

# City of Taunton, Massachusetts

## Wastewater Treatment Facility Improvements

### Phase II

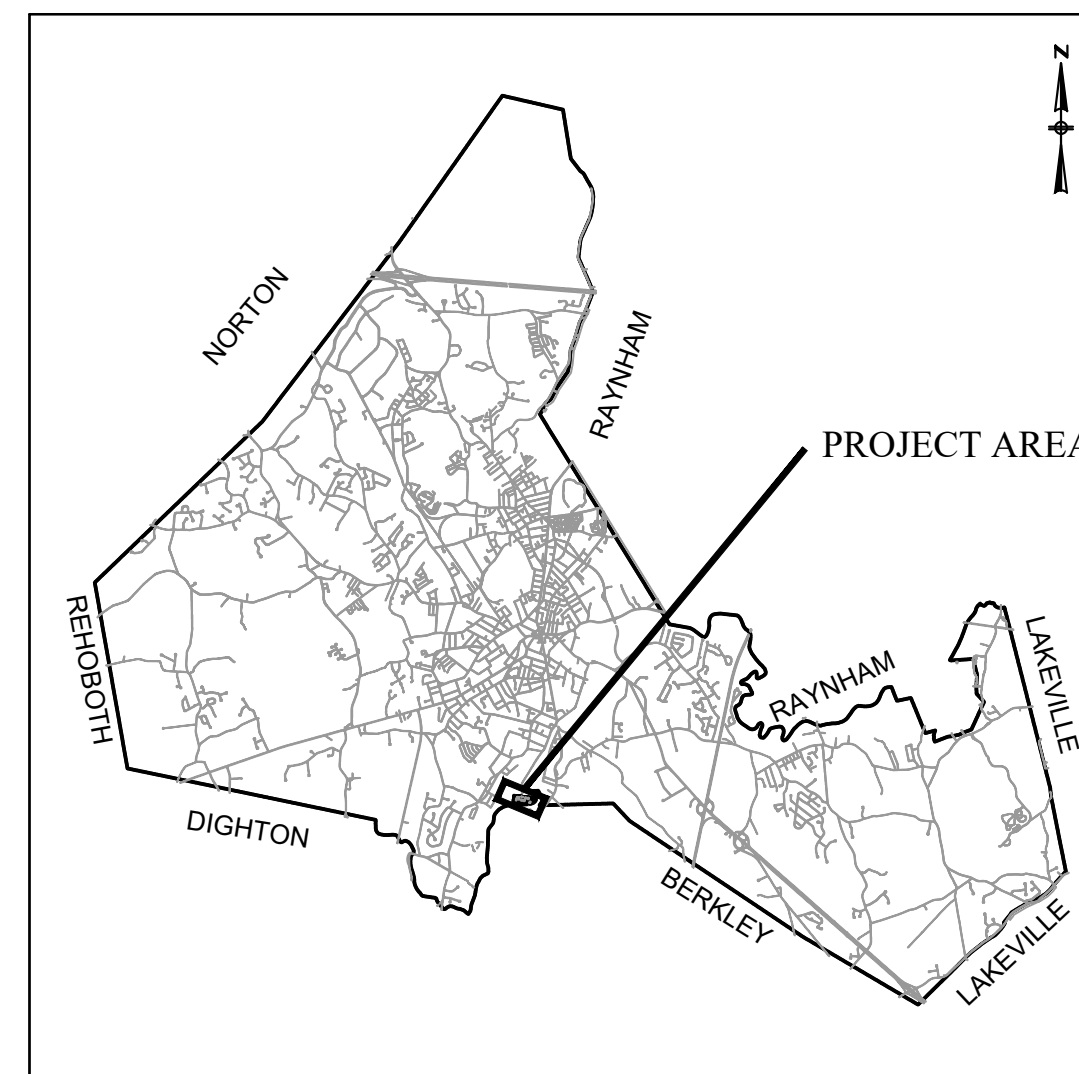


**Mayor**  
Shaunna O'Connell

**Department of Public Works**  
Frederic J. Cornaglia - Commissioner  
Anthony Abreau - Assistant Commissioner

**City Engineer**  
Michael Patneade, P.E.

**City Council**  
Phillip Duarte  
Estele Borges  
Chris Coute  
Kelly A. Dooner  
John M. McCaul  
Jeff Postell  
David W. Pottier  
Lawrence J. Quintal  
Barry Sanders



LOCATION MAP  
NOT TO SCALE



Project  
Location

PROJECT LOCATION

LOCUS MAP  
NOT TO SCALE

**Contract S-2022-1**  
**CWSRF No. 6760**

Issue Date:

**May 9, 2022**

**ISSUED FOR CONSTRUCTION**



Prepared By:



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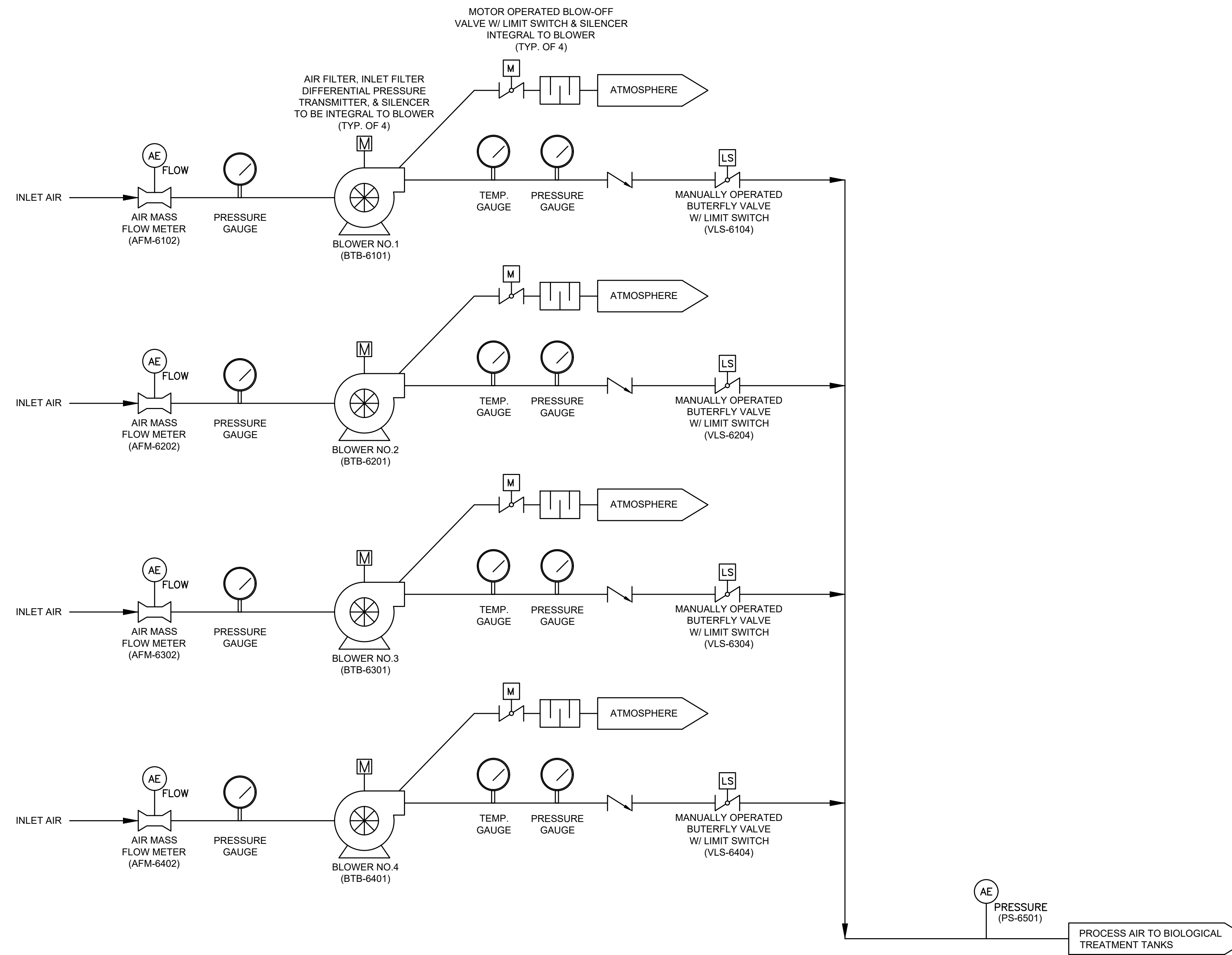






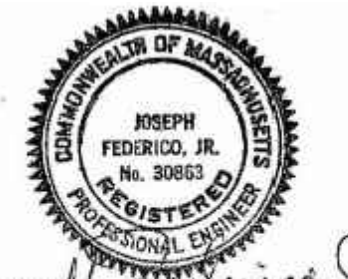


3/31/2022 9:58 AM J:\TAUNTON\WWTF DESIGN\AUTOCAD\PLAN SET\PHASE 2\WWTF PROCESS FLOW DIAGRAMS - PROF.DWG (BETA STD BW.CTB)



**NOTES:**  
 1. ACTUAL LOCATIONS OF EQUIPMENT SHOWN ON MECHANICAL AND ELECTRICAL PLANS.

PREPARED BY  
  
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REGISTERED PROFESSIONAL  
  
*Joseph F. Ferrigno, Jr.*

SUBCONSULTANT

PROJECT  
**Taunton Wastewater Treatment Facility Improvements Phase 2**  
 Taunton, MA

TITLE  
**Process Flow Diagram Aeration Blowers**

NO.	REVISIONS	DATE

DRAWN BY: BM  
 DESIGNED BY: SR  
 CHECKED BY: SR  
 ISSUE DATE: 3/31/2022  
 BETA JOB NO.: 6050

SCALE  
 NONE  
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.  
**G-2.4**



















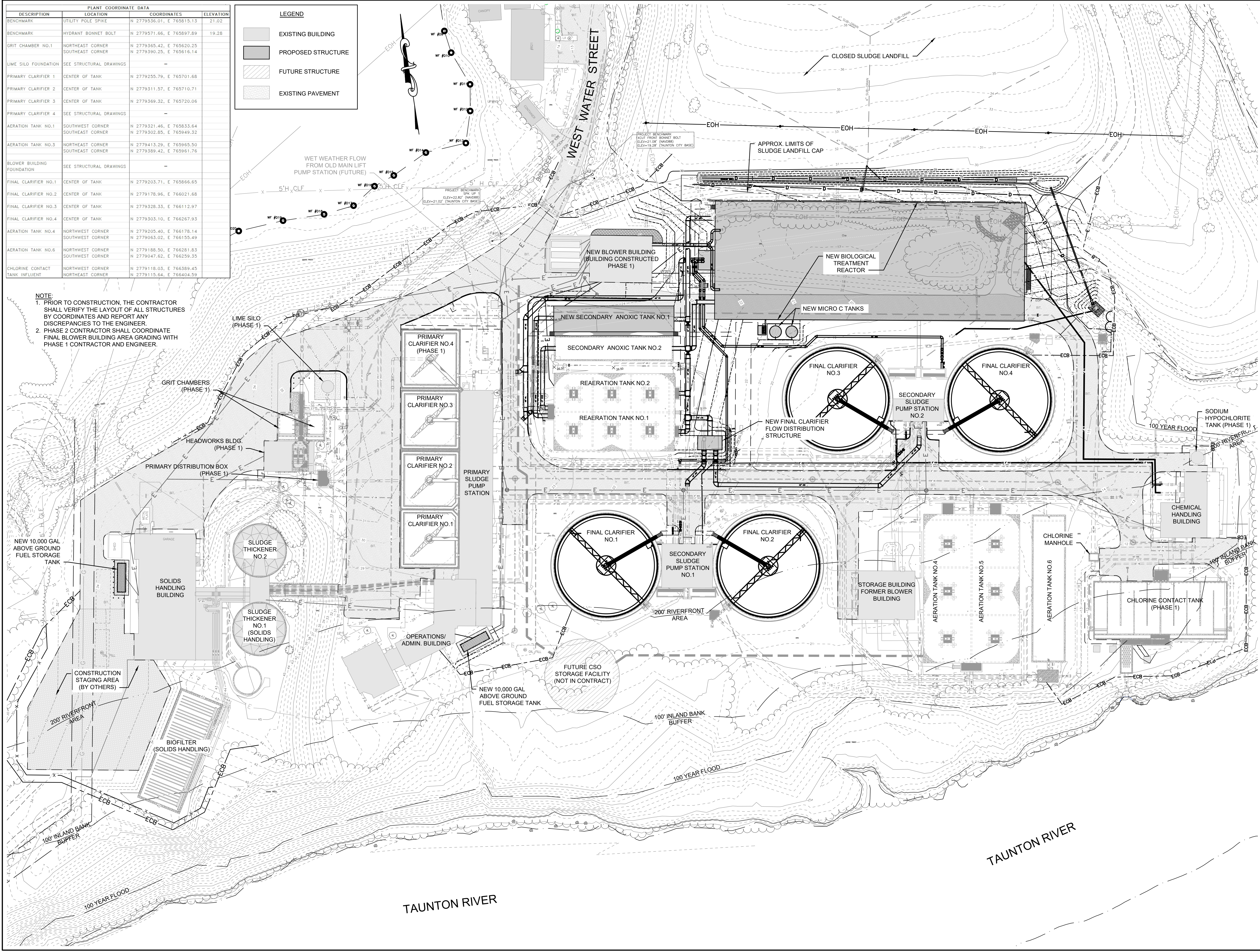


DESCRIPTION	LOCATION	COORDINATES	ELEVATION
BENCHMARK	UTILITY POLE SPIKE	N 2779536.01, E 765815.13	21.02
BENCHMARK	HYDRANT BONNET BOLT	N 2779571.66, E 765897.89	19.28
GRIT CHAMBER NO.1	NORTHEAST CORNER	N 2779365.42, E 765620.25	
	SOUTHEAST CORNER	N 2779390.25, E 765616.14	
LIME SILO FOUNDATION	SEE STRUCTURAL DRAWINGS		
PRIMARY CLARIFIER 1	CENTER OF TANK	N 2779255.79, E 765701.68	
PRIMARY CLARIFIER 2	CENTER OF TANK	N 2779311.57, E 765710.71	
PRIMARY CLARIFIER 3	CENTER OF TANK	N 2779369.32, E 765720.06	
PRIMARY CLARIFIER 4	SEE STRUCTURAL DRAWINGS		
AERATION TANK NO.1	SOUTHWEST CORNER	N 2779321.46, E 765833.64	
	SOUTHEAST CORNER	N 2779302.85, E 765949.32	
AERATION TANK NO.3	NORTHEAST CORNER	N 2779413.29, E 765965.50	
	SOUTHEAST CORNER	N 2779389.42, E 765961.76	
BLOWER BUILDING FOUNDATION	SEE STRUCTURAL DRAWINGS		
FINAL CLARIFIER NO.1	CENTER OF TANK	N 2779203.71, E 765866.65	
FINAL CLARIFIER NO.2	CENTER OF TANK	N 2779178.96, E 766021.68	
FINAL CLARIFIER NO.3	CENTER OF TANK	N 2779328.33, E 766112.97	
FINAL CLARIFIER NO.4	CENTER OF TANK	N 2779303.10, E 766267.93	
AERATION TANK NO.4	NORTHWEST CORNER	N 2779205.40, E 766178.14	
	SOUTHWEST CORNER	N 2779063.02, E 766155.49	
AERATION TANK NO.6	NORTHWEST CORNER	N 2779188.50, E 766281.83	
	SOUTHWEST CORNER	N 2779047.62, E 766259.35	
CHLORINE CONTACT TANK INFLUENT	NORTHWEST CORNER	N 2779118.03, E 766359.45	
	NORTHEAST CORNER	N 2779115.64, E 766404.59	

**LEGEND**

- EXISTING BUILDING
- PROPOSED STRUCTURE
- FUTURE STRUCTURE
- EXISTING PAVEMENT

**NOTE:**  
 1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LAYOUT OF ALL STRUCTURES BY COORDINATES AND REPORT ANY DISCREPANCIES TO THE ENGINEER.  
 2. PHASE 2 CONTRACTOR SHALL COORDINATE FINAL BLOWER BUILDING AREA GRADING WITH PHASE 1 CONTRACTOR AND ENGINEER.



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PROJECT

**Taunton Wastewater Treatment Facility Improvements Phase 2**

Taunton, MA

TITLE

WWTF Proposed Site Plan

**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY: BM  
 DESIGNED BY: BM  
 CHECKED BY: SR  
 ISSUE DATE: 3/31/2022  
 BETA JOB NO.: 6050

SCALE

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SHEET NO.

C-1.4

4/22/2022 2:18 PM J:\TAUNTON\WWTF DESIGN\AUTOCAD\PLAN SET\PHASE 2\WWTF PROP SITE PLAN - PHASE 2\_ALTDWG (BETA STB BW.STB)

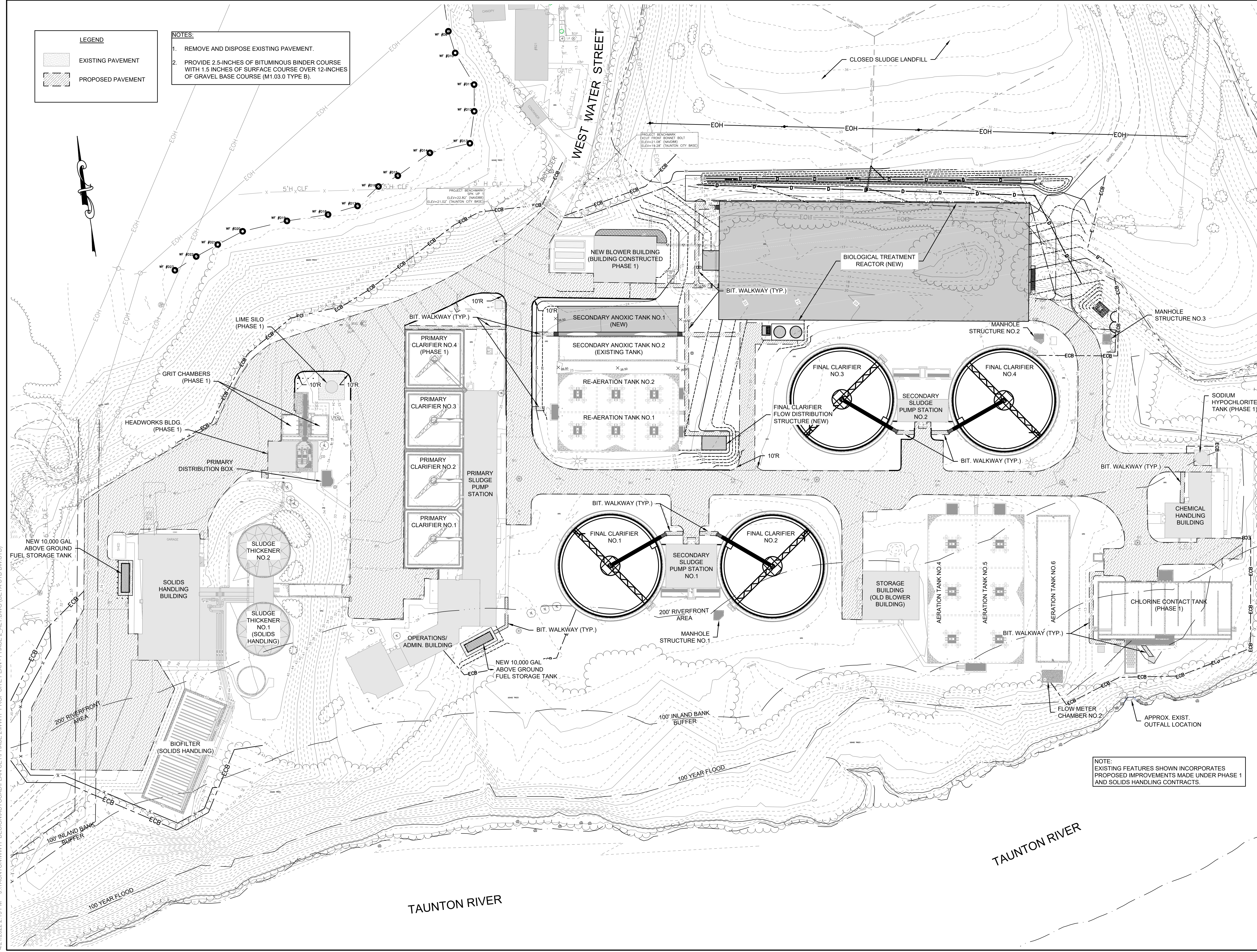
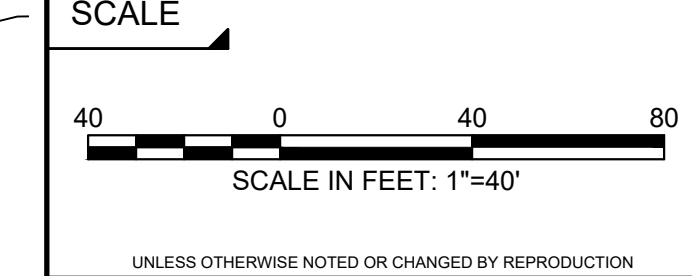






NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY:	BM
DESIGNED BY:	BM
CHECKED BY:	SR
ISSUE DATE:	3/31/2022
BETA JOB NO.:	6050

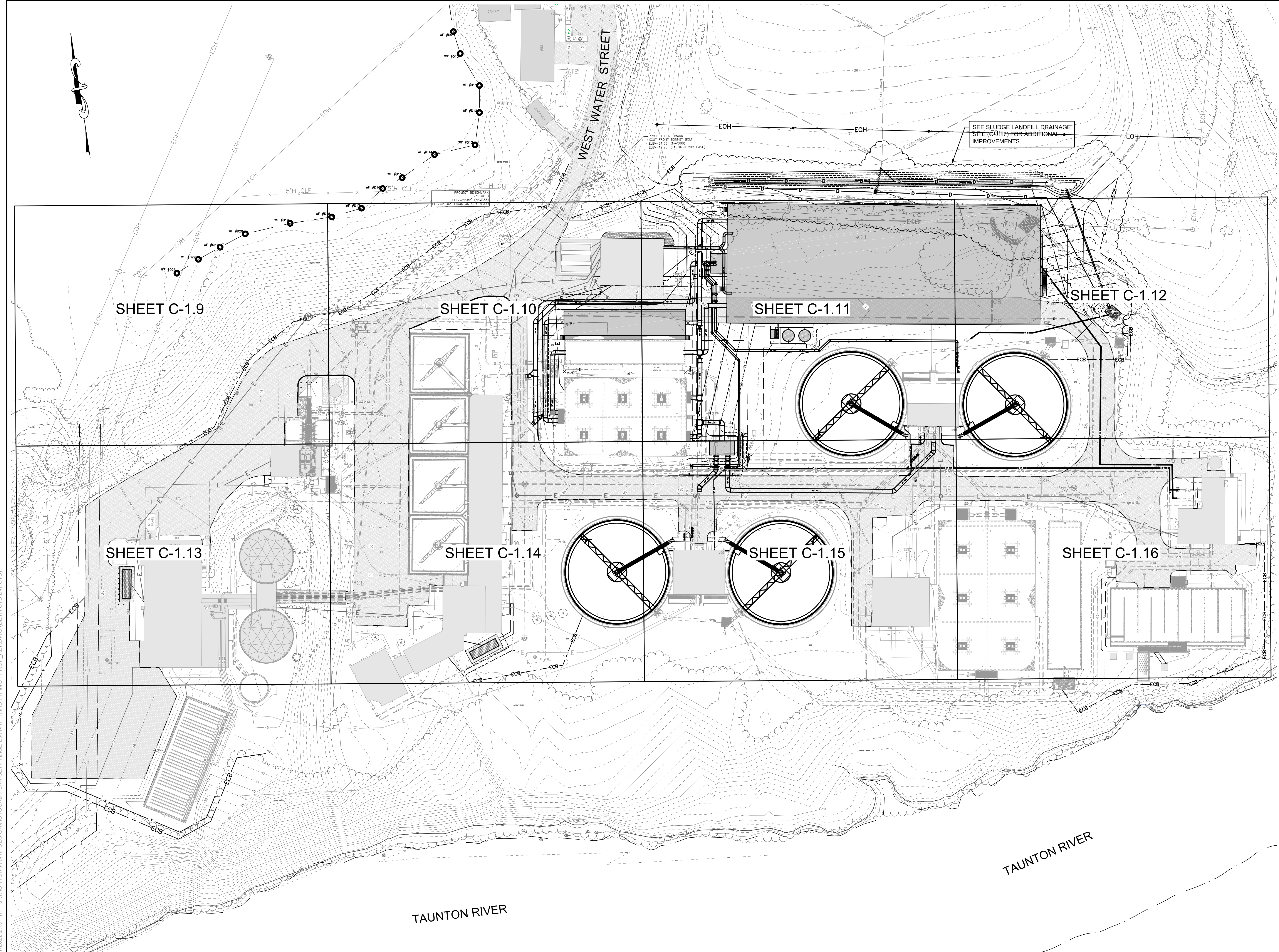


4/21/2022 2:19 PM J:\TAUNTON\WWTF DESIGN\AUTOCAD\PLAN SET\PHASE 2\WWTF PROP SITE PLAN - PHASE 2\_ALT.DWG (BETA STB BW.STB)










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PROJECT  
**Taunton Wastewater Treatment Facility Improvements Phase 2**  
 Taunton, MA

TITLE  
 Yard Piping Plan Index  
**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY: BM  
 DESIGNED BY: BM  
 CHECKED BY: SR  
 ISSUE DATE: 3/31/2022  
 BETA JOB NO.: 6050

SCALE  
  
 SCALE IN FEET: 1"=40'  
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.  
**C-1.8**

4/21/2022 2:19 PM J:\TAUNTON\WTF DESIGN\AUTOCAD\PLAN SET\PHASE 2\WWTIF YARD PIPING - PROP. ALT DWG (BETA STB BW.STB)

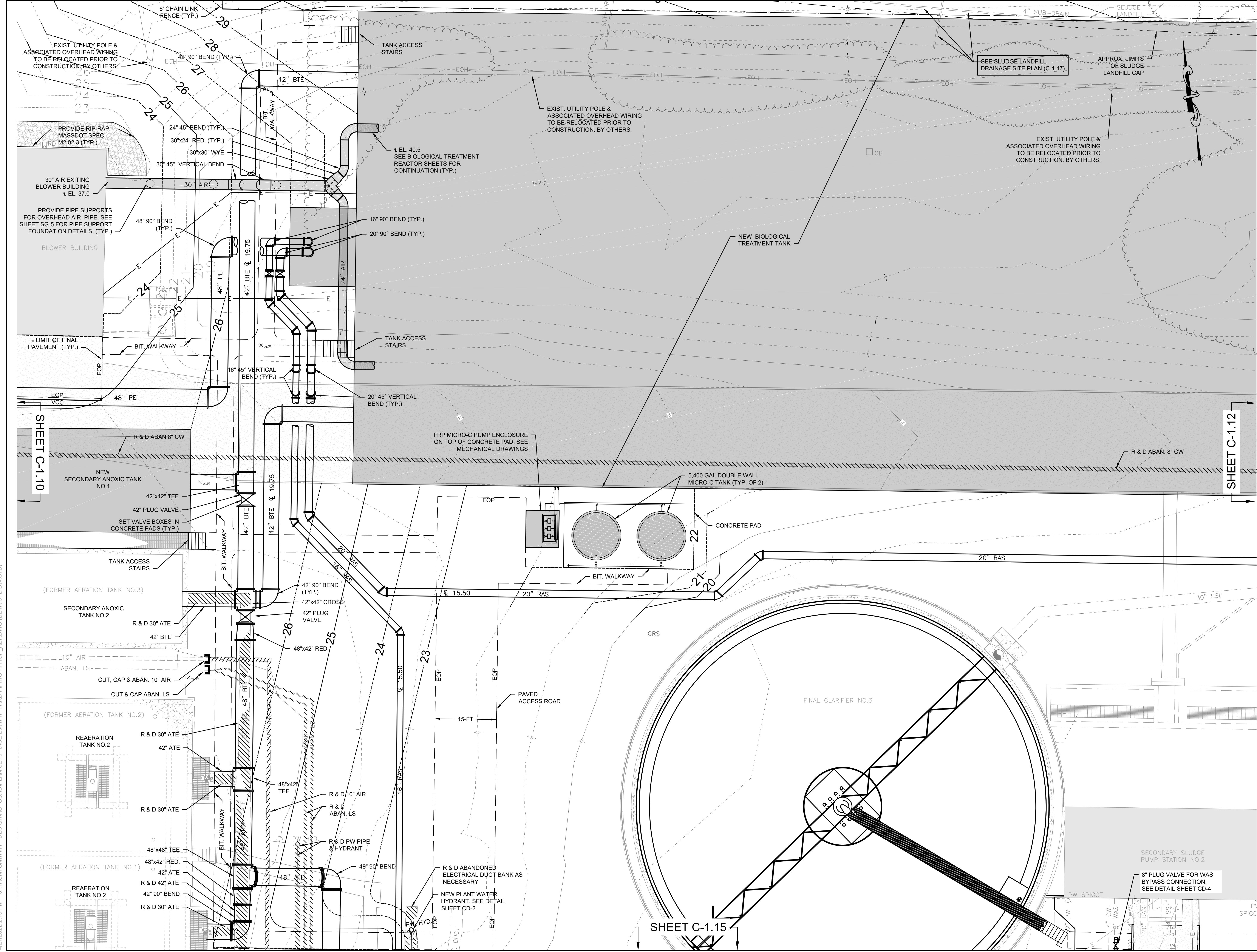













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PROJECT  
**Taunton Wastewater Treatment Facility Improvements Phase 2**  
 Taunton, MA

TITLE  
**Yard Piping Plan III**  
**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY: BM  
 DESIGNED BY: BM  
 CHECKED BY: SR  
 ISSUE DATE: 3/31/2022  
 BETA JOB NO.: 6050

SCALE  
  
 SCALE IN FEET: 1"=10"  
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.  
**C-1.11**

4/21/2022 2:19 PM J:\TAUNTON\WWTFF DESIGN\AUTOCAD\PLAN SET\PHASE 2\WWTFF YARD PIPING - PROP. ALT DWG (BETA STB BW.STB)

















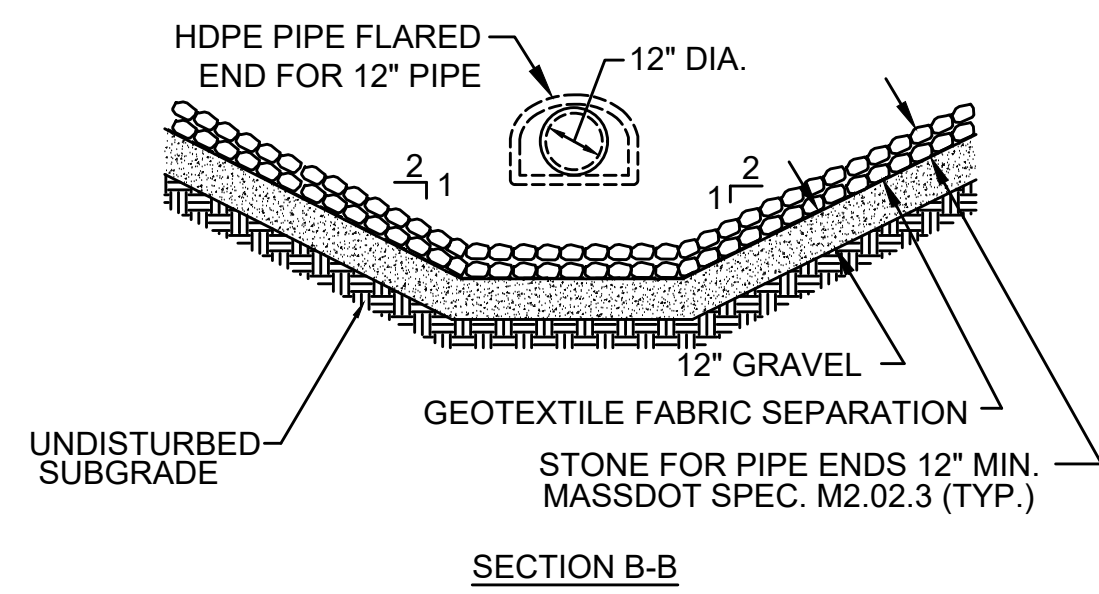
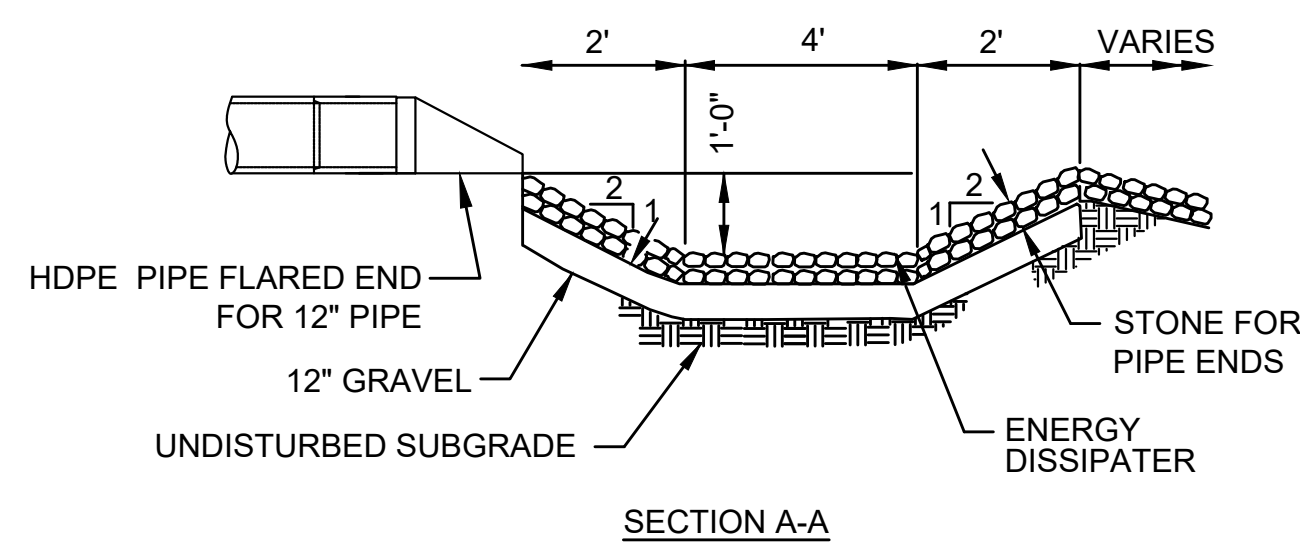
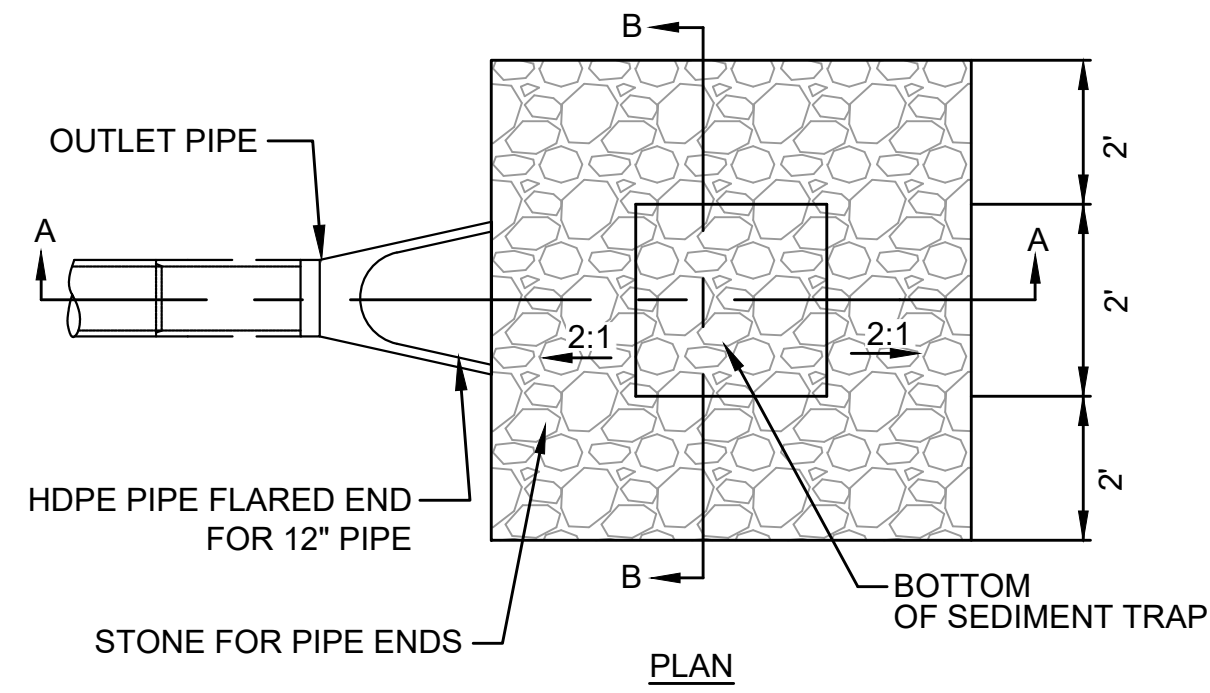




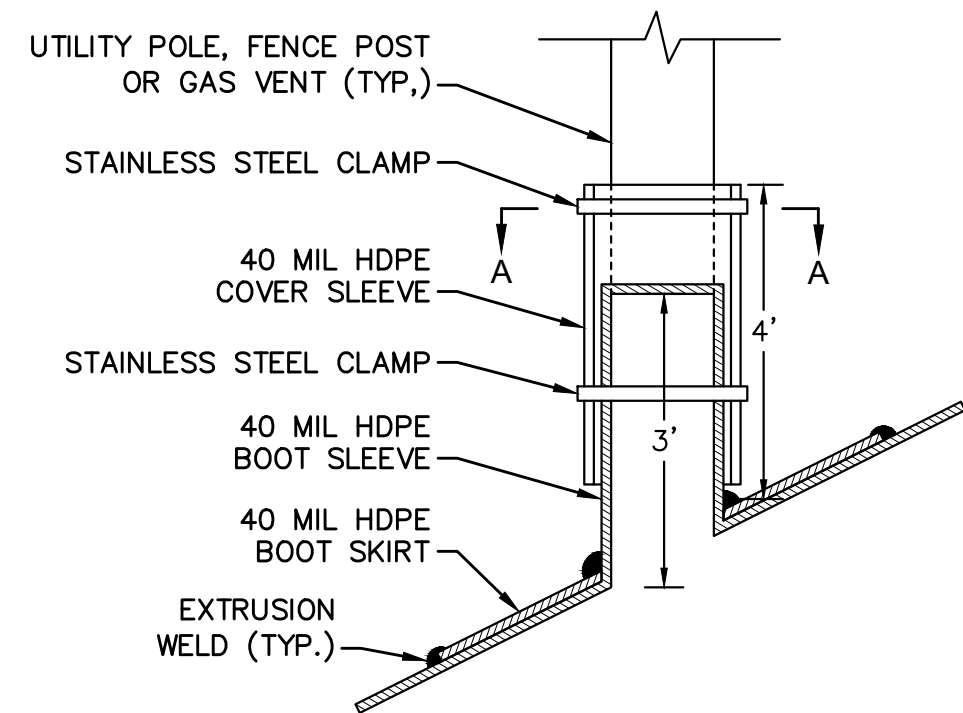
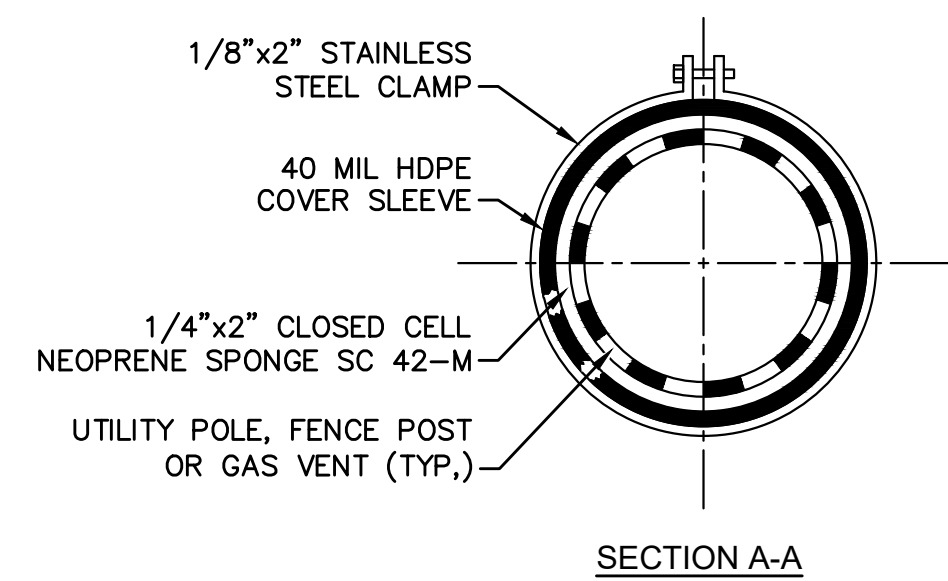




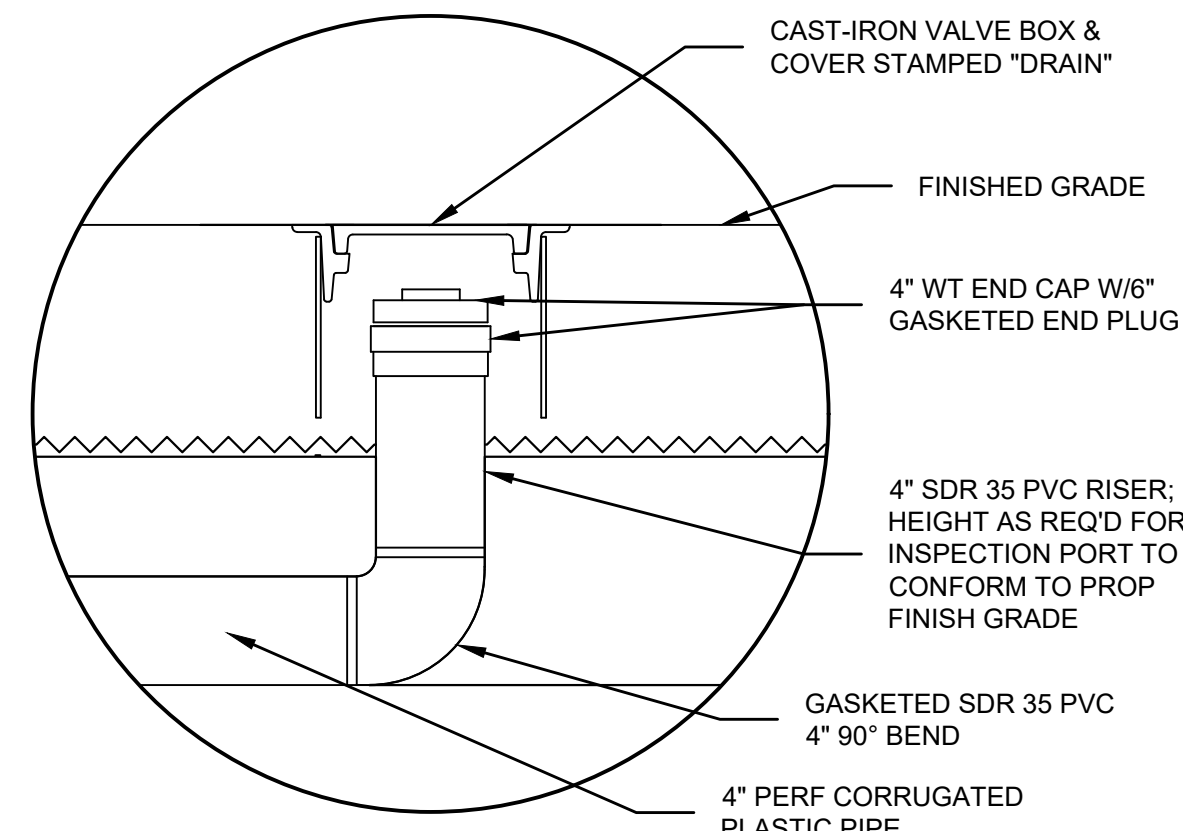




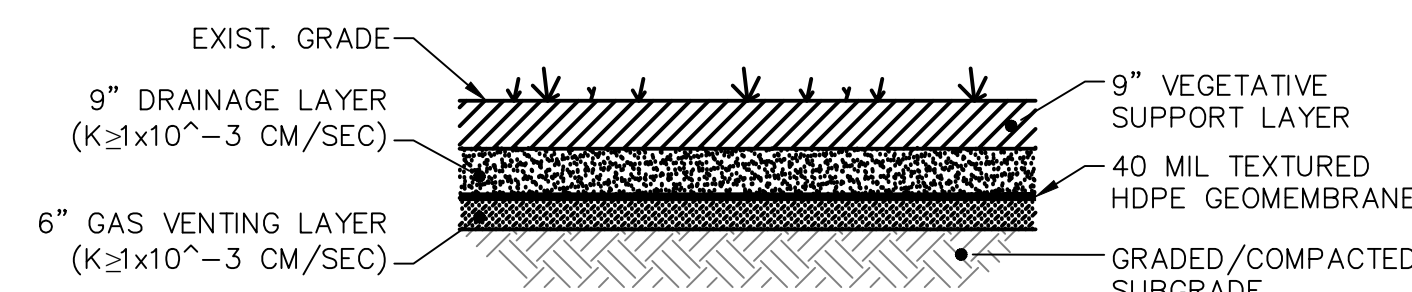
**OUTLET SEDIMENT TRAP (TYP.)**  
SCALE: NOT TO SCALE



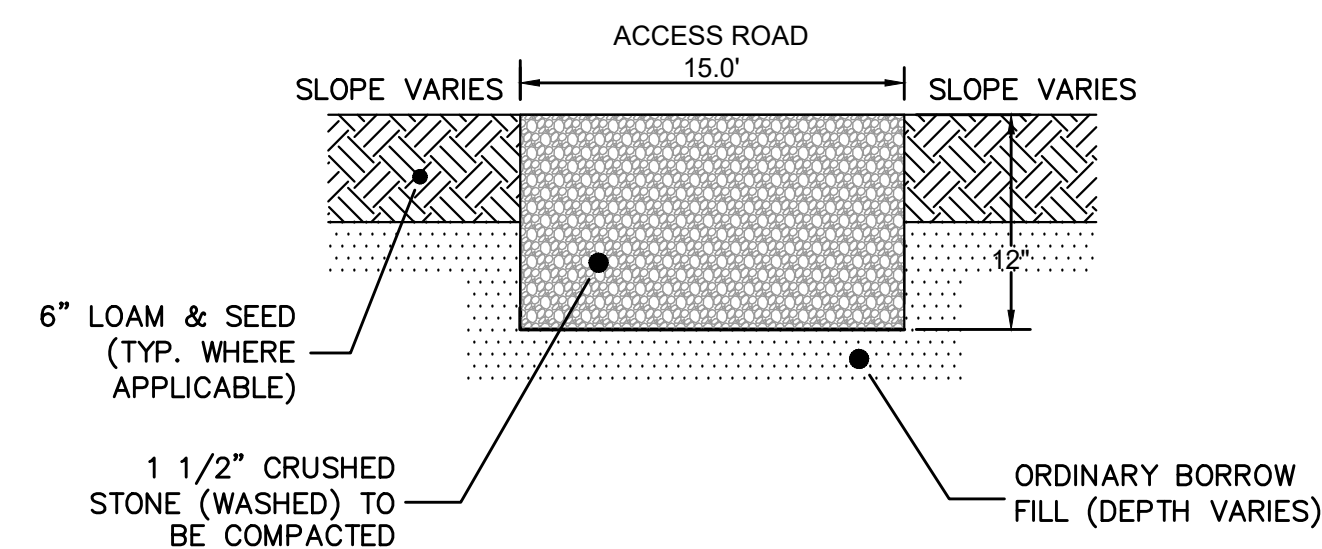
**TYPICAL FINAL COVER GEOMEMBRANE LINER PENETRATION BOOT**  
SCALE: NOT TO SCALE



**TYPICAL CLEANOUT DETAIL**  
SCALE: NOT TO SCALE



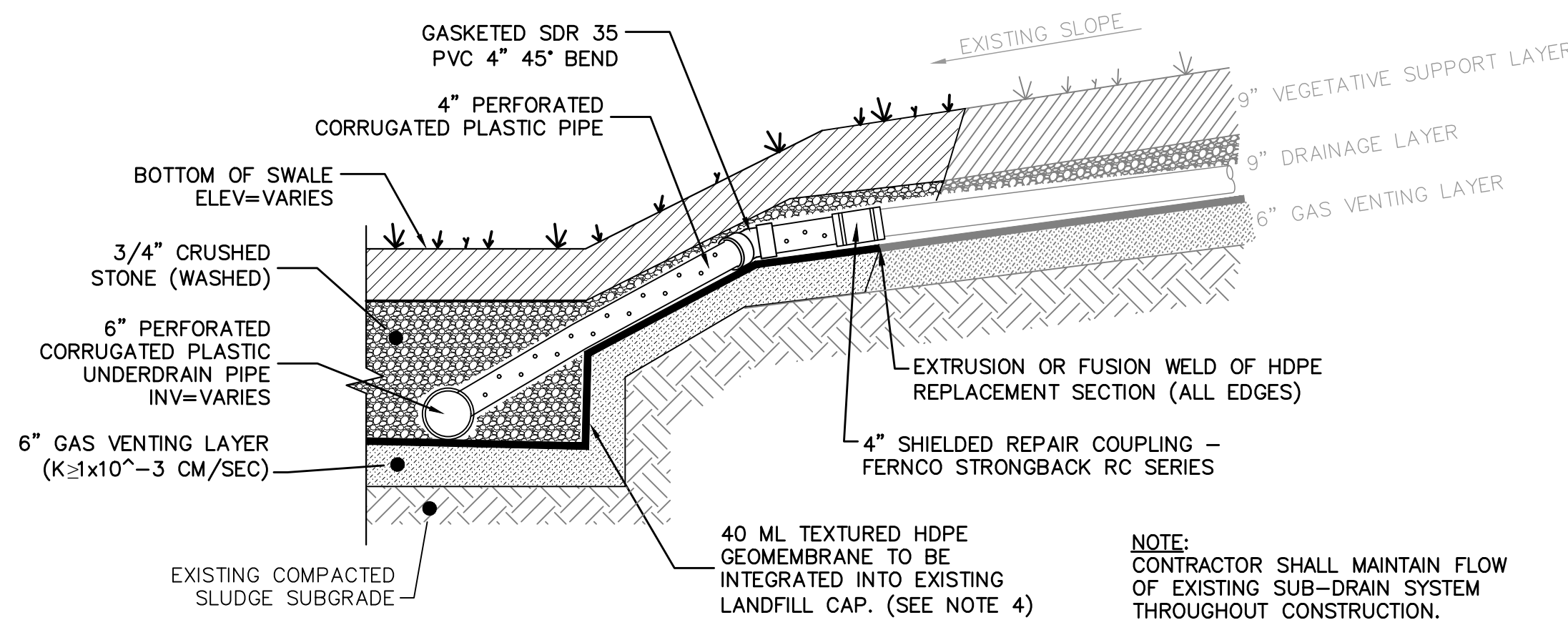
**TYPICAL EXISTING FINAL COVER-CROSS SECTION**  
SCALE: NOT TO SCALE



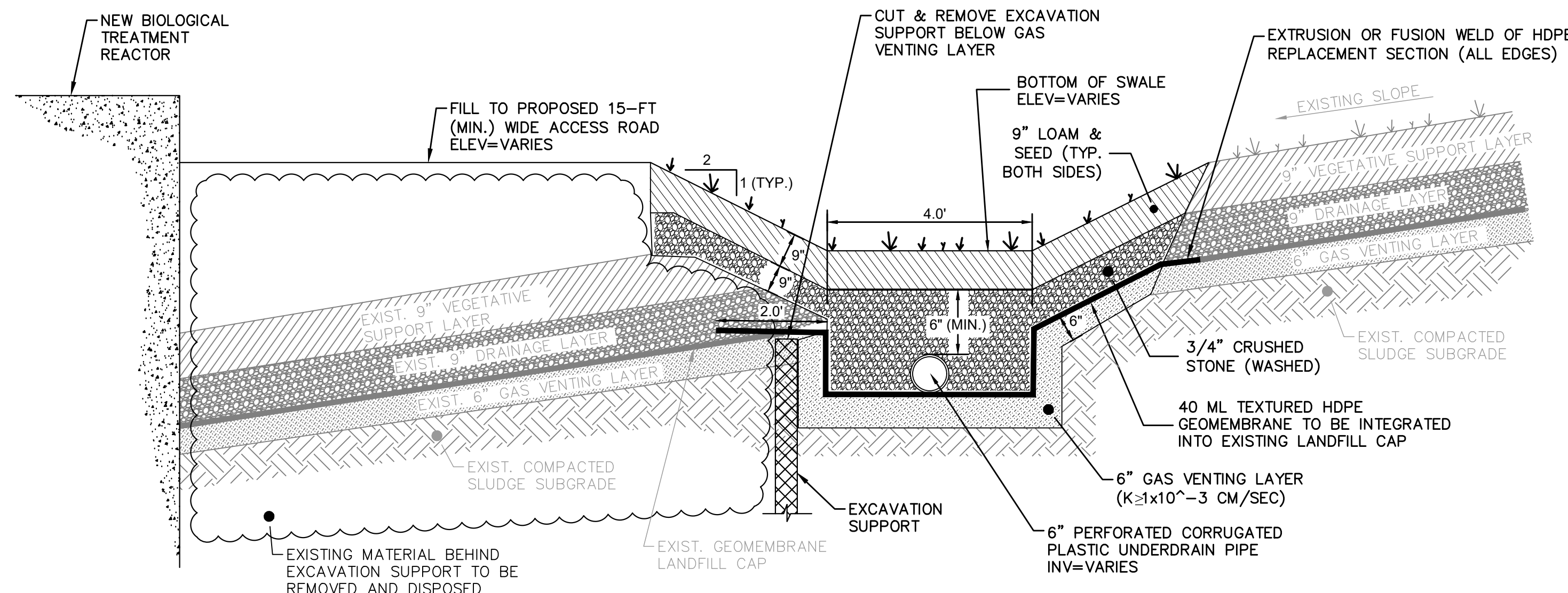
**CRUSHED STONE ACCESS ROAD-CROSS SECTION**  
SCALE: NOT TO SCALE

**NOTES:**

- PRIOR TO EXCAVATION OF ANY KIND WITHIN THE SLUDGE LANDFILL, THE CONTRACTOR SHALL STAKE OUT THE LIMITS OF EXCAVATION SUPPORT (SHEETING) FOR THE CONSTRUCTION OF THE NEW BIOLOGICAL TREATMENT REACTOR.
- WHERE THE EXCAVATION SUPPORT STAKING INTERSECTS THE GEOMEMBRANE CAP LIMITS, THE CONTRACTOR SHALL EXCAVATE SEVERAL FEET BEYOND THE STAKING (FURTHER INTO THE LANDFILL), REMOVE THE OVERLYING VEGETATIVE & DRAINAGE LAYERS, AND CUT THE GEOMEMBRANE. THIS WILL PREVENT ANY PULLING, TEARING, OR FURTHER DISTURBANCE TO THE GEOMEMBRANE DURING INSTALLATION OF THE EXCAVATION SUPPORT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF THE VEGETATIVE LAYER, VEGETATIVE LAYER, DRAINAGE LAYER, GAS VENTING LAYER, AND SLUDGE LAYER THAT IS DISTURBED BY THE PROPOSED WORK.
- THE CONTRACTOR SHALL MAINTAIN FLOW OF THE EXISTING SLUDGE LANDFILL SUB-DRAIN SYSTEM THROUGHOUT CONSTRUCTION. PUMPED FLOWS SHALL BE DISCHARGED IN THE AREA OF THE PROPOSED OUTLET SEDIMENTATION TRAP.
- NEW GEOMEMBRANE SHALL BE EXTRUSION OR FUSION WELDED TO THE EXISTING GEOMEMBRANE. GEOMEMBRANE SHALL OVERLAP BY A MINIMUM OF 3-INCHES FOR EXTRUSION WELDING AND 5-INCHES FOR FUSION WELDING. GEOMEMBRANE SHALL HAVE A MINIMUM TENSILE STRENGTH OF 87 LB/IN AND HAVE A PUNCTURE STRENGTH OF 100 LB. THE CONTRACTOR SHALL SUBMIT AND RECEIVE APPROVAL OF A SHOP DRAWING OF THE GEOMEMBRANE PRIOR TO INSTALLATION.
- DRAINAGE LAYER SHALL CONSIST OF SAND THAT IS FREE OF CONTAMINATION, SHARP ROCKS, DEBRIS OF ANY KIND, ORGANIC MATTER, AND METALS. SAND SHALL BE CLASSIFIED AS (SP) OR (SW) BY THE USGS AND HAVE NO PARTICLES GREATER THAN 3/8 INCH IN DIAMETER. NO MORE THAN 5-PERCENT OF THE DRAINAGE LAYER MATERIAL SHALL PASS THE #200 SIEVE. CONTRACTOR SHALL SUBMIT A SAMPLE OF THE SAND FOR APPROVAL.
- VEGETATIVE SUPPORT LAYER SHALL BE INSTALLED AT A THICKNESS OF 8-INCHES. THE MATERIAL SHALL BE FREE OF LARGE ROCKS, DEBRIS, STUMPS, OR ANY OTHER UNSUITABLE MATERIAL. ALL MATERIAL MUST PASS THE 3-INCH SIEVE WITH A MINIMUM OF 95-PERCENT PASSING THE 1-INCH SIEVE. THE MINIMUM ORGANIC CONTENT MUST BE 3-PERCENT.
- THE SEED MIXTURE SHALL BE AS FOLLOWS, OR EQUAL.
  - 35% PERENNIAL RYE GRASS
  - 35% CREEPING RED FESCUE
  - 15% KENTUCKY BLUE GRASS
  - 10% ANNUAL RYE GRASS
  - 5% WHITE CLOVER
- THE GAS VENTING LAYER SHALL CONSIST OF 3/4 INCH TO 1-1/2 INCH DOUBLE WASHED STONE.



**CONNECTION TO EXISTING SUB-DRAIN SYSTEM**  
SCALE: NOT TO SCALE

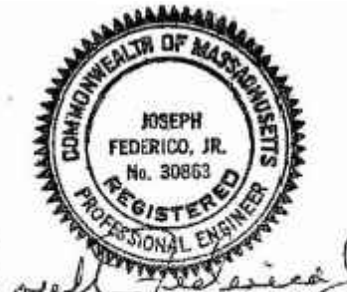


**DRAINAGE SWALE-CROSS SECTION**  
SCALE: NOT TO SCALE

PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT

PROJECT

**Taunton Wastewater Treatment Facility Improvements Phase 2**

Taunton, MA

TITLE

**Sludge Landfill Details & Notes**

**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Drainage Swale Cross-section	4/22

DRAWN BY: BM  
DESIGNED BY: BM  
CHECKED BY: SR  
ISSUE DATE: 3/31/2022  
BETA JOB NO.: 6050

SCALE

AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

C-1.18























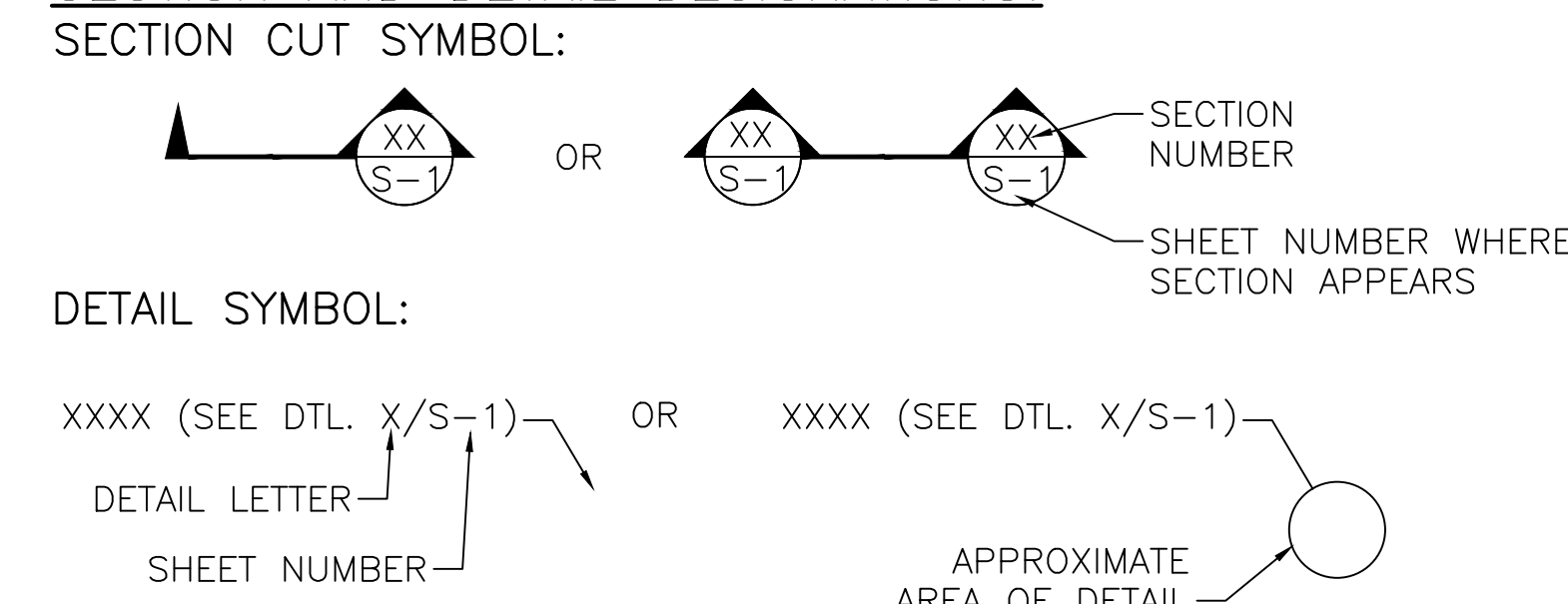
**SUBMITTALS, TESTING, AND INSPECTIONS:**

- SUBMITTALS AND TESTING SHALL BE AS REQUIRED BY THE MASSACHUSETTS STATE BUILDING CODE AND THESE FOLLOWING REQUIREMENTS.
- FOR TESTING AGENCY REQUIREMENTS REFER TO SPECIFICATION 01410.
- THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE TESTING AGENCY AND THE ENGINEERS OF RECORD ACCORDINGLY.
- NOTIFY THE GEOTECHNICAL ENGINEER OF RECORD PRIOR TO FOUNDATION EXCAVATION.
- NOTIFY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FIRST CONCRETE PLACEMENT.
- SUBMITTALS INCLUDE BUT NOT LIMITED TO:  
DEWATERING  
BORROW MATERIAL  
CONCRETE MIX DESIGN  
STRUCTURAL STEEL  
STEEL REINFORCING  
ACCESSORIES  
ALUMINUM  
GRATING, HANDRAILS, AND ANCHOR ROD SYSTEMS  
CONSTRUCTION & EXPANSION JOINT MATERIAL
- TESTS/INSPECTIONS INCLUDES BUT NOT LIMITED TO:  
EARTHWORK  
CONCRETE STRENGTH  
REINFORCING STEEL INSTALLATION  
CONCRETE PLACEMENT AND CURING  
STEEL BOLTING
- THE CONTRACTOR SHALL KEEP COMPLETE AND ORGANIZED RECORDS OF ALL TESTS AND INSPECTIONS AND PROVIDE THEM TO THE ENGINEER SO THAT THE FINAL AFFIDAVIT CAN BE PREPARED. A BINDER SHALL BE MAINTAINED AT THE JOBSITE AT ALL TIMES FOR THE ENGINEER'S INSPECTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN ADVANCE, BEFORE CONCEALING ANY WORK THAT WILL REQUIRE OBSERVATION NEEDED TO PREPARE THE FINAL AFFIDAVIT.

**LIST OF ABBREVIATIONS:**

- |         |                      |        |                          |        |                      |
|---------|----------------------|--------|--------------------------|--------|----------------------|
| ARCH.   | - ARCHITECTURAL      | JT.    | - JOINT                  | VERT.  | - VERTICAL           |
| ADD'L   | - ADDITIONAL         | K.S.I. | - KIPS PER SQUARE INCH   | W.W.F. | - WELDED WIRE FABRIC |
| APPROX. | - APPROXIMATE        | LG.    | - LONG                   | w      | - WIDE               |
| BRG.    | - BEARING            | (LLH)  | - LONG LEG HORIZONTAL    | w/     | - WITH               |
| B.O.    | - BOTTOM OF          | (LLV)  | - LONG LEG VERTICAL      | Ø      | - DIAMETER           |
| C-C     | - CENTER TO CENTER   | LOC.'S | - LOCATIONS              |        |                      |
| CL      | - CENTERLINE         | MAX.   | - MAXIMUM                |        |                      |
| C.I.P.  | - CAST IN PLACE      | MIN.   | - MINIMUM                |        |                      |
| CONC.   | - CONCRETE           | MISC.  | - MISCELLANEOUS          |        |                      |
| CONST.  | - CONSTRUCTION       | N.F.   | - NEAR FACE              |        |                      |
| CONT.   | - CONTINUOUS         | N.S.   | - NEAR SIDE              |        |                      |
| C.Y.    | - CUBIC YARD         | N.T.S. | - NOT TO SCALE           |        |                      |
| d       | - DEEP               | NO.    | - NUMBER                 |        |                      |
| DET.    | - DETAIL             | O.C.   | - ON CENTER              |        |                      |
| DTL.    | - DETAIL             | O.D.   | - OUTSIDE DIAMETER       |        |                      |
| DIA.    | - DIAMETER           | O.F.   | - OUTSIDE FACE           |        |                      |
| DWG.    | - DRAWING            | PERIM. | - PERIMETER              |        |                      |
| EA.     | - EACH               | P      | - PLATE                  |        |                      |
| EL.     | - ELEVATION          | PVC    | - POLYVINYL CHLORIDE     |        |                      |
| ELEV.   | - ELEVATION          | P.S.F. | - POUNDS PER SQUARE FOOT |        |                      |
| EMBED.  | - EMBEDMENT          | P.S.I. | - POUNDS PER SQUARE INCH |        |                      |
| E.F.    | - EACH FACE          | RAD.   | - RADIUS                 |        |                      |
| E.S.    | - EACH SIDE          | REINF. | - REINFORCING            |        |                      |
| E.W.    | - EACH WAY           | REQ'D  | - REQUIRED               |        |                      |
| EXIST.  | - EXISTING           | SECT.  | - SECTION                |        |                      |
| EXP.    | - EXPANSION          | SCH.   | - SCHEDULE               |        |                      |
| FIN.    | - FINISH             | S.F.   | - SQUARE FOOT            |        |                      |
| F.O.    | - FACE OF            | SHT.   | - SHEET                  |        |                      |
| FT.     | - FEET/FOOT          | SIM.   | - SIMILAR                |        |                      |
| FTG.    | - FOOTING            | SP.    | - SPACES                 |        |                      |
| GA.     | - GAUGE              | S.S.   | - STAINLESS STEEL        |        |                      |
| GALV.   | - GALVANIZED         | STD.   | - STANDARD               |        |                      |
| GC      | - GENERAL CONTRACTOR | STL.   | - STEEL                  |        |                      |
| h       | - HIGH               | SYM.   | - SYMMETRIC              |        |                      |
| HORIZ.  | - HORIZONTAL         | t      | - THICK                  |        |                      |
| H.A.    | - HIGH POINT         | T&B    | - TOP AND BOTTOM         |        |                      |
| I.F.    | - INSIDE FACE        | T.O.   | - TOP OF                 |        |                      |
| IN.     | - INCH               | T.O.S. | - TOP OF SLAB            |        |                      |
| I.D.    | - INSIDE DIAMETER    | T.O.W. | - TOP OF WALL            |        |                      |
| INFO.   | - INFORMATION        | TYP.   | - TYPICAL                |        |                      |
| INV.    | - INVERT             | U.N.O. | - UNLESS NOTED OTHERWISE |        |                      |

**SECTION AND DETAIL DESIGNATIONS:**



**CONCRETE PENETRATION SCHEDULE:**

PENETRATION NUMBER	PENETRATION TYPE (SEE MD-1)	PENETRATION LOCATION	CENTERLINE ELEVATION	PIPE DESCRIPTION	PIPE MATERIAL	NOMINAL SIZE (IN)
P-3.1	MECHANICAL JOINT x PLAIN END WALL PIPE	BIOLOGICAL TANK INFLUENT CHAMBER	14.00	PRIMARY EFFLUENT	DUCTILE IRON	48
P-3.2	PLAIN END x PLAIN END WALL PIPE	BIOLOGICAL TANK INFLUENT CHAMBER, TRAIN 1	14.00	PRIMARY EFFLUENT	DUCTILE IRON	42
P-3.3	PLAIN END x PLAIN END WALL PIPE	BIOLOGICAL TANK INFLUENT CHAMBER, TRAIN 2	14.00	PRIMARY EFFLUENT	DUCTILE IRON	42
P-3.4	MECHANICAL JOINT x PLAIN END WALL SLEEVE	BIOLOGICAL TANK INFLUENT CHAMBER	22.00	RETURN ACTIVATED SLUDGE	DUCTILE IRON	16
P-3.5	MECHANICAL JOINT x PLAIN END WALL SLEEVE	BIOLOGICAL TANK INFLUENT CHAMBER	22.00	RETURN ACTIVATED SLUDGE	DUCTILE IRON	20
P-3.6	FLUSH FLANGE x FLUSH FLANGE WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 1	23.00	INTERNAL RECYCLE	DUCTILE IRON	24
P-3.7	FLUSH FLANGE x FLUSH FLANGE WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 1	23.00	INTERNAL RECYCLE	DUCTILE IRON	24
P-3.8	FLUSH FLANGE x FLUSH FLANGE WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 1	15.50	INTERNAL RECYCLE	DUCTILE IRON	48
P-3.9	WALL SLEEVE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 1	31.00	FOAM SPRAY	PVC	3
P-3.10	CONCRETE BOX OUT	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 1	13.35	INTERNAL RECYCLE	N/A	42 x 42
P-3.11	FLUSH FLANGE x FLUSH FLANGE WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 2	23.00	INTERNAL RECYCLE	DUCTILE IRON	24
P-3.12	FLUSH FLANGE x FLUSH FLANGE WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 2	23.00	INTERNAL RECYCLE	DUCTILE IRON	24
P-3.13	FLUSH FLANGE x PLAIN END WALL PIPE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 2	15.50	INTERNAL RECYCLE	DUCTILE IRON	48
P-3.14	WALL SLEEVE	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 2	31.00	FOAM SPRAY	PVC	3
P-3.15	CONCRETE BOX OUT	BIOLOGICAL TANK INTERNAL RECYCLE CHAMBER, TRAIN 2	13.35	INTERNAL RECYCLE	N/A	42 x 42
P-3.16	WALL SLEEVE	BIOLOGICAL TANK ANOXIC ZONE 1, TRAIN 1	31.00	FOAM SPRAY	PVC	3
P-3.17	WALL SLEEVE	BIOLOGICAL TANK ANOXIC ZONE 1, TRAIN 2	31.00	FOAM SPRAY	PVC	3
P-3.18	PIPE CAST INTO FLOOR	BIOLOGICAL TANK ANOXIC ZONE 1, TRAIN 1	9.25	SUMP DRAIN	DUCTILE IRON	6
P-3.19	PIPE CAST INTO FLOOR	BIOLOGICAL TANK ANOXIC ZONE 1, TRAIN 2	9.25	SUMP DRAIN	DUCTILE IRON	6
P-3.20	WALL SLEEVE	BIOLOGICAL TANK WEST WALL	31.00	MICRO-C	PVC	0.5
P-3.21	MECHANICAL JOINT x PLAIN END WALL PIPE	BIOLOGICAL TANK EFFLUENT WEIR, TRAIN 1	19.75	BIOLOGICAL TANK EFFLUENT	DUCTILE IRON	42
P-3.22	MECHANICAL JOINT x PLAIN END WALL PIPE	BIOLOGICAL TANK EFFLUENT WEIR, TRAIN 2	19.75	BIOLOGICAL TANK EFFLUENT	DUCTILE IRON	42
P-3.23	VALVE BOX TOP CAST INTO CORBEL	BIOLOGICAL TANK ANOXIC/AEROBIC SWING WALKWAY, TRAIN 1	32.00	SUMP DRAIN VALVE	CAST IRON	6
P-3.24	VALVE BOX TOP CAST INTO CORBEL	BIOLOGICAL TANK ANOXIC/AEROBIC SWING WALKWAY, TRAIN 2	32.00	SUMP DRAIN VALVE	CAST IRON	6
P-3.25	WALL SLEEVE	BIOLOGICAL TANK EAST WALL	30.75	FOAM SPRAY	DUCTILE IRON	8
P-3.26	MECHANICAL JOINT x PLAIN END WALL PIPE	SECONDARY ANOXIC TANK 1 EAST WALL	19.75	BIOLOGICAL TANK EFFLUENT	DUCTILE IRON	42
P-3.27	MECHANICAL JOINT x PLAIN END WALL PIPE	SECONDARY ANOXIC TANK 1 WEST WALL	19.75	SECONDARY ANOXIC EFFLUENT	DUCTILE IRON	42

PENETRATION NUMBER	PENETRATION TYPE (SEE MD-1)	PENETRATION LOCATION	CENTERLINE ELEVATION	PIPE DESCRIPTION	PIPE MATERIAL	NOMINAL SIZE (IN)
P-3.28	MECHANICAL JOINT x PLAIN END WALL PIPE	SECONDARY ANOXIC TANK 2 EAST WALL	19.75	BIOLOGICAL TANK EFFLUENT	DUCTILE IRON	42
P-3.29	MECHANICAL JOINT x PLAIN END WALL PIPE	SECONDARY ANOXIC TANK 2 WEST WALL	19.75	SECONDARY ANOXIC EFFLUENT	DUCTILE IRON	42
P-3.30	MECHANICAL JOINT x PLAIN END WALL PIPE	RE-AERATION TANK 1 INFLUENT CHAMBER	19.75	SECONDARY ANOXIC EFFLUENT	DUCTILE IRON	42
P-3.31	MECHANICAL JOINT x PLAIN END WALL PIPE	RE-AERATION TANK 2 INFLUENT CHAMBER	19.75	SECONDARY ANOXIC EFFLUENT	DUCTILE IRON	42
P-3.32	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 1 EFFLUENT CHAMBER	18.77	AERATION TANK EFFLUENT	N/A	36 x 42
P-3.33	MECHANICAL JOINT x PLAIN END WALL PIPE	RE-AERATION TANK 1 EFFLUENT CHAMBER	19.75	AERATION TANK EFFLUENT	DUCTILE IRON	42
P-3.34	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 2 EFFLUENT CHAMBER	18.77	AERATION TANK EFFLUENT	N/A	36 x 42
P-3.35	MECHANICAL JOINT x PLAIN END WALL PIPE	RE-AERATION TANK 2 EFFLUENT CHAMBER	19.75	AERATION TANK EFFLUENT	DUCTILE IRON	42
P-3.36	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 1	26.39	FOAM SLOT	N/A	46 x 9
P-3.37	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 1	26.39	FOAM SLOT	N/A	46 x 9
P-3.38	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 1	26.39	FOAM SLOT	N/A	46 x 9
P-3.39	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 1	26.39	FOAM SLOT	N/A	46 x 9
P-3.40	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 2	26.39	FOAM SLOT	N/A	46 x 9
P-3.41	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 2	26.39	FOAM SLOT	N/A	46 x 9
P-3.42	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 2	26.39	FOAM SLOT	N/A	46 x 9
P-3.43	CONCRETE BOX OUT EXPANSION	RE-AERATION TANK 2	26.39	FOAM SLOT	N/A	46 x 9
P-3.44	PIPE SLEEVE	RE-AERATION TANK 1	31.61	AIR	STAINLESS STEEL	4
P-3.45	PIPE SLEEVE	RE-AERATION TANK 1	31.61	AIR	STAINLESS STEEL	4
P-3.46	PIPE SLEEVE	RE-AERATION TANK 1	31.61	AIR	STAINLESS STEEL	4
P-3.47	PIPE SLEEVE	RE-AERATION TANK 2	31.61	AIR	STAINLESS STEEL	4
P-3.48	PIPE SLEEVE	RE-AERATION TANK 2	31.61	AIR	STAINLESS STEEL	4
P-3.49	PIPE SLEEVE	RE-AERATION TANK 2	31.61	AIR	STAINLESS STEEL	4
P-3.50	MECHANICAL JOINT x FLUSH FLANGE WALL PIPE	FINAL CLARIFIER FLOW DISTRIBUTION STRUCTURE	13.67	AERATION TANK EFFLUENT	DUCTILE IRON	48
P-3.51	MECHANICAL JOINT x PLAIN END WALL PIPE	FINAL CLARIFIER FLOW DISTRIBUTION STRUCTURE	15.52	AERATION TANK EFFLUENT	DUCTILE IRON	42
P-3.52	MECHANICAL JOINT x PLAIN END WALL PIPE	FINAL CLARIFIER FLOW DISTRIBUTION STRUCTURE	15.52	AERATION TANK EFFLUENT	DUCTILE IRON	42
P-4.1	WALL SLEEVE	SECONDARY SLUDGE PUMP STATION NO. 2	14.50	RETURN ACTIVATED SLUDGE	DUCTILE IRON	20
P-4.2	MECHANICAL JOINT x PLAIN END WALL PIPE	SECONDARY SLUDGE PUMP STATION NO. 2	14.50	RETURN ACTIVATED SLUDGE	DUCTILE IRON	20

REFER TO S-X FOR CORRESPONDING PENETRATION DETAILS.

PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT

PROJECT

**Taunton Wastewater Treatment Facility Improvements Phase 2**

TAUNTON, MA

TITLE

Structural Notes (2 of 2)

NO. REVISIONS DATE

DRAWN BY: BN

DESIGNED BY: BN

CHECKED BY: TMW

ISSUE DATE: 3/31/2022

BETA JOB NO.: 6050

SCALE

AS SHOWN

SHEET NO. SG-2



































































**PIPE SCHEDULE**

FLOW STREAM	ABBREVIATION	LOCATION	SIZE	MATERIAL	SCHEDULE/CLASS	LINING	JOINT TYPE	INSULATION	SPEC SECTION
BIOFILTER AIR	BFA	ABOVE GRADE	ALL	FRP	N/A	NONE	FLANGED	NONE	11961
		ALL	ALL	HDPE	DR17	NONE	BUTT FUSED	NONE	02620
CITY WATER	CW	BELOW GRADE	≤ 3"	COPPER	TYPE K	NONE	SOLDERED	NONE	11961
			> 3"	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
DRAIN	D	BELOW GRADE	ALL	PVC	SDR 35	NONE	PUSH ON	NONE	11961
TANK DRAIN	TD	ALL	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	11961
FOAM SPRAY	FS	ABOVE GRADE	≤ 3"	FRP COATED PVC	150 PSI	NONE	PUSH ON	NONE	11961
		ALL	> 3"	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
INTERNAL RECYCLE	IR	ALL	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	11961
LIME SLURRY	LS	ALL	ALL	PVC	SCH 80	NONE	SOLVENT WELD	NONE	11961
				HDPE	SDR 11	NONE	BUTT FUSED	NONE	02620
PLANT WATER	PW	INDOOR	≤ 3"	COPPER	TYPE K	NONE	SOLDERED	NONE	11961
		ALL	> 3"	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
PRIMARY EFFLUENT	PE	BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
PRIMARY INFLUENT	PI	BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
BIOLOGICAL TANK EFFLUENT	BTE	BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
AERATION TANK EFFLUENT	ATE	BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
SECONDARY ANOXIC EFFLUENT	SAXE	BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
PRIMARY SLUDGE	PS	ABOVE GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	FLANGED	NONE	11961
		BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	MECHANICAL JOINT	NONE	02618
PROCESS AIR	PA	ALL	ALL	STAINLESS STEEL	SCH 10S	NONE	WELDED	NONE	11961
RETURN ACTIVATED SLUDGE	RAS	ABOVE GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	FLANGED	NONE	11961
		BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	MECHANICAL JOINT	NONE	02618
SANITARY FORCE MAIN	SFM	BELOW GRADE	ALL	PVC	SDR 21	NONE	PUSH ON	NONE	02627
SANITARY SEWER	SS	BELOW GRADE	ALL	PVC	SDR 35	NONE	PUSH ON	NONE	11961
				SCUM	SC	ALL	ALL	DUCTILE IRON	CLASS 52
SECONDARY EFFLUENT	SE	ALL	ALL	DUCTILE IRON	CLASS 52	CEMENT	MECHANICAL JOINT	NONE	02618
CHLORINE SOLUTION	CLS	ALL	ALL	HDPE	SDR 11	NONE	BUTT FUSED	NONE	02620
SODIUM BISULFITE	SB	ALL	ALL	PVC	SCH 80	NONE	SOLVENT WELD	INSUL. & HEAT TRACE	11961
				PVC	SCH 80	NONE	SOLVENT WELD	NONE	11961
SODIUM HYPOCHLORITE	SH	ALL	ALL	HDPE	SDR 11	NONE	BUTT FUSED	NONE	02620
				DUCTILE IRON	CLASS 52	GLASS	FLANGED	NONE	11961
THICKENED SLUDGE	TS	ABOVE GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	MECHANICAL JOINT	NONE	02618
		BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	MECHANICAL JOINT	NONE	02618
WASTE ACTIVATED SLUDGE	WAS	ABOVE GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	FLANGED	NONE	11961
		BELOW GRADE	ALL	DUCTILE IRON	CLASS 52	GLASS	MECHANICAL JOINT	NONE	02618

**SLIDE GATE SCHEDULE**

GATE TAG	LOCATION	MOUNTING TYPE	TYPE	OPENING WIDTH (IN)	OPENING HEIGHT (IN)	OPENING DIAMETER (IN)	GATE MATERIAL	OPERATOR	OPENING INVERT EL. (FT)	OPERATING FLOOR EL. (FT)	MAXIMUM SEATING HEAD (FT)	MAXIMUM UNSEATING HEAD (FT)
SG-1	BIOLOGICAL REACTOR INFLUENT CHAMBER	WALL	NON SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	12.25	32.00	18.11	18.11
SG-2	BIOLOGICAL REACTOR INFLUENT CHAMBER	WALL	NON SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	12.25	32.00	18.11	18.11
SG-3	INTERNAL RECYCLE PUMP CHAMBER (TRAIN 1)	WALL	NON SELF CONTAINED RISING STEM	42	42	-	316 STAINLESS STEEL	MANUAL HAND CRANK	11.60	32.00	18.76	18.76
SG-4	INTERNAL RECYCLE PUMP CHAMBER (TRAIN 1)	WALL	NON SELF CONTAINED RISING STEM	-	-	48	316 STAINLESS STEEL	MANUAL HAND CRANK	13.50	32.00	16.86	16.86
SG-5	INTERNAL RECYCLE PUMP CHAMBER (TRAIN 2)	WALL	NON SELF CONTAINED RISING STEM	42	42	-	316 STAINLESS STEEL	MANUAL HAND CRANK	11.60	32.00	18.76	18.76
SG-6	INTERNAL RECYCLE PUMP CHAMBER (TRAIN 2)	WALL	NON SELF CONTAINED RISING STEM	-	-	48	316 STAINLESS STEEL	MANUAL HAND CRANK	13.50	32.00	16.86	16.86
SG-7	SECONDARY ANOXIC TANK NO.1 INFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	26.50 <sup>A</sup>	10.40	12.36
SG-8	SECONDARY ANOXIC TANK NO.2 INFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	26.50 <sup>A</sup>	10.40	12.36
SG-9	SECONDARY ANOXIC TANK NO.1 EFFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	26.50 <sup>A</sup>	10.40	9.39
SG-10	SECONDARY ANOXIC TANK NO.2 EFFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	26.50 <sup>A</sup>	10.40	9.39
SG-11	RE-AERATION TANK NO.1 INFLUENT	WALL	SELF CONTAINED RISING STEM	36	42	-	316 STAINLESS STEEL	MANUAL HAND CRANK	20.27	31.61	8.13	7.12
SG-12	RE-AERATION TANK NO.2 INFLUENT	WALL	SELF CONTAINED RISING STEM	36	42	-	316 STAINLESS STEEL	MANUAL HAND CRANK	20.27	31.61	8.13	7.12
SG-13	RE-AERATION TANK NO.1 EFFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	28.00	9.39	12.36
SG-14	RE-AERATION TANK NO.2 EFFLUENT	WALL	SELF CONTAINED RISING STEM	-	-	42	316 STAINLESS STEEL	MANUAL HAND CRANK	18.00	28.00	9.39	12.36
SG-15	FINAL CLARIFIER FLOW DISTRIBUTION STRUC.	WEIR WALL	DOWNWARD OPENING SELF CONTAINED RISING STEM	48	36.75	-	316 STAINLESS STEEL	MANUAL HAND CRANK	23.44	26.50	0.32	1.64
SG-16	FINAL CLARIFIER FLOW DISTRIBUTION STRUC.	WEIR WALL	DOWNWARD OPENING SELF CONTAINED RISING STEM	48	36.75	-	316 STAINLESS STEEL	MANUAL HAND CRANK	23.44	26.50	0.32	1.64
SG-17	FINAL CLARIFIER FLOW DISTRIBUTION STRUC.	WEIR WALL	DOWNWARD OPENING SELF CONTAINED RISING STEM	48	36.75	-	316 STAINLESS STEEL	MANUAL HAND CRANK	23.44	26.50	0.00	1.64
SG-18	FINAL CLARIFIER FLOW DISTRIBUTION STRUC.	WEIR WALL	DOWNWARD OPENING SELF CONTAINED RISING STEM	48	36.75	-	316 STAINLESS STEEL	MANUAL HAND CRANK	23.44	26.50	0.00	1.64

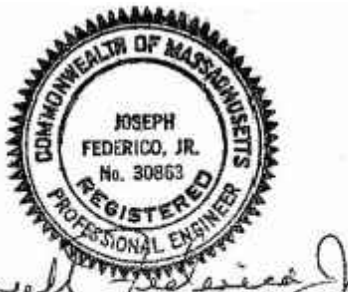
<sup>A</sup> GATE WILL BE ACCESSIBLE FROM GROUND LEVEL OUTSIDE OF THE TANK

PREPARED BY



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REGISTERED PROFESSIONAL



*Joseph F. Rodriguez, Jr.*

SUBCONSULTANT

PROJECT

**Taunton Wastewater Treatment Facility Improvements Phase 2**

Taunton, MA

TITLE

Mechanical Schedule

**AS RE-ISSUED PER ADDENDUM #1**

1	Pipe Schedule	4/22
NO.	REVISIONS	DATE

DRAWN BY:	BM
DESIGNED BY:	MA
CHECKED BY:	SR
ISSUE DATE:	3/31/2022
BETA JOB NO.:	6050

SCALE

AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

M-0.1



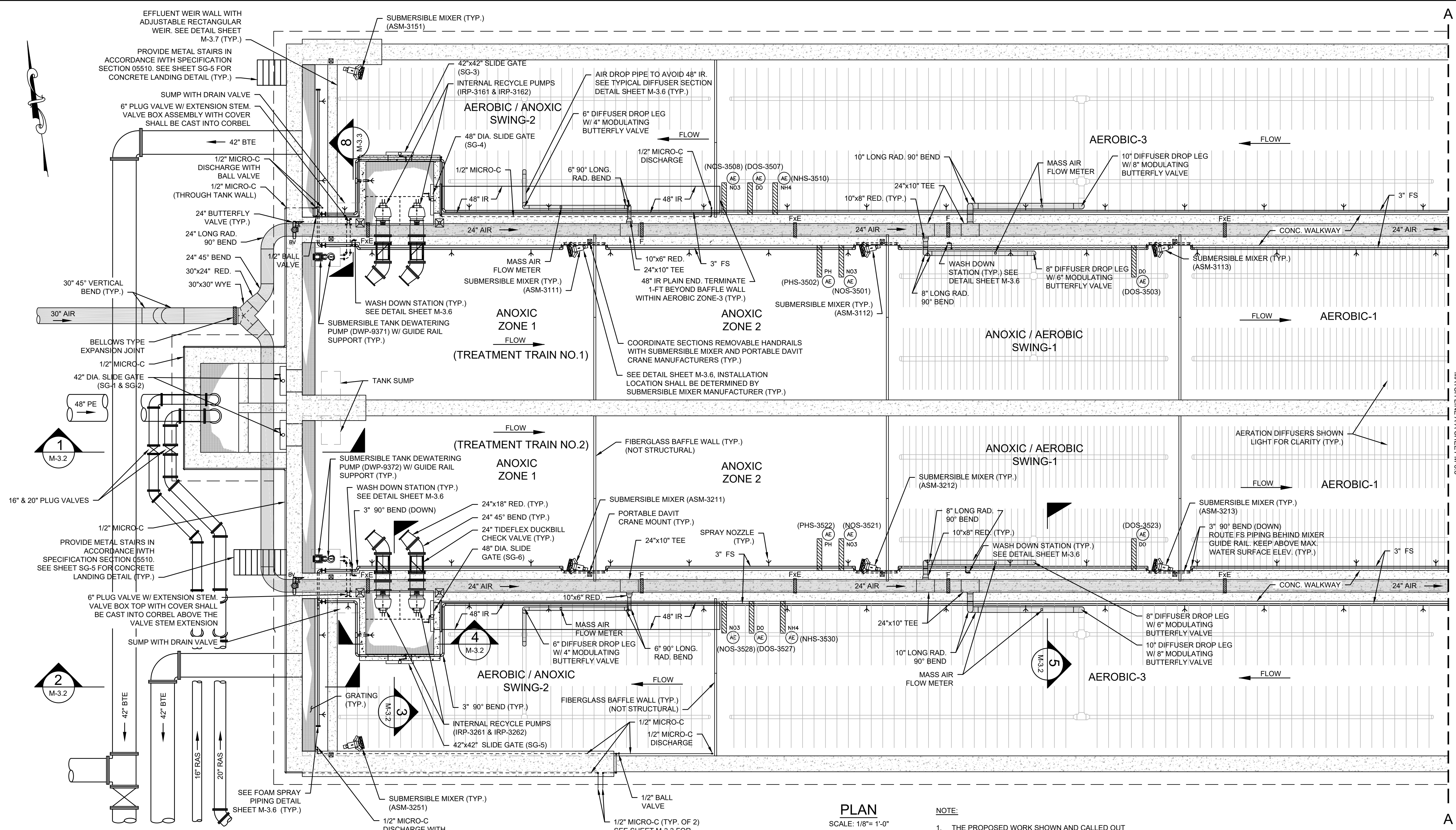






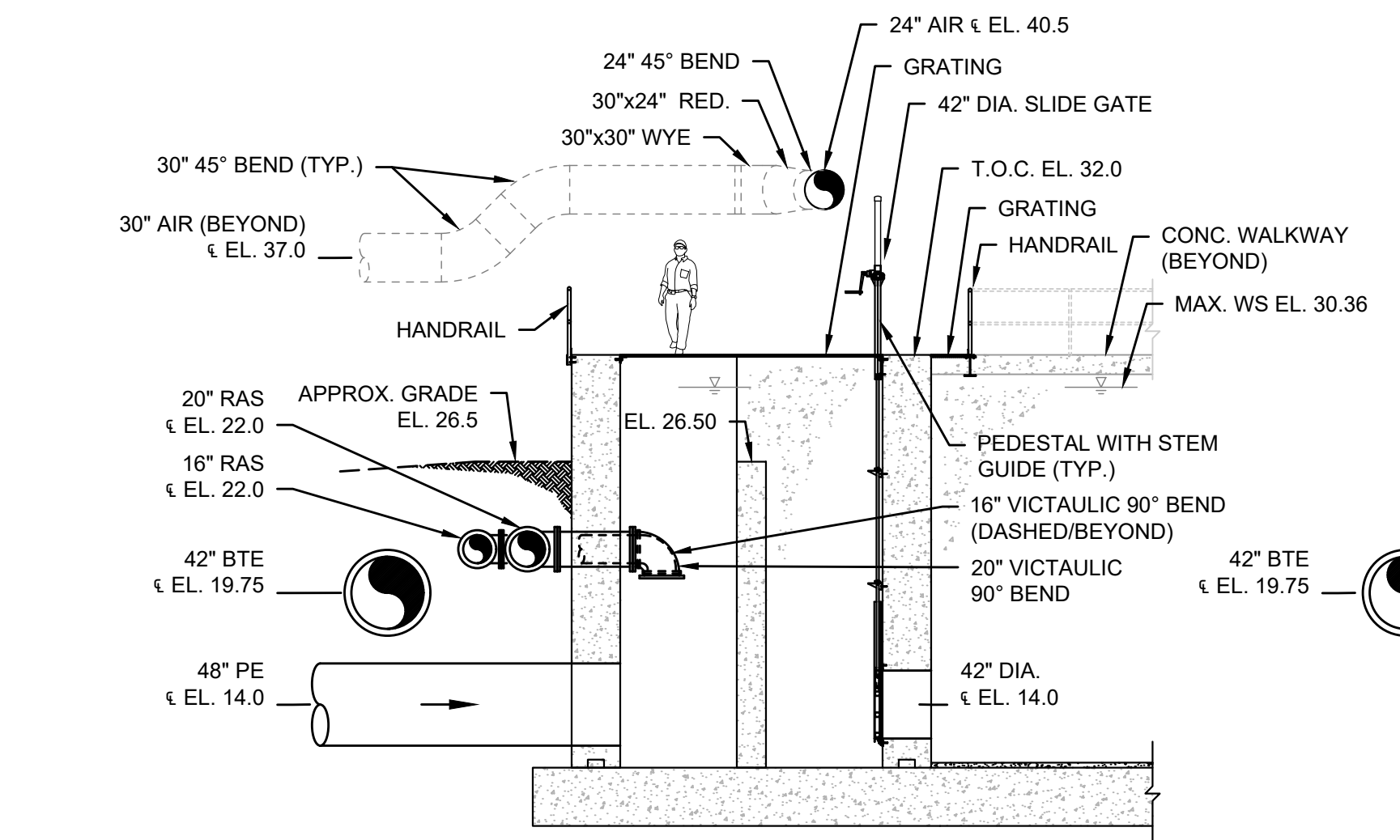


4/21/2022 2:20 PM J:\TAUNTON\WTF DESIGN\AUTOCAD\PLAN SET\PHASE 2\AERATION TANKS - PROP PLANS & SECTIONS\_INFLUENT CHAMBER ALT.DWG (BETA STB BW.STB)

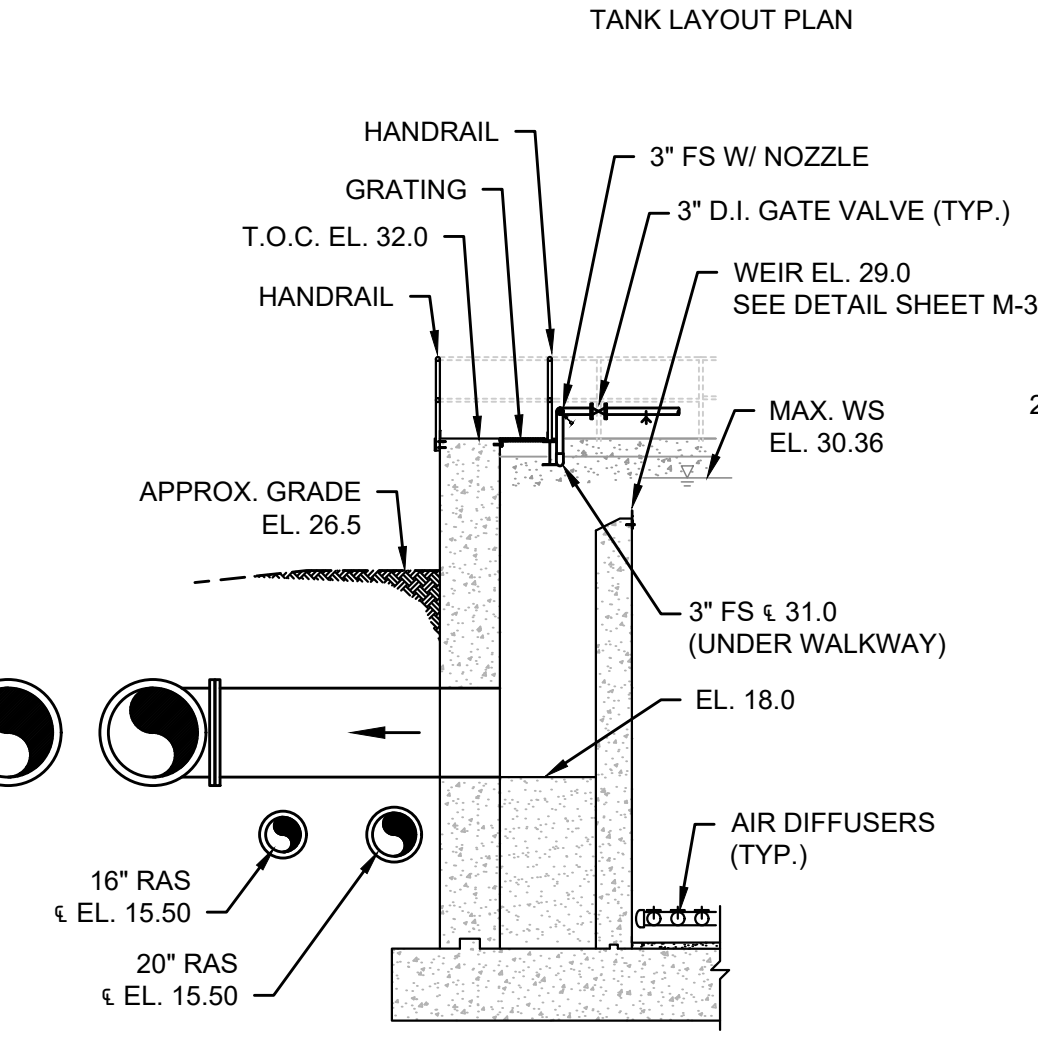


**PLAN**  
SCALE: 1/8" = 1'-0"

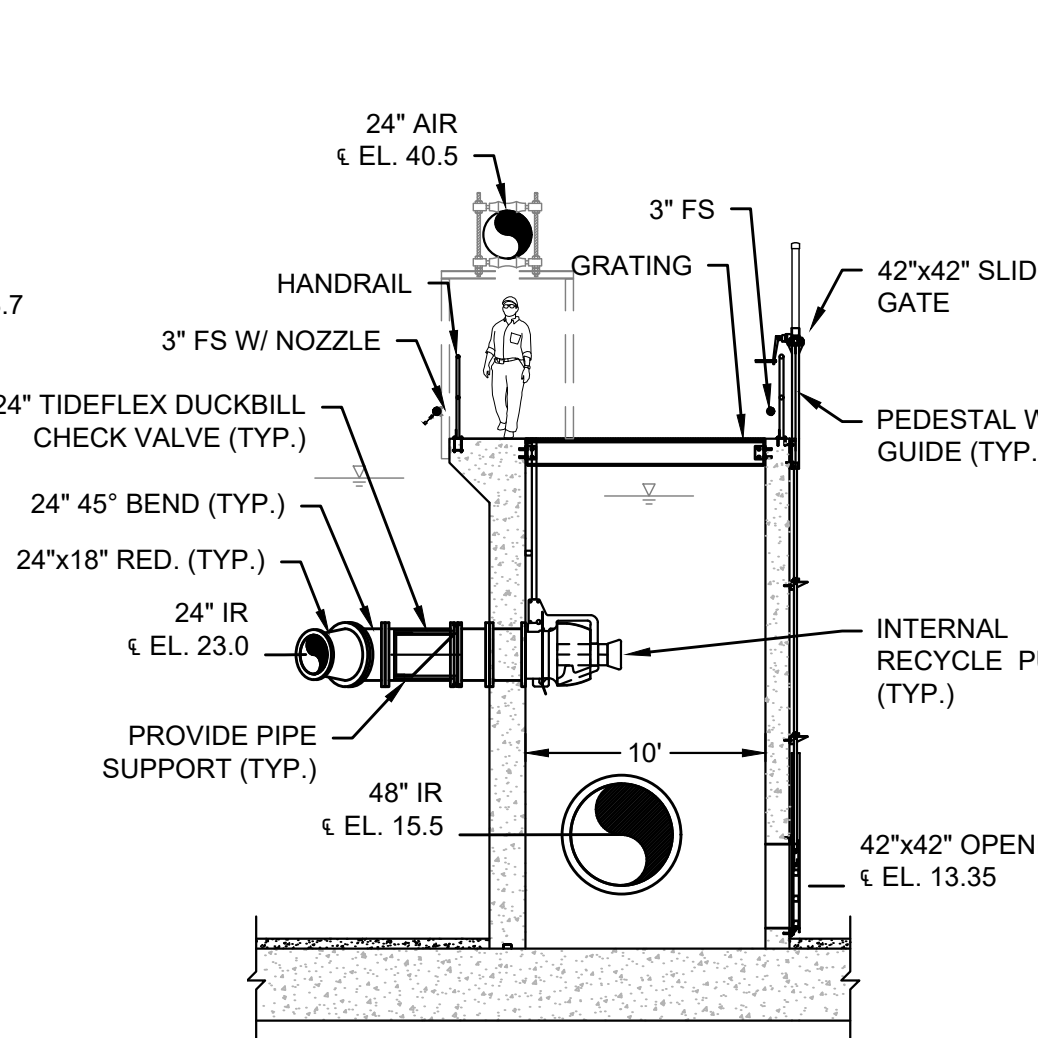
**NOTE:**  
1. THE PROPOSED WORK SHOWN AND CALLED OUT APPLIES TO TREATMENT TRAINS 1 & 2.



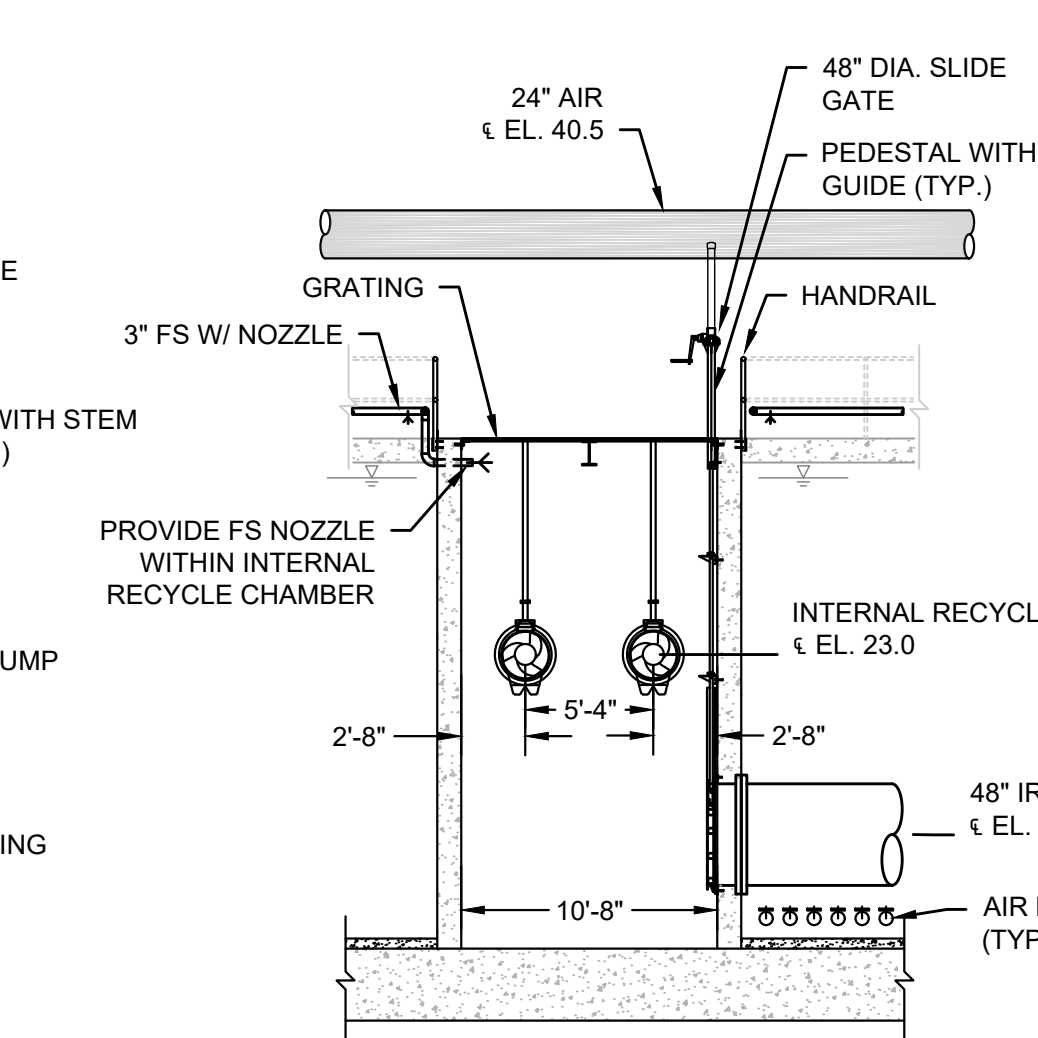
**SECTION 1**  
SCALE: 1/8" = 1'-0" M-3.2



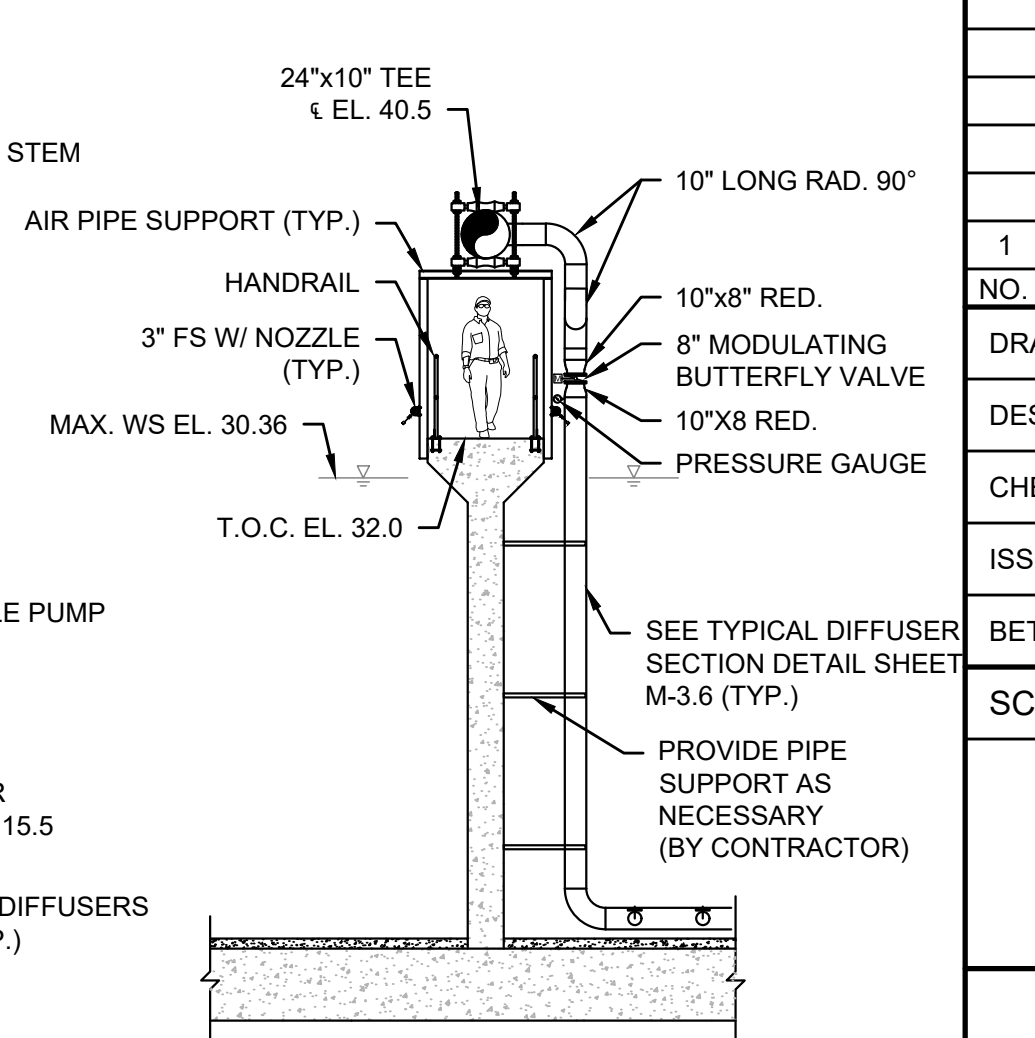
**SECTION 2**  
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**SECTION 3**  
SCALE: 1/8" = 1'-0" M-3.2

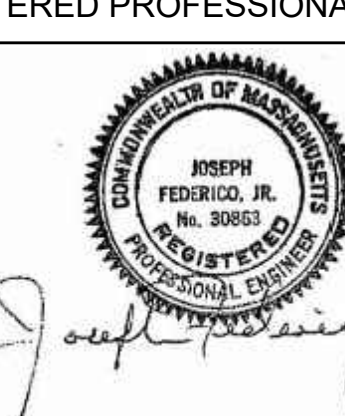


**SECTION 4**  
SCALE: 1/8" = 1'-0" M-3.2



**SECTION 5**  
SCALE: 1/8" = 1'-0" M-3.2

PREPARED BY  
  
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 Joseph Federico, Jr.

SUBCONSULTANT

PROJECT  
**Taunton Wastewater Treatment Facility Improvements Phase 2**  
 Taunton, MA

TITLE  
**Biological Treatment Reactor Plan & Sections I**  
**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY: BM  
 DESIGNED BY: SR  
 CHECKED BY: JD  
 ISSUE DATE: 3/31/2022  
 BETA JOB NO.: 6050  
 SCALE: AS SHOWN  
 SHEET NO.: M-3.2

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REGISTERED PROFESSIONAL



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SUBCONSULTANT

PROJECT

**Taunton Wastewater Treatment Facility Improvements Phase 2**

Taunton, MA

TITLE

**Biological Treatment Reactor Plan & Sections II**

**AS RE-ISSUED PER ADDENDUM #1**

NO.	REVISIONS	DATE
1	Biological Reactor Influent Chamber	4/22

DRAWN BY: BM

DESIGNED BY: SR

CHECKED BY: JD

ISSUE DATE: 3/31/2022

BETA JOB NO.: 6050

SCALE

AS SHOWN

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

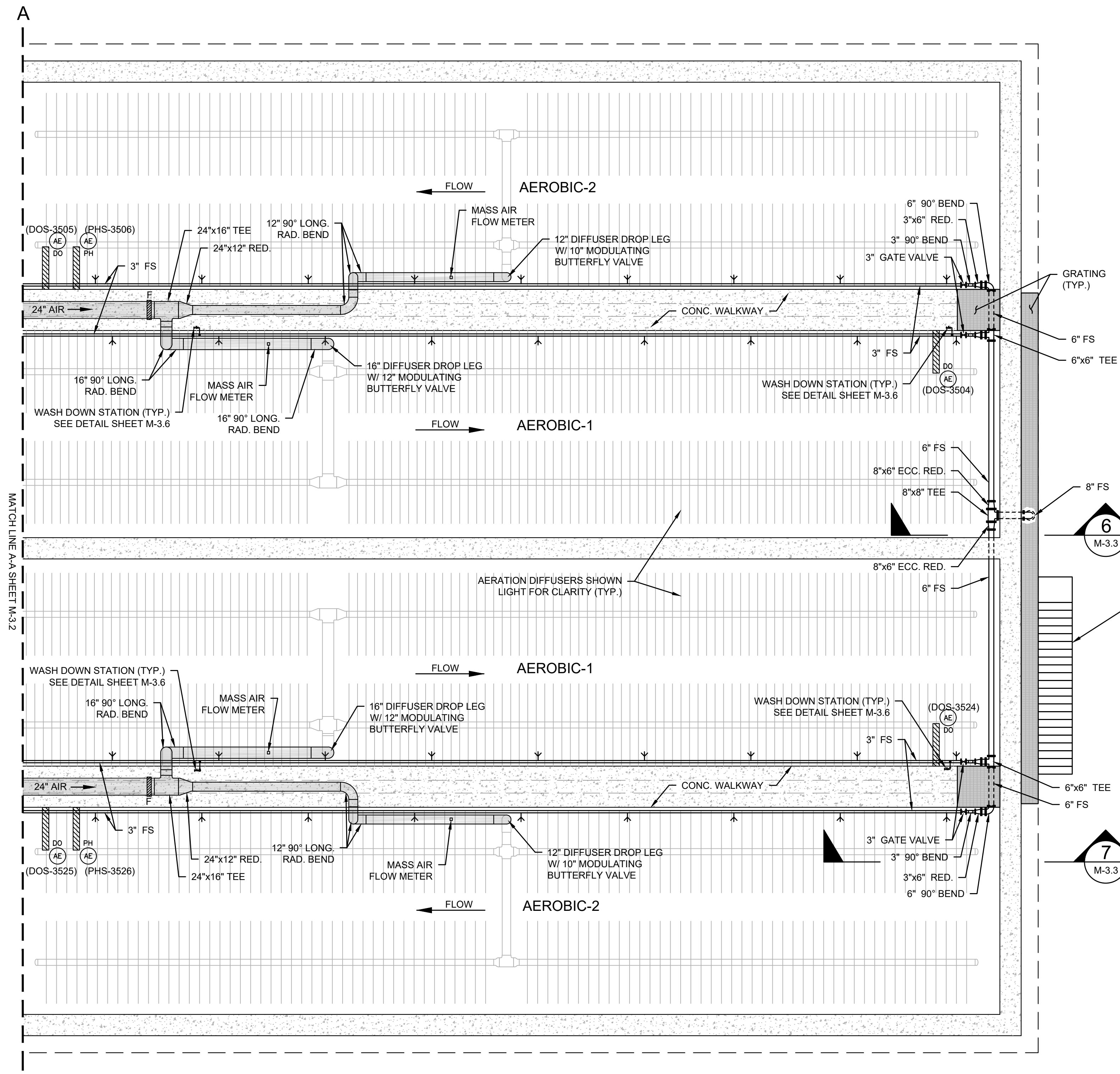
SHEET NO.

M-3.3

**COUPLING AND SUPPORT LEGEND**

SYMBOL	DEFINITION
FxE	FIXED x EXPANSION COUPLING
F	FIXED SUPPORT

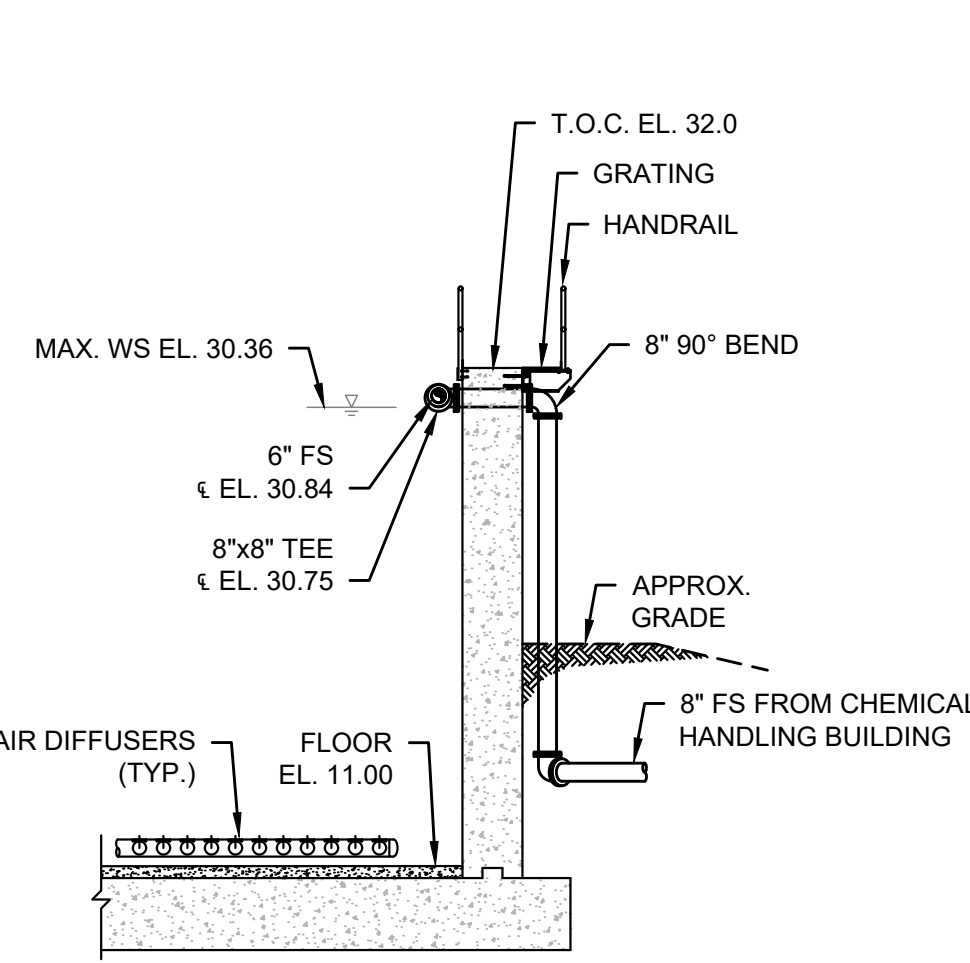
NOTE: LOCATIONS OF COUPLINGS AND SUPPORTS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED BY COUPLING MANUFACTURER AND COORDINATED WITH PIPE MANUFACTURER. SEE SPECIFICATION SECTION 15066.



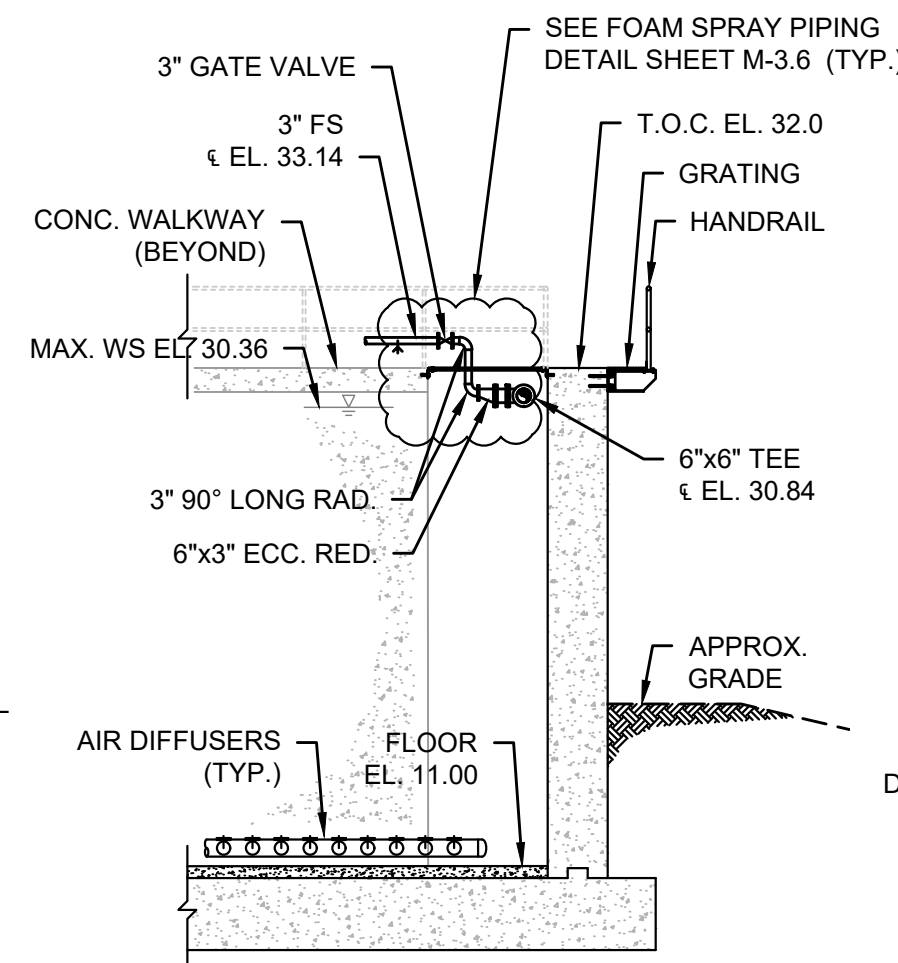
PROVIDE METAL STAIRS IN ACCORDANCE WITH SPECIFICATION SECTION 05510. SEE SHEET SG-5 FOR CONCRETE LANDING DETAIL (TYP.)

**PLAN**

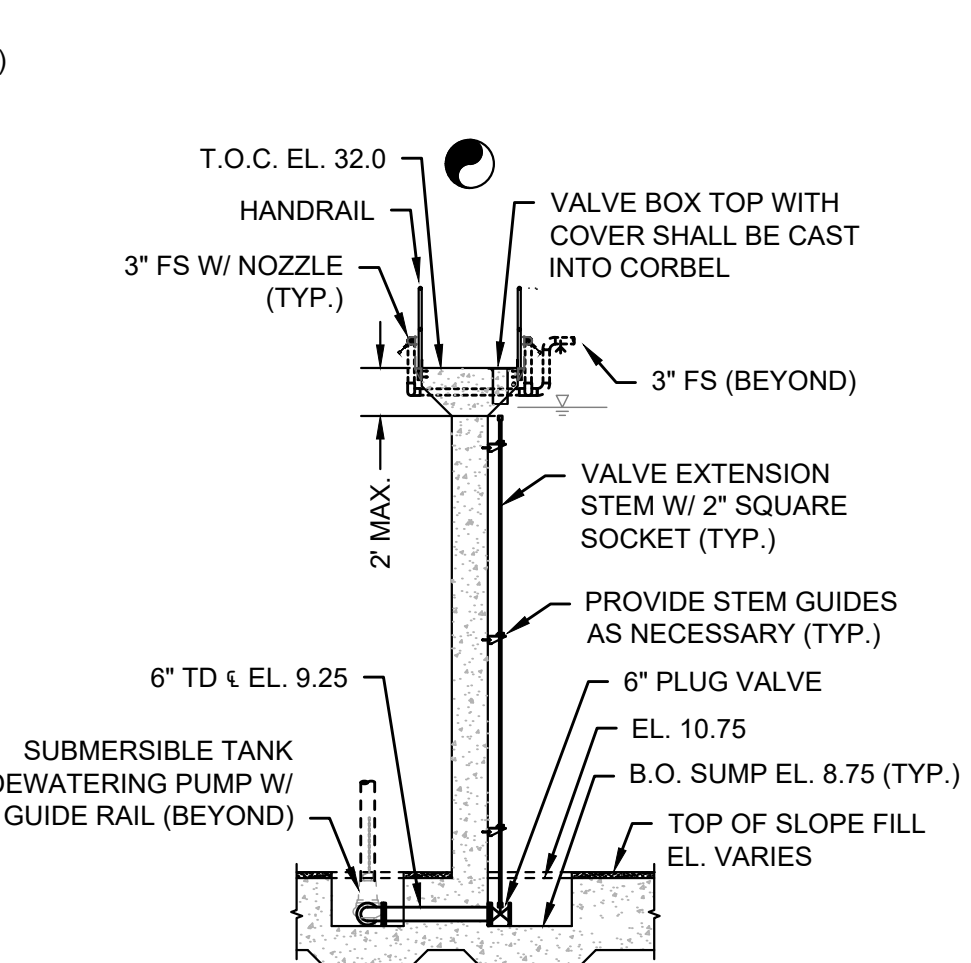
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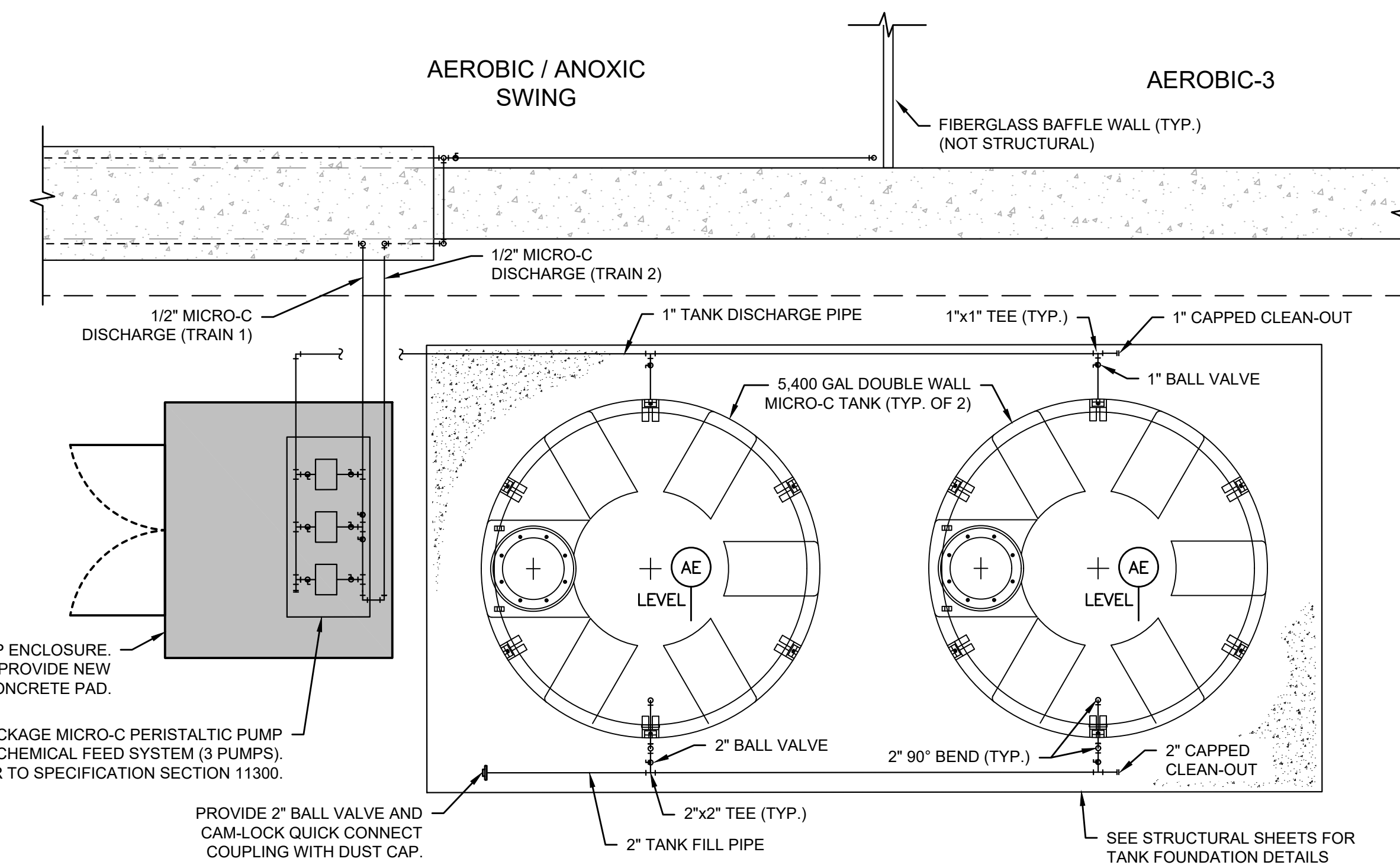
**SECTION 6**  
SCALE: 1/8" = 1'-0" M-3.3



**SECTION 7**  
SCALE: 1/8" = 1'-0" M-3.3



**SECTION 8**  
SCALE: 1/8" = 1'-0" M-3.2



**MICRO-C TANK & PUMP ENCLOSURE PLAN**

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
































































































3/30/2022 11:40 AM W:\YEAR-2018\180909-00 - TAUNTON\WRITE\UPGRADE\HVAC\DEPARTMENT\PHASE 2\180909-00 HVAC LEGEND SCHEDULE AND DETAILS\PHASE 2.DWG (BETA STB BIV STB)

GENERAL NOTES

- HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EXISTING DUCTS, PIPING OR EQUIPMENT INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. EXACT LOCATIONS MUST HAVE THE APPROVAL OF THE ENGINEER.
- ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
- ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH STATE CODES, MANUFACTURER'S APPROVED PUBLISHED LITERATURE, AND AUTHORITIES HAVING JURISDICTION.
- INSTALLATION OF EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/ OR REPLACEMENT.
- ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
- HVAC CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH THE STRUCTURAL ENGINEER.
- ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
- PROVIDE VOLUME DAMPERS AT EVERY MAIN BRANCH TAKE-OFF AND AS INDICATED AND IN SUCH OTHER LOCATIONS WHERE REQUIRED TO PROPERLY BALANCE THE SYSTEM. DO NOT INSTALL VOLUME DAMPERS IN NECKS OF DIFFUSERS OR AT DISCHARGE OR INLET GRILLES IN DUCTWORK.
- PROVIDE INSTRUMENT TEST HOLES WITH CAPS IN AIR DISTRIBUTION SYSTEMS AS REQUIRED TO BALANCE SYSTEM.
- HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHEETMETAL TRANSITIONS AT AIR TERMINAL UNITS, FANS, COILS, AND OTHER SIMILAR HVAC EQUIPMENT.
- ALL OPEN ENDED DUCTS IN THE CEILING PLENUM SHALL BE UNOBSTRUCTED FOR A MINIMUM DISTANCE OF 24" FROM THE OPENING TO ALLOW FREE AIR FLOW AND SHALL HAVE 3/4" WIRE MESH SCREENING.
- ALL TRANSFER DUCTS SHALL BE INTERNALLY LINED.
- ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY HVAC SUBCONTRACTOR.
- EXACT LOCATION OF CEILING DIFFUSERS, GRILLES AND REGISTERS TO BE DETERMINED BY ARCHITECTURAL REFLECTED CEILING PLAN.
- INSTALL ALL PIPING BELOW DUCTWORK UNLESS CLEARANCE CONDITION REQUIRES PIPING TO BE ABOVE.
- EXACT ELEVATION FOR SIDE WALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION.
- UNLESS OTHERWISE NOTED, ALL PIPING RUNOUTS SHALL BE 3/4"
- ALL EXPOSED EQUIPMENT (REGISTERS, UNIT HEATERS, ETC..) SHALL HAVE COLORS SELECTED BY THE ARCHITECT, UNLESS NOTED OTHERWISE.
- HVAC SUBCONTRACTOR SHALL BLANK OFF AND INSULATE ALL UNUSED LOUVER AREA.
- PITCH AIR INTAKE PLENUMS AND PROVIDE DRAIN TO NEAREST FLOOR DRAIN.
- ALL REGISTERS, GRILLES AND DIFFUSERS LOCATED IN WALLS NEAR FLOOR SHALL BE HEAVY-DUTY TYPE DESIGNED TO WITHSTAND RUGGED IMPACT. REFER TO SCHEDULE. THE SECTION OF DUCTWORK BEHIND THE AIR DEVICE SHALL BE PAINTED FLAT BLACK.
- EXACT LOCATION OF THERMOSTAT TO BE COORDINATED WITH FINAL LOCATION OF WALL MOUNTED ARCHITECTURAL AND ELECTRICAL EQUIPMENT.
- ALL MAIN BRANCH PIPES FROM RISERS SHALL HAVE ISOLATION VALVES NEAR SHAFTS. PROVIDE SHUT-OFF VALVES AT EACH SUPPLY BRANCH AND COMBINATION BALANCING SHUT-OFF VALVE AT EACH RETURN BRANCH.
- PROVIDE FLEXIBLE CONNECTOR ON INTAKES AND DISCHARGES OF ALL AIR HANDLING UNITS.
- REFRIGERATION PIPING SIZED BY UNIT MANUFACTURER. SUBMIT CALCULATIONS TO ENGINEER FOR APPROVAL.
- DUCT MOUNTED SMOKE DETECTOR - FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR, INSTALLED BY THE HVAC CONTRACTOR.
- ROOF OPENINGS SHALL BE SIZED FROM APPROVED SHOP DRAWINGS.
- ALL FLOOR MOUNTED MECHANICAL EQUIPMENT, BOILERS, PUMPS, AIR HANDLERS, ETC. SHALL HAVE A CONCRETE PAD 4" HIGH AND 6" BEYOND EQUIPMENT FOOT PRINT ON ALL FOUR SIDES. CONCRETE PADS SHALL BE SIZE FROM APPROVED SHOP DRAWINGS.
- ALL DAMPER MOTORS SHALL BE 24 VOLT.
- PROVIDE DUCT MOUNTED SMOKE DAMPERS AT ALL SMOKE BARRIERS. SMOKE DAMPERS SHALL BE CLOSED AND ASSOCIATED EXH. FAN OR AHU SHALL BE SHUT-DOWN UPON DETECTION OF SMOKE AS SENSED BY AREA SMOKE DETECTORS. DAMPERS SHALL BE RUSKIN TYPE SD 60 OR EQUAL.

DEMOLITION NOTES

- EXISTING WORK INDICATED TO BE DEMOLISHED SHALL BE REMOVED AND DISPOSED OF.
-  DEMOLITION

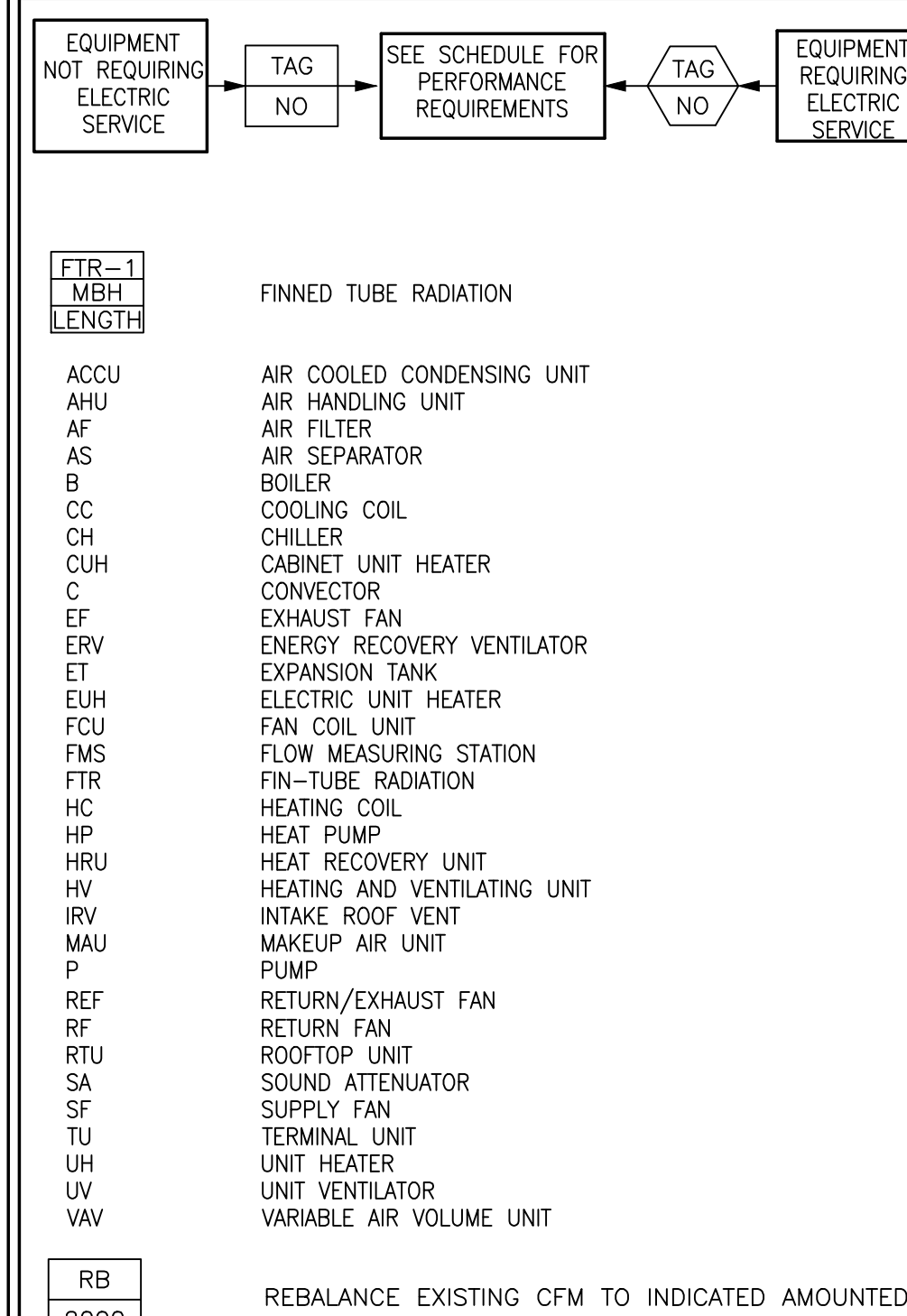
ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AP	ACCESS PANEL
ARCH	ARCHITECT
ATC	AUTOMATIC TEMPERATURE CONTROL
BDD	BACKDRAFT DAMPER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BOD	BOTTOM OF DUCT
CAP	CAPACITY
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CONT	CONTROLLER
CP	CUT AND CAP
DIA	DIAMETER
DB	DRY BULB TEMPERATURE
DC	DUST COLLECTOR
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION COOLING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD RADIATION
ECH	ELECTRIC CABINET HEATER
ECON	AIR-SIDE ECONOMIZER
EF	EXHAUST FAN
EFF	EFFICIENCY
ELV	ELEVATION
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET
FTR	FINNED TUBE RADIATION
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GF	GLYCOL FEED
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HGRH	HOT GAS REHEAT
HW	HOT WATER
HZ	HERTZ
IN	INCHES
KE	KITCHEN EXHAUST
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU'S PER HOUR
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NO	NOT IN CONTRACT
NIC	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
ODB	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
POS	PROVIDED UNDER OTHER SECTIONS
PSI	POUNDS PER SQUARE INCH (GAUGE)
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PG	PROPYLENE GLYCOL
R	RETURN
RA	RETURN AIR
RB	REBALANCE
RF	RETURN/EXHAUST FAN
RC	RETURN GRILLE
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
S	SUPPLY
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SF	SQUARE FEET, SUPPLY FAN
SP	STATIC PRESSURE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
STL	STEEL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WG	WATER GAUGE
WMS	WIRE MESH SCREEN

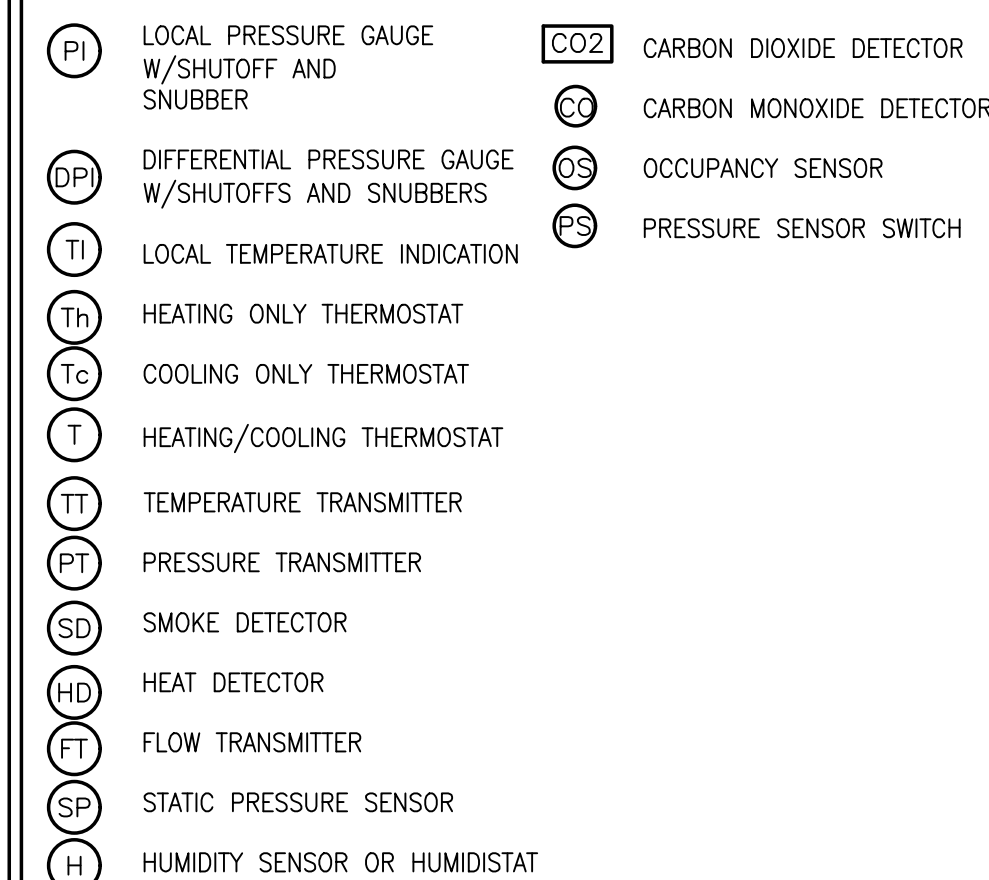
PIPING LEGEND

—CD—	CONDENSATE DRAIN
—HWS—	HOT WATER SUPPLY
—HWR—	HOT WATER RETURN
—RL—	REFRIGERANT LIQUID
—RS—	REFRIGERANT SUCTION

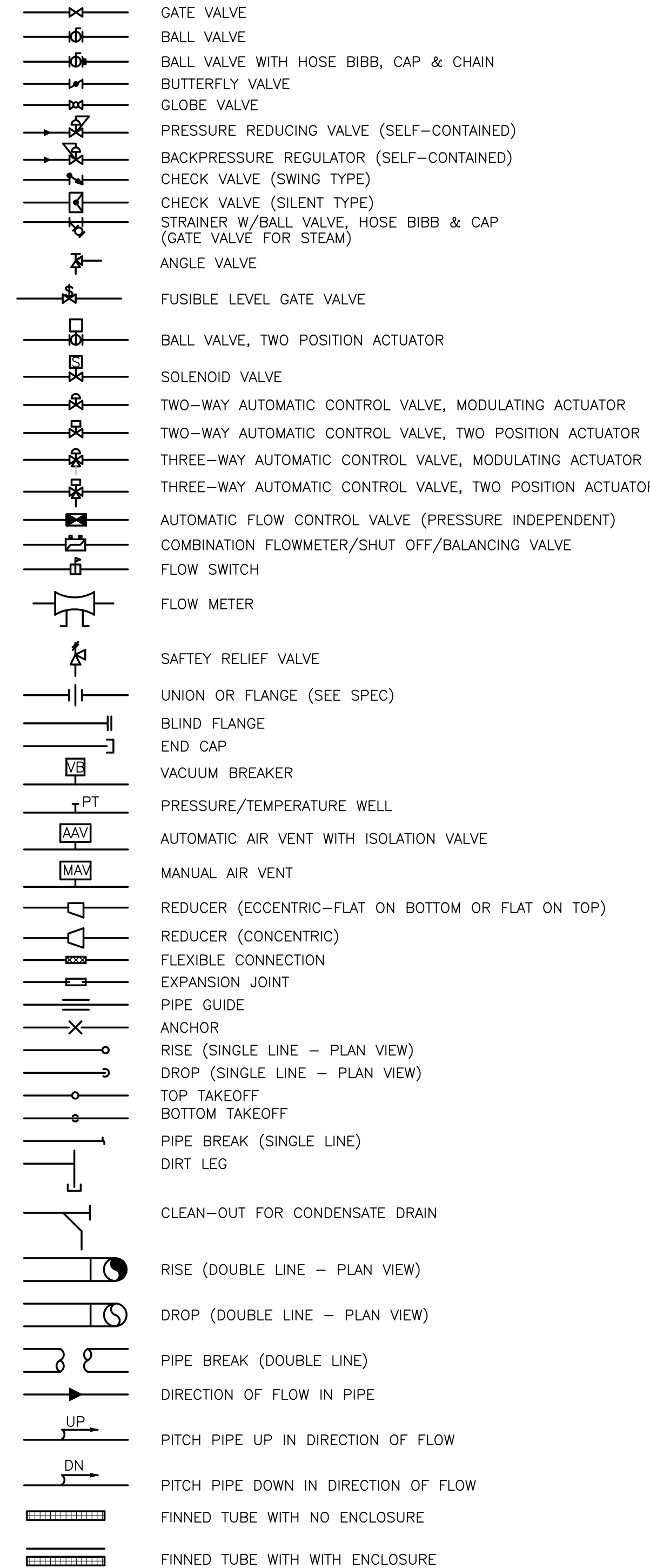
EQUIPMENT TAG SYMBOLS & ABBREVIATIONS



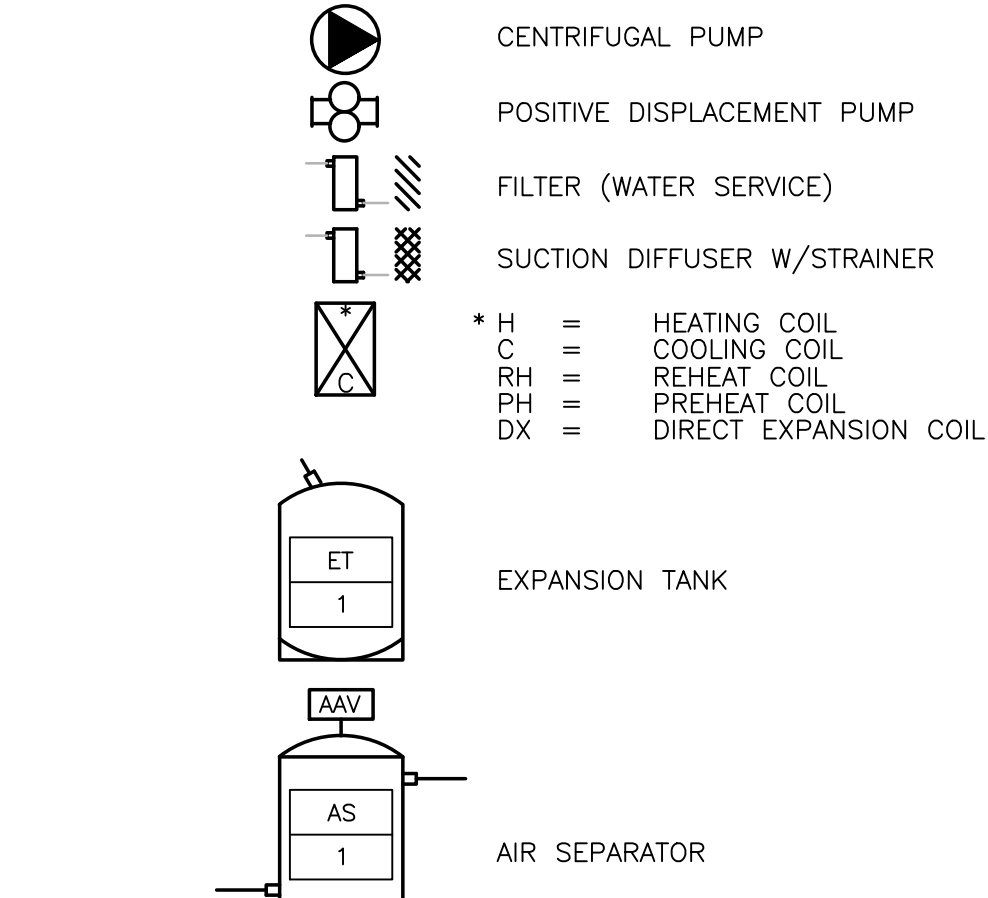
INSTRUMENTATION



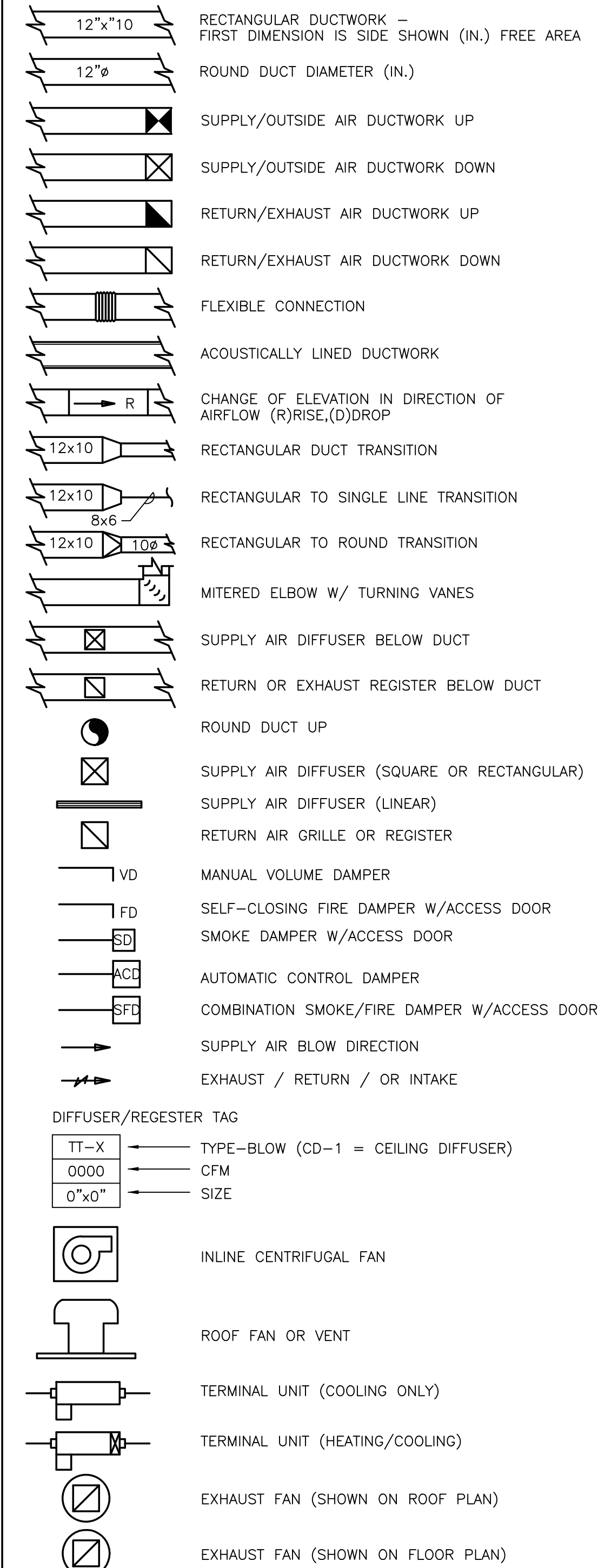
VALVES AND ACCESSORIES



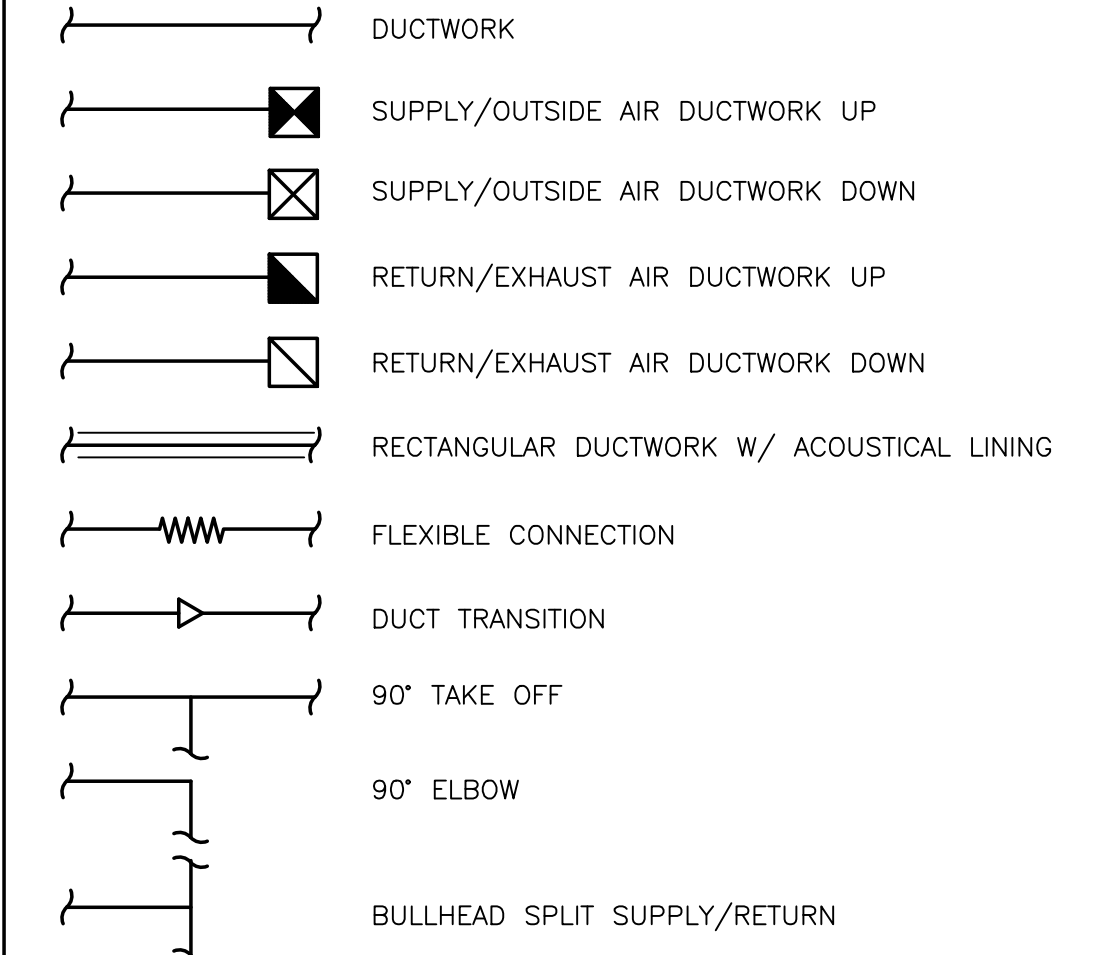
FLOW DIAGRAM EQUIPMENT SYMBOLS



DUCTWORK LEGEND/SYMBOLS



SINGLE LINE DUCTWORK



PREPARED BY



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PROJECT

Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2

Taunton, MA

TITLE

HVAC Legend and  
General Notes

NO. REVISIONS DATE

DRAWN BY: RLB

DESIGNED BY: RHB

CHECKED BY: RHB

ISSUE DATE: 03/31/22

BETA JOB NO.: 6050

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

H-0.1



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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

HVAC Schedules

**AS RE-ISSUED PER  
ADDENDUM #4**

1	ADDENDUM #4	04/25/22
NO.	REVISIONS	DATE

DRAWN BY: RLB

DESIGNED BY: RHB

CHECKED BY: RHB

ISSUE DATE: 03/31/22

BETA JOB NO.: 6050

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO.

H-0.2

EXHAUST FAN SCHEDULE												
TAG NO.	BUILDING	CFM	ESP (IN WC)	SPEED (RPM)		DRIVE	ELECTRICAL DATA				MANUFACTURER & MODEL #	REMARKS
				FAN	MOTOR		HP	V	PH	HZ		
4EF-1	SLUDGE PUMP STATION NO.1	11,000	1.0	824	1725	BELT	5	480	3	60	GREENHECK CUBE-300-VFD-50	
4EF-2	SLUDGE PUMP STATION NO.2	6,000	1.0	733	1725	BELT	3	480	3	60	GREENHECK CUBE-300-VFD-30	
9EF-1	STORAGE BUILDING	60	0.50	1488	1785	DIRECT	1/4	120	1	60	GREENHECK CUE-100HP-VG	

DEHUMIDIFIER SCHEDULE								
TAG NO.	LOCATION	EXTRACT PPD	ELECTRICAL DATA			MANUFACTURER MODEL NUMBER	WEIGHT LB	NOTES
			V	PH	HZ			
4DH-1	SLUDGE PUMP STATION NO.1	56	120	1	60	EBAC IND. PRODUCTS MODEL CS60	63	PROVIDE WALL BRACKET AND COND. PUMP
4DH-2	SLUDGE PUMP STATION NO.2	56	120	1	60	EBAC IND. PRODUCTS MODEL CS60	63	PROVIDE WALL BRACKET AND COND. PUMP

MOUNT DEHUMIDIFIER ON WALL 18" A.F.F.

ELECTRIC UNIT HEATER SCHEDULE								
TAG NO.	BUILDING	CAPACITY	FAN DATA				MANUFACTURER MODEL NUMBER	REMARKS
		KW	SCM	V	PH	HZ		
4EUH-1	SLUDGE PUMP STATION NO.1	20	2400	480	3	60	QMARK QWD20432	--
4EUH-2	SLUDGE PUMP STATION NO.1	20	2400	480	3	60	QMARK QWD20432	--
4EUH-3	SLUDGE PUMP STATION NO.1	15	2400	480	3	60	QMARK QWD15432	--
4EUH-4	SLUDGE PUMP STATION NO.1	15	2400	480	3	60	QMARK QWD15432	--
4EUH-5	SLUDGE PUMP STATION NO.1	15	2400	480	3	60	QMARK QWD15432	--
4EUH-6	SLUDGE PUMP STATION NO.2	10	270	480	3	60	QMARK QWD10432	--
4EUH-7	SLUDGE PUMP STATION NO.2	10	270	480	3	60	QMARK QWD10432	--
4EUH-8	SLUDGE PUMP STATION NO.2	15	2400	480	3	60	QMARK QWD15432	--
4EUH-9	SLUDGE PUMP STATION NO.2	15	2400	480	3	60	QMARK QWD15432	--
4EUH-10	SLUDGE PUMP STATION NO.2	15	2400	480	3	60	QMARK QWD15432	--
9EUH-1	STORAGE BUILDING	10	500	480	3	60	QMARK IUH-1048	--
9EUH-2	STORAGE BUILDING	10	500	480	3	60	QMARK IUH-1048	--
9EUH-3	STORAGE BUILDING	5	270	480	3	60	QMARK IUH-548	--
9EUH-4	STORAGE BUILDING	5	270	480	3	60	QMARK IUH-548	--

FUEL OIL SUBMERSIBLE PUMP SCHEDULE											
TAG NO.	BUILDING	SYSTEM SERVED	TYPE	GPH	HEAD (FT.)	ELECTRICAL DATA				MANUFACTURER MODEL NUMBER	REMARKS
						MOTOR HP	V	PH	HZ		
7SMP-1	SLUDGE HANDLING	FUEL OIL	SUB.	20.7	-	3/4	480	3	60	RED JACKET ALCOHOL P75U1	
7SMP-2	SLUDGE HANDLING	FUEL OIL	SUB.	20.7	-	3/4	480	3	60	RED JACKET ALCOHOL P75U1	
9SMP-1	ADMINISTRATION BUILDING	FUEL OIL	SUB.	19.2	-	3/4	480	3	60	RED JACKET ALCOHOL P75U1	
9SMP-2	ADMINISTRATION BUILDING	FUEL OIL	SUB.	19.2	-	3/4	480	3	60	RED JACKET ALCOHOL P75U1	

DIFFUSER, REGISTER & GRILLE SCHEDULE										
TAG NO.	MODULE SIZE (IN)	ROUND APARTER SIZE (IN)	FLEX DUCT SIZE (IN)	SQUARE DUCT SIZE (IN)	SERVICE	CFM RANGE		MAX. NC LEVEL	MANUFACTURER & MODEL NO.	REMARKS
						MIN	MAX			
SR-1	30x12	N/A	N/A	N/A	SUPPLY	500	2400	40	NAILOR 45DL	
SR-2	20x12	N/A	N/A	N/A	SUPPLY	200	1800	40	NAILOR 45DL	
ER-1	42x12	N/A	N/A	N/A	EXHAUST	500	2500	40	NAILOR 6755H-HD	
ER-2	10x6	N/A	N/A	N/A	EXHAUST	140	245	25	NAILOR 6145H	STAINLESS STEEL
ER-3	50x12	N/A	N/A	N/A	EXHAUST	2500	3200	40	NAILOR 6755H-HD	
ER-4	28x46	N/A	N/A	N/A	EXHAUST	3300	6000	40	NAILOR 6755H-HD	

4/25/2022 10:51 AM 101YEAR - 201818009.00 - TAUNTON WWTFF UPGRADESHVAC DEPARTMENTPHASE 218009.00 HVAC LEGEND SCHEDULE AND DETAILS PHASE 2.DWG (BETA STB BIV STB)









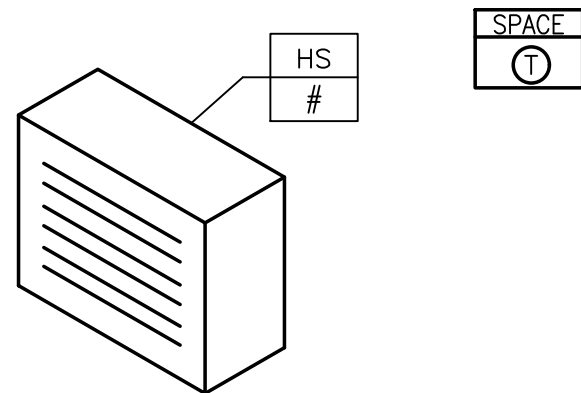






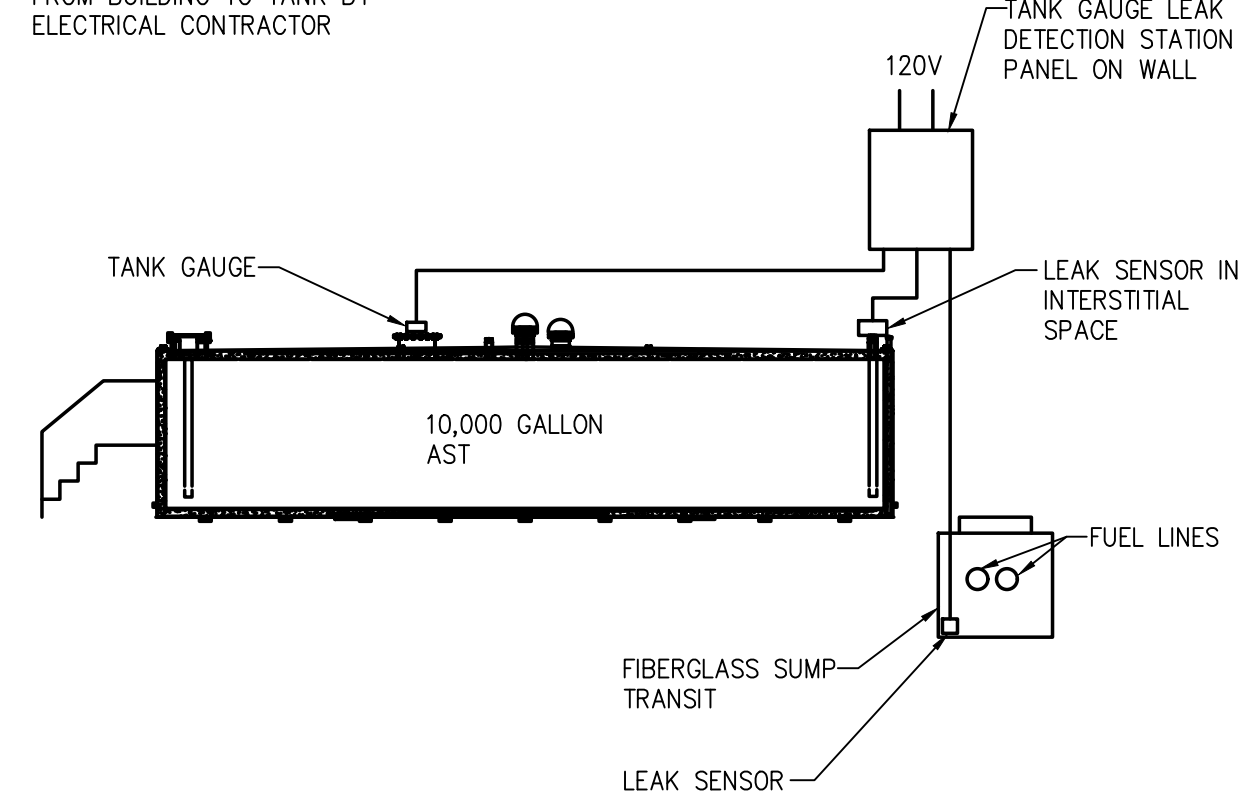






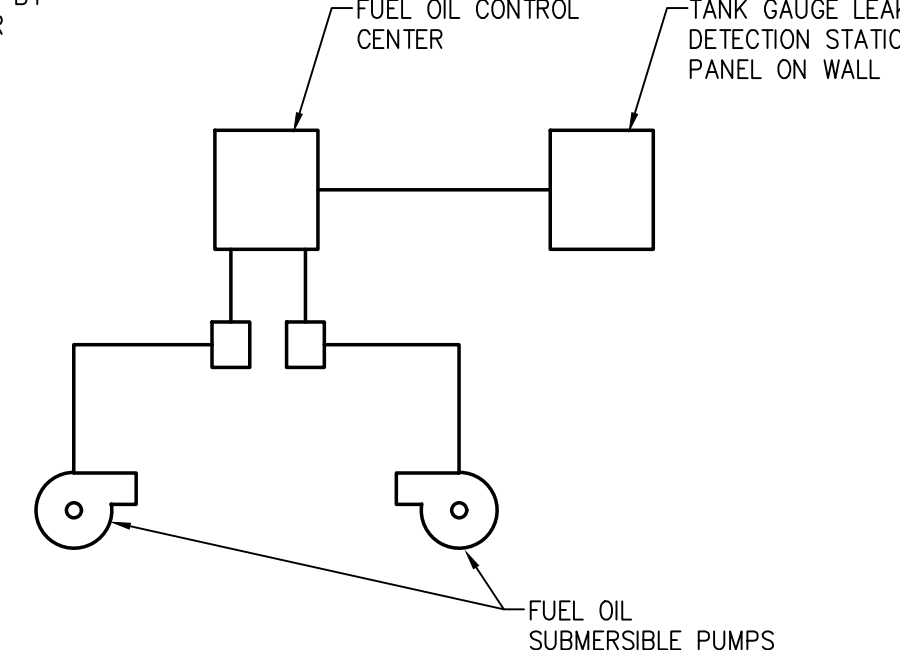
1 TYPICAL ELECTRIC UNIT HEATER CONTROL DIAGRAM  
NO SCALE

NOTE:  
ALL UNDERGROUND CONDUIT FROM BUILDING TO TANK BY ELECTRICAL CONTRACTOR



2 TANK GAUGE / LEAK DETECTION SCHEMATIC

NOTE:  
ALL UNDERGROUND CONDUIT FROM BUILDING TO TANK BY ELECTRICAL CONTRACTOR



3 FUEL OIL CONTROL SCHEMATIC

CONTROLS LEGEND

- WALL MOUNTED SPACE TEMPERATURE THERMOSTAT AND/OR OCCUPANCY OVER-RIDE BUTTON
- WATER TEMPERATURE SENSOR/THERMOSTAT
- DIFFERENTIAL PRESSURE FLOW SENSOR (AIR) PADDLE FLOW SENSOR (WATER)
- FILTER DIFFERENTIAL SENSOR
- VELOCITY TRANSDUCER
- ANALOG OUTPUT FROM EMS
- ELECTRONIC VALVE ACTUATOR
- ELECTRONIC DAMPER MOTOR ACTUATOR
- STATIC PRESSURE SENSOR
- DUCT MOUNTED TEMPERATURE SENSOR/THERMOSTAT
- DUCT MOUNTED RELATIVE HUMIDITY SENSOR
- DUCT MOUNTED LOW TEMP. FREEZE THERMOSTAT
- ELECTRONIC MOTORIZED DAMPER ACTUATOR
- HAND-AUTO-OFF STARTER
- DUCT SMOKE DETECTOR (FURNISHED BY OTHERS)
- OCCUPANCY SENSOR (COORDINATE W/ ELECTRICAL)
- ALARM (DIGITAL AND ANALOG)
- KITCHEN HOOD SMOKE SENSOR
- VARIABLE FREQUENCY DRIVE
- VELOCITY SENSOR
- CO<sub>2</sub> SENSOR
- CO SENSOR
- START-STOP
- SPEED CONTROL
- RELAY INPUT
- ASC APPLICATION SPECIFIC CONTROLLER
- BC BUILDING CONTROLLER
- CAC CUSTOM APPLICATION CONTROLLER
- DDCFP DDC FIELD PANEL
- CONNECT NEW TO EXISTING

**ELECTRIC UNIT HEATERS**  
THE ELECTRIC UNIT HEATERS SHALL BE CYCLED ON AND OFF VIA WALL MOUNTED THERMOSTATS TO MAINTAIN A SPACE HEATING TEMPERATURE SETPOINT OF 50 DEG F.

**EXHAUST FAN AND INLET LOUVERS HEATING SEASON**  
THE INLET LOUVER CONTROL DAMPERS SHALL BE OPEN TO THEIR 50% POSITION VIA THE DAMPER ACTUATORS. THE EXHAUST FAN SHALL RUN AT A SPEED SUFFICIENT TO PROVIDE 6 AIR CHANGES WITHIN THE SPACE. WHEN THE EXHAUST FAN POWER IS CUT, OR THERE IS A POWER OUTAGE, THE INLET LOUVER CONTROL DAMPER MOTORS SHALL CLOSE VIA A SPRING RETURN.

**EXHAUST FAN AND INLET LOUVERS COOLING SEASON**  
THE INLET LOUVER CONTROL DAMPERS SHALL BE OPEN TO THEIR 50% POSITION VIA THE DAMPER ACTUATORS. AT SPACE TEMPERATURES BELOW 80 DEG F, THE EXHAUST FAN SHALL RUN AT A SPEED SUFFICIENT TO PROVIDE 6 AIR CHANGES WITHIN THE SPACE. IF THE SPACE TEMPERATURE RISES TO 80 DEGREES F, A WALL MOUNTED TEMPERATURE SENSOR SHALL SIGNAL THE FAN SPEED TO INCREASE TO PROVIDE 12 AIR CHANGES WITHIN THE SPACE AND THE INLET LOUVER CONTROL DAMPERS SHALL OPEN TO THEIR 100% POSITION. WHEN THE SPACE TEMPERATURE DROPS BELOW THE 80-DEGREE F SETPOINT, THE EXHAUST FAN SPEED SHALL BE REDUCED TO PROVIDE 6 AIR CHANGES AND THE INLET LOUVER CONTROL DAMPERS SHALL CLOSE TO THEIR 50% POSITION. WHEN THE EXHAUST FAN POWER IS CUT, OR THERE IS A POWER OUTAGE, THE INLET LOUVER CONTROL DAMPER MOTORS SHALL CLOSE VIA A SPRING RETURN.

4 SLUDGE PUMPING STATION 1 AND 2 HVAC SEQUENCE OF OPERATION

PREPARED BY



REGISTERED PROFESSIONAL



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PROJECT

Taunton Wastewater Treatment Facility Improvements Phase 2

Taunton, MA

TITLE

HVAC Controls Schematic

AS RE-ISSUED PER ADDENDUM #4

1	ADDENDUM #4	04/25/22
NO.	REVISIONS	DATE

DRAWN BY: RLB  
DESIGNED BY: RHB  
CHECKED BY: RHB  
ISSUE DATE: 03/31/22  
BETA JOB NO.: 6050

SCALE

NONE

SHEET NO.

H-0.7



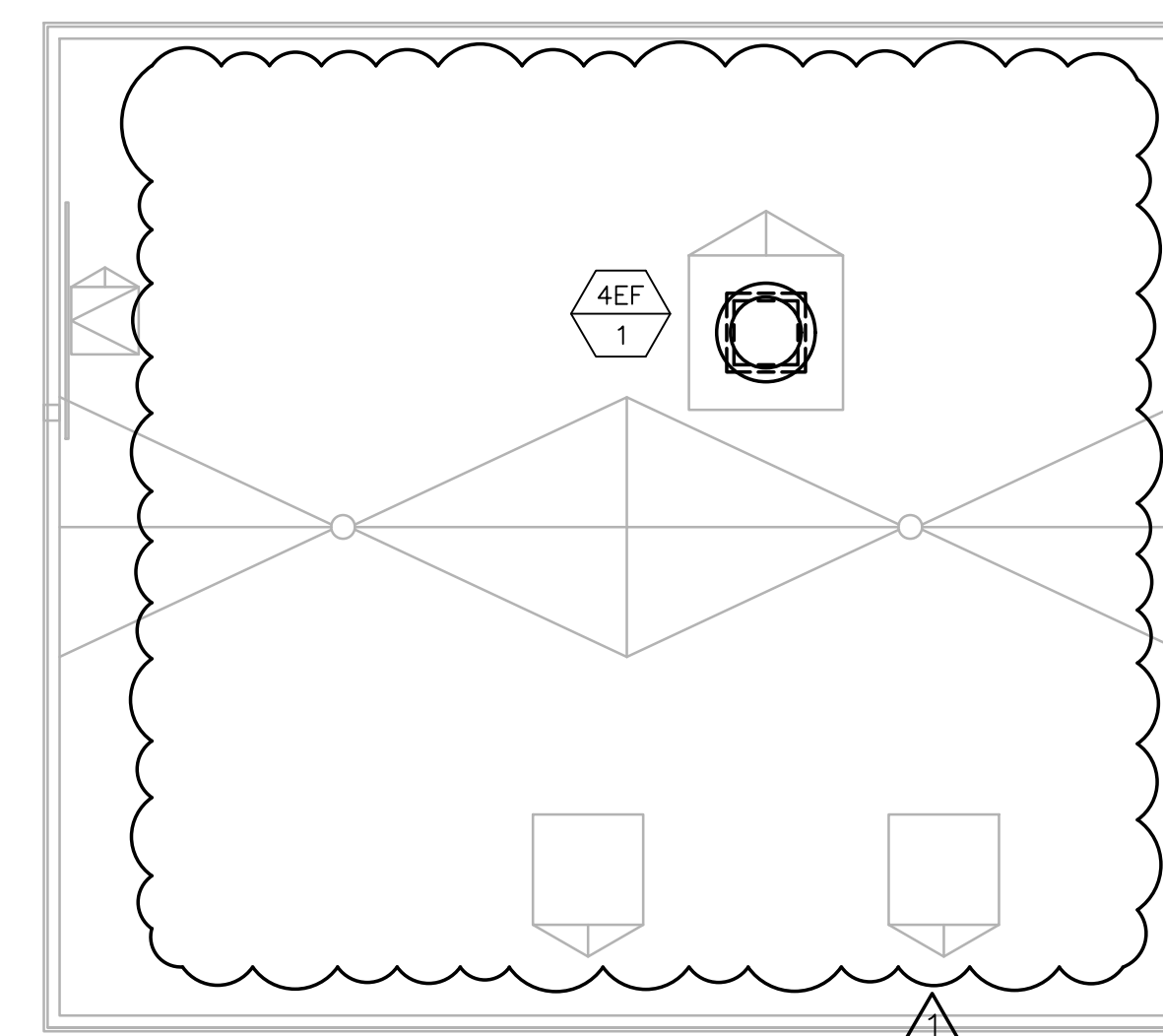
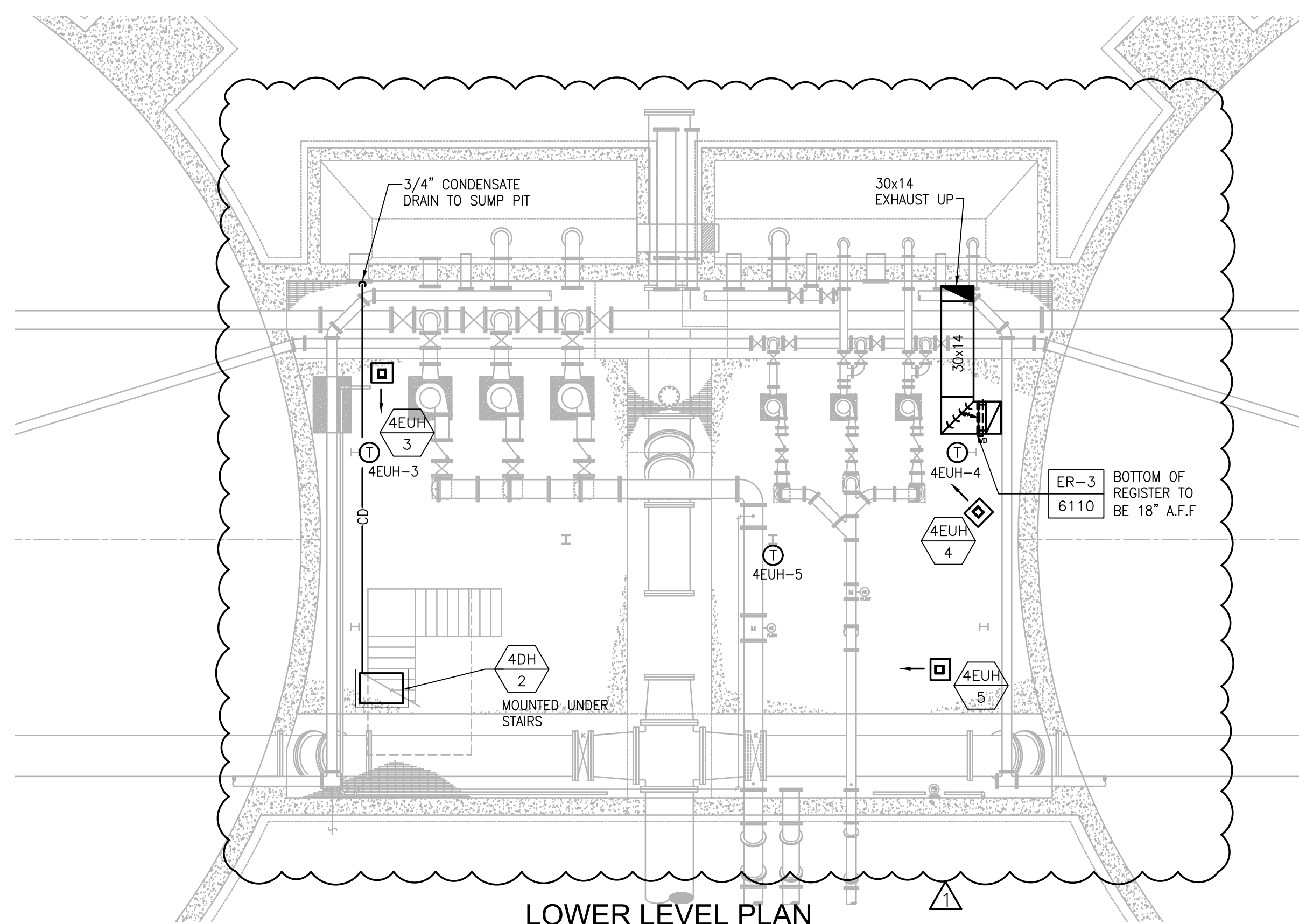
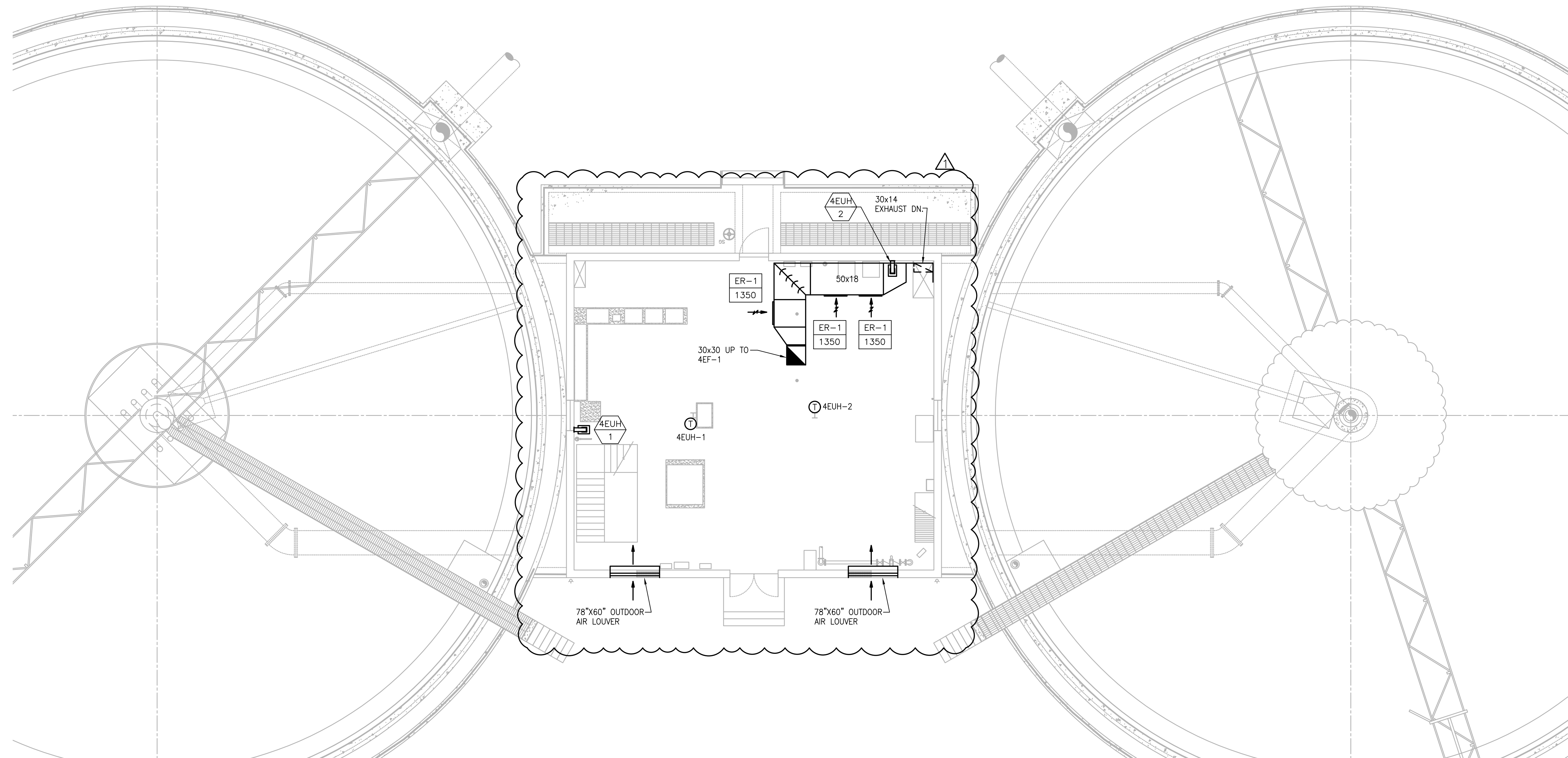








4/25/2022 10:34 AM 141YEAR - 201818009 00 - TAUNTON WWTF UPGRADE HVAC DEPARTMENT PHASE 2: 18000.00 HVAC FINAL CLARIFIERS & SECONDARY SLUDGE PS PHASE 2 DWG (BETA STB BY STB)



PREPARED BY



REGISTERED PROFESSIONAL



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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

HVAC Final  
Clarifiers No.  
1 & 2 Plan &  
Sludge Pump  
Station No. 1  
Plan  
**AS RE-ISSUED PER  
ADDENDUM #4**

NO.	REVISIONS	DATE
1	ADDENDUM #4	04/25/22

DRAWN BY: RLB  
DESIGNED BY: RHB  
CHECKED BY: RHB  
ISSUE DATE: 03/31/22  
BETA JOB NO.: 6050

SCALE

NONE

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SHEET NO.

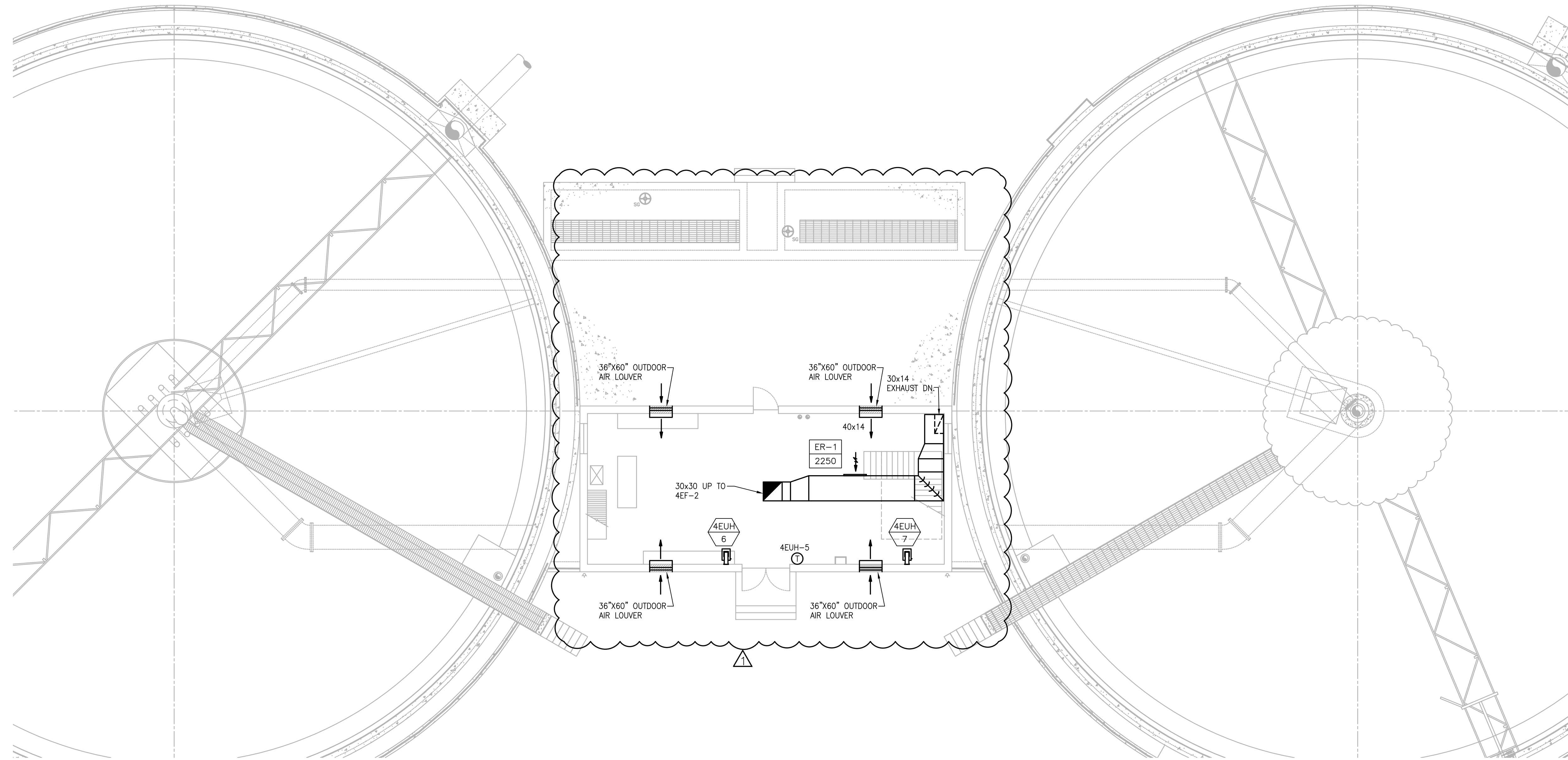
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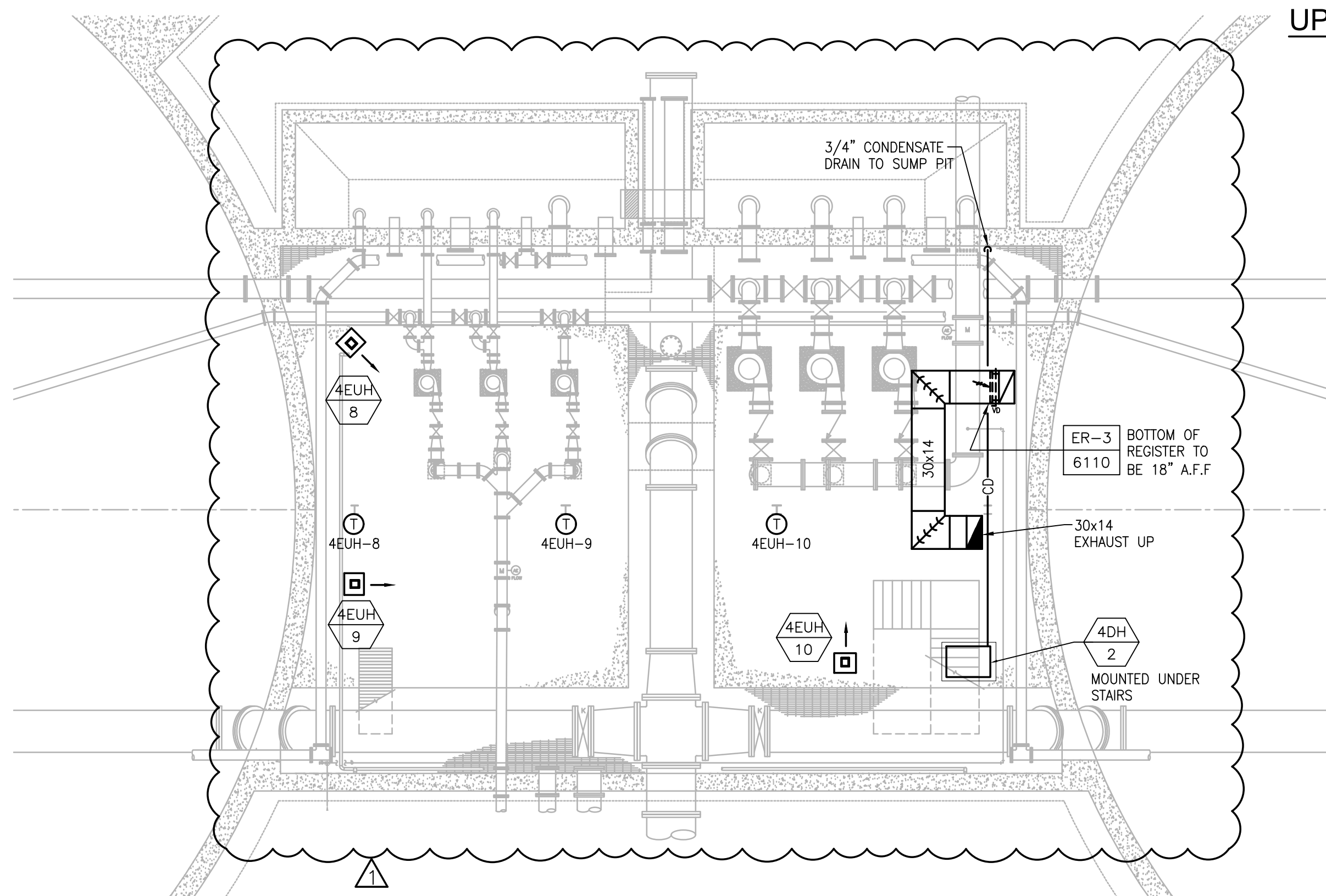




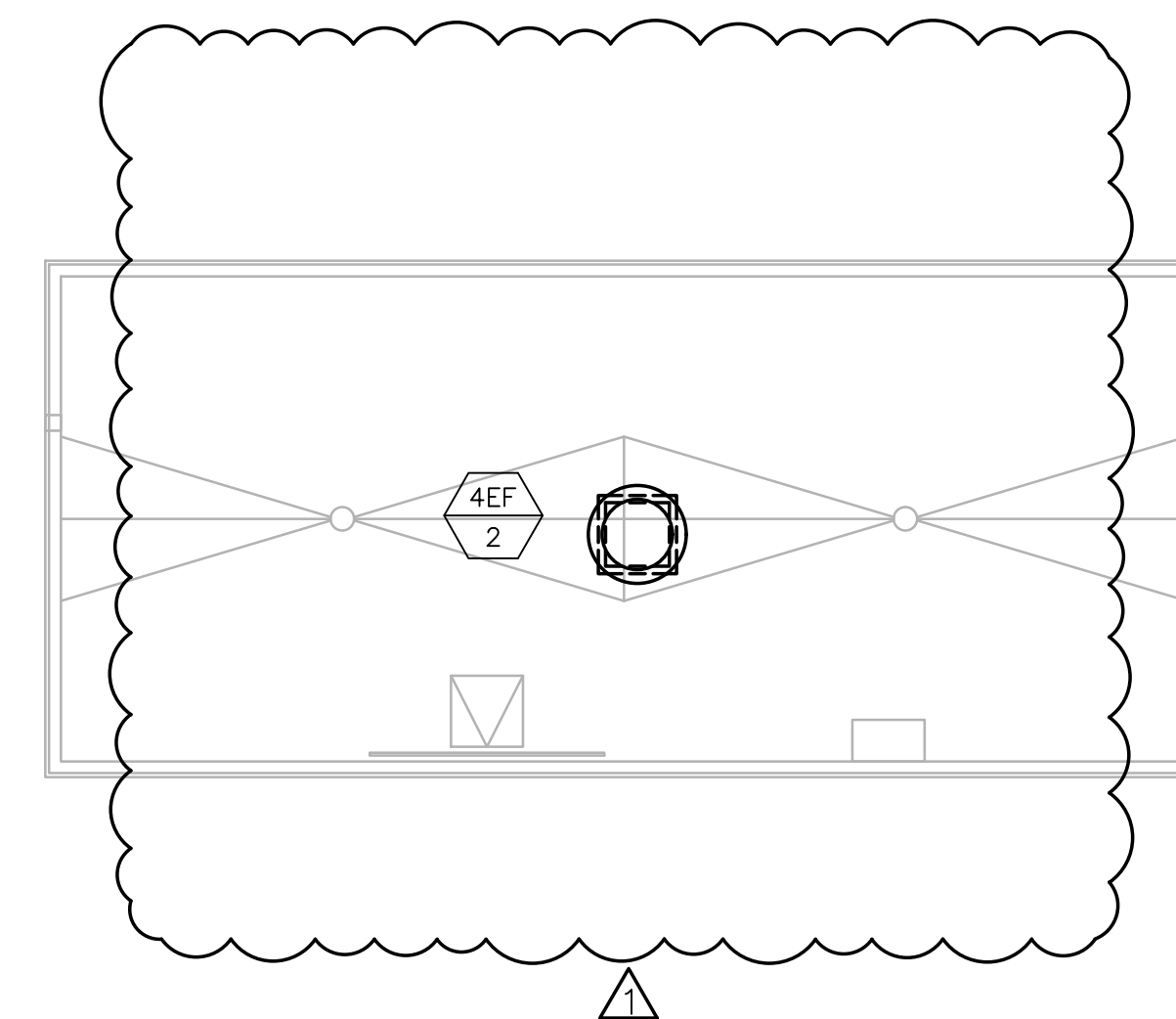
4/25/2022 10:35 AM W:\YEAR - 2018\18009 00 - TAUNTON WWTF UPGRADE\HVAC\DEPARTMENT\PHASE 2\18009.00 HVAC FINAL CLARIFIERS & SECONDARY SLUDGE PS PHASE 2.DWG (BETA STB BY STB)



**UPPER LEVEL PLAN**  
SCALE: 1/8" = 1'-0"



**LOWER LEVEL PLAN**  
SCALE: 1/8" = 1'-0"



**ROOF PLAN**  
SCALE: 1/8" = 1'-0"

PREPARED BY



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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

HVAC Final  
Clarifiers No.  
3 & 4 Plan &  
Sludge Pump  
Station No.2  
Plan  
**AS RE-ISSUED PER  
ADDENDUM #4**

NO.	REVISIONS	DATE
1	ADDENDUM #4	04/25/22

DRAWN BY:	RLB
DESIGNED BY:	RHB
CHECKED BY:	RHB
ISSUE DATE:	03/31/22
BETA JOB NO.:	6050

SCALE	NONE
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION	

SHEET NO. **H-4.4**















































































































































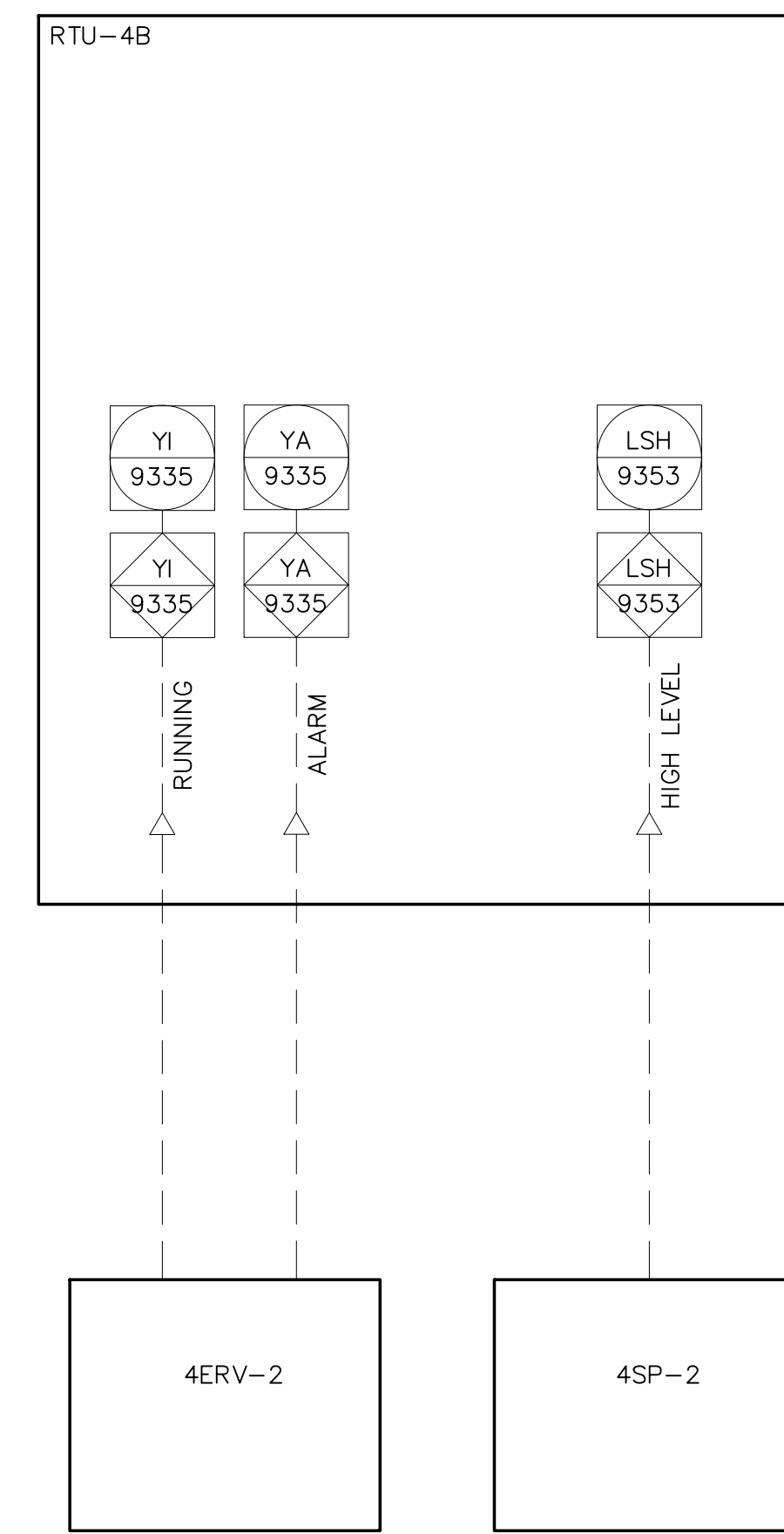
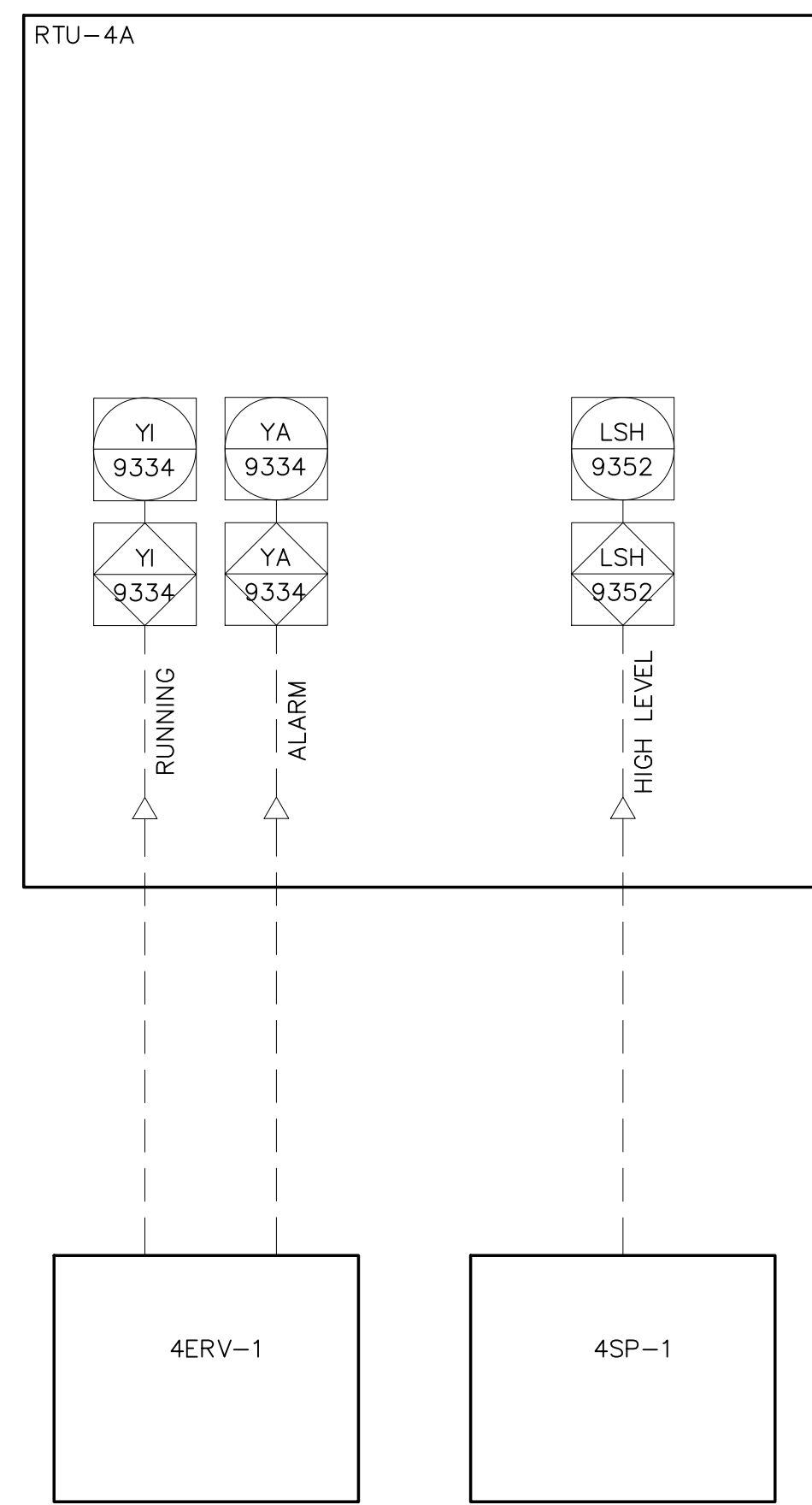








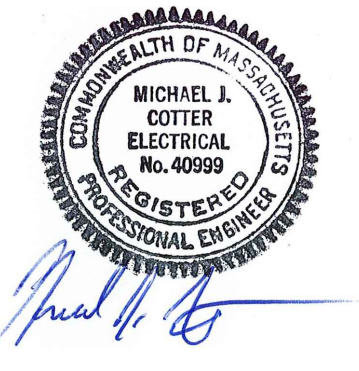
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PREPARED BY



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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

**INSTRUMENTATION  
& CONTROLS  
HVAC & PLUMBING  
SYSTEMS**


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

DRAWN BY:	RB
DESIGNED BY:	MC
CHECKED BY:	MC
ISSUE DATE:	03/31/22
BETA JOB NO.:	6050

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

SHEET NO. **I-0.23**



ELECTRICAL SYMBOLS

Table of electrical symbols including linear lighting fixtures, wall mounted lighting, emergency exit signs, switches, digital time clock, occupancy sensors, lighting control panels, receptacles, motor starters, and frequency drives.

ELECTRICAL SYMBOLS

Table of electrical symbols including underground conduit, homerun designations, surge protection devices, ground fault monitors, transformers, hand holes, ground rods, building grounding systems, motors, cable/conduit designations, operator stations, generator emergency stops, selector switches, thermostats, motor operated dampers, electric unit heaters, and equipment circuit number designations.

TELE/DATA LEGEND

Table for tele/data legend symbols including wall mounted data outlets and ceiling mounted wireless access points.

DEMOLITION NOTES

- Demolition notes detailing procedures for removing electrical equipment, including disconnecting power, salvaging equipment, and marking active equipment to be demolished.

ELECTRICAL SYMBOLS

Table of electrical symbols for gas detection systems, including control panels, sensors, alarm beacons, and alarm horns.

FIRE ALARM SYSTEM SYMBOLS

Table of fire alarm system symbols including manual fire alarm stations, audio/visual devices, beacons, smoke detectors, test stations, heat detectors, carbon monoxide detectors, monitoring modules, control panels, annunciator panels, alarm indicating lights, master boxes, and key depositories.

GENERAL NOTES

- General notes providing instructions for equipment installation, conduit requirements, bonding, and coordination with other trades.

TEMPORARY WORK NOTES

- Temporary work notes detailing requirements for temporary electrical work, including conduit, cable, and fastening methods.

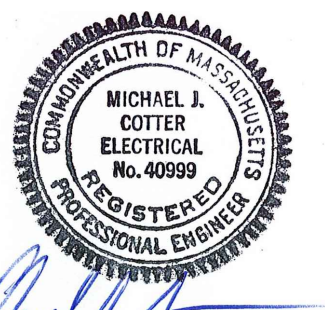
ABBREVIATIONS

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

PREPARED BY



REGISTERED PROFESSIONAL



SUBCONSULTANT



Mechanical/Electrical Engineers 150 Grossman Drive, Suite 309 Braintree, Massachusetts 02184 617 328-9215 web: www.sar.com

PROJECT

Taunton Wastewater Treatment Facility Improvements Phase 2

Taunton, MA

TITLE

ELECTRICAL LEGEND AND NOTES

NO. REVISIONS DATE

Table with columns for NO., REVISIONS, and DATE, containing drawing metadata.

SCALE

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SHEET NO. E-0.1

















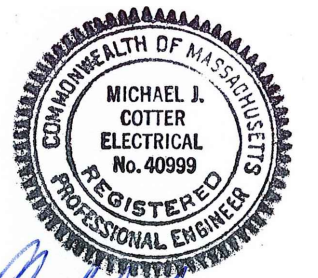


PREPARED BY



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REGISTERED PROFESSIONAL



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Electrical  
Professional Engineer  
No. 40509

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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

**ELECTRICAL  
SLUDGE PUMPING  
STATIONS #1 & #2  
ONE LINE DIAGRAM**

**AS RE-ISSUED PER  
ADDENDUM #4**

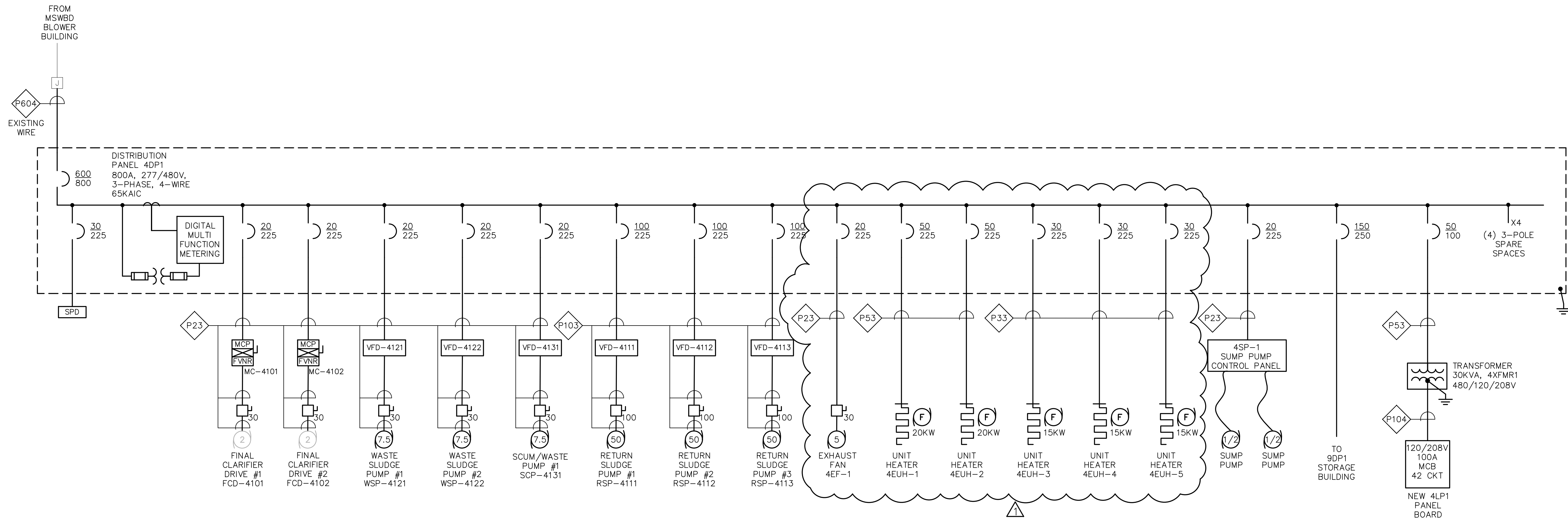
NO.	REVISIONS	DATE
1	ADDENDUM #4	04/25/22

DRAWN BY:	RB
DESIGNED BY:	MC
CHECKED BY:	MC
ISSUE DATE:	03/31/22
BETA JOB NO.:	6050

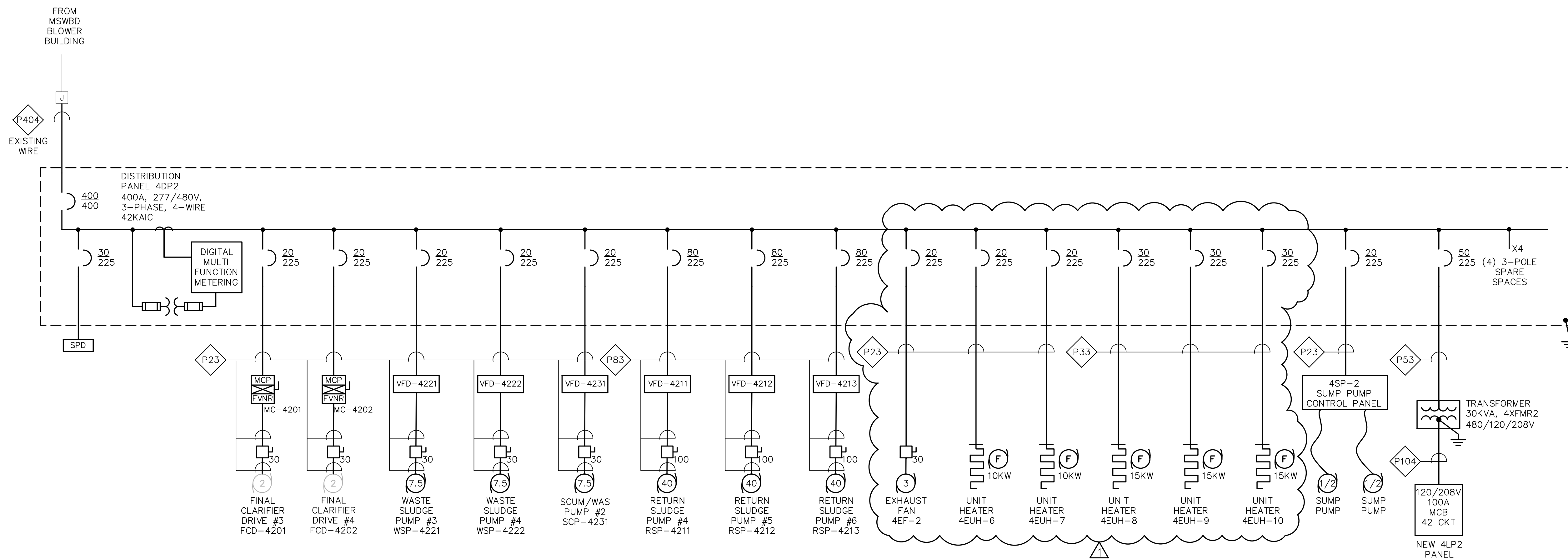
SCALE	NONE
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SHEET NO.	E-0.6
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**SLUDGE PUMPING STATION #1 ONE LINE DIAGRAM**  
NOT TO SCALE



**SLUDGE PUMPING STATION #2 ONE LINE DIAGRAM**  
NOT TO SCALE

4/25/2022 10:37 AM W:\YEAR - 2018\18009.00 - TAUNTON WWTFF UPGRADE\ELECTRICAL DEPARTMENT\PHASE 2\18009.00 ELEC ONE LINE - PHASE 2.DWG (BETA STB RW STB)







3/30/2022 7:23 AM W:\YEAR-2018\180900 - TAUNTON WWTFF UPGRADE\ELECTRICAL DEPARTMENT\PHASE 2\180900 ELEC DIAGRAMS AND DETAILS - PHASE 2.DWG (BETA STB.BW.STB)

PANELBOARD SCHEDULE														
NO. 4LP1				LOCATION: SLUDGE PUMP STATION #1										
120/208 V, 3 PH, 4 W, 100 A MAINS				100 A SOLID NEUTRAL				100 A MCB						
10,000 AIC AT 120 V				100 A GROUND BUS				- A MLO				SURFACE MOUNTING		
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		BREAKER			LOAD (KVA)			DESCRIPTION OF LOAD	CIRCUIT
		A $\phi$	B $\phi$	C $\phi$	TRIP	POLE	POLE	TRIP	A $\phi$	B $\phi$	C $\phi$			
1	UPPER LEVEL & EXTERIOR LIGHTING	0.6			20	1	1	20	0.4			FLOW METERS	2	
3	LOWER LEVEL LIGHTING		0.5		20	1	1	20		0.2		LEVEL TRANSMITTER	4	
5	UPPER LEVEL RECEPTACLES			0.8	20	1	1	20			1.0	RTU-4A SCADA CONTROL PANEL	6	
7	LOWER LEVEL RECEPTACLES	0.8			20	1	1	20	0.4			CLARIFIER RECEPTACLES	8	
9	ROOF RECEPTACLE & LIGHT		0.25		20	1	1	20		0.45		CLARIFIER LIGHTS	10	
11	FIRE ALARM CONTROL PANEL			0.50	20	1	1	20				SPARE	12	
13	SPARE				20	1	1	20				SPARE	14	
15	SPARE				20	1	1	20				SPARE	16	
17	SPARE				20	1	1	20				SPARE	18	
19	SPARE				20	1	1	20				SPARE	20	
21	SPARE				20	1	1	20				SPARE	22	
23	SPARE				20	1	1	20				SPARE	24	
25	SPARE				20	1	1	20				SPARE	26	
27	SPARE				20	1	1	20				SPARE	28	
29	SPARE				20	1	1	20				SPARE	30	
31	SPARE				20	1	1	20				SPARE	32	
33	SPARE				20	1	1	20				SPARE	34	
35	SPARE				20	1	1	20				SPARE	36	
37	SPARE				20	1	1	20				SPARE	38	
39	SPARE				20	1	1	20				SPARE	40	
41	SPARE				20	1	1	20				SPARE	42	
SUB-TOTAL CONNECTED		1.4	0.75	1.3					0.80	0.65	1.0	SUB-TOTAL CONNECTED		
* PROVIDE GFCI BREAKER														
SUB-TOTAL CONNECTED					KVA A $\phi$ = 2.2									
SUB-TOTAL CONNECTED					KVA B $\phi$ = 1.4									
SUB-TOTAL CONNECTED					KVA C $\phi$ = 2.3									
TOTAL CONNECTED					KVA = 5.9									

PANELBOARD SCHEDULE														
NO. 9LP2				LOCATION: STORAGE BUILDING										
120/208 V, 3 PH, 4 W, 100 A MAINS				100 A SOLID NEUTRAL				100 A MCB						
10,000 AIC AT 120 V				100 A GROUND BUS				- A MLO				SURFACE MOUNTING		
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		BREAKER			LOAD (KVA)			DESCRIPTION OF LOAD	CIRCUIT
		A $\phi$	B $\phi$	C $\phi$	TRIP	POLE	POLE	TRIP	A $\phi$	B $\phi$	C $\phi$			
1	LIGHTING	0.70			20	1	1	20	0.1			EXHAUST FAN 9EF-1	2	
3	RECEPTACLES		1.08		20	1	1	20				SPARE	4	
5	RECEPTACLES			1.08	20	1	1	20				SPARE	6	
7	FIRE ALARM CONTROL PANEL	0.50			20	1	1	20				SPARE	8	
9	SPARE				20	1	1	20				SPARE	10	
11	SPARE				20	1	1	20				SPARE	12	
13	SPARE				20	1	1	20				SPARE	14	
15	SPARE				20	1	1	20				SPARE	16	
17	SPARE				20	1	1	20				SPARE	18	
19	SPARE				20	1	1	20				SPARE	20	
21	SPARE				20	1	1	20				SPARE	22	
23	SPARE				20	1	1	20				SPARE	24	
25	SPARE				20	1	1	20				SPARE	26	
27	SPARE				20	1	1	20				SPARE	28	
29	SPARE				20	1	1	20				SPARE	30	
31	SPARE				20	1	1	20				SPARE	32	
33	SPARE				20	1	1	20				SPARE	34	
35	SPARE				20	1	1	20				SPARE	36	
37	SPARE				20	1	1	20				SPARE	38	
39	SPARE				20	1	1	20				SPARE	40	
41	SPARE				20	1	1	20				SPARE	42	
SUB-TOTAL CONNECTED		1.2	1.08	1.08					0.1			SUB-TOTAL CONNECTED		
* PROVIDE GFCI BREAKER														
SUB-TOTAL CONNECTED					KVA A $\phi$ = 1.3									
SUB-TOTAL CONNECTED					KVA B $\phi$ = 1.08									
SUB-TOTAL CONNECTED					KVA C $\phi$ = 1.08									
TOTAL CONNECTED					KVA = 3.46									

PANELBOARD SCHEDULE														
NO. 4LP2				LOCATION: SLUDGE PUMP STATION #2										
120/208 V, 3 PH, 4 W, 100 A MAINS				100 A SOLID NEUTRAL				100 A MCB						
10,000 AIC AT 120 V				100 A GROUND BUS				- A MLO				SURFACE MOUNTING		
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		BREAKER			LOAD (KVA)			DESCRIPTION OF LOAD	CIRCUIT
		A $\phi$	B $\phi$	C $\phi$	TRIP	POLE	POLE	TRIP	A $\phi$	B $\phi$	C $\phi$			
1	UPPER LEVEL & EXTERIOR LIGHTING	0.3			20	1	1	20	0.4			FLOW METERS	2	
3	LOWER LEVEL LIGHTING		0.5		20	1	1	20		0.2		LEVEL TRANSMITTER	4	
5	UPPER LEVEL RECEPTACLES			0.6	20	1	1	20			1.0	RTU-4B SCADA CONTROL PANEL	6	
7	LOWER LEVEL RECEPTACLES	0.8			20	1	1	20	0.4			CLARIFIER RECEPTACLES	8	
9	ROOF RECEPTACLE & LIGHT		0.25		20	1	1	20		0.45		CLARIFIER LIGHTS	10	
11	FIRE ALARM CONTROL PANEL			0.50	20	1	1	20				SPARE	12	
13	SPARE				20	1	1	20				SPARE	14	
15	SPARE				20	1	1	20				SPARE	16	
17	SPARE				20	1	1	20				SPARE	18	
19	SPARE				20	1	1	20				SPARE	20	
21	SPARE				20	1	1	20				SPARE	22	
23	SPARE				20	1	1	20				SPARE	24	
25	SPARE				20	1	1	20				SPARE	26	
27	SPARE				20	1	1	20				SPARE	28	
29	SPARE				20	1	1	20				SPARE	30	
31	SPARE				20	1	1	20				SPARE	32	
33	SPARE				20	1	1	20				SPARE	34	
35	SPARE				20	1	1	20				SPARE	36	
37	SPARE				20	1	1	20				SPARE	38	
39	SPARE				20	1	1	20				SPARE	40	
41	SPARE				20	1	1	20				SPARE	42	
SUB-TOTAL CONNECTED		1.1	0.75	1.1					0.80	0.65	1.0	SUB-TOTAL CONNECTED		
* PROVIDE GFCI BREAKER														
SUB-TOTAL CONNECTED					KVA A $\phi$ = 1.90									
SUB-TOTAL CONNECTED					KVA B $\phi$ = 1.40									
SUB-TOTAL CONNECTED					KVA C $\phi$ = 2.10									
TOTAL CONNECTED					KVA = 5.40									

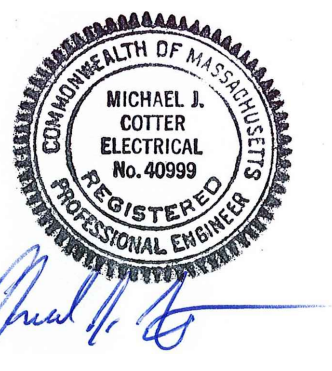
PANELBOARD SCHEDULE														
NO. 6LP1 - EXISTING				LOCATION: BLOWER BUILDING										
120/208 V, 3 PH, 4 W, 100 A MAINS				100 A SOLID NEUTRAL				100 A MCB						
10,000 AIC AT 120 V				100 A GROUND BUS				- A MLO				SURFACE MOUNTING		
CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA)			BREAKER		BREAKER			LOAD (KVA)			DESCRIPTION OF LOAD	CIRCUIT
		A $\phi$	B $\phi$	C $\phi$	TRIP	POLE	POLE	TRIP	A $\phi$	B $\phi$	C $\phi$			
1	LIGHTING	0.70			20	1	1	20	1.0			RTU-3 SCADA CONTROL PANEL	2	
3	BLOWER RM. RECEPTACLES		1.10		20	1	1	20		1.0		BIOLOGICAL TANKS ANALYZERS - TRAIN 1	4	
5	ELEC RM RECEPTACLES			0.40	20	1	1	20			1.0	BIOLOGICAL TANKS ANALYZERS - TRAIN 2	6	
7	FIRE ALARM CONTROL PANEL	0.50			20	1	1	20	0.8			SECONDARY ANOXIC TANK ANALYZERS	8	
9	ROOFTOP LIGHTING AND RECEPTACLES		0.30		20	1	1	20		0.4		RE-AERATION TANKS ANALYZERS	10	
11	ENTRANCE GATE			0.5	20	1	1	20			0.75	AIR FLOW METERS - TRAIN 1	12	
13	SPARE				20	1	1	20	0.75			AIR FLOW METERS - TRAIN 2	14	
15	BLOWER MASTER CONTROL PANEL CP-6000			0.5	20	1	1	30		2.2		AERATION VALVES - TRAIN 1	16	
17	MICRO-C CONTROL PANEL CP-3600			0.25	20	1	1	30		2.2		AERATION VALVES - TRAIN 1	18	
19	BIOLOGICAL TANKS LIGHTS	0.21			20	1	1	30	2.2			AERATION VALVES - TRAIN 2	20	
21	RE-AERATION & SECONDARY ANOXIC TANKS LIGHTS		0.19		20	1	1	30		2.2		AERATION VALVES - TRAIN 2	22	
23	BIOLOGICAL TANKS RECEPTACLES			1.4	20	1	1	20			0.50	MICRO-C CHEMICAL PUMPS	24	
25	RE-AERATION & SECONDARY ANOXIC TANKS RECEPTACLES	1.2			20	1	1	20	0.25			MICRO-C CHEMICAL PUMP	26	
27	AERATION BLOWER #1 CONTROL PANEL CP-6101		0.5		30#	1	1	20		0.50		LEVEL TRANSMITTERS LIT-3611 & LIT-3612	28	
29	AERATION BLOWER #2 CONTROL PANEL CP-6201			0.5	30#	1	1	20		1.1		AERATION VALVE - TRAIN 1	30	
31	AERATION BLOWERS #1 & #2 VALVES	2.2			30#	1	1	20	1.1			AERATION VALVE - TRAIN 2	32	
33	AERATION BLOWER #3 & #4 VALVES		2.2		30#	1	1	20				SPARE	34	
35	SPARE				20	1	1	20		1.5		ELECTRIC WALL HEATER 6EUH-1	36	
37	SPARE				20	1	1	20	1.8			ELECTRIC WATER HEATER 6EWH-1	38	
39	SPARE				20	1	1	30		0.5		AERATION BLOWER #3 CONTROL PANEL CP-6301	40	
41	SPARE				20	1	1	30		0.5		AERATION BLOWER #4 CONTROL PANEL CP-6401	42	
43	GENERATOR #1 BLOCK JACKET HEATER	2.0			30	2	1	20	1.0			GENERATOR #1 ALTERNATOR HEATER	44	
45			2.0		30	2	1	20	0.5			GENERATOR #1 BATTERY CHARGER	46	
47	GENERATOR #2 BLOCK JACKET HEATER			2.0	30	2	1	20	1.0			GENERATOR #2 ALTERNATOR HEATER	48	
49		2.0			30	2	1	20	0.5			GENERATOR #2 BATTERY CHARGER	50	
51	GENERATOR #3 BLOCK JACKET HEATER			2.0	30	2	1	20	1.0			GENERATOR #3 ALTERNATOR HEATER	52	
53				2.0	30	2	1	20	0.5			GENERATOR #3 BATTERY CHARGER	54	
SUB-TOTAL CONNECTED		8.81	8.79	7.05					9.40	8.30	9.05	SUB-TOTAL CONNECTED		
* PROVIDE GFCI BREAKER														
# REPLACE EXISTING CIRCUIT BREAKER														
SUB-TOTAL CONNECTED					KVA A $\phi$ = 18.21									
SUB-TOTAL CONNECTED					KVA B $\phi$ = 17.09									
SUB-TOTAL CONNECTED					KVA C $\phi$ = 16.10									
TOTAL CONNECTED					KVA = 51.40									

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Braintree, Massachusetts 02184



















































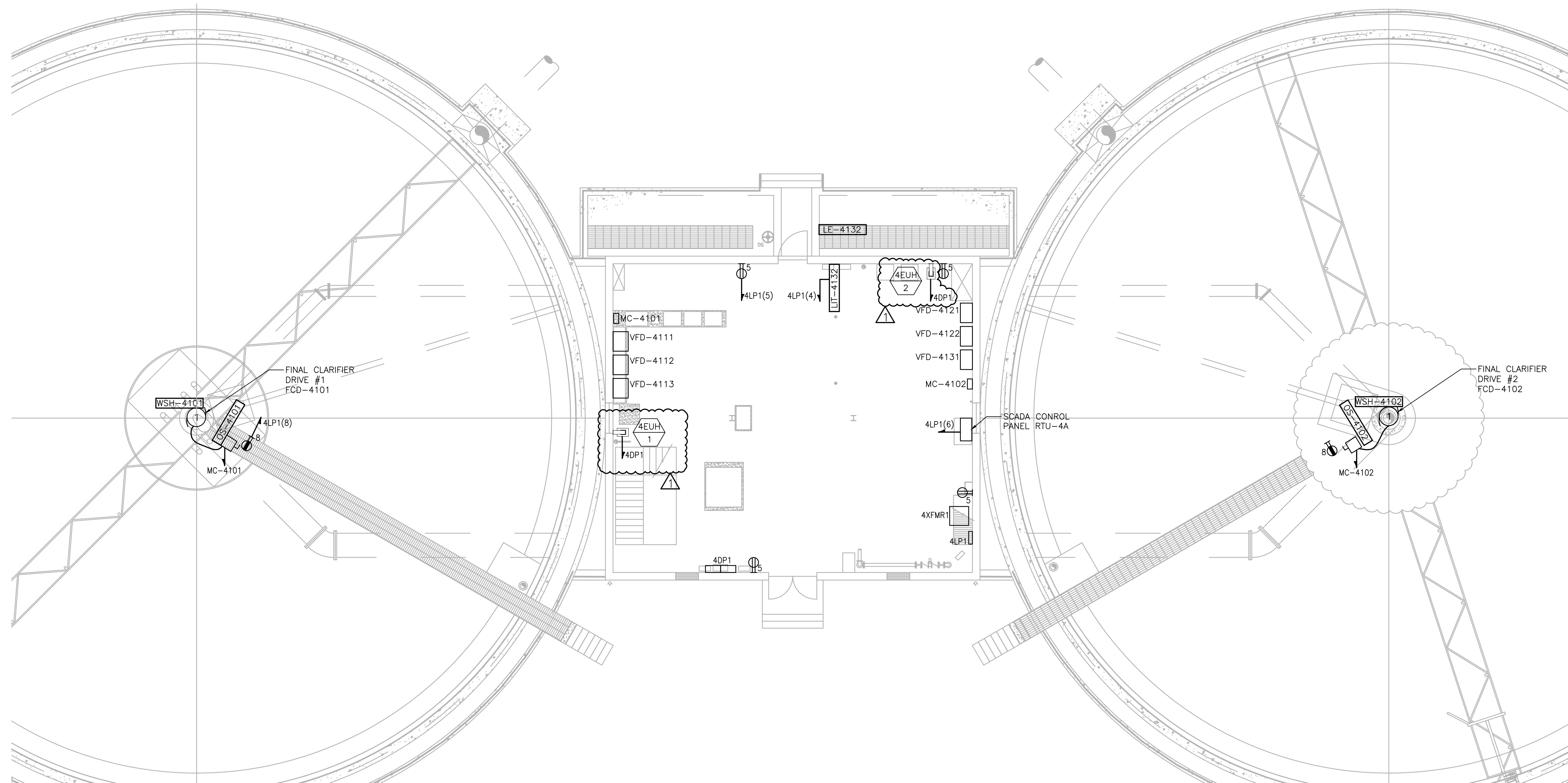




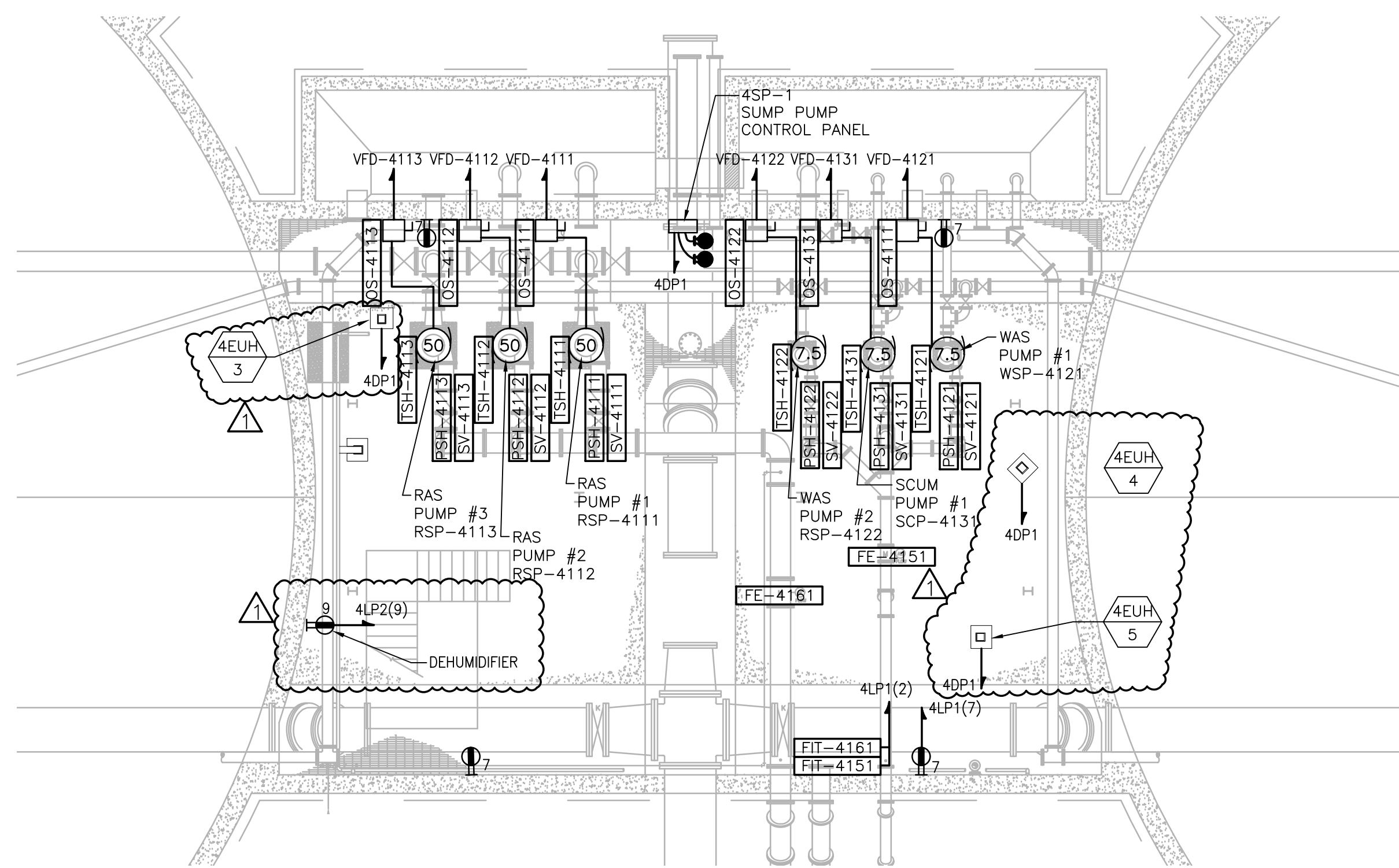




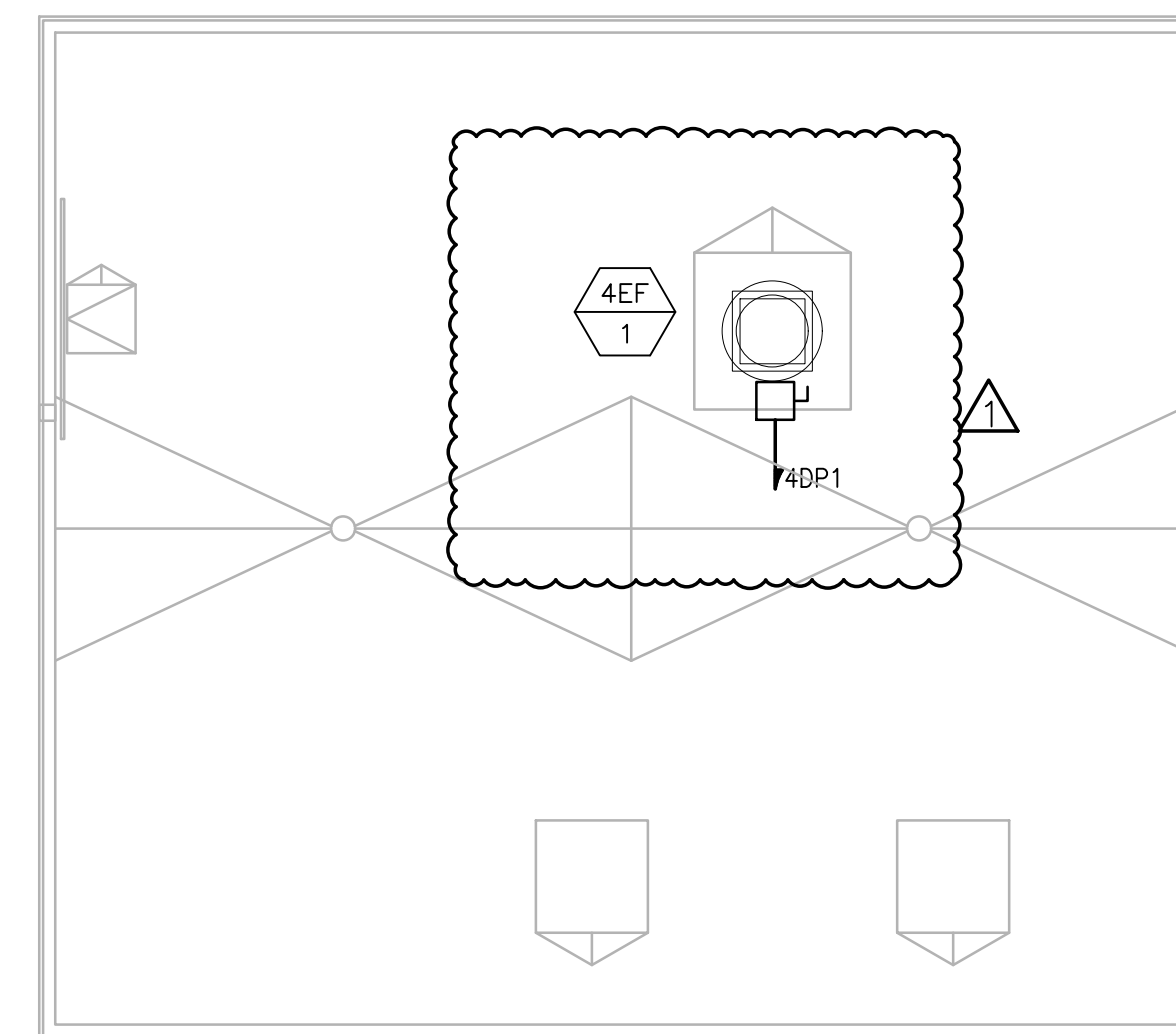
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**UPPER LEVEL PLAN**  
SCALE: 1/8"= 1'-0"



**LOWER LEVEL PLAN**  
SCALE: 1/8"= 1'-0"



**ROOF PLAN**  
SCALE: 1/8"= 1'-0"

PREPARED BY



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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

**Electrical Final  
Clarifiers No.1 &  
2 Plan & Sludge  
Pump Station  
No.1  
Power Plan  
AS RE-ISSUED PER  
ADDENDUM #4**

NO.	REVISIONS	DATE
1	ADDENDUM #4	04/25/22

DRAWN BY:	RLB
DESIGNED BY:	MC
CHECKED BY:	MC
ISSUE DATE:	03/31/22
BETA JOB NO.:	6050

SCALE

NONE

SHEET NO.

E-4.2

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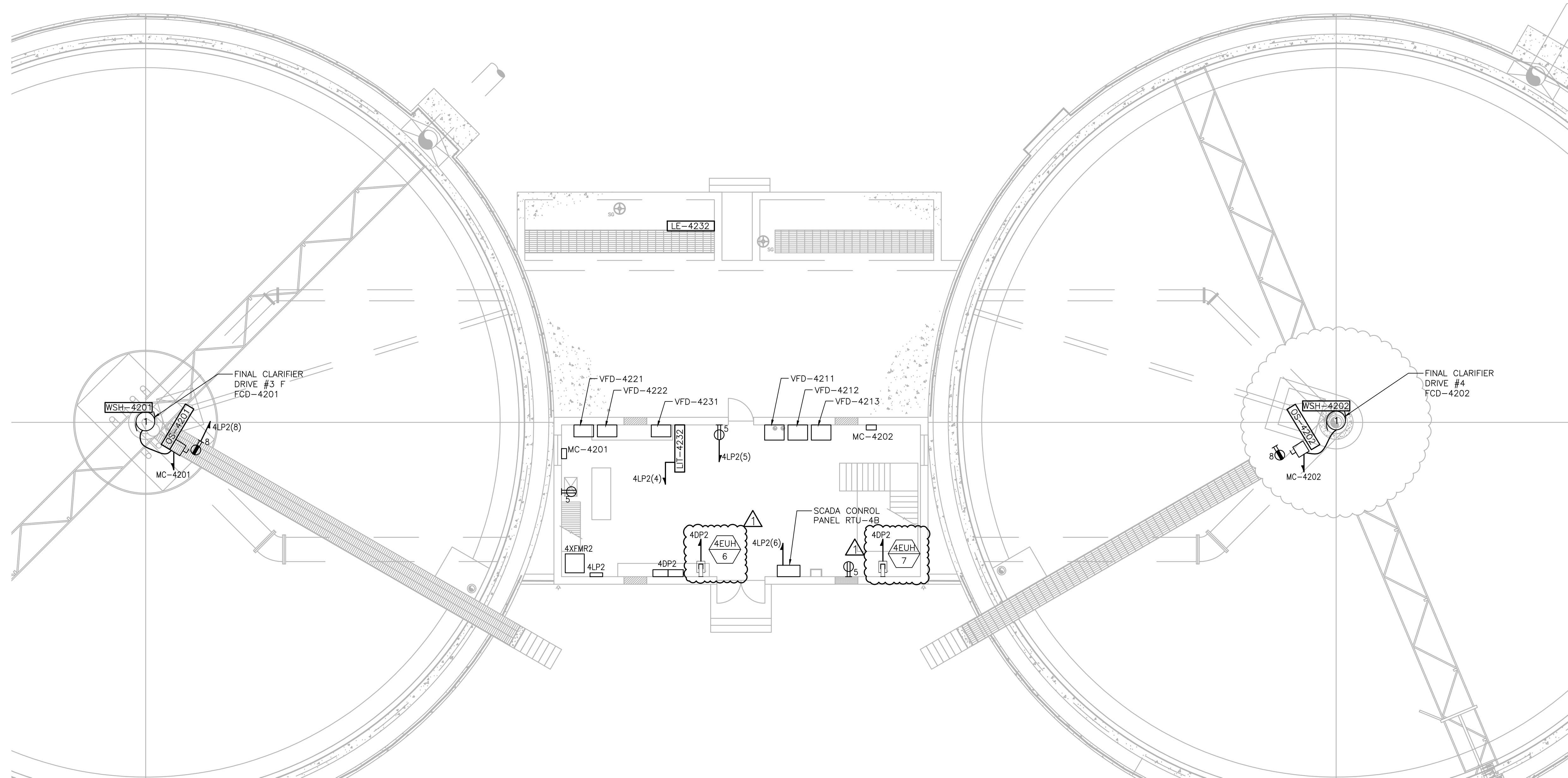




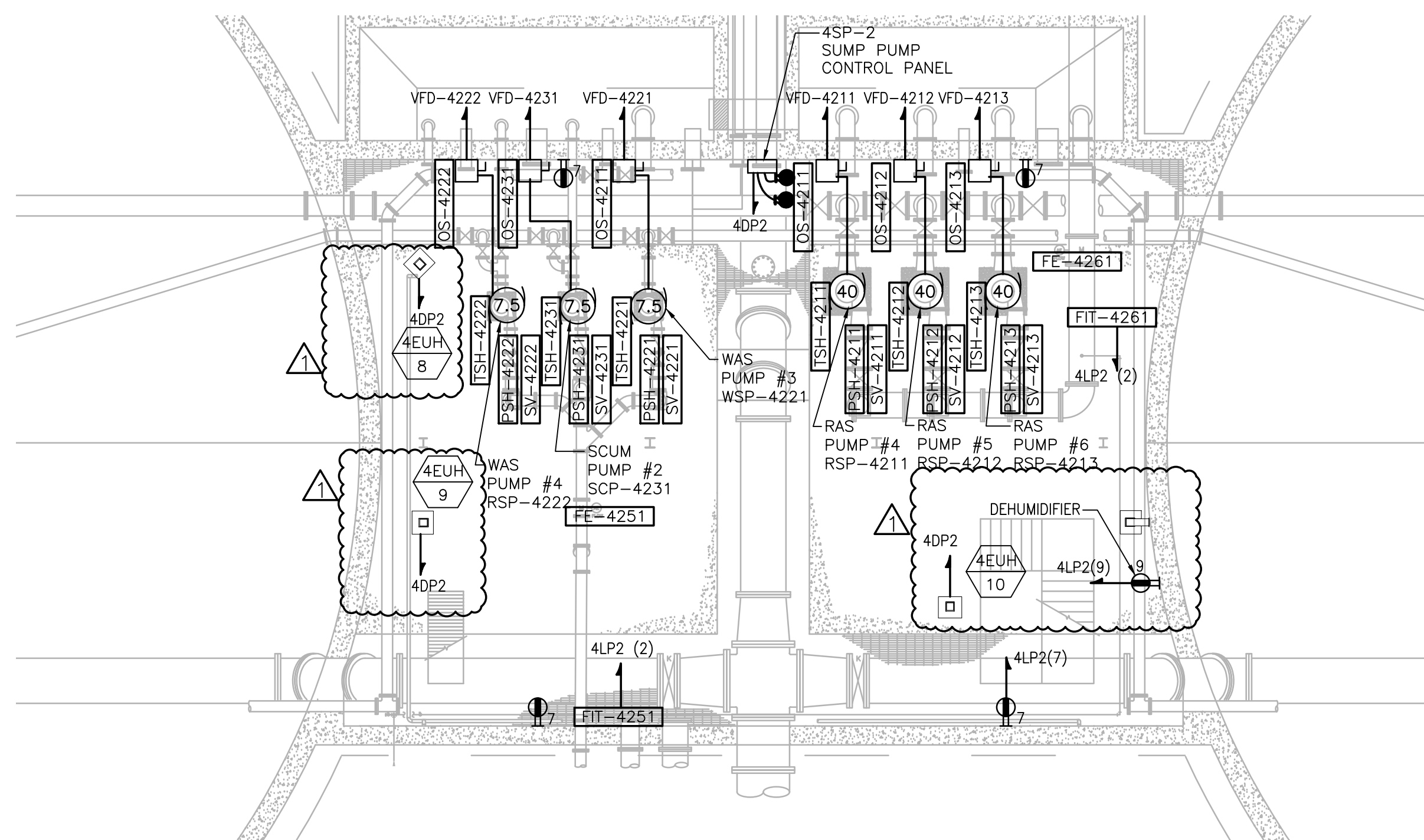




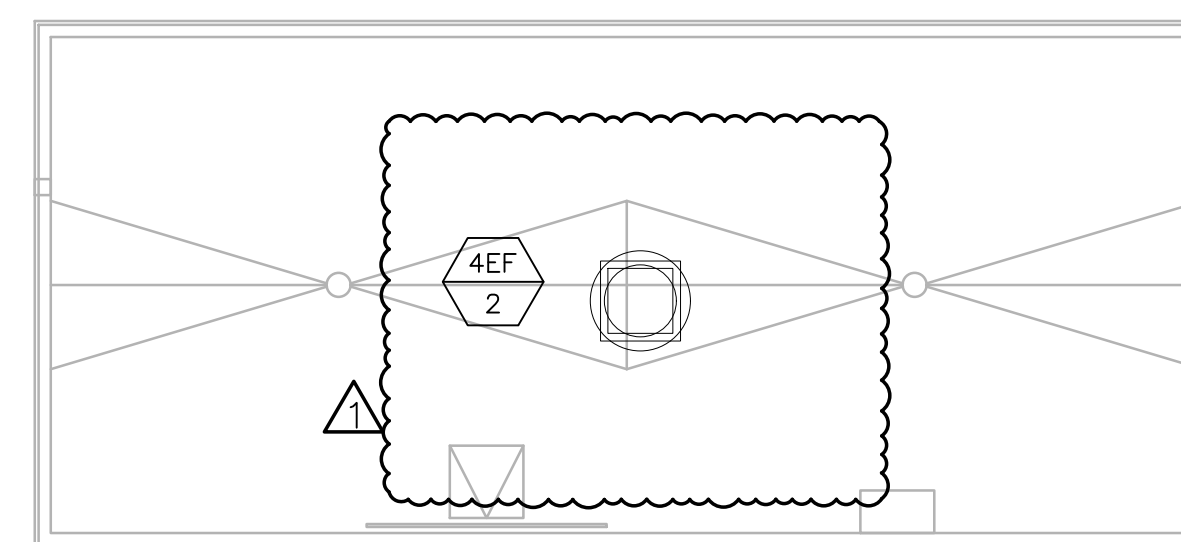
4/25/2022 10:41 AM W:\YEAR - 2018\18009.00 - TAUNTON WWTFF UPGRADE\ELECTRICAL DEPARTMENT\PHASE 2\18009.00 ELEC FINAL CLARIFIERS & SECONDARY SLUDGE PS - PHASE 2.DWG (BETA STB BW/STB)



**UPPER LEVEL PLAN**  
SCALE: 1/8"= 1'-0"



**LOWER LEVEL PLAN**  
SCALE: 1/8"= 1'-0"

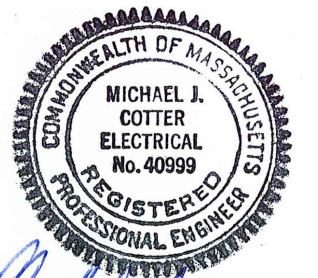


**ROOF PLAN**  
SCALE: 1/8"= 1'-0"

PREPARED BY



REGISTERED PROFESSIONAL



*Michael J. Cotter*

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PROJECT

**Taunton Wastewater  
Treatment Facility  
Improvements  
Phase 2**

Taunton, MA

TITLE

**Electrical Final  
Clarifiers No.  
3 & 4 Plan &  
Sludge Pump  
Station No.2  
Power Plan  
AS RE-ISSUED PER  
ADDENDUM #4**

NO.	REVISIONS	DATE
1	ADDENDUM #4	04/25/22

DRAWN BY:	RLB
DESIGNED BY:	MC
CHECKED BY:	MC
ISSUE DATE:	03/31/22
BETA JOB NO.:	6050

SCALE	NONE
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SHEET NO.	E-4.6
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