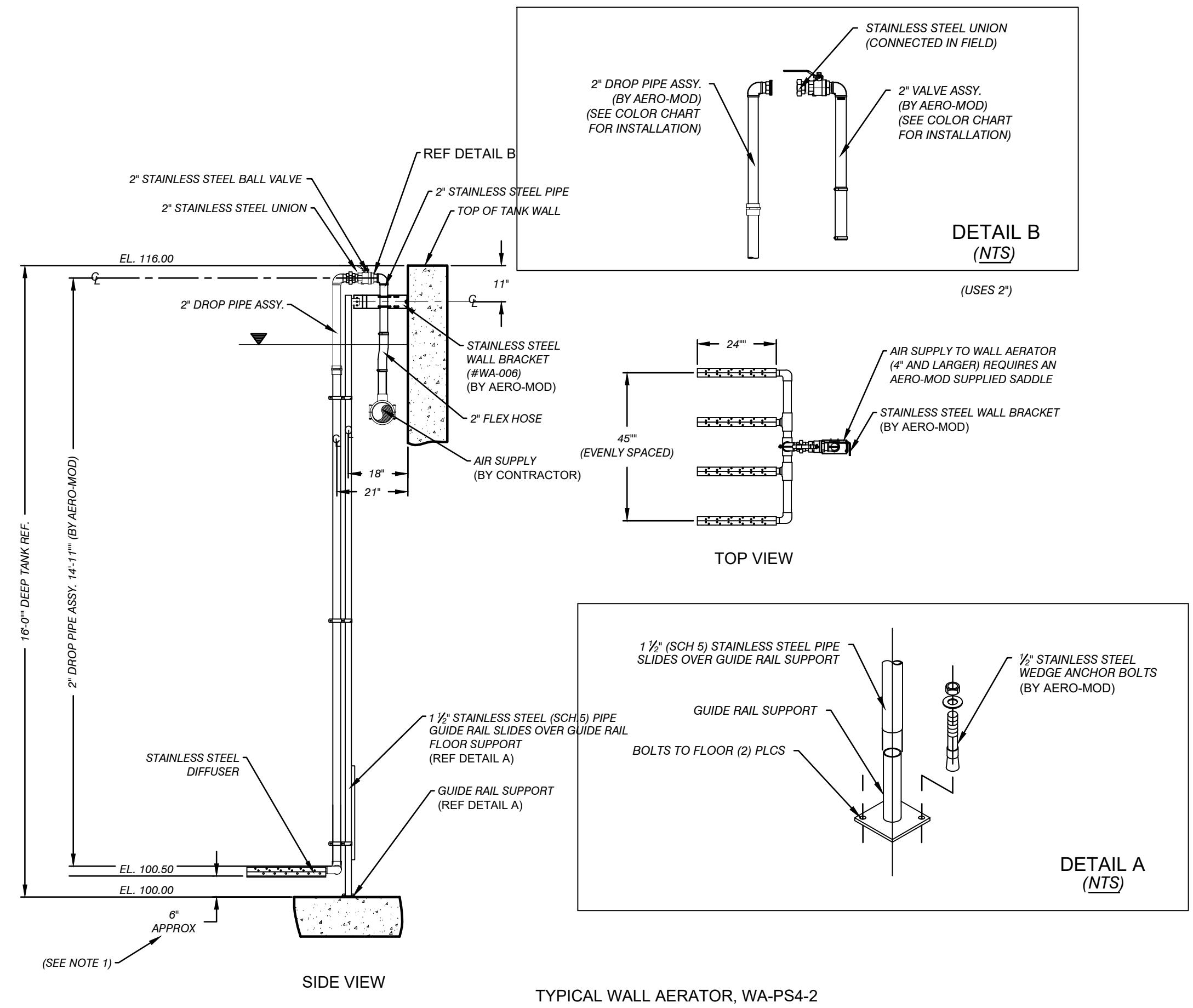
**TUSCARORA TOWNSHIP WWTP EXPANSION**  
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INDIAN RIVER, MI 49749

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Charlevoix, Michigan 49720  
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7071 U.S. Highway 24  
Marquette, Michigan 49852  
PHONE: (716) 537-4995  
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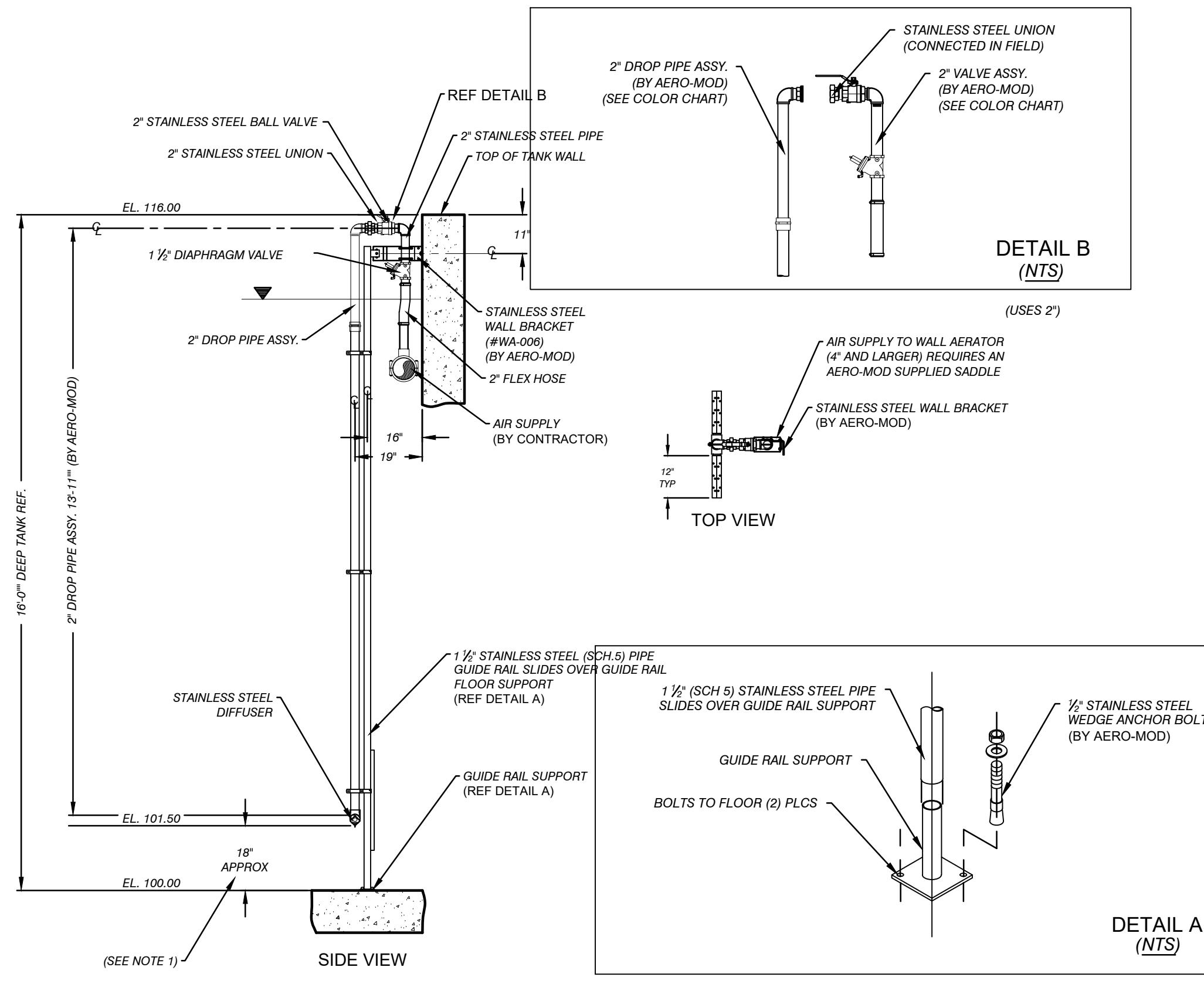
## WALL AERATOR MODEL WA-PS4-2 EQUIPMENT DETAIL



TYPICAL WALL AERATOR, WA-PS4-2  
(3) REQ'D AERATION TANK C1  
(3) REQ'D AERATION TANK D1

NOTE:  
1. DIFFUSER ELEVATIONS ARE CRITICAL  
AND SHOULD BE SPECIFIED ON  
ENGINEERS' PLANS

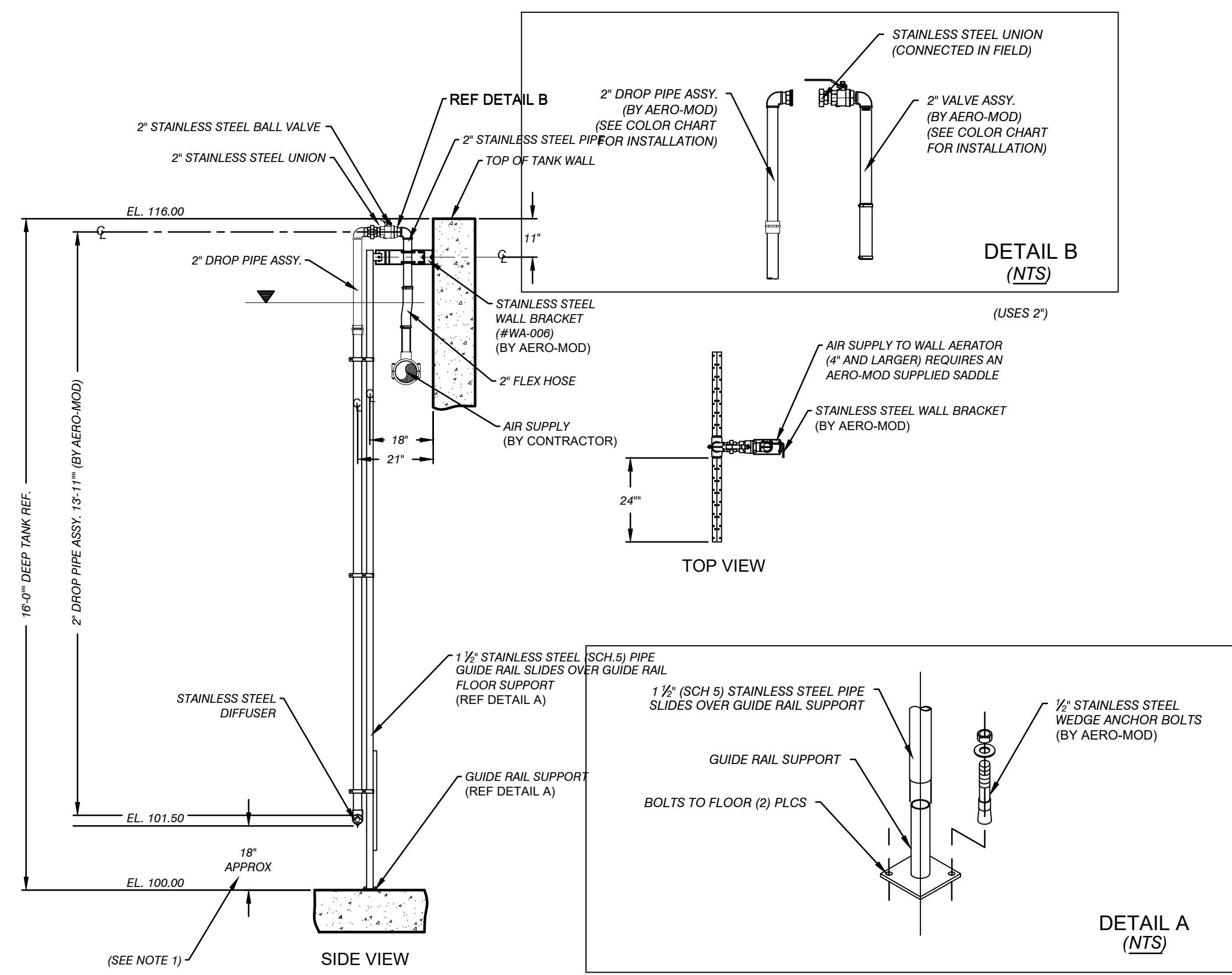
## WALL AERATOR MODEL WAD-HSS2A-2 EQUIPMENT DETAIL



TYPICAL WALL AERATOR, WAD-HSS2A-2  
(1) REQ'D ANAEROBIC SELECTOR TANK CD  
(1) REQ'D FERMENTER TANK CD

NOTE:  
1. DIFFUSER ELEVATIONS ARE CRITICAL  
AND SHOULD BE SPECIFIED ON  
ENGINEERS' PLANS

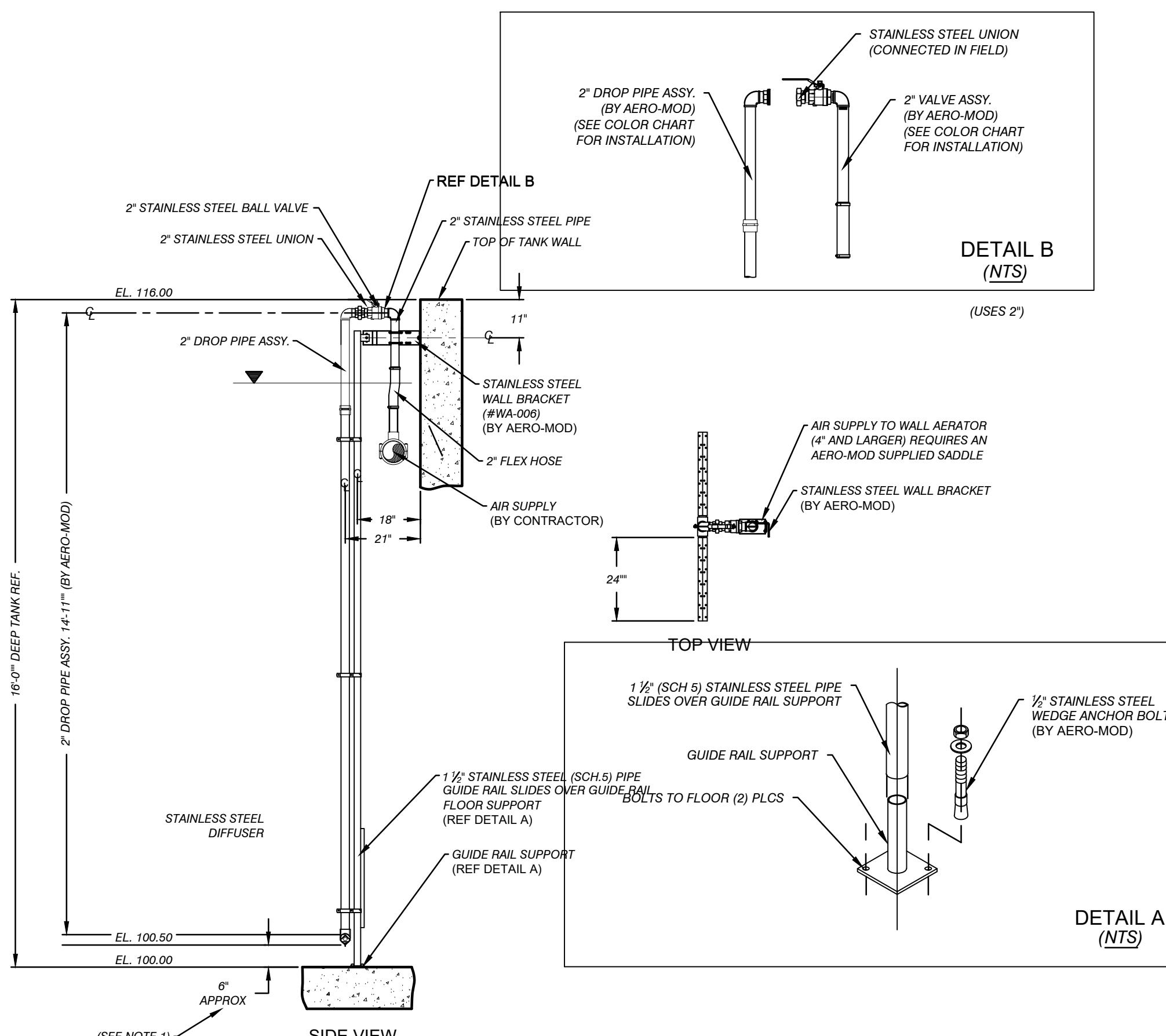
## WALL AERATOR MODEL WAD-HS2-2 EQUIPMENT DETAIL



TYPICAL WALL AERATOR, WAD-HS2-2  
(3) REQ'D DIGESTER TANK C  
(3) REQ'D DIGESTER TANK D

NOTE:  
1. DIFFUSER ELEVATIONS ARE CRITICAL  
AND SHOULD BE SPECIFIED ON  
ENGINEERS' PLANS

## WALL AERATOR MODEL WA-HS2-2 EQUIPMENT DETAIL



TYPICAL WALL AERATOR, WA-HS2-2  
(5) REQ'D AERATION TANK C2  
(5) REQ'D AERATION TANK D2

NOTE:  
1. DIFFUSER ELEVATIONS ARE CRITICAL  
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ENGINEERS' PLANS

## EQUIPMENT DETAIL 3

D405

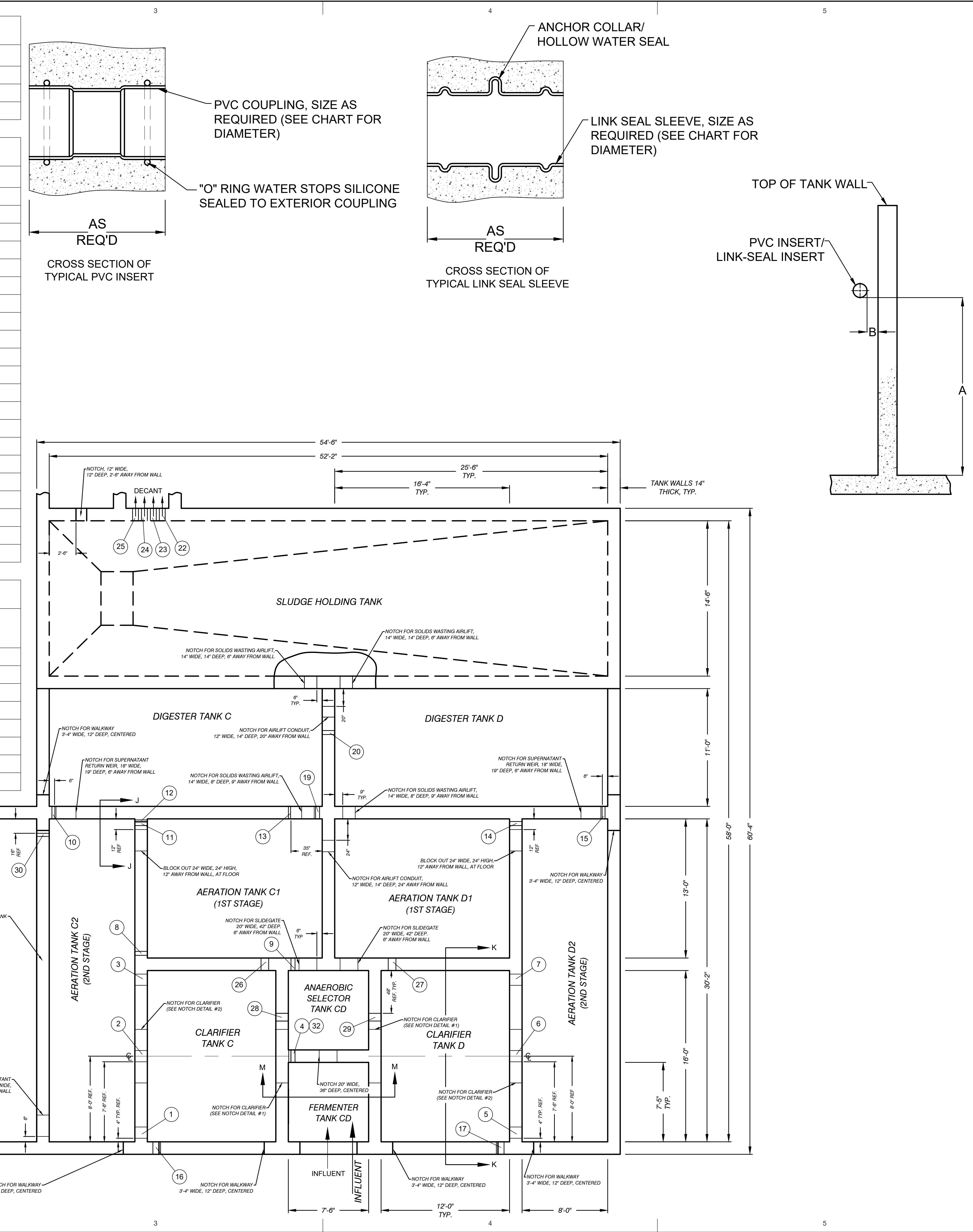
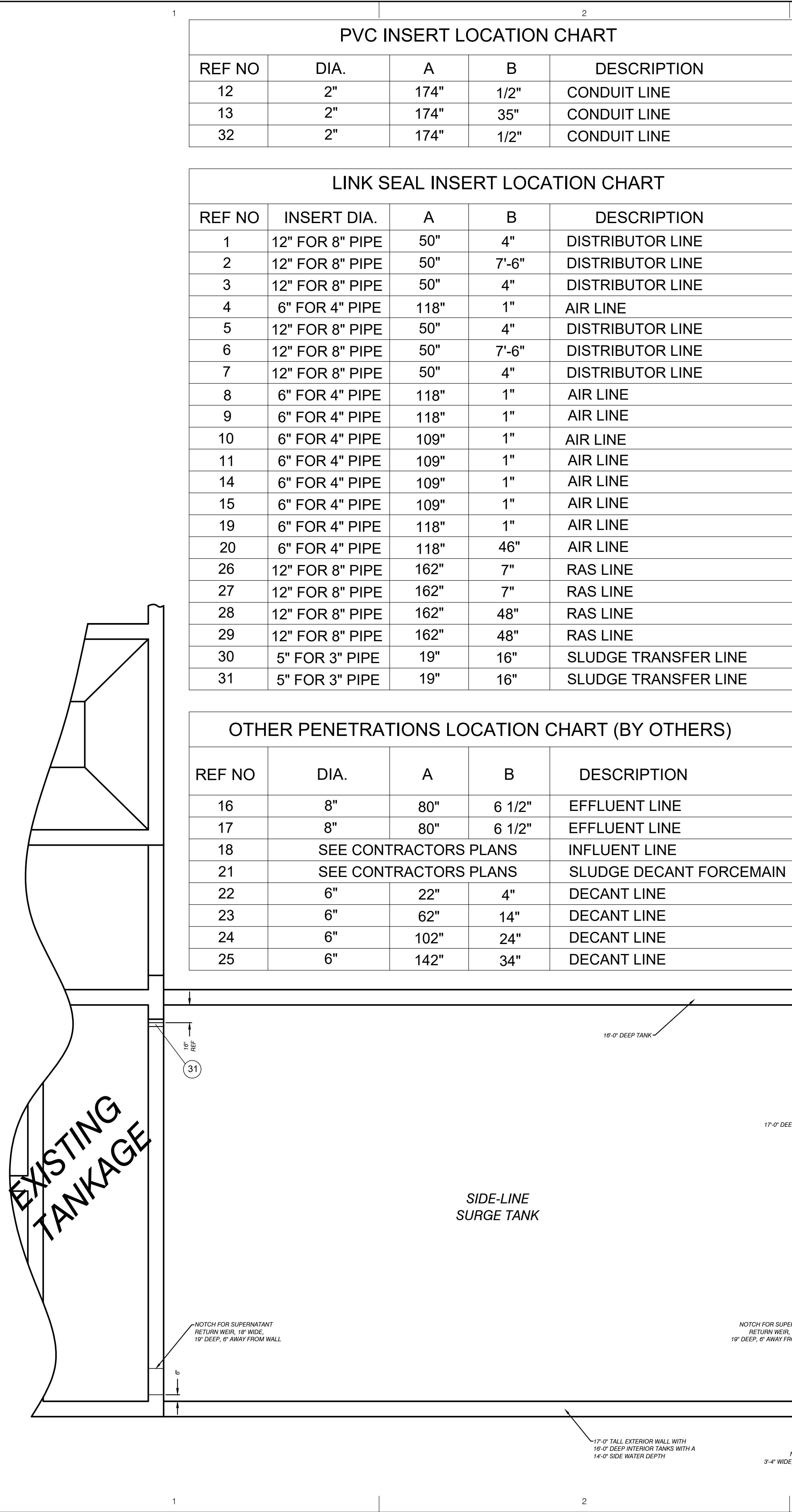
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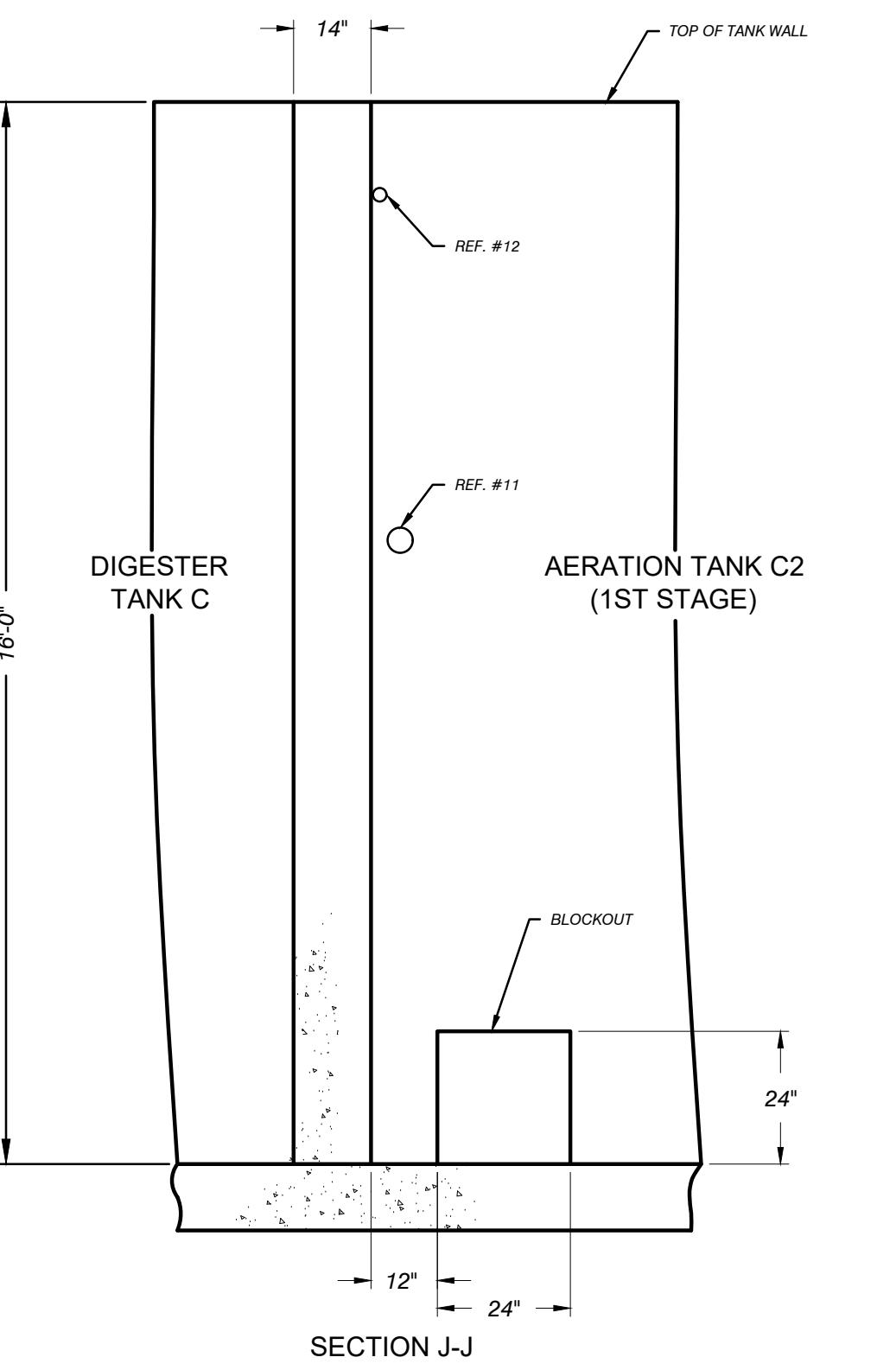
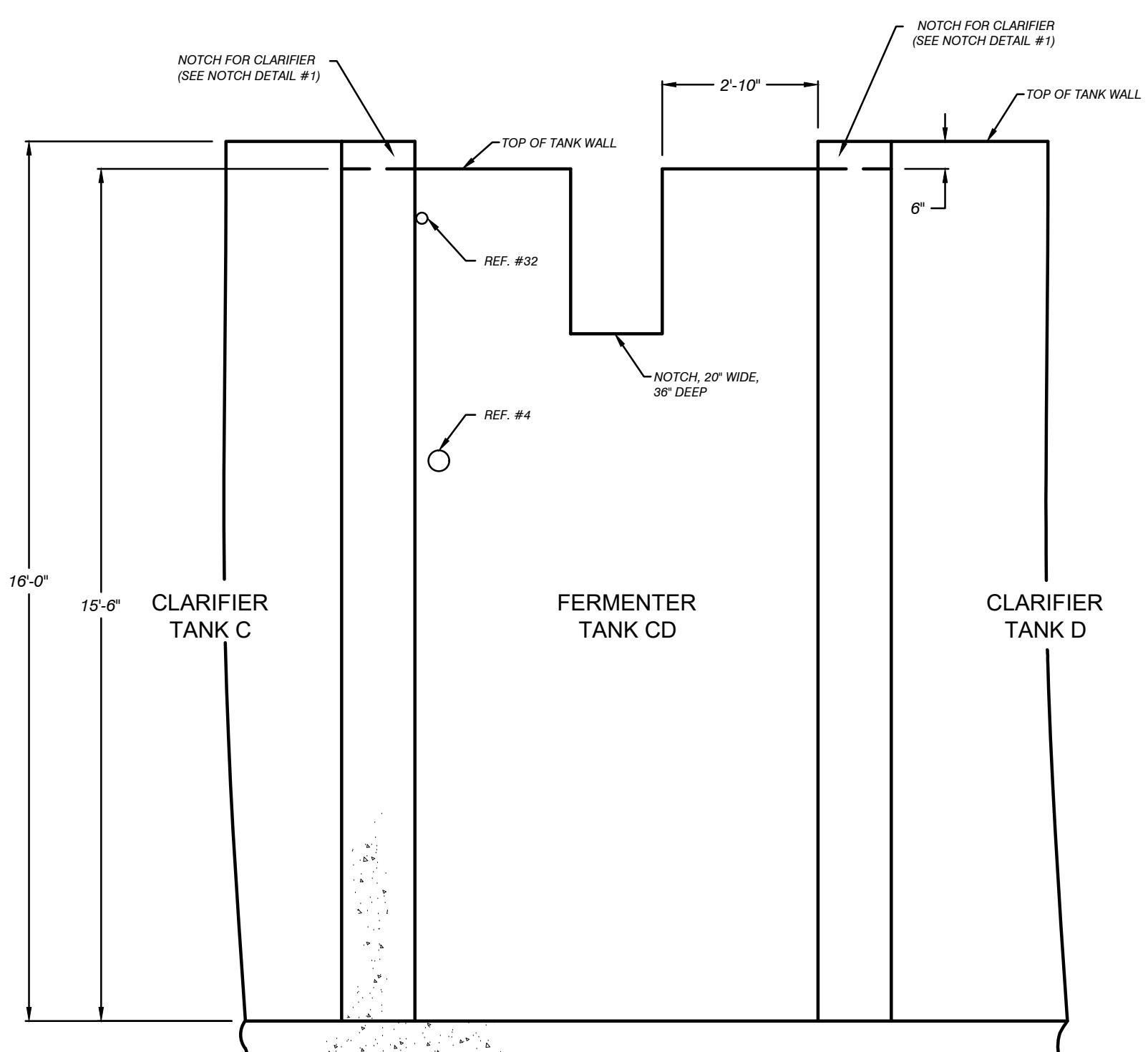
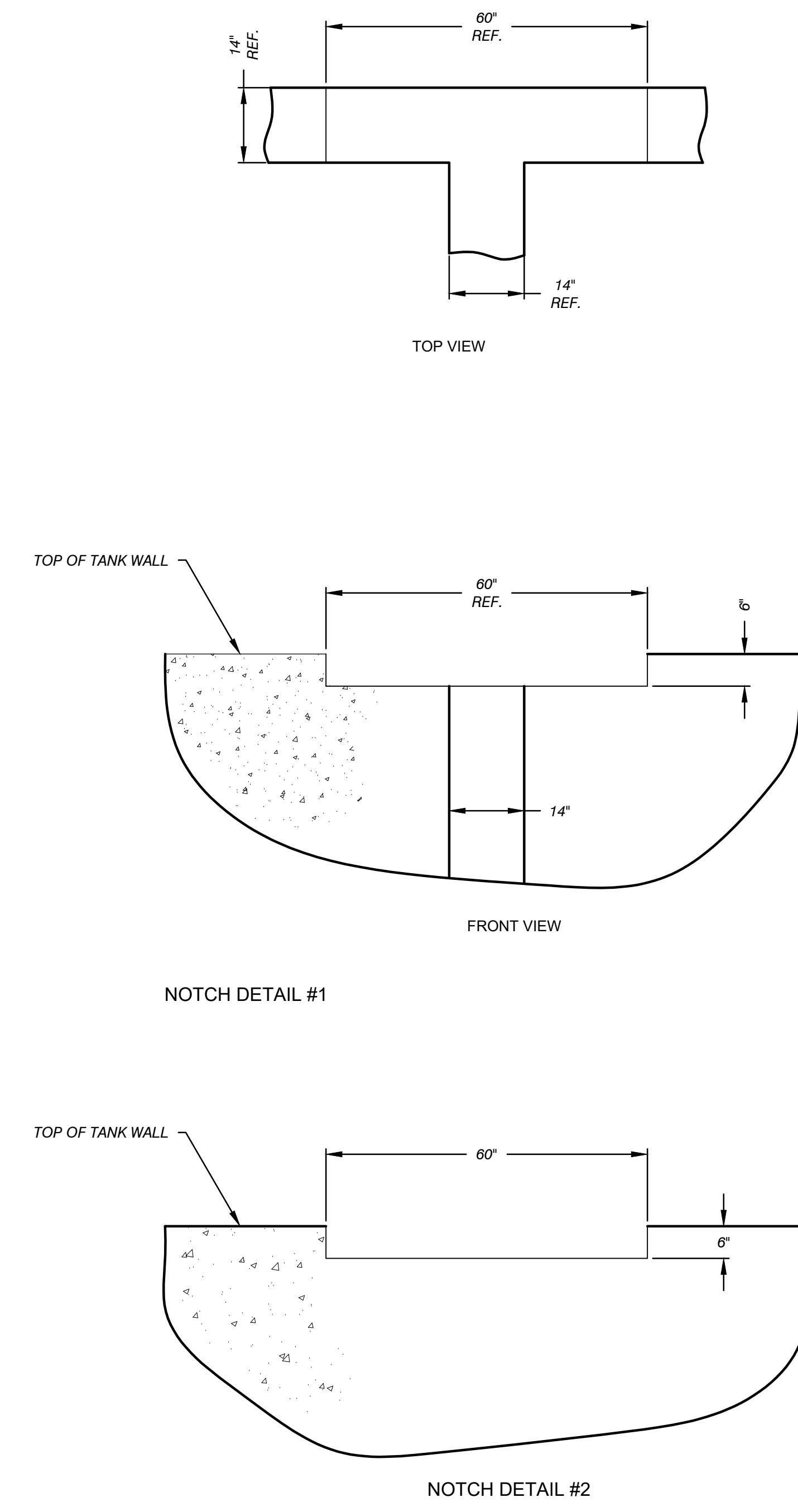
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DRAWN BY: AMI  
DESIGNED BY: AMI  
CHECKED BY: PEI

SEAL

SHEET TITLE





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406 Petoskey Avenue  
Charlevoix, Michigan 49720  
www.performanceeng.com

**Aero - Mod, Inc.**

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(781) 537-0802  
FAX: (781) 537-0113

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PROJECT NO: 23-6036  
CAD DWG FILE: D406 6036 NOTCH.DWG  
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DESIGNED BY: AMI  
CHECKED BY: PEI

SEAL

**TANK DETAIL -  
NOTCH & INSERT**

D407

SHEET 21 OF 21