

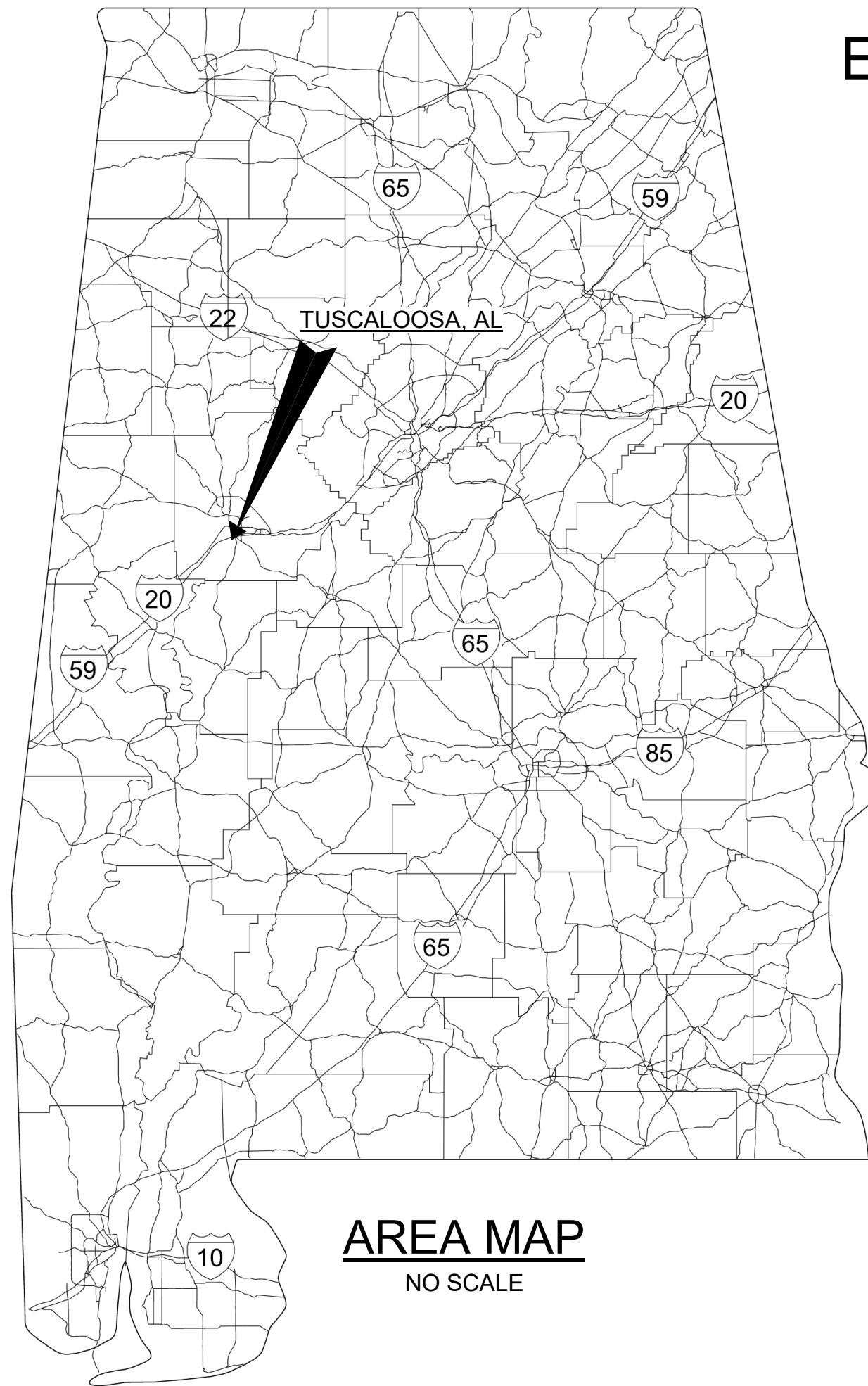
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY PHASE II IMPROVEMENTS



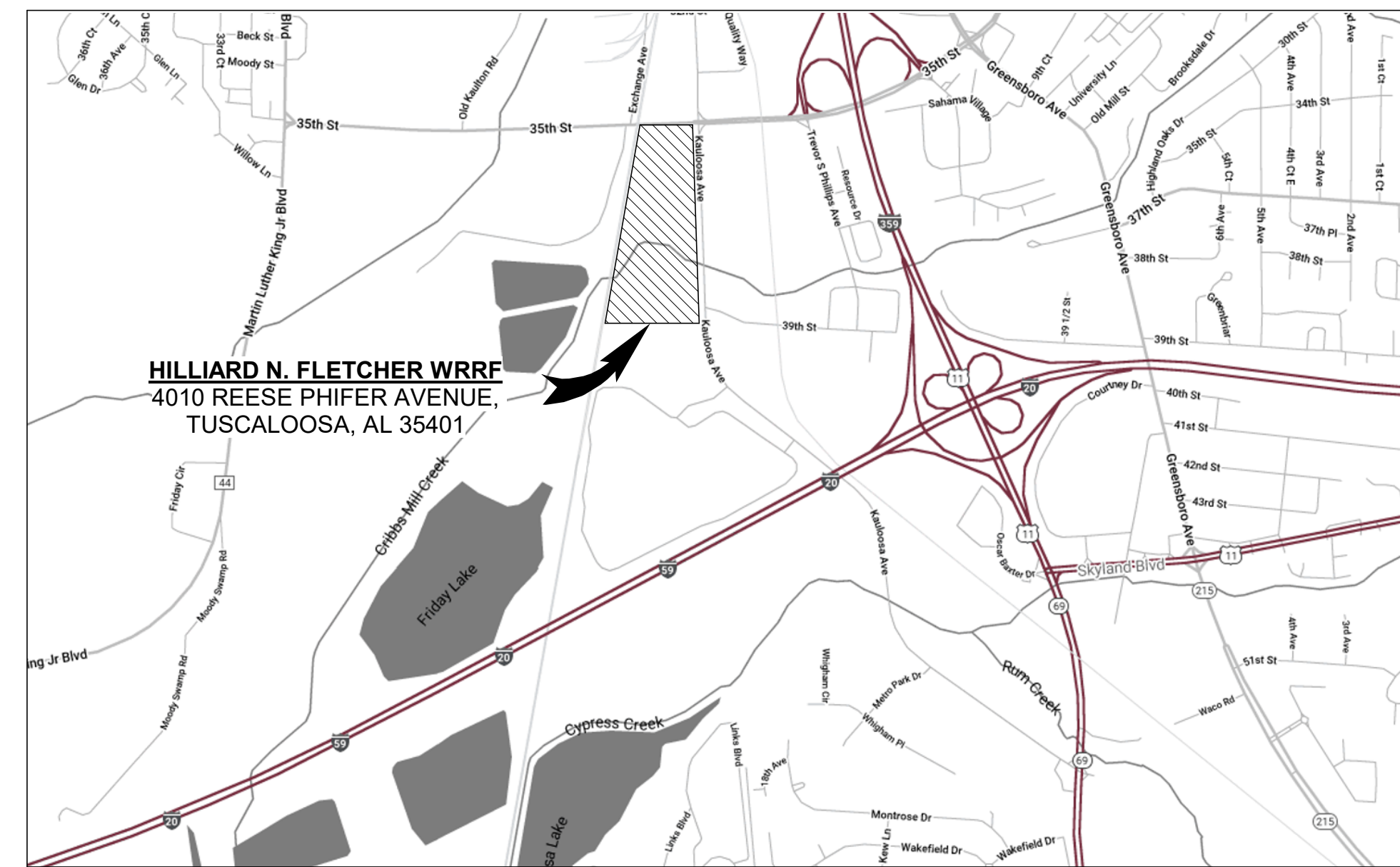
CITY OF TUSCALOOSA

FILE NO. OCA-23-1043
ENGINEERING PROJECT NO. 2024.702.001

BID SET



AREA MAP
NO SCALE



VICINITY MAP
NO SCALE

GARVER PROJECT NO. 19W10160

JANUARY 2024
VOLUME 4 OF 4



2111 Parkway Office Circle
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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

COVER SHEET

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: SAC
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INDEX OF DRAWINGS

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SHEET NUMBER
002

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35 - DIGESTER GAS SCRUBBER IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
088	35-X101	DIGESTER GAS SCRUBBER DEMOLITION PLAN
089	35-S101	DIGESTER GAS SCRUBBER SLAB PLAN
090	35-S301	DIGESTER GAS SCRUBBER SLAB SECTIONS
091	35-P101	DIGESTER GAS SCRUBBER OVERALL PLAN
092	35-P301	DIGESTER GAS SCRUBBER SECTIONS
093	35-P901	DIGESTER GAS SCRUBBER ISOMETRIC
094	35-E101	DIGESTER GAS SCRUBBER ELECTRICAL PLAN

40 - NORTH AERATION BASINS IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
095	40-X101	NORTH AERATION BASINS - DEMOLITION PLAN 1
096	40-X102	NORTH AERATION BASINS - DEMOLITION PLAN 2
097	40-X301	NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 1
098	40-X302	NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 2
099	40-X303	NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 3
100	40-S101	NORTH AERATION BASINS - OVERALL STRUCTURAL PLAN
101	40-S401	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 1
102	40-S402	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 2
103	40-S403	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 3
104	40-S404	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 4
105	40-S405	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 5
106	40-S406	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 6
107	40-S407	NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 7
108	40-S408	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 1
109	40-S409	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 2
110	40-S410	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 3
111	40-S411	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 4
112	40-S412	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 5
113	40-S413	NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 6
114	40-S414	NORTH AERATION BASINS - BLOWER BUILDING DETAILS 1
115	40-S415	NORTH AERATION BASINS - BLOWER BUILDING DETAILS 2
116	40-S416	NORTH AERATION BASINS - BLOWER BUILDING DETAILS 3
117	40-S417	NORTH AERATION BASINS - BLOWER BUILDING DETAILS 4
118	40-S418	NORTH AERATION BASINS - BLOWER BUILDING DETAILS 5
119	40-P101	NORTH AERATION BASINS - BLOWER PIPING OVERALL PLAN
120	40-P102	NORTH AERATION BASIN IMPROVEMENTS - ENLARGED PLAN
121	40-P301	NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 1
122	40-P302	NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 2
123	40-P303	NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 3
124	40-P901	NORTH AERATION BASINS - BLOWER PIPING ISOMETRIC VIEW OVERALL
125	40-P902	NORTH AERATION BASINS - BLOWER PIPING ISOMETRIC VIEWS
126	40-E101	NORTH AERATION BASINS - ELECTRICAL SITE PLAN
127	40-E102	FLOW METER RELOCATION/ INSTALLATION

90 - ELECTRICAL		
SHEET NO.	DWG. NO.	DESCRIPTION
128	90-E501	ANAEROBIC DIGESTION EXISTING ONELINE DIAGRAM
129	90-E502	ANAEROBIC DIGESTION ONELINE DIAGRAM MODIFICATION
130	90-E701	20CP1 PLC I/O

12 - ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
042	12-X101	ANAEROBIC DIGESTION FACILITY UPPER DEMOLITION PLAN
043	12-X102	ANAEROBIC DIGESTER NO. 2 UPPER DEMOLITION PLAN
044	12-X103	ANAEROBIC DIGESTER NO. 2 LOWER DEMOLITION PLAN
045	12-X301	ANAEROBIC DIGESTER NO. 2 DEMOLITION SECTION
046	12-S101	ANAEROBIC DIGESTER NO. 2 REHABILITATION PLAN
047	12-S102	ANAEROBIC DIGESTER NO. 2 REHABILITATION SECTIONS AND DETAILS
048	12-S301	ANAEROBIC DIGESTER NO. 2 REHABILITATION SECTIONS
049	12-S501	ANAEROBIC DIGESTER PIPE SUPPORT NO. 2 REHABILITATION DETAIL AND SECTION
050	12-S502	ANAEROBIC DIGESTER PIPE SUPPORT NO. 2 REHABILITATION DETAIL
051	12-P101	OVERALL ANAEROBIC DIGESTION REHABILITATION PLAN
052	12-P102	ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS LOWER PLAN
053	12-P103	ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS UPPER PLAN
054	12-P301	ANAEROBIC DIGESTER NO. 2 DIGESTER MIXING SECTIONS AND DETAILS
055	12-P302	ANAEROBIC DIGESTER NO. 2 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS
056	12-P303	ANAEROBIC DIGESTER NO. 2 DIGESTER BIOGAS HANDLING SECTION
057	12-P901	ANAEROBIC DIGESTER NO. 2 DIGESTER MIXING ISOMETRICS
058	12-P902	ANAEROBIC DIGESTER NO. 2 DIGESTER COVER BIOGAS PIPING ISOMETRIC

13 - ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
059	13-X101	ANAEROBIC DIGESTION FACILITY UPPER DEMOLITION PLAN
060	13-X102	ANAEROBIC DIGESTER NO. 3 UPPER DEMOLITION PLAN
061	13-X103	ANAEROBIC DIGESTER NO. 3 LOWER DEMOLITION PLAN
062	13-X301	ANAEROBIC DIGESTER NO. 3 DEMOLITION SECTION
063	13-S101	ANAEROBIC DIGESTER NO. 3 REHABILITATION PLAN AND DETAILS
064	13-S102	ANAEROBIC DIGESTER NO. 3 REHABILITATION SECTIONS AND DETAILS
065	13-S301	ANAEROBIC DIGESTER NO. 3 REHABILITATION SECTIONS
066	13-S501	ANAEROBIC DIGESTER PIPE SUPPORT NO. 3 REHABILITATION DETAIL AND SECTION
067	13-S502	ANAEROBIC DIGESTER PIPE SUPPORT NO.3 REHABILITATION DETAIL
068	13-P101	OVERALL ANAEROBIC DIGESTION REHABILITATION PLAN
069	13-P102	ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS LOWER PLAN
070	13-P103	ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS UPPER PLAN
071	13-P301	ANAEROBIC DIGESTER NO. 3 DIGESTER MIXING SECTIONS AND DETAILS
072	13-P302	ANAEROBIC DIGESTER NO. 3 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS
073	13-P303	ANAEROBIC DIGESTER NO. 3 DIGESTER BIOGAS HANDLING SECTION
074	13-P901	ANAEROBIC DIGESTER NO. 3 DIGESTER MIXING ISOMETRICS
075	13-P902	ANAEROBIC DIGESTER NO. 3 DIGESTER COVER BIOGAS PIPING ISOMETRIC

20 - DIGESTER CONTROL BUILDING IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
076	20-X101	DIGESTER CONTROL BUILDING SELECTIVE DEMOLITION ROOF PLAN
077	20-S401	DIGESTER CONTROL BUILDING SECTION AND DETAIL
078	20-S501	DIGESTER CONTROL BUILDING DETAILS
079	20-P101	DIGESTER CONTROL BUILDING ROOF PLAN
080	20-P301	DIGESTER CONTROL BUILDING SECTIONS AND DETAILS 1
081	20-P302	DIGESTER CONTROL BUILDING SECTIONS AND DETAILS 2
082	20-P901	DIGESTER CONTROL BUILDING ISOMETRIC
083	20-M101	ELECTRICAL ROOM HVAC PLAN
084	20-E101	DIGESTER CONTROL BUILDING ELECTRICAL ROOM DEMOLITION
085	20-E102	DIGESTER CONTROL BUILDING LOWER LEVEL ELECTRICAL IMPROVEMENTS
086	20-E601	DIGESTER CONTROL BUILDING - MCC CONTROL SCHEMATIC 1
087	20-E602	DIGESTER CONTROL BUILDING - MCC CONTROL SCHEMATIC 2

01 - GENERAL		
SHEET NO.	DWG. NO.	DESCRIPTION
001	01-G001	COVER SHEET
002	01-G002	INDEX OF DRAWINGS
003	01-G003	GENERAL CONVENTIONS AND ABBREVIATIONS
004	01-G004	ANAEROBIC DIGESTION PROCESS FLOW DIAGRAM
005	01-G005	BIOGAS SYSTEM PROCESS FLOW DIAGRAM
006	01-G006	CIVIL NOTES, LEGENDS, AND ABBREVIATIONS 1
007	01-G007	CIVIL NOTES, LEGENDS, AND ABBREVIATIONS 2
008	01-G008	PROCESS & INSTRUMENTATION DIAGRAM NOTES, LEGENDS, AND ABBREVIATIONS
009	01-G009	STRUCTURAL NOTES, LEGENDS, AND ABBREVIATIONS
010	01-G010	PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS
011	01-G011	ELECTRICAL NOTES AND ABBREVIATIONS
012	01-G012	ELECTRICAL LEGENDS

05 - SITE CIVIL		
SHEET NO.	DWG. NO.	DESCRIPTION
013	05-C101	EXISTING SITE PLAN - OVERVIEW
014	05-X102	PROPOSED DEMOLITION PLAN
015	05-C103	PROPOSED SITE PLAN - ENLARGED
016	05-C201	PROPOSED GRADING AND PAVING - ENLARGED
017	05-X301	YARD PIPING DEMOLITION PLAN
018	05-C302	PROPOSED YARD PIPING PLAN - ENLARGED
019	05-E101	ELECTRICAL SITE PLAN



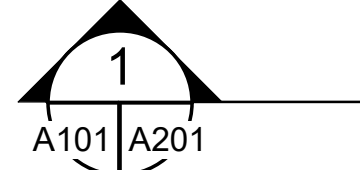
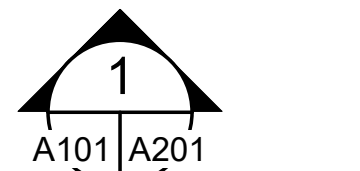
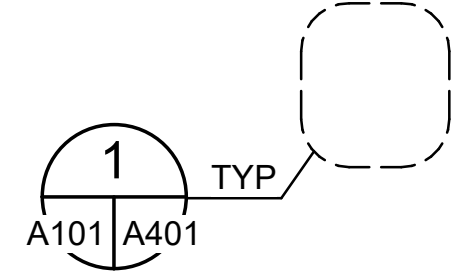
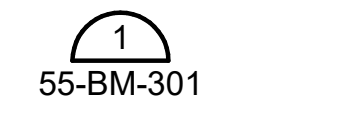
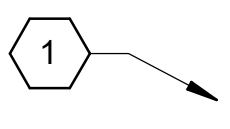
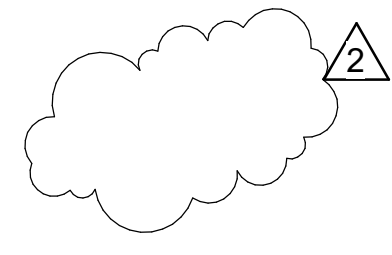
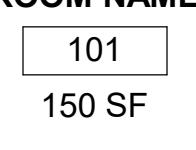
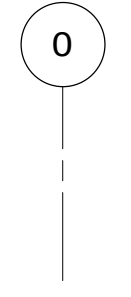
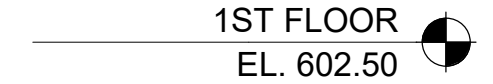
08 - PROCESS & INSTRUMENTATION CONTROLS DIAGRAMS		
SHEET NO.	DWG. NO.	DESCRIPTION
020	08-I111	ANAEROBIC DIGESTER NO. 1 P&ID
021	08-I121	ANAEROBIC DIGESTER NO. 2 P&ID
022	08-I131	ANAEROBIC DIGESTER NO. 3 AND DEWATERING FEED PUMPS P&ID

11 - ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS		
SHEET NO.	DWG. NO.	DESCRIPTION
023	11-X101	ANAEROBIC DIGESTION FACILITY UPPER DEMOLITION PLAN
024	11-X102	ANAEROBIC DIGESTER NO. 1 UPPER DEMOLITION PLAN
025	11-X103	ANAEROBIC DIGESTER NO. 1 LOWER DEMOLITION PLAN
026	11-X301	ANAEROBIC DIGESTER NO. 1 DEMOLITION SECTION
027	11-S101	ANAEROBIC DIGESTER NO. 1 REHABILITATION PLAN
028	11-S102	ANAEROBIC DIGESTER NO. 1 REHABILITATION SECTIONS AND DETAILS
029	11-S301	ANAEROBIC DIGESTER NO. 1 REHABILITATION SECTIONS
030	11-S501	ANAEROBIC DIGESTER PIPE SUPPORT NO. 1 REHABILITATION DETAIL AND SECTION
031	11-S502	ANAEROBIC DIGESTER PIPE SUPPORT NO. 1 REHABILITATION DETAIL
032	11-P101	OVERALL ANAEROBIC DIGESTION REHABILITATION PLAN
033	11-P102	ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS LOWER PLAN
034	11-P103	ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS UPPER PLAN
035	11-P301	ANAEROBIC DIGESTER NO. 1 DIGESTER MIXING SECTIONS AND DETAILS
036	11-P302	ANAEROBIC DIGESTER NO. 1 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS
037	11-P303	ANAEROBIC DIGESTER NO. 1 DIGESTER BIOGAS HANDLING SECTION AND DETAIL
038	11-P901	ANAEROBIC DIGESTER NO. 1 DIGESTER MIXING ISOMETRIC
039	11-P902	ANAEROBIC DIGESTER NO. 1 DIGESTER COVER BIOGAS PIPING ISOMETRIC
040	11-E101	ANAEROBIC DIGESTER NO. 1 MIXER ELECTRICAL PLAN (TYP OF 3)
041	11-E601	ANAEROBIC DIGESTER MIXING SYSTEM - CONTROL SCHEMATIC (TYP OF 3)

DRAWING NUMBER EXAMPLE		DRAWING NUMBER LEGEND						
FACILITY AREA CODE	70-M201	PREDOMINATE VIEW OR ELEMENT	DISCIPLINE	G - GENERAL	A - ARCHITECTURAL	<u>CIVIL DISCIPLINE</u>	<u>OTHER DISCIPLINES</u>	<u>ALL DISCIPLINES</u>
				C - CIVIL	S - STRUCTURAL	100 - SITE PLANS	100 - PLAN VIEWS	400 - LARGE SCALE VIEWS
				I - INSTRUMENTATION & CONTROL	P - PROCESS MECHANICAL	200 - GRADING & PAVING	200 - ELEVATIONS	500 - DETAILS
				X - DEMOLITION	M - BUILDING MECHANICAL	300 - PIPING & PROFILES	300 - SECTIONS	600 - DIAGRAM OR SCHED
				F - FIRE & LIFE SAFETY	E - ELECTRICAL	T - TELECOMMUNICATIONS		900 - ISOMETRICS

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GENERAL CONVENTIONS	
SYMBOL	DESCRIPTION
	TITLE DENOTES A PLAN VIEW LAYOUT (THIS EXAMPLE IS PLAN VIEW No. 1 ON SHEET A101)
	TITLE DENOTES AN ELEVATION, SECTION, OR DETAIL VIEW LAYOUT (THIS EXAMPLE IS DETAIL 1 ON SHEET A201 WHICH HAS A BACK REFERENCE ON SHEET A101)
	CALLOUT DENOTES A CUT SECTION TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING SECTION No. 1 ON SHEET A201)
	CALLOUT DENOTES AN ELEVATION REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING ELEVATION No. 1 ON SHEET A201)
	CALLOUT DENOTES AN ENLARGED AREA TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING DETAIL No. 1 ON SHEET A401)
	CALLOUT DENOTES A STANDARD DETAIL REFERENCE
	CALLOUT DENOTES A KEYED NOTE REFERENCE
	CLOUDED REGION INDICATES A REVISED AREA
<p>ROOM NAME</p> 	SYMBOL INDICATES A ROOM / AREA DESIGNATION WITH ROOM NUMBER AND SQUARE FOOTAGE
	SYMBOL INDICATES A STRUCTURAL GRIDLINE OR DATUM
	SYMBOL INDICATES A DATUM IN A SECTION OR ELEVATION

ABBREVIATIONS		ABBREVIATIONS	
ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
ABV	ABOVE	PSI	POUNDS PER SQUARE INCH
AFF	ABOVE FINISHED FLOOR	PSIA	POUNDS PER SQUARE INCH ABSOLUTE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	PSIG	POUNDS PER SQUARE INCH GAUGE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	PVC	POLYVINYL CHLORIDE
AUX	AUXILIARY	RE:	REFERENCE, REFER
AWWA	AMERICAN WATER WORKS ASSOCIATION	REINF	REINFORCEMENT
BKR	BREAKER	REQD	REQUIRED
BOP	BOTTOM OF PIPE	RM	ROOM
BOS	BOTTOM OF STRUCTURE	SEC	SECTION
CI	CONTRACTOR INSTALLED	SF	SQUARE FEET
CJ	CONSTRUCTION JOINT	SHT	SHEET
CKT	CIRCUIT	SPEC	SPECIFICATIONS
CL	CENTERLINE	SQ	SQUARE
CMU	CONCRETE MASONRY UNIT	STA	STATION
COGEN	COMBINED HEAT AND POWER GENERATION	STD	STANDARD
COL	COLUMN	SURF	SURFACE
CONT	CONTINUOUS	SUSP	SUSPEND, SUSPENDED
DG	DIGESTER GAS	T&B	TOP AND BOTTOM
DIA	DIAMETER	THRU	THROUGH
EA	EXHAUST AIR, EXPANSION ANCHOR, EACH	TYP	TYPICAL
EL, ELEV	ELEVATION	U/F	UNDER FLOOR
ELEC	ELECTRICAL	U/G	UNDER GROUND
ENCL	ENCLOSURE	U/S	UNDER SLAB
FA	FIRE ALARM	UL	UNDERWRITERS LABORATORIES, INC.
FFE	FINISHED FLOOR ELEVATION	UNO	UNLESS NOTED OTHERWISE
FL	FLOW LINE	V	VOLT, VALVE
FLR	FLOOR	VA	VOLT-AMPERE
FRP	FIBERGLASS REINFORCED PLASTIC	VERT	VERTICAL
FT	FEET, FOOT	W	WATT, WIRE, WIDTH, WINDOW, WATER
GA	GAUGE, GAGE	W/	WITH
GALV	GALVANIZED	W/O	WITHOUT
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER	WS	WATERSTOP
GRND	GROUND	WT	WATERTIGHT, WEIGHT
H, HT	HEIGHT	XMFR	TRANSFORMER
HOA	HAND-OFF-AUTOMATIC		
HORIZ	HORIZONTAL		
HP	HORSEPOWER, HEAT PUMP		
HYD	HYDRANT		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
kVA	KILOVOLT-AMPERES		
KW	KILOWATTS		
LBS, #	POUNDS		
LF	LINEAR FEET		
MAX	MAXIMUM		
N/A	NOT AVAILABLE		
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION		
NIC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
OC	ON CENTER		
OH	OVERHEAD		
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION		
PD	PROCESS DRAIN		
PIV	POST INDICATOR VALVE		
PNL	PANEL		
PRV	PRESSURE RELIEF VALVE		
PSF	POUNDS PER SQUARE FOOT		



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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

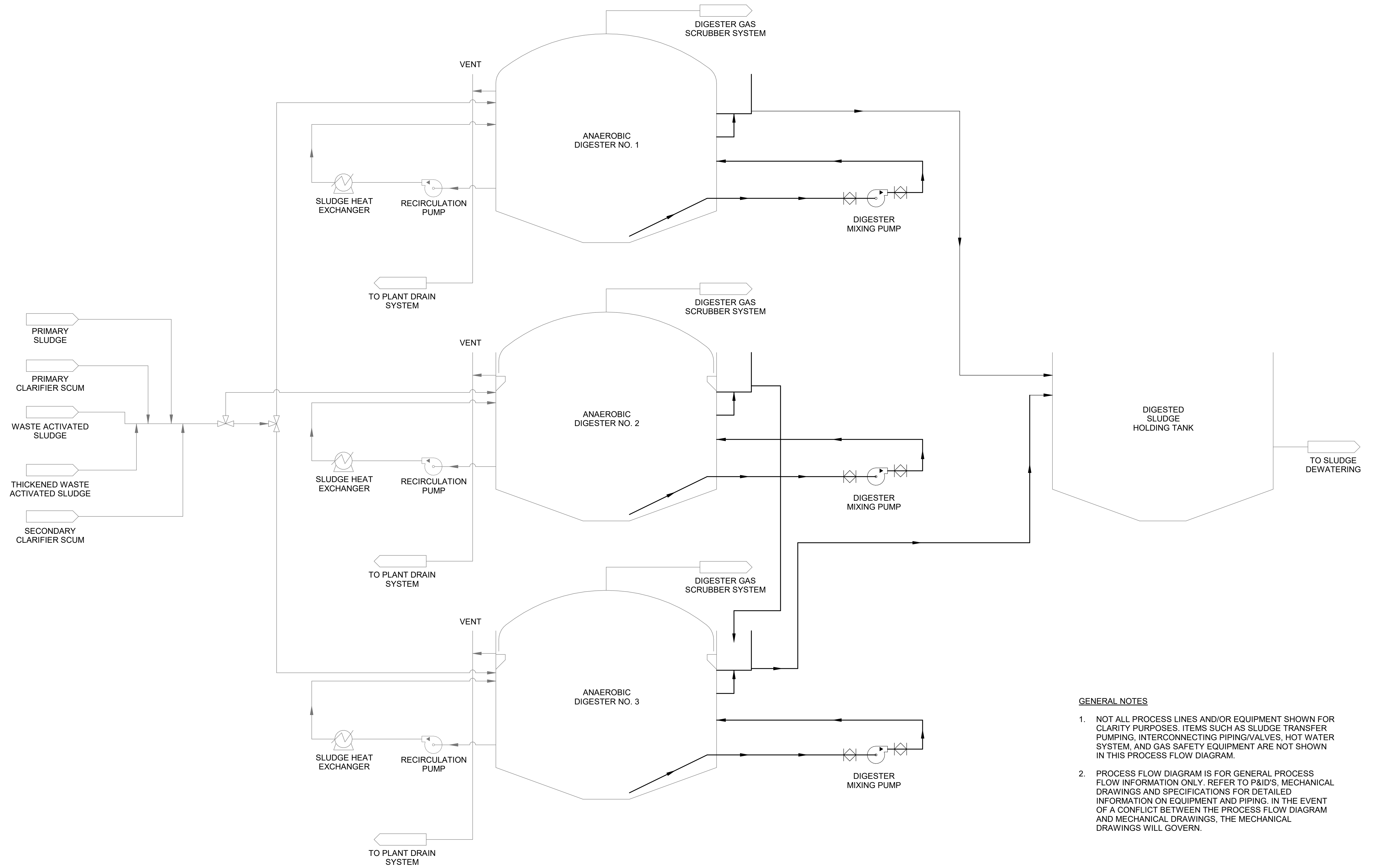
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION PROCESS FLOW DIAGRAM

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: ACK
 CHECKED BY: RDT

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 DRAWING NUMBER
01-G004
 SHEET NUMBER
004

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF AnaerobicHFWRRF_01 - GENERAL.rvt
 Plot Date: 11/09/2024 5:13:38 PM



ANAEROBIC DIGESTION PROCESS FLOW DIAGRAM

GENERAL NOTES

- NOT ALL PROCESS LINES AND/OR EQUIPMENT SHOWN FOR CLARITY PURPOSES. ITEMS SUCH AS SLUDGE TRANSFER PUMPING, INTERCONNECTING PIPING/VALVES, HOT WATER SYSTEM, AND GAS SAFETY EQUIPMENT ARE NOT SHOWN IN THIS PROCESS FLOW DIAGRAM.
- PROCESS FLOW DIAGRAM IS FOR GENERAL PROCESS FLOW INFORMATION ONLY. REFER TO P&ID'S, MECHANICAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION ON EQUIPMENT AND PIPING. IN THE EVENT OF A CONFLICT BETWEEN THE PROCESS FLOW DIAGRAM AND MECHANICAL DRAWINGS, THE MECHANICAL DRAWINGS WILL GOVERN.

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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

BIOGAS SYSTEM
 PROCESS FLOW
 DIAGRAM

JOB NO.: 19W10160
 DATE: JAN. 2024

DESIGNED BY: RWC
 DRAWN BY: KLB

CHECKED BY: RDT

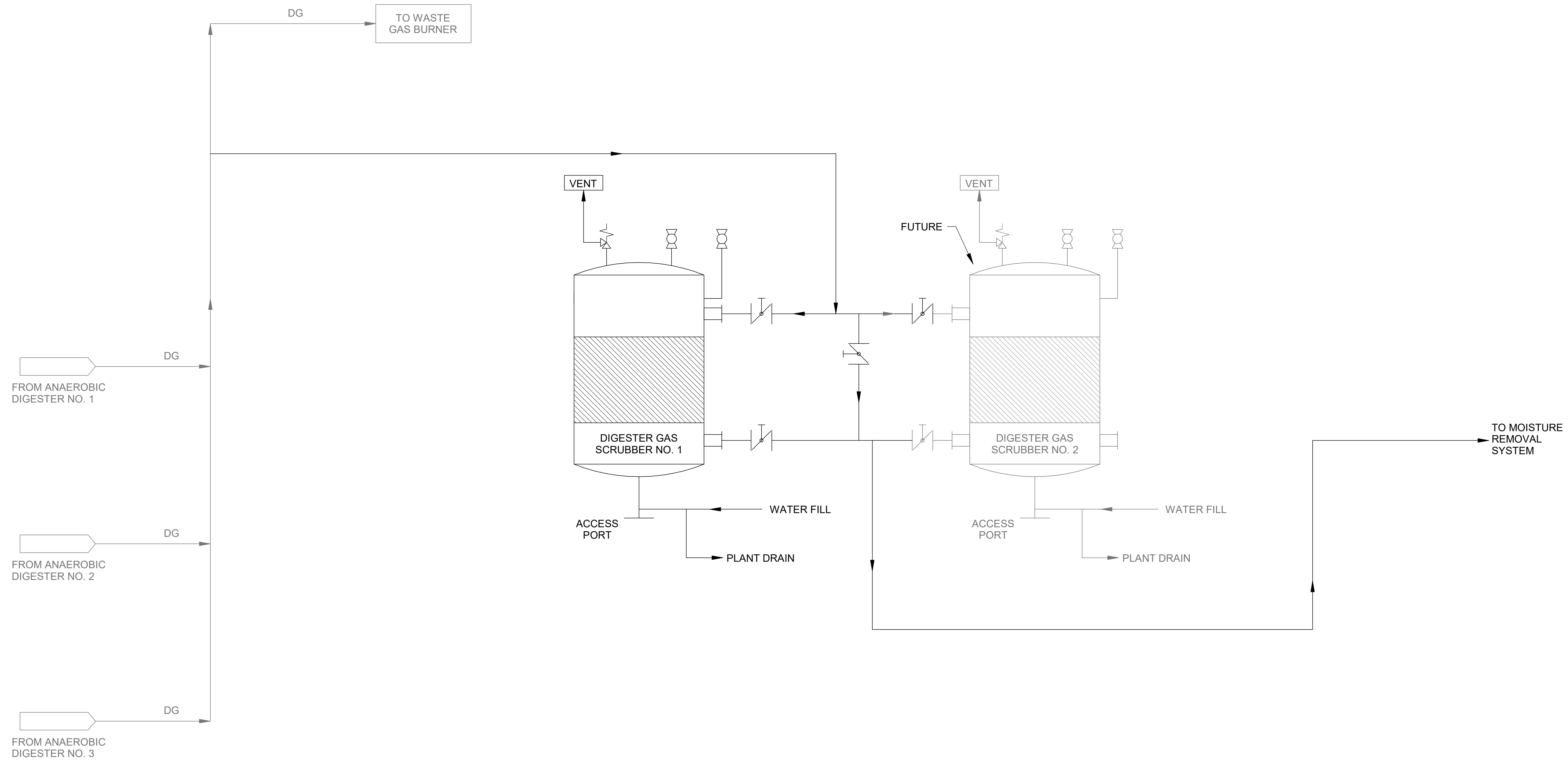
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DRAWING NUMBER
01-G005

SHEET NUMBER
005

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 Plot Date: 11/19/2024 5:13:38 PM



BIOGAS SYSTEM PROCESS FLOW DIAGRAM

GENERAL NOTES

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ISSUED FOR CONSTRUCTION

GENERAL CIVIL NOTES

- SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR SAFETY, MEANS, OR METHODS OF THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALABAMA ONE CALL AND ALL APPROPRIATE AGENCIES BEFORE WORK COMMENCES TO VERIFY THE TYPE, LOCATION, PROTECTION REQUIREMENTS, DEPTH OF ALL EXISTING UTILITIES, DRAINAGE FACILITIES, AND OTHER OBSTRUCTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIRING AND/OR REPLACING ANY SUCH ITEMS DAMAGED DURING CONSTRUCTION.
- CAUTION: UNDERGROUND UTILITIES SHOWN ARE TAKEN FROM EXISTING RECORDS AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS AND CONFIRM LOCATIONS OF UTILITIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ACCURATELY LOCATE AND UNCOVER ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION. ANY DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. WHERE CROSSING OF EXISTING UTILITIES OCCUR, PROVIDE 12" MINIMUM CLEARANCE EXCEPT WATER MAINS SHALL BE 24". CROSS UNDER ALL WATER MAINS WHERE NOT POSSIBLE TO PROVIDE 18" CLEARANCE.
- SEWER AND WATER SERVICE SHALL BE MAINTAINED DURING ENTIRE CONSTRUCTION PERIOD OR TEMPORARY FACILITIES PROVIDED.
- CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING ACTIVITIES AND ASSOCIATED PERMITS REQUIRED FOR ALL EXCAVATIONS REQUIRED TO COMPLETE THE PROJECT.
- APPROXIMATE LOCATIONS OF OVERHEAD POWER LINES MAY OR MAY NOT BE SHOWN ON PLANS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING ALL LOCATIONS IN THE FIELD AND PLAN WORK IN THESE AREAS ACCORDINGLY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SITE DRAINAGE AND COMPLIANCE WITH ALL GOVERNMENTAL STORM WATER REGULATIONS AND PERMITS (SWPPP) AS REQUIRED. CONTRACTOR SHALL OBTAIN NOTICE OF INTENT (NOI) FROM APPROPRIATE STATE BODY PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PERMITS REQUIRED FOR WORK WITHIN STREAMS.
- IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE TRAFFIC CONTROL AND SIGNAGE FOR THE DURATION OF PROJECT AS REQUIRED BY THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES -PART VI, AND/OR ALL OTHER APPLICABLE GUIDELINES OF ALDOT, COUNTY, CITY OR ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE PROJECT AREAS. ALL ROAD CLOSURE MUST BE APPROVED BY THE CITY OF TUSCALOOSA TRAFFIC ENGINEER PRIOR TO ANY PUBLIC ROAD CLOSURES.
- CONTRACTOR SHALL MAINTAIN TRAFFIC FLOW TO RESIDENCES AND BUSINESSES WITH MINIMUM DISRUPTION OF ACCESS.
- ALL STREETS AND DRIVEWAYS SHALL BE OPEN CUT UNLESS NOTED OTHERWISE. CONTRACTOR MAY REQUEST HORIZONTAL DIRECTION DRILLING ON A CASE-BY-CASE BASIS.
- ALL EXCAVATION BACKFILL OUTSIDE TRAFFIC WAYS SHALL BE COMPACTED TO MIN 95% STANDARD PROCTOR DENSITY TO PREVENT SETTLEMENT.

PAVING AND GRADING NOTES

- ALL PAVING MATERIALS AND CONSTRUCTION SHALL MEET THE ALDOT STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
- ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION AT THE CONTRACTORS EXPENSE.
- ANY DISTURBED AREAS NOT SPECIFICALLY DESIGNATED TO BE GRADED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND SHALL BE GRADED TO DRAIN AS APPROVED BY THE ENGINEER.
- FINAL PAVEMENT SURFACES SHALL NOT BE PLACED UNTIL ALL MAJOR CONSTRUCTION ACTIVITIES HAVE CONCLUDED.
- ANY CHANGES TO FINAL GRADE ELEVATIONS AS SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
- ALL ASPHALT AND CONCRETE PAVING REMOVED AND REPLACED SHALL BE NEAT FULL DEPTH SAW CUT.
- ALL OPEN CUT TRAFFIC WAYS (ROADS, PARKING LOTS, DRIVES, ETC.) AND ALL AREAS LYING WITHIN PRISM OF TRAFFIC WAYS, SHALL HAVE CRUSHED STONE BACKFILL COMPACTED WITH VIBRATORY COMPACTOR MAXIMUM 6" LIFTS AND COMPACTED TO MINIMUM 100%-98% MODIFIED PROCTOR DENSITY TO PREVENT SETTLEMENT FOR ITS ENTIRE TRENCH HEIGHT AND WIDTH. COMPACTED "PUG-MIX" SHALL BE USED AND MAINTAINED IN TOP 12" OF TRENCH HEIGHT AS REQUIRED TO PREVENT AGGREGATE LOSS DUE TO TRAFFIC.

YARD PIPING NOTES

- MINIMUM COVER OVER PIPING SHALL BE 3'-0", MEASURED FROM FINISHED GRADE.
- PROVIDE MINIMUM PIPE COVER, AS SPECIFIED. IN GENERAL LAY PIPE TO UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, UNLESS OTHERWISE APPROVED. IN SOME CASES, EXISTING CONDITIONS PROHIBIT UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, AND FIELD ADJUSTMENTS TO UNIFORM GRADES ARE REQUIRED AS APPROVED BY ENGINEER.
- SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE AS SPECIFIED FOR ADJACENT STRAIGHT RUN OF PIPE.
- ALL JOINTS SHALL BE WATERTIGHT.
- THRUST AT FITTINGS SHALL BE RESISTED BY RESTRAINED JOINTS AS SPECIFIED AND AS REQUIRED TO RESIST THRUST, UNLESS OTHERWISE APPROVED BY ENGINEER. SEE THRUST RESTRAINT DETAILS
- CONTRACTOR SHALL LOCATE AND UNCOVER ALL CONNECTIONS TO EXISTING LINES, AND ANY POSSIBLE CONFLICTS WITH PROPOSED FACILITIES AND VERIFY LOCATION, ELEVATION, PIPE MATERIAL, AND PIPE O.D. PRIOR TO ANY CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING BURIED PIPING AND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGED UNDERGROUND FACILITIES AT THEIR OWN EXPENSE.
- ALL SMALL DIAMETER PIPING SHALL BE INSTALLED AS SHOWN ON DRAWINGS WITH ALL FITTINGS AND VALVES AS REQUIRED TO PROVIDE A FUNCTIONAL PIPELINE AS SPECIFIED.
- ALL BURIED VALVES SHALL BE INSTALLED WITH VALVE BOX AND VALVE PAD AS SPECIFIED.
- ALL PIPELINE SHUTDOWNS SHALL BE COORDINATED WITH THE OPERATORS. A WRITTEN WORK PLAN SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER AND CITY 24 HOURS PRIOR TO ANY SHUTDOWNS.
- ROCK SHALL BE UNDERCUT A MINIMUM OF 4" AND PIPE BEDDED PER SEPCIFICATIONS. NO SEPARATE PAY ITEM EXISTS FOR ROCK EXCAVATION. ALL EXCAVATION SHALL BE CONSIDERED TO BE UN-CLASSIFIED EXCAVATION AND SUBSIDIARY TO OTHER BID ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF THE EXISTING PIPE, EXISTING MANHOLES, AND ANY EXCESS MATERIALS RESULTING FROM THE WORK.
- WHERE BYPASS PUMPING IS REQUIRED DURING THE PROJECT, PUMPING SHALL BE HELD TO A MINIMUM. ROUND-THE-CLOCK BYPASS PUMPING IS NOT ALLOWED. AT END OF EACH DAYLIGHT CONSTRUCTION PERIOD, EXISTING WATER WILL BE TEMPORARILY ROUTED TO NEW OR EXISTING PIPES WITH FITTINGS, PIPE, HOSE, OR OTHER APPURTENANCES AS REQUIRED AND DITCH LINES SHALL BE BACKFILLED TO EXISTING GRADE. COST OF THIS WORK SHALL BE INCLUDED IN PIPE INSTALLATION UNLESS LISTED AS A SEPARATE BID ITEM.
- CONTRACTOR SHALL PREVENT STORM WATER AND DEBRIS FROM ENTERING PIPES AND MANHOLES AT ALL TIMES. ALL PIPES AND MANHOLES SHALL BE SECURELY PLUGGED AT THE END OF EACH DAY.

ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
ABDN	ABANDON	LT	LEFT	V	VOLT, VALVE
AC	ACRE	MANUF	MANUFACTURER	VC	VERTICAL CURVE
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM	VERT	VERTICAL
ALUM	ALUMINUM SULFATE	MGD	MILLION GALLONS PER DAY	VPI	VERTICAL POINT OF INTERSECTION
APPROX	APPROXIMATE	MH	MANHOLE	VT	VENTILATOR
ASPH	ASPHALT	MIN	MINIMUM	W	WIDTH, WATER
ASSY	ASSEMBLY	MISC	MISCELLANEOUS	WI	WITH
BC	BACK OF CURB	MJ	MECHANICAL JOINT	W/O	WITHOUT
BLDG	BUILDING	N	NORTH	WL	WATER LINE
BLK	BLOCK	NE	NORTHEAST	WSL	WATER SERVICE LINE
BM	BENCHMARK	NG	NATURAL GAS	WS	WATERSTOP
B, BOT	BOTTOM	NW	NORTHWEST	WTM	WATER TRANSMISSION MAIN
BOP	BEGINNING OF PAVEMENT	NIC	NOT IN CONTRACT	WWF	WELDED WIRE FABRIC
BVCS	BEGINNING OF VERTICAL CURVE STATION	NO,#	NUMBER	X	BY
C	CONDUIT	NOI	NOTICE OF INTENT		
CI	CAST IRON	NTS	NOT TO SCALE		
CIP	CAST IRON PIPE	NWSL	NORMAL WATER SURFACE LEVEL		
CJ	CONSTRUCTION JOINT	OC	ON CENTER		
CL	CENTERLINE, CLASS	OD	OUTSIDE DIAMETER		
CMU	CONCRETE MASONRY UNIT	OVF	OVERFLOW		
CONC	CONCRETE	PC	POINT OF CURVE		
CONN	CONNECTION	PD	PROCESS DRAIN		
CONT	CONTINUOUS	PDMH	PROCESS DRAIN MANHOLE		
CP	CONTROL POINT	PE	PLAIN END		
CPB	CHEMICAL PULL BOX	PI	POINT OF INTERSECTION		
CSL	CHEMICAL SAMPLE LINE, CHLORINE SOLUTION	PL, PLS	PLATE, PLACES		
DA	DRAINAGE AREA	PO	PUSH ON		
DI	DUCTILE IRON	PP	POWER POLE		
DIA	DIAMETER	PRC	POINT OF REVERSE CURVE		
DIP	DUCTILE IRON PIPE	PROP	PROPOSED		
EA	EACH	PSI	POUNDS PER SQUARE INCH		
EC	EDGE OF CONCRETE	PT	POINT OF TANGENT, POINT		
EFF	EFFLUENT	PVC	POLYVINYL CHLORIDE		
EG	EDGE OF GRAVEL	PVI	POINT OF VERTICAL INTERSECTION		
EL, ELEV	ELEVATION	R, RAD	RADIUS		
ELEC	ELECTRICAL	RCP	REINFORCED CONCRETE PIPE		
EPB	ELECTRICAL PULLBOX	RED	REDUCER		
EOP	END/EDGE OF PAVEMENT	REINF	REINFORCEMENT		
ESMT	EASEMENT	REQD	REQUIRED		
EVCS	END OF VERTICAL CURVE STATION	RJ	RESTRAINED JOINT		
EQ	EQUAL	ROW, R/W	RIGHT-OF-WAY		
EW	EACH WAY	RP	RADIUS POINT		
EX	EXISTING	RS	RESILIENT SEAT		
EXP	EXPANSION	RT	RIGHT		
FCJ	FLOOR CONSTRUCTION JOINT	S	SOUTH, SLUDGE		
FES	FLARED END SECTION	SCH	SCHEDULE		
FFE	FINISHED FLOOR ELEVATION	SD	STORM DRAIN		
FH	FIRE HYDRANT	SDMH	STORM DRAIN MANHOLE		
FG, FIN GR	FINISH GRADE	SE	SOUTHEAST		
FL	FLOWLINE	SECT	SECTION		
FLG	FLANGED	SF	SQUARE FEET, SILT FENCE		
FRP	FIBERGLASS REINFORCED PIPE	SHT	SHEET		
FT	FEET, FOOT	SL	SAMPLE LINE		
FTG	FOOTING	SPC	STANDARD PROCTOR DENSITY		
G	GUTTER	SPEC	SPECIFICATIONS		
GL	GAS LINE	SQ	SQUARE		
GR	GRADE	SS	SANITARY SEWER		
GV	GATE VALVE	SSL	SANITARY SEWER SERVICE LINE		
HDWL	HEADWALL	SSMH	SANITARY SEWER MANHOLE		
HMA	HOT MIX ASPHALT	STA	STATION		
HORIZ	HORIZONTAL	STD	STANDARD		
HWY	HIGHWAY	SURV LOC	SURVEY LOCATED		
ID	INSIDE DIAMETER	SW	SIDEWALK, SOUTHWEST		
IN	INCHES	T&B	TOP AND BOTTOM		
INF	INFLUENT	TBM	TEMPORARY BENCHMARK		
INV	INVERT	TC	TIME CLOCK, TOP OF CURB		
JT	JOINT	TEMP	TEMPORARY, TEMPERED		
LEN	LENGTH	THK	THICKNESS		
LF	LINEAR FEET	TS	TOP OF SIDEWALK		
LG	LONG	TS&V	TAPPING SLEEVE & VALVE		
LIN	LINEAL, LINEAR	TW	TOP OF WALL		
LOC	LOCATION	TYP	TYPICAL		
		UNK	UNKNOWN		
		UNO	UNLESS NOTED OTHERWISE		

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
V	VOLT, VALVE
VC	VERTICAL CURVE
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
VT	VENTILATOR
W	WIDTH, WATER
WI	WITH
W/O	WITHOUT
WL	WATER LINE
WSL	WATER SERVICE LINE
WS	WATERSTOP
WTM	WATER TRANSMISSION MAIN
WWF	WELDED WIRE FABRIC
X	BY



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REV	DATE	DESCRIPTION	BY



CIVIL NOTES, LEGENDS, AND ABBREVIATIONS 1

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: MSM
DRAWN BY: IDC
CHECKED BY: RWC

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
01-G006
SHEET NUMBER
006

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 Last plotted by: Chang Guzman, Ivan D. Plot Style: AECmono.ctb Plot Scale: 1:2,584.9 Plot Date: 11/15/2024 2:12 PM Plotter used: None

LINETYPES	
LINETYPE	DESCRIPTION
C	COMMUNICATION
CATV	CABLE TV
EASEMENT LINE	EASEMENT LINE
X	FENCE
F	FIRE LINE
FP	FLOODPLAIN
II	FLOODWAY
FLOWLINE	FLOWLINE
FM	FORCE MAIN
G	GAS LINE
GUARDRAIL/MASONRY FENCE	GUARDRAIL/MASONRY FENCE
HANDRAIL	HANDRAIL
NG	NATURAL GAS
OHE	OVERHEAD ELECTRIC
E	OVERHEAD ELECTRICAL TRANSMISSION
PD	PROCESS DRAIN
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY
SS	SANITARY SEWER
SSL	SEWER SERVICE LINE
SD	STORM DRAIN
SF	SILT FENCE
TOB	TOP OF BANK
TOS	TOE OF SLOPE
TREE LINE	TREE LINE
UGTV	UNDERGROUND CABLE TV
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELEPHONE
UGT(FO)	UNDERGROUND FIBER OPTIC TELEPHONE
WATER EDGE	WATER EDGE
W	WATER LINE
WSL	WATER SERVICE LINE
W1	POTABLE WATER
W2	NON-POTABLE WATER
(A)	INDICATES ABANDONED LINE
12"	12" INDICATES SIZE OF LINE
EXISTING ELECTRICAL DUCT BANK	EXISTING ELECTRICAL DUCT BANK
EXISTING PIPE TO BE ABANDONED	EXISTING PIPE TO BE ABANDONED
EXISTING PIPE TO BE DEMOLISHED	EXISTING PIPE TO BE DEMOLISHED
EXISTING CONTOURS	EXISTING CONTOURS
PROPOSED CONTOURS	PROPOSED CONTOURS
PROPOSED ELECTRICAL DUCT BANK	PROPOSED ELECTRICAL DUCT BANK

CIVIL LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	AREA INLET
[Symbol]	BENCH MARK/GEOTECHNICAL BORE
[Symbol]	BOLLARD
[Symbol]	CATCH BASIN/JUNCTION BOX
[Symbol]	CLEANOUT
[Symbol]	CONCRETE HEADWALL
[Symbol]	CONTROL POINT
[Symbol]	CURB INLET SEDIMENT FILTER
[Symbol]	DOUBLE COMBINATION INLET
[Symbol]	ELECTRIC BOX/PULLBOX
[Symbol]	ELECTRIC DUCT MARKER
[Symbol]	ELECTRIC HANDHOLE
[Symbol]	ELECTRIC MANHOLE
[Symbol]	ELECTRIC METER
[Symbol]	EXTENDED THROAT CURB INLET
[Symbol]	FIBER OPTIC BOX
[Symbol]	FIBER OPTIC CABLE RISER/PEDESTAL
[Symbol]	FIBER OPTIC MANHOLE
[Symbol]	FIRE HYDRANT
[Symbol]	FLAGPOLE
[Symbol]	FLARED END SECTION (FES)
[Symbol]	GAS METER
[Symbol]	GAS REGULATOR
[Symbol]	GRATED INLET
[Symbol]	GUY WIRE ANCHOR
[Symbol]	IRRIGATION CONTROL VALVE
[Symbol]	LIFT STATION
[Symbol]	LIGHT POLE
[Symbol]	MANHOLE
[Symbol]	MAILBOX
[Symbol]	MONITORING WELL
[Symbol]	PROCESS DRAIN MANHOLE
[Symbol]	PROPERTY PIN
[Symbol]	PULL BOX
[Symbol]	PUMP STATION
[Symbol]	RAILROAD SWITCH BOX
[Symbol]	RIP RAP
[Symbol]	RIGHT-OF-WAY MARKER
[Symbol]	ROCK DITCH CHECK
[Symbol]	SANITARY SEWER MANHOLE
[Symbol]	SATELLITE DISH


CIVIL LEGEND (CONT'D)	
SYMBOL	DESCRIPTION
[Symbol]	SEPTIC TANK
[Symbol]	SIGN
[Symbol]	SLOPE DIRECTION INDICATOR
[Symbol]	SPRINKLER HEAD
[Symbol]	STANDARD CURB INLET
[Symbol]	STORM DRAIN MANHOLE
[Symbol]	SUMP INLET SEDIMENT FILTER
[Symbol]	SURVEY CONTROL POINT
[Symbol]	TELEPHONE JUNCTION BOX
[Symbol]	TELEPHONE MANHOLE
[Symbol]	TELEPHONE PEDESTAL
[Symbol]	TELEVISION PEDESTAL
[Symbol]	TRAFFIC CONTROL BOX
[Symbol]	TRANSFORMER
[Symbol]	UTILITY POLE
[Symbol]	VALVE
[Symbol]	VALVE COVER
[Symbol]	VENT
[Symbol]	WATER METER
[Symbol]	WELL
[Symbol]	WINDSOCK
[Symbol]	YARD HYDRANT/SPIGOT
[Symbol]	SHRUB/BUSH
[Symbol]	DEMOLISH TREE
[Symbol]	TREE
[Symbol]	EVERGREEN TREE
[Symbol]	DEMOLISH
[Symbol]	PROPOSED HEAVY DUTY ASPHALT
[Symbol]	EXISTING ASPHALT
[Symbol]	PROPOSED ASPHALT/PAVEMENT REPAIR
[Symbol]	EXISTING CONCRETE
[Symbol]	PROPOSED CONCRETE
[Symbol]	PROPOSED HEAVY DUTY CONCRETE
[Symbol]	GRAVEL ROAD OR DRIVE
[Symbol]	SIDEWALK
[Symbol]	STAGING AREA

- CIVIL LEGEND NOTES:**
- GRAY SCALED LINE TYPES AND SYMBOLS INDICATE EXISTING ITEMS. BOLD SCALED LINE TYPES AND SYMBOLS INDICATE PROPOSED ITEMS.
 - ADDITIONAL PROCESS LINES MAY BE DENOTED BY A LINE TYPE WITH THE FLOW STREAM IDENTIFIER.
 - SEE PROCESS MECHANICAL NOTES AND LEGEND SHEET FOR PLAN PIPE FITTING AND VALVE SYMBOLS.
 - LINES OF 12 INCH DIAMETER OR GREATER ARE SHOWN AT NOMINAL DIAMETER. LINES LESS THAN 12 INCH DIAMETER ARE SHOWN AS A SINGLE LINE.

GENERAL IDENTIFICATION	
LABEL	DESCRIPTION
1	DETAIL NUMBER
01-C500	DRAWING NUMBER
D33	DIVISION NUMBER
3923-003	DETAIL NUMBER
1	PROFILE NUMBER 1
05-C301	DRAWING NUMBER
C01	CHEMICAL LINE PROFILE NUMBER 1
05-C301	DRAWING NUMBER
E01	ELECTRICAL DUCT BANK PROFILE NUMBER 1
05-E201	DRAWING NUMBER
G01	GAS LINE PROFILE NUMBER 1
05-C301	DRAWING NUMBER
P01	PROCESS LINE PROFILE NUMBER 1
05-C301	DRAWING NUMBER
R01	ROAD PROFILE NUMBER 1
05-C201	DRAWING NUMBER
S01	STORM DRAIN PROFILE NUMBER 1
05-C201	DRAWING NUMBER
U01	UTILITY PROFILE NUMBER 1
05-C301	DRAWING NUMBER
1-01	APPURTENANCE SEQUENCE NUMBER
CPB-C01-01	PULLBOX SEQUENCE NUMBER
P01-01	APPURTENANCE SEQUENCE NUMBER
S01-01	APPURTENANCE SEQUENCE NUMBER
SDMH-S01-01	STRUCTURE SEQUENCE NUMBER
SSMH-U01-01	STRUCTURE SEQUENCE NUMBER
U01-01	APPURTENANCE SEQUENCE NUMBER

APPURTENANCE SYMBOLS		APPURTENANCE SYMBOLS		APPURTENANCE SYMBOLS	
PROFILE	DESCRIPTION	PROFILE	DESCRIPTION	PROFILE	DESCRIPTION
[Symbol]	AIR RELEASE VALVE	[Symbol]	BUTTERFLY VALVE	[Symbol]	GATE VALVE
[Symbol]	BALL VALVE	[Symbol]	CLEANOUT	[Symbol]	PLUG VALVE
[Symbol]	BLOW-OFF VALVE	[Symbol]	FIRE HYDRANT ASSEMBLY		

GENERAL CONVENTIONS	
SYMBOL	DESCRIPTION
[Symbol]	CALLOUT DENOTES A CIVIL DETAIL REFERENCE (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
[Symbol]	CALLOUT DENOTES A STANDARD DETAIL REFERENCE
[Symbol]	CALLOUT DENOTES A KEYED NOTE REFERENCE
[Symbol]	SPOT ELEVATION
[Symbol]	CAUTION CALLOUT
[Symbol]	CLOUDED REGION INDICATES A REVISED AREA
[Symbol]	TITLE DENOTES A CIVIL DETAIL (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
[Symbol]	TITLE DENOTES A CIVIL PROFILE AND PLAN VIEW LAYOUT (THIS EXAMPLE IS PROFILE NUMBER 1 ON DRAWING NUMBER 05-C310 WHICH HAS A BACK REFERENCE TO THE PLAN VIEW LAYOUT ON DRAWING NUMBER 05-C305)
[Symbol]	CALLOUT DENOTES A CUT SECTION TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON DRAWING NUMBER 05-C205 REFERENCING SECTION NUMBER 1 ON DRAWING NUMBER 05-C210)
[Symbol]	SYMBOL INDICATES NORTH DIRECTION
[Symbol]	SYMBOL INDICATES A GRAPHICAL BAR SCALE



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, ALABAMA

HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY PHASE II IMPROVEMENTS

CIVIL NOTES, LEGENDS, AND ABBREVIATIONS 2

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: MSM
 DRAWN BY: IDC
 CHECKED BY: RWC

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
01-G007

SHEET NUMBER
007

ISSUED FOR CONSTRUCTION

EQUIPMENT

SYMBOL	DESCRIPTION
	ELECTRIC MOTOR
	VARIABLE SPEED DRIVE
	REDUCED VOLTAGE SOFT STARTER
	FULL VOLTAGE NON-REVERSING STARTER
	FULL VOLTAGE REVERSING STARTER
	SUBMERSIBLE PUMP CONTROL AND STATUS MODULE
	OPERATOR INTERFACE TERMINAL
	GRAPHIC DISPLAY TERMINAL (VFD)
	ELECTRIC GENERATOR
	HYDRAULIC MOTOR
	AIR MOTOR
	SHAFT
	COUPLING
	DYNAMIC PUMP
	SCREW PUMP OR CONVEYOR

SYMBOL	DESCRIPTION
	DYNAMIC COMPRESSOR
	POSITIVE DISPLACEMENT PUMP
	POSITIVE DISPLACEMENT COMPRESSOR
	EDUCTOR/EJECTOR
	HEATER, GENERAL
	HEATER W/FAN (INDUCED DRAFT)
	HEATER W/FAN (FORCED DRAFT)
	HEAT EXCHANGER, GENERAL
	HYDRAULIC CYLINDER
	AIR CYLINDER
	MIXER

ACCESSORIES AND APPURTENANCES

SYMBOL	DESCRIPTION
	UNION
	PLUG
	BLIND FLANGE
	HOSE CONNECTION
	SPRAY NOZZLE/DIFFUSER
	DRAIN
	FLEXIBLE CONNECTION, GENERAL
	FLEXIBLE HOSE
	QUICK CONNECTOR
	THREADED TAP
	FILTER
	'Y' TYPE STRAINER
	STRAINER
	EXPANSION JOINT
	FLOOR CLEANOUT
	FCO
	GAUGE P = PRESSURE V = VACUUM T = TEMPERATURE dP = PRESSURE DIFFERENTIAL
	SILENCER

VALVES

SYMBOL	DESCRIPTION
	CHECK VALVE
	GATE VALVE
	BUTTERFLY VALVE
	BALL CHECK
	BALL VALVE
	PLUG VALVE
	NEEDLE VALVE
	ROTARY VALVE
	KNIFE GATE VALVE
	MUD VALVE
	PINCH VALVE
	THREE-WAY VALVE
	FOUR-WAY VALVE
	GLOBE VALVE
	CHARACTERIZED OR VEE-BALL VALVE

VALVE OPERATORS

SYMBOL	DESCRIPTION
	HAND OPERATOR
	HAND OPERATOR (LONG)
	CHAIN OPERATOR
	FLOAT OPERATOR
	AIR DIAPHRAGM OPERATOR
	POSITIONER
	SOLENOID OPERATOR
	CYLINDER OPERATOR
	PRESSURE BALANCED DIAPHRAGM OPERATOR

DIGITAL SYSTEM INTERFACES

SYMBOL	DESCRIPTION
	ANALOG INPUT
	ANALOG OUTPUT
	DISCRETE INPUT
	DISCRETE OUTPUT

INSTRUMENTS OR FUNCTIONS

SYMBOL	DESCRIPTION
	HMI SCREEN DISPLAY ELEMENT
	PANEL MOUNTED DEVICE
	FIELD DEVICE

INSTRUMENT PRIMARY ELEMENTS

SYMBOL	DESCRIPTION
	THREADED TAP
	THERMOWELL
	WEIR
	SIGHT FLOW INDICATOR
	ROTAMETER
	FLOW ORIFICE
	FLOW ORIFICE IN QUICK CHANGE FITTING
	SINGLE PORT PITOT
	AVERAGING PITOT STATION
	VENTURI TUBE
	FLUME
	POSITIVE DISPLACEMENT FLOWMETER
	MASS FLOWMETER
	SONIC FLOWMETER
	INSERTION MAGNETIC FLOWMETER
	pH ELECTRODE ASSEMBLY
	SUBMISSIVE PRESSURE SENSOR
	ULTRASONIC LEVEL TRANSMITTER
	RADAR LEVEL TRANSMITTER
	CONDUCTIVITY LEVEL PROBE
	FLOAT SWITCH
	TURBINE ELEMENT
	VORTEX SENSOR
	TARGET ELEMENT
	WATER HAMMER ARRESTER

AUX INSTRUMENTS OR FUNCTIONS

SYMBOL	DESCRIPTION
	TEST POINT, TERMINAL BLOCK WITH SLIDING LINK AND MINI-BANANA SOCKETS
	PURGE OR FLUSHING DEVICE
	INTERLOCK LOGIC WITH REFERENCE
	ANNULAR SEAL
	DIAPHRAGM SEAL
	RESET FOR LATCH TYPE OPERATOR
	LOOP POWER SUPPLY

GENERAL IDENTIFICATION

SYMBOL	DESCRIPTION
	EQUIPMENT TAG
SHEET INTERFACE	
	SHEET CODE
	DRAWING TYPE
	SHEET NUMBER
	PROCESS/DESCRIPTION
NON-SHEET INTERFACE	
	PROCESS/DESCRIPTION

EQUIPMENT LINE TYPES

LINE	DESCRIPTION
	PROPOSED OR NEW EQUIPMENT
	EXISTING EQUIPMENT

PIPING LINE TYPES

LINE	DESCRIPTION
	PROCESS LINE - PRIMARY
	PROCESS LINE - SECONDARY
	PROCESS LINE - EXISTING
	PACKAGE BOUNDARY
	AREA/BUILDING BOUNDARY
	SHOWN ELSEWHERE
	AIR

PIPING MISCELLANEOUS

SYMBOL	DESCRIPTION
	SLOPE ARROW, ARROW DIRECTION DOWN
	OUTSIDE GRADE LEVEL
	LINE HEAT TRACED AND INSULATED
	ST = STEAM TRACED
	ET = ELECTRIC TRACED

INSTRUMENT POWER SUPPLY

SYMBOL	DESCRIPTION
	POWER SUPPLY, TYPE AND LEVEL SHOWN, ABBREVIATIONS AS FOLLOWS: AS - AIR SUPPLY IA - INSTRUMENT AIR PA - PLANT AIR ES - ELECTRIC SUPPLY GS - GAS SUPPLY

SIGNAL CONDITIONERS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	ANALOG TO DIGITAL		SUM
	DIGITAL TO ANALOG		DIFFERENCE
	CURRENT TO PRESSURE		SQUARE ROOT
	PRESSURE TO CURRENT		CHARACTERIZATION
	FREQUENCY TO CURRENT		INTEGRATION
	CURRENT BOOST/ REPEATER		

MEANING OF FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS

FIRST LETTER		SUCCEEDING LETTERS			
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER CHOICE	USER CHOICE	USER CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO(FRACTION)			
G	GAUGING(DIMENSIONAL)		GLASS		
H	HAND(MANUALLY INITIATED)				HIGH
I	CURRENT(ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER CHOICE		USER CHOICE	USER CHOICE	USER CHOICE
O	USER CHOICE		ORIFICE(RESTRICTION)		
P	PRESSURE OR VACUUM		POINT(TEST POINT)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNC.	MULTIFUNCTION
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

EQUIPMENT AND INSTRUMENTATION TAGGING

CODE	DESCRIPTION	RANGE	COMMENT
AA	FACILITY NUMBER	01 - 99	FACILITY LOCATION OR EQUIPMENT
B	UNIT PROCESS NUMBER	1 - 9	OPTIONAL IDENTIFIER USED TO DIFFERENTIATE MULTIPLE UNIT PROCESSES WITHIN A SINGLE FACILITY
CCC	EQUIPMENT ABBREVIATION / INSTRUMENT IDENTIFICATION	A - ZZZ	ONE TO THREE LETTER ABBREVIATION
D	TRAIN OR BRANCH NUMBER	0 - 9	0 USED FOR EQUIPMENT COMMON TO AN ENTIRE UNIT PROCESS 1-9 USED FOR EACH TRAIN/BRANCH WITHIN UNIT PROCESS
EE	SEQUENTIAL NUMBER IDENTIFIER	01 - 99	OPTIONAL IDENTIFIER IF NEEDED WHEN MULTIPLE EQUIPMENT WITHIN SAME TRAIN/BRANCH
X	ALPHABETIC IDENTIFIER	A - Z	OPTIONAL IDENTIFIER WHEN NEEDED FOR FURTHER DIFFERENTIATION



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BY	DESCRIPTION	REV	DATE

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

PROCESS & INSTRUMENTATION DIAGRAM NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SAH
DRAWN BY: SAC
CHECKED BY: JTW

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DRAWING NUMBER
01-G008
SHEET NUMBER
008

ISSUED FOR CONSTRUCTION

GENERAL NOTES:

- 1. GENERAL NOTES AND STANDARD DETAILS SHALL NOT REPLACE OR OVERRULE ANY STRUCTURE SPECIFIC NOTE, DETAIL, OR SPECIFICATION. STRUCTURE SPECIFIC NOTES AND DETAILS SHALL GOVERN OVER GENERAL NOTES AND STANDARD DETAILS.
2. BUILDING RISK CATEGORY----- III
3. DESIGN LIVE LOADS - 2021 IBC
ROOF WITHOUT REDUCTION----- 25 PSF
FLOORS:
CORRIDORS----- 100 PSF
ASSEMBLY AREAS----- 100 PSF
BALCONIES----- 100 PSF
RESTROOMS----- 80 PSF
OFFICES----- 50 PSF
STAIRS----- 100 PSF
MOVABLE FILE ROOMS----- 150 PSF
INDUSTRIAL AREAS----- 250 PSF
EQUIPMENT ROOMS----- 250 PSF
AREAS WITH UNRESTRICTED VEHICULAR ACCESS----- AASHTO HS20
4. WIND LOAD PARAMETERS - ASCE 7-16
BASIC WIND SPEED----- 117 MPH
EXPOSURE CATEGORY----- C
GCPI +/- 0.18 (ENCLOSED BUILDINGS)
5. SEISMIC DESIGN PARAMETERS ----- IBC 2021
IMPORTANCE FACTOR, I----- 1.25
SITE CLASS----- D
SEISMIC SPECTRAL ACCELERATIONS
Ss ----- 0.293g
S1 ----- 0.102g
SEISMIC DESIGN CATEGORY----- C
DESIGN SPECTRAL ACCELERATIONS
SDS ----- 0.306g
SD1 ----- 0.163g
RESPONSE MODIFICATION FACTOR, R----- SEE INDIVIDUAL PLANS
BASIC SEISMIC FORCE RESISTING SYSTEM----- SEE INDIVIDUAL PLANS
SEISMIC RESPONSE COEFFICIENT, Cs----- SEE INDIVIDUAL PLANS
ANALYSIS PROCEDURE----- EQUIVALENT LATERAL FORCE
6. SNOW LOADS PARAMETERS ----- ASCE 7-16
GROUND SNOW LOAD, Pg ----- 5 PSF
IMPORTANCE FACTOR, I ----- 1.10
EXPOSURE FACTOR, Ce ----- 0.90
THERMAL FACTOR, Ct ----- 1.0
SLOPED ROOF SNOW LOAD, Ps ----- 3.5 PSF
7. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.
8. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.
9. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.
10. COORDINATE WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, STRUCTURAL, AND ELECTRICAL DRAWINGS, AND VERIFY THE LOCATIONS AND SIZES OF THE CHASES, OPENING, INSERTS, SLEEVES, FINISHES, CONDUITS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.
11. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DRAWINGS AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.
12. STANDARD DETAILS APPLY UNLESS INDICATED OTHERWISE ON SPECIFIC STRUCTURE DRAWINGS.

STRUCTURAL STEEL NOTES:

- 1. UNLESS OTHERWISE SPECIFIED, HOT-ROLLED STEEL BUILDING MEMBERS USING W-SHAPES SHALL BE ASTM A992; M-, S-, AND C- SHAPES ASTM A36; SQUARE, RECTANGULAR & ROUND HSS SHAPES ASTM A500 GRADE B; ANGLES AND MISCELLANEOUS STIFFENER PLATES ASTM A36.
2. ALL SHEAR CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE STANDARD AISC WELDED OR AISC BOLTED CONNECTIONS AND SHALL HAVE SUFFICIENT CAPACITY TO SUPPORT THE END REACTION EQUAL TO ONE - HALF THE TOTAL UNIFORM CAPACITY SHOWN IN THE ALLOWABLE UNIFORM LOAD TABLES OF THE AISC STEEL CONSTRUCTION MANUAL - CURRENT EDITION.
3. WELDING SHALL CONFORM WITH AWS D1.1 STRUCTURAL WELDING CODE.
4. ALL BOLTS FOR BEAM CONNECTIONS SHALL BE ASTM A325 WITH A MINIMUM DIAMETER OF 1/2" UNO. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED AS SLIP CRITICAL. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS WHEN REQUIRED BY THE SPECIFICATION FOR STRUCTURAL JOINTS.
5. ALL ANCHOR RODS SHALL BE ASTM F1554, GRADE 36 UNO.

GENERAL CONCRETE NOTES:

- 1. STRUCTURAL CONCRETE FOR BUILDING MEMBERS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI UNO.
2. CONCRETE FOR SLABS SUBJECTED TO VEHICULAR WHEEL LOADS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI.
3. HOLD SLUMP TO 3 TO 4 INCHES IN ALL FLOOR SLABS.
4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".
5. NON-PRESTRESSED CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A615 GRADE 60.
6. REINFORCEMENT LAP SPLICES SHALL CONFORM TO ACI 318 & ACI 350.
7. CONCRETE COVER OVER REINFORCEMENT SHALL CONFORM TO THE MINIMUM REQUIRED BY ACI 318 & ACI 350, UNO.
8. REINFORCEMENT DETAILING AND PLACEMENT SHALL CONFORM TO ACI 318 AND ACI 315.
9. NO REINFORCING BAR SHALL BE WELDED OR FIELD BENT IN ANY MANNER, UNLESS SPECIFICALLY SHOWN OR NOTED ON THE DRAWINGS.
10. PROVIDE FULL EMBEDMENT FOR ALL DOWELS. IF NOT OTHERWISE SPECIFIED, DOWEL SIZE AND SPACING SHALL BE THE SAME AS MAIN REINFORCING.
11. MECHANICAL EQUIPMENT PADS ON FLOOR SLABS SHALL BE 6" THICK AND REINFORCED WITH #4 @ 12" EW, UNO.
12. WATERSTOP PIPE SLEEVES REQUIRED ON ALL WATERTIGHT WALLS AND FLOORS.
13. TREMIES REQUIRED ON ALL POURS DEEPER THAN 5 FEET.
14. ALL WATERSTOPS TO BE 6" PVC FLAT RIBBED OR 9" PVC CENTER BULB AND PLACED AT ALL WATERTIGHT POURS, UNO. REFER TO DETAILS D03/3000-102A & B FOR WATERSTOP DETAILS.
15. ALL WATERTIGHT "HYDRAULIC" CONCRETE STRUCTURES SHALL PASS A 72 HOUR LEAKAGE TEST PRIOR TO BACKFILLING AROUND STRUCTURE.
16. WHEN WATERSTOP IS PLACED HORIZONTALLY IN SLABS, THE CONTRACTOR SHALL TEMPORARILY TIE UP OR CLAMP UP THE WATERSTOP UNTIL THE CONCRETE IS PLACED TO SLIGHTLY ABOVE THE DEPTH OF THE WATERSTOP.
17. VERTICAL WATERSTOP SHALL BE FULLY EMBEDDED IN SLAB POUR AND WELDED TO ALL ADJACENT WATERSTOP.
18. PROVIDE A MINIMUM OF SEVEN (7) DAYS BETWEEN ADJACENT POURS. CONCRETE SHALL MEET OR EXCEED DESIGN COMPRESSIVE STRENGTH PRIOR TO PLACING ADJACENT POURS.
19. CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL A SCHEDULE AND SEQUENCE OF CONCRETE PLACEMENT. SEQUENCE SHALL INCLUDE PERMITTING CURE TIME BETWEEN PLACEMENTS AT ADJACENT PROPOSED PLACEMENTS.
20. WALKWAYS AND SIDEWALKS SHALL BE POURED WITH SLIGHT SLOPE AND NO LOW SPOTS SO THEY WILL DRAIN FREE. ALL SLOPES SHALL COMPLY WITH ADA REQUIREMENTS.
21. ALL CONSTRUCTION JOINTS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE. ADDITIONAL CONSTRUCTION JOINTS TO FACILITATE CONSTRUCTION SHALL BE LOCATED AND DETAILED ON THE SHOP DRAWINGS FOR REVIEW. UNLESS INDICATED OTHERWISE, ALL CONSTRUCTION JOINTS TO BE KEVED. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED IN WALLS AND BEAMS, UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
22. SUBSTITUTION OF EXPANSION OR DRILLED AND GROUTED-IN ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.
23. USE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT ANCHORAGE AND DETAILS. VERIFY EQUIPMENT SIZE AND WEIGHTS WITH ENGINEER PRIOR TO CONSTRUCTION OF ANY AND ALL EQUIPMENT PADS.

FOUNDATION NOTES:

- 1. FLOOR SLAB CONSTRUCTION JOINTS (C.J.) SHALL BE PLACED AS SHOWN ON FOUNDATION PLANS AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO CONCRETE PLACEMENT.
2. FLOOR SLAB ISOLATION JOINTS SHALL BE 30# FELT UNO.
3. CONCRETE FLOOR AND SLAB ON GRADE MAY BE PLACED IN LANES. SPACING OF JOINTS SHALL BE AS SHOWN ON THE FOUNDATION PLAN. WHEN LANE PLACEMENT IS USED, CONSTRUCTION JOINTS SHALL BE USED FOR THE JOINTS BETWEEN LANES. SAW CUT CRACK CONTROL JOINTS SHALL BE PROVIDED ACROSS EACH LANE AT SPACING SHOWN ON PLANS.
4. ALL CONCRETE CORNERS SHALL BE CHAMFERED 3/4" ON THE EXTERIOR EXPOSED CORNER.
5. COMPACTED GRANULAR FILL OR BASE COURSE ROCK AS INDICATED AND SPECIFIED.
6. ALL PRESSURE PIPING BENEATH SLABS SHALL BE CONCRETE ENCASED.
7. VAPOR BARRIER REQUIRED BENEATH ALL INTERIOR BUILDING SLABS.

GENERAL CONCRETE MASONRY NOTES:

- 1. HOLLOW CMU UNITS SHALL CONFORM TO ASTM C90 TYPE 1 OF THE NOMINAL THICKNESS SHOWN ON THE DRAWINGS. ALL CMU SHALL BE 2 CELL BLOCK AND HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON NET AREA AT 28 DAYS.
2. MORTAR FOR CMU SHALL CONFORM TO ASTM C270, TYPE S UNO.
3. GROUT FOR CMU GROUTED CELLS, LINTELS, COLUMNS, PILASTERS, BOND BEAMS AND BLOCKS WITH EMBEDDED ANCHORS SHALL BE 3,000 PSI PEA GRAVEL CONCRETE UNO.
4. CMU REINFORCING BARS SHALL CONFORM TO ASTM A 615 GRADE 60. HORIZONTAL JOINT REINFORCEMENT SHALL BE COLD DRAWN WIRE WITH A MINIMUM OF 9 GAUGE LONGITUDINAL WIRE SIZE, UNO, WITH THE TYPE AND SPACING AS SHOWN ON THE DRAWINGS OR SPECIFIED.
5. VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL NOT LESS THAN 2" X 3" IN PLAN DIMENSIONS.
6. FOUNDATION DOWELS SHALL EXTEND INTO THE FOUNDATION CONCRETE A MINIMUM OF THE DEVELOPMENT LENGTH FOR BAR SIZE USED. LAPS OR SPLICES OF REINFORCING STEEL IN MASONRY SHALL BE AS INDICATED BELOW. THERE SHALL BE A FOUNDATION DOWEL FOR EACH VERTICAL WALL REINFORCEMENT.
7. NORMAL VERTICAL WALL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE FOUNDATION TO EMBED AT LEAST 6" INTO THE TOP OF WALL BOND BEAM. AN ADDITIONAL ONE #4 HOOKED DOWEL SHALL BE INSTALLED IN THE TOP OF ALL MASONRY WALLS AT EACH VERTICAL WALL CELL CONTAINING VERTICAL REINFORCING. THE DOWELS SHALL PROJECT 24" INTO THE WALL AND HOOK 6" INTO THE WALL TOP BOND BEAM.
8. CONTROL JOINTS SHALL BE OF THE TYPE AND AT THE LOCATIONS SHOWN ON THE DRAWINGS.
9. CONTROL JOINTS SHALL BE AS DETAILED ON D04/2200-306. PROVIDE CONTROL JOINTS IN ALL MASONRY WALLS UNO. CONTROL JOINT SPACING SHALL BE AS RECOMMENDED BY THE NATIONAL CONCRETE MASONRY ASSOCIATION WITH A MAXIMUM SPACING OF 25'. SUBMIT JOINT LAYOUT PLAN FOR REVIEW PRIOR TO MASONRY WALL CONSTRUCTION.
10. CORNER BLOCKS SHALL BE INTERWOVEN BETWEEN TWO WALLS.
11. EVERY PIER OR WALL SECTION WHOSE WIDTH IS 3'-0" OR LESS WILL HAVE HORIZONTAL SHEAR STEEL IN THE FORM OF TIES. REF D04/2200-007.
12. PROVIDE (2) ADDITIONAL #5 BARS ALONG SIDES, TOP AND BOTTOM OF ALL CMU WALL OPENINGS. EXTEND REINFORCING 24" BEYOND OPENING, UNO.
13. VERTICAL WALL REINFORCING SHALL BE AS FOLLOWS: GROUT CELLS CONTAINING REINFORCEMENT, SOLID FULL HEIGHT UNO.
14. UNO, LAP SPlice #5'S 3'-0"; #4'S 2'-0".

ABBREVIATIONS

ABBREVIATIONS

Table with 2 columns: ABBREV, DESCRIPTION. Includes entries for AL (ALUMINUM), ARCH (ARCHITECT, ARCHITECTURAL), BG (BACK GOUGE), BM (BEAM), CCJ (CRACK CONTROL JOINT), CJP (COMPLETE JOINT PENETRATION), COL (COLUMN), EF (EACH FACE), EJ (EXPANSION JOINT), ES (EVENLY SPACED, EACH SIDE), EW (EACH WAY), EXST (EXISTING), EXT (EXTERIOR), FD (FLOOR DRAIN), FND (FOUNDATION), FS (FOOTING STEP, FAR SIDE), IJ (ISOLATION JOINT), INT (INTERIOR), KIP (1,000 POUNDS), KLF (KIPS PER LINEAR FOOT), KSF (KIPS PER SQUARE FOOT), LLH (LONG LEG HORIZONTAL), LLV (LONG LEG VERTICAL), LSL (LONG SLOT), MECH (MECHANICAL), NS (NEAR SIDE), OH (OPPOSITE HAND), OVS (OVERSIZED).

ABBREVIATIONS

ABBREVIATIONS

Table with 2 columns: ABBREV, DESCRIPTION. Includes entries for PCF (POUNDS PER CUBIC FOOT), PFJ (PRE-FORMED JOINT), PJP (PARTIAL JOINT PENETRATION), PLF (POUNDS PER LINEAR FOOT), SIM (SIMILAR), SSL (SHORT SLOT), STL (STEEL), T&B (TOP AND BOTTOM), TOB (TOP OF BEAM), TOC (TOP OF CONCRETE), TOF (TOP OF FOOTING), TOS (TOP OF STEEL), VCJ (VERTICAL CONSTRUCTION JOINT).

LEGEND:

Legend symbols and definitions: Centerline (dashed line), Degrees (arc symbol), Flange (line with T), Gridline (dashed line with dots), Percent (% symbol), Plate (line with P), Plus / Minus (+/- symbol), Waterstop (line with wavy pattern), Direction of Deck Span (arrow), Waterstop (line with wavy pattern), Direction of Deck Span (arrow).



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Table with 4 columns: REV, DATE, DESCRIPTION, BY. Includes revision history entries.

CITY OF TUSCALOOSA TUSCALOOSA, AL HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY PHASE II IMPROVEMENTS

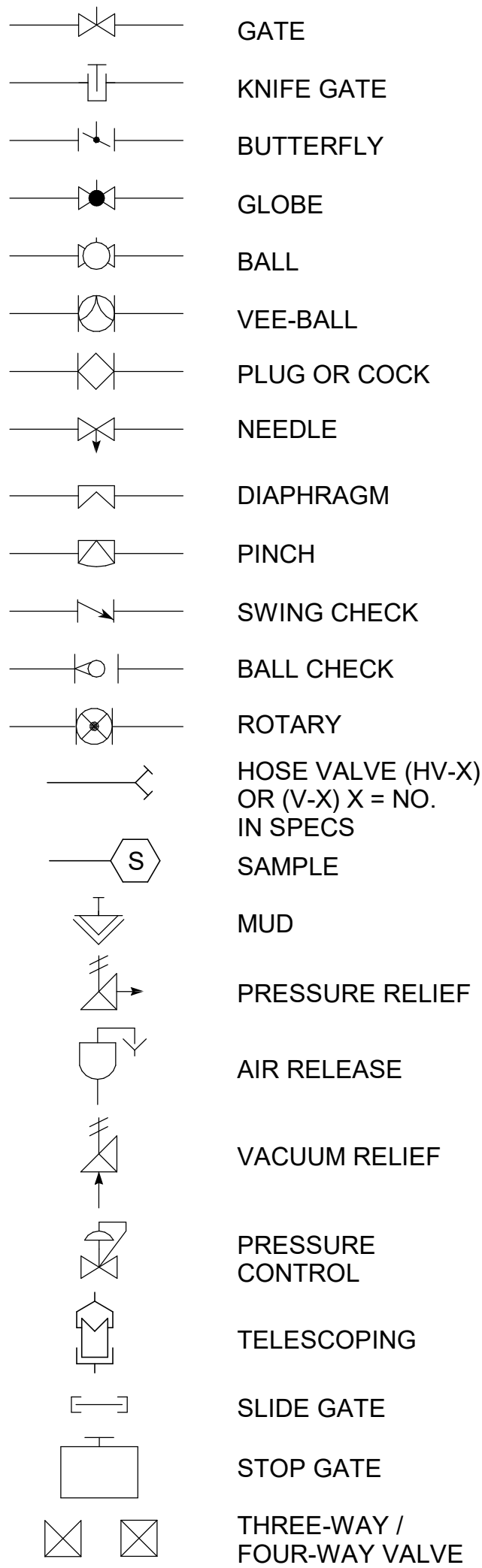
STRUCTURAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 19W10160 DATE: JAN. 2024 DESIGNED BY: KAM DRAWN BY: SAC CHECKED BY: KAM

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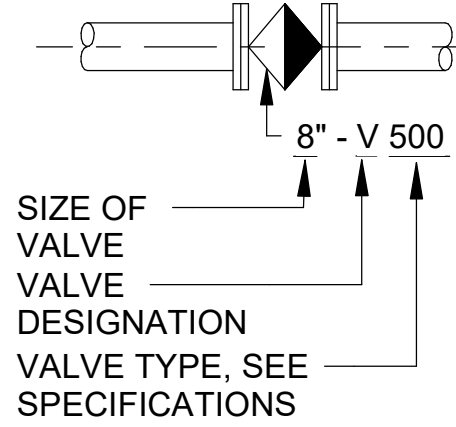
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VALVE SYMBOLS

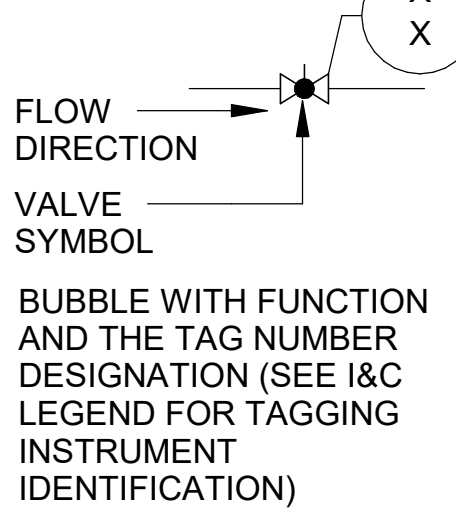


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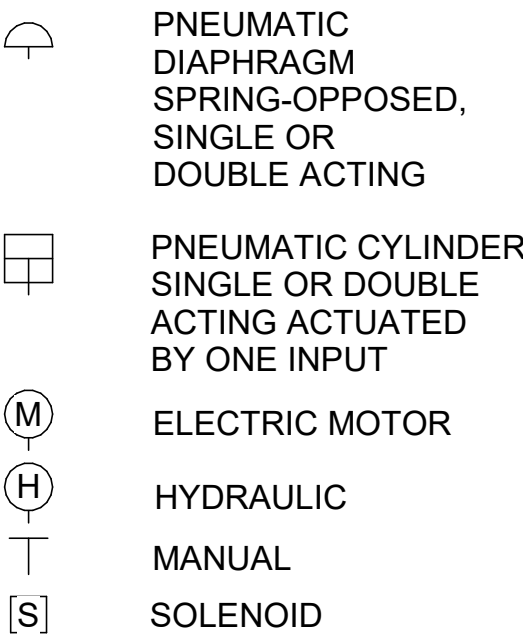
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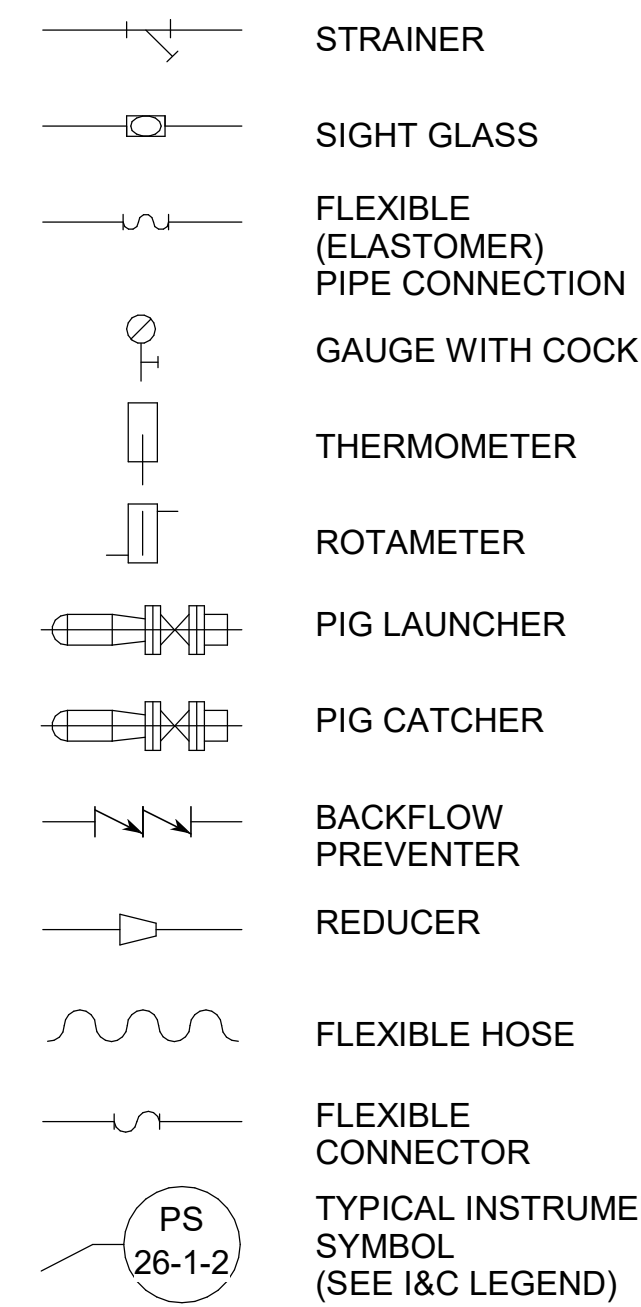
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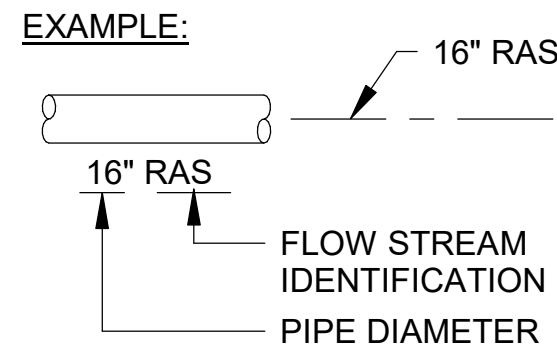
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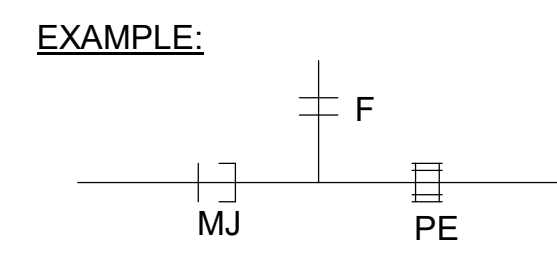
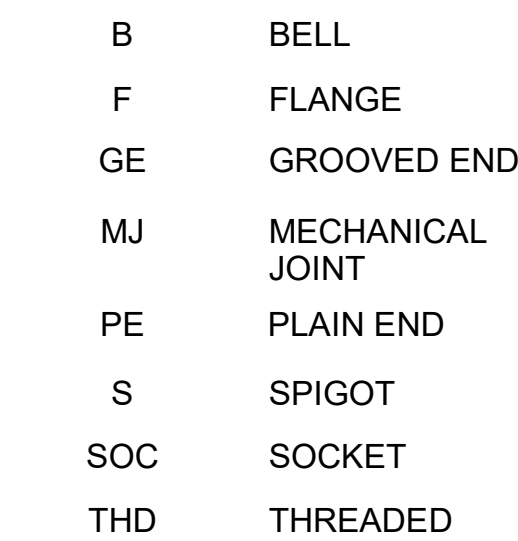
MISCELLANEOUS PIPING SYMBOLS



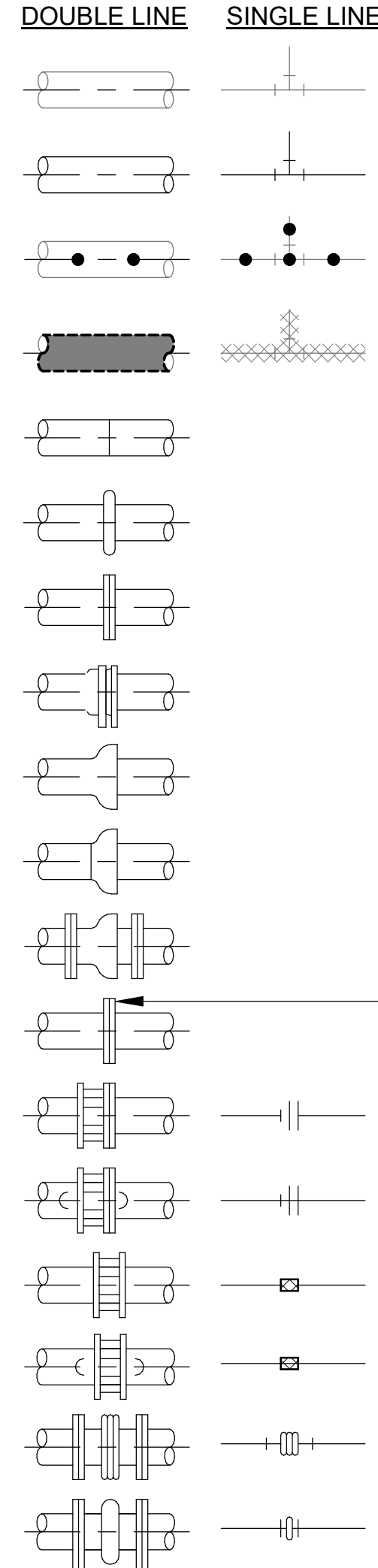
PIPING DESIGNATION



PIPE FITTING AND END PATTERNS



PIPE AND FITTING SYMBOLS



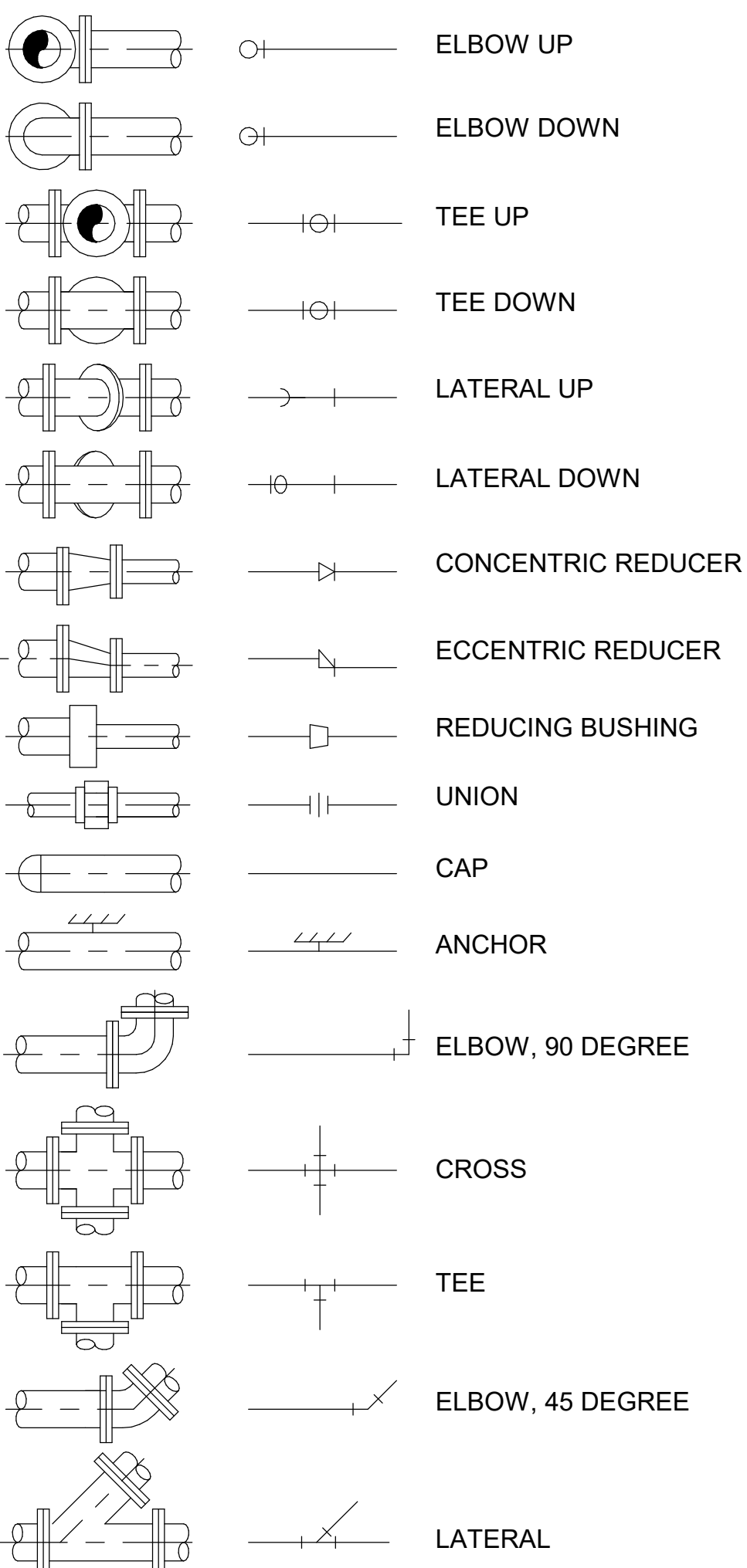
NOTES:

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS; FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN WITH A DASHED LINE AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN WITH A HEAVY LINE.

GENERAL PIPING NOTES:

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES OR PENETRATION SEALS SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE PLANS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON PLANS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.

DOUBLE LINE SINGLE LINE



ABBREVIATIONS

ABBREV	DESCRIPTION
AWWA	AMERICAN WATER WORKS ASSOCIATION
CPVC	CHLORINATED POLYVINYL CHLORIDE
DX	DIRECT EXPANSION
ECC	ECCENTRIC
EQUIP	EQUIPMENT
FLEX	FLEXIBLE
FOB	FLAT ON BOTTOM
FPM	FEET PER MINUTE
GAL	GALLON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
N.O.	NORMALLY OPEN
NC	NORMALLY CLOSED
OS&Y	OUTSIDE STEM AND YOKE
RPM	REVOLUTIONS PER MINUTE
SP	STATIC PRESSURE
VAC	VACUUM
VTR	VENT THROUGH ROOF
WC	WATER COLUMN
WPD	WATER PRESSURE DROP

FLOW STREAM IDENTIFICATION

ABBREV DESCRIPTION

ALP	AIR, LOW PRESSURE
BS	BLENDED SLUDGE
DG	DIGESTER GAS
DS	DIGESTED SLUDGE
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
NG	NATURAL GAS
PE	PRIMARY EFFLUENT
RAS	RETURN ACTIVATED SLUDGE
VENT	VENT

GENERAL NOTE:

1. IN THE EVENT THAT A DEDUCTIVE ALTERNATIVE IS SELECTED, THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH THE ENGINEER TO DETERMINE THE CONSTRUCTION SEQUENCING AND SCOPE.

SPECIAL INSTALLATION NOTE:

INSTALLATION DETAILS FOR DIVISION 26 ELECTRICAL ARE NOT SHOWN ON MECHANICAL DRAWINGS FOR CLARITY. REFER TO DIVISION 26 INSTRUMENT SPECIFICATIONS, INSTRUMENT LIST, AND DESIGN DETAILS. COORDINATE MATERIAL AND INSTALLATION REQUIREMENTS.



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: SAC
CHECKED BY: RDT

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DRAWING NUMBER
01-G010
SHEET NUMBER
010

GENERAL NOTES:

- THESE NOTATIONS ARE INTENDED TO BE GENERAL IN NATURE. THEY MAY OR MAY NOT APPLY TO SOME OR ALL OF THE PLAN SHEETS AND SPECIFICATIONS.
- CONDUIT RUNS INDICATED ON THE PLAN SHEETS ARE INTENDED TO BE SCHEMATIC ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUIT RUNS AND SHALL COORDINATE ANY DEVIATION FROM ROUTING AS INDICATED HEREIN WITH THE ENGINEER. ALL CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO PREVENT CONFLICTS WITH EQUIPMENT. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS OR STRUCTURAL CONDITIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUITS NOT INDICATED ON THE PLAN SHEETS. THIS INCLUDES CIRCUITS FOR LIGHTING, RECEPTACLES AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
- ALL CONDUITS SHALL BE ROUTED AND SUPPORTED IN SUCH A MANNER AS TO NOT COMPROMISE THE STRUCTURAL INTEGRITY OF WALLS, FLOORS, CEILINGS, AND ROOFS. WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE ADDITIONAL STRUCTURAL SUPPORTING MEMBERS FOR THE INSTALLATION AND SHALL COORDINATE SUCH MEMBERS WITH ENGINEER.
- ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" MINIMUM AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- PULLBOXES, IF SHOWN ON THE PLANS, ARE SCHEMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
- ALL CONDUIT RUNS PASSING THROUGH EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DRAWINGS.
- THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. IF EQUIPMENT SUPPLIED BY THE MANUFACTURER HAS A LARGER LOAD THAN THE VALUE SHOWN OR INDICATED, THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT MAY BE ENLARGED AS REQUIRED TO ACCOMMODATE THE HIGHER LOADING. HOWEVER, THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL LOADING REQUIREMENTS FOR CONTROL POWER TRANSFORMERS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR ALL EQUIPMENT INSTALLED.
- MOTOR CONTROL CENTERS AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE HOUSEKEEPING PADS.
- IN GENERAL, SEPARATE POWER, CONTROL AND SIGNAL WIRING. PROVIDE SEPARATE CONDUIT, PULL AND JUNCTION BOXES. PROVIDE SUITABLE CABLE BARRIER WITHIN PULL OR JUNCTION BOXES WHERE SEPARATION OF WIRING IS NOT SHOWN ON THE DRAWINGS. CONTROL AND SIGNAL CONDUCTORS OF LIKE VOLTAGES MAY BE COMBINED INTO A SINGLE CONDUIT, AS LONG AS NEC CONDUIT FILL REQUIREMENTS ARE MET.
- UNLESS OTHERWISE NOTED ALL CONDUIT TO BE ROUTED EXPOSED. ALL EXPOSED CONDUIT AND PORTIONS OF THE CONDUIT SYSTEM SHALL BE SURFACE MOUNTED. SEE SPECIFICATIONS FOR CONDUIT, BOXES, SUPPORTS, HANGAR, UNISTRUT AND OTHER PORTIONS OR THE CONDUIT SYSTEM MATERIAL REQUIREMENTS.
- VERIFY LOCATION OF ALL EQUIPMENT PRIOR TO INSTALLATION.
- PROVIDE SEPARATE CONDUITS FOR 480VAC POWER CIRCUITS. SIGNAL AND CONTROL CONDUCTORS OF LIKE VOLTAGES MAY BE COMBINED IN A SINGLE CONDUIT.
- IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, DOORS OR OTHER SIMILAR ITEMS, NO CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO CONFLICT WITH PROPER OPERATION OF SUCH EQUIPMENT.
- CONTRACTOR SHALL FURNISH AND INSTALL ITEMS AS NECESSARY FOR COMPLETE AND FUNCTIONAL SYSTEMS. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED AND SHALL PROVIDE CONDUIT, WIRING AND TERMINATIONS FOR ALL ITEMS AS REQUIRED.
- CONTRACTOR SHALL REFER TO OTHER PLAN SHEETS FOR LOCATIONS OF FIREWALLS. ALL CONDUIT PENETRATIONS IN THESE WALLS SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO NOT REDUCE THE RATING OF THE FIREWALL THROUGH THE USE OF BOXES, SEALANTS AND OTHER ACCESSORIES AS MAY BE REQUIRED.
- CONTRACTOR SHALL REFER TO MECHANICAL PLAN SHEETS AND SPECIFICATIONS FOR ITEMS RELATED TO THE MECHANICAL SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL ITEMS AS NECESSARY FOR COMPLETE AND OPERABLE MECHANICAL HEREIN INCLUDING, BUT NOT LIMITED TO: CONTROL POWER TRANSFORMERS, STARTERS, THERMOSTATS, CONTROL STATIONS, AND OTHER ELECTRICAL ITEMS AS RELATED TO THE INSTALLATION OF THE MECHANICAL SYSTEMS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DISCONNECTS FOR ALL MECHANICAL MOTORS UNLESS THE EQUIPMENT IS FURNISHED WITH AN INTEGRAL DISCONNECT FROM THE MANUFACTURER. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONDUIT, WIRING AND TERMINATIONS FOR ALL COMPONENTS AS MAY BE NECESSARY FOR THE MECHANICAL SYSTEMS.
- ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH HEAVY-DUTY WEATHERPROOF COVERS.
- EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS.
- ALL CONDUITS SHALL HAVE A GROUNDING CONDUCTOR, SIZED PER NEC.
- ALL LIGHTING FIXTURES INSTALLED IN INSULATED LOCATIONS SHALL BE RATED FOR SUCH INSTALLATION REGARDLESS OF THE FIXTURE SCHEDULE DESIGNATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NEW SERVICE INSTALLATIONS WITH OWNER, ENGINEER AND SERVICE UTILITY. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AS REQUIRED BY SERVICE UTILITY FOR NEW SERVICE CONNECTIONS.
- UNLESS NOTED OTHERWISE, ALL CONTROL PANELS SHALL BE FABRICATED SUCH THAT ALL OPERATORS AND INDICATING DEVICES INDICATED ON THE SCHEMATICS BE LOCATED ON THE FRONT DOOR OR COVER OF THE PANEL. OPERATING AND INDICATING DEVICES SHALL BE VISIBLE AND OPERABLE WITHOUT HAVING TO OPEN THE CONTROL PANEL UNLESS OTHERWISE IDENTIFIED ON THE DRAWING.
- DUCT BANKS INDICATED AND THE BELOW GRADE CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY; THE CONTRACTOR SHALL REVIEW PLAN SHEETS RELATED TO INDIVIDUAL STRUCTURES AND VERIFY CONDUITS THAT MAY BE REQUIRED. THE CONTRACTOR SHALL VERIFY NUMBER OF CONDUITS AS INDICATED IN THE DUCT BANK PRIOR TO INSTALLATION WITH THE ENGINEER. PROVIDE, AT A MINIMUM, ONE SPARE CONDUIT EQUAL IN SIZE TO THE LARGEST CONDUIT IN USE, IN EACH DUCT BANK. FOR EACH SET OF FOUR USED CONDUITS IN EACH DUCT BANK PROVIDE A SPARE CONDUIT EQUAL TO THE LARGEST CONDUIT IN USE: (1-4 CONDUITS, 1 SPARE; 5-8 CONDUITS, 2 SPARE; AND SO ON).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HEAT TRACING FOR ALL EXPOSED WATER LINES TO BE INSTALLED UNDER THIS PROJECT. THE CONTRACTOR SHALL REVIEW OTHER SECTIONS OF THE PLANS AND SPECS AND PROVIDE SUITABLE HEAT TRACING COMPONENTS AS MAY BE REQUIRED, WHETHER INDICATED ON THE ELECTRICAL PLAN SHEETS OR NOT.
- VERIFY LOCATION OF ALL LIGHTING FIXTURES WITH OWNER AND ENGINEER PRIOR TO INSTALLATION. COORDINATE LIGHT FIXTURE LOCATIONS AND MOUNTING HEIGHTS WITH HVAC DUCTS AND OVERHEAD CONDUIT RUNS. USE RIGID CONDUIT WHEN SUSPENDING LIGHT FIXTURES TO PREVENT SWAYING.
- USE CRIMPED OR BOLTED CONNECTIONS FOR ALL BONDING CONNECTIONS BETWEEN CONDUCTORS AND BUILDING SYSTEM COMPONENTS. USE EXOTHERMIC WELDED CONNECTIONS FOR ALL UNDERGROUND PORTIONS OF THE GROUNDING SYSTEM WITH THE EXCEPTION OF GROUND ROD TEST WELLS.
- MINIMUM LIGHTNING PROTECTION ITEMS WHERE SHOWN. FINAL LIGHTNING PROTECTION SYSTEM SHALL BE DEVELOPED AND SUBMITTED BY MASTER INSTALLER/DESIGNER CERTIFIED BY UL OR LPI AS REQUIRED IN SPECIFICATION SECTION 26 41 13.

ABBREVIATIONS	
ABBREV	DESCRIPTION
A, AMP	AMPERES
ABC	ABOVE COUNTER
ACS	ACCESS CONTROL SYSTEM
ACU	AIR CONDITIONING UNIT
AFG	ABOVE FINISHED GRADE
AIC	AIMPS INTERRUPTING CAPACITY
AM	AMP-METER
ANN	ANNUNCIATOR
AP	AERIAL PRIMARY
AS	AERIAL SECONDARY
ATS	AUTOMATIC TRANSFER SWITCH
BFI	BLOWN FUSE INDICATOR
BI	BYPASS ISOLATION
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CGRS	PVC COATED GALVANIZED RIGID STEEL
COM	COMMON
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRI	COLOR RENDERING INDEX
CS	CORD SET
CU	COEFFICIENT OF UTILIZATION
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL(S)
DEB	DIRECT EARTH BURIED
DISC	DISCONNECT
EC	EMPTY, EMBEDDED CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
FACP	FIRE ALARM CONTROL PANEL
FC	FAN COIL
FDS	FUSED DISCONNECT SWITCH
FLA	FULL LOAD AMPERES
FOC	FIBER OPTIC CABLE
FS	FLOAT SWITCH
FVNR	FULL VOLTAGE NON-REVERSING STARTER
FVR	FULL VOLTAGE REVERSING STARTER
GDT	GRAPHIC DISPLAY TERMINAL
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HR	HOUR
Hz	HERTZ
IDS	INTRUSION DETECTION SYSTEM
IG	ISOLATED GROUND
ISP	INDIVIDUALLY SHIELDED PAIR
JB	JUNCTION BOX
KVAR	KILOVOLT-AMPERE, REACTIVE
kWh	KILOWATT-HOUR
LA	LIGHTNING ARRESTER
LLF	LIGHT LOSS FACTOR
LO	LUGS ONLY
LOR	LOCAL-OFF-REMOTE
LRA	LOCKED ROTOR AMPERES
LV	LOW VOLTAGE

ABBREVIATIONS	
ABBREV	DESCRIPTION
MBTU, MBH	1000 BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVER CURRENT PROTECTION
MS	MOTOR STARTER
MTD	MOUNTED
N.O.	NORMALLY OPEN
NCTO	NORMALLY CLOSED TIMED OPEN
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NEUT	NEUTRAL
NFDS	NON-FUSED DISCONNECT SWITCHC
NL	NIGHT LIGHT
NOTC	NORMALLY OPEN TIMED CLOSED
OHP	OVERHEAD PRIMARY
OHS	OVERHEAD SECONDARY
OL	OVERLOAD
PB	PUSH BUTTON
PEC	PHOTO ELECTRIC CELL
PF	POWER FACTOR
PFCC	POWER FACTOR CORRECTION CAPACITOR
PH, Ø	PHASE
PL	PILOT LIGHT
PMR	PHASE MONITOR RELAY
PTT	PUSH-TO-TEST
RECPT	RECEPTACLE
RLA	RUNNING LOAD AMPERES
RVAT	REDUCED VOLTAGE AUTO-TRANSFERMER STARTER
RVSS	REDUCED VOLTAGE SOFT STARTER
S	SECOND
SA	SURGE ARRESTER
SDBC	SOFT DRAWN BARE COPPER
SE	SERVICE ENTERANCE
SN	SOLID NEUTRAL
SSOL	SOLID STATE OVERLOAD RELAY
STP	SHIELDED TWISTED PAIR
SW	SWITCH
TC	TIME CLOCK
TD	TIME DELAY
TDD	TIME DELAY ON DE-ENERGIZATION
TDE	TIME DELAY ON ENERGIZATION
TEL	TELEPHONE
THD	TOTAL HARMONIC DISTORTION
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGP	UNDERGROUND PRIMARY
UGS	UNDERGROUND SECONDARY
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UTP	UNSHIELDED TWISTED PAIR
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT-METER
WH	WEATHER HEAD
WM	WATT METER
WPP	WEATHERPROOF



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CITY OF TUSCALOOSA
TUSCALOOSA, AL
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PHASE II IMPROVEMENTS

ELECTRICAL NOTES AND ABBREVIATIONS

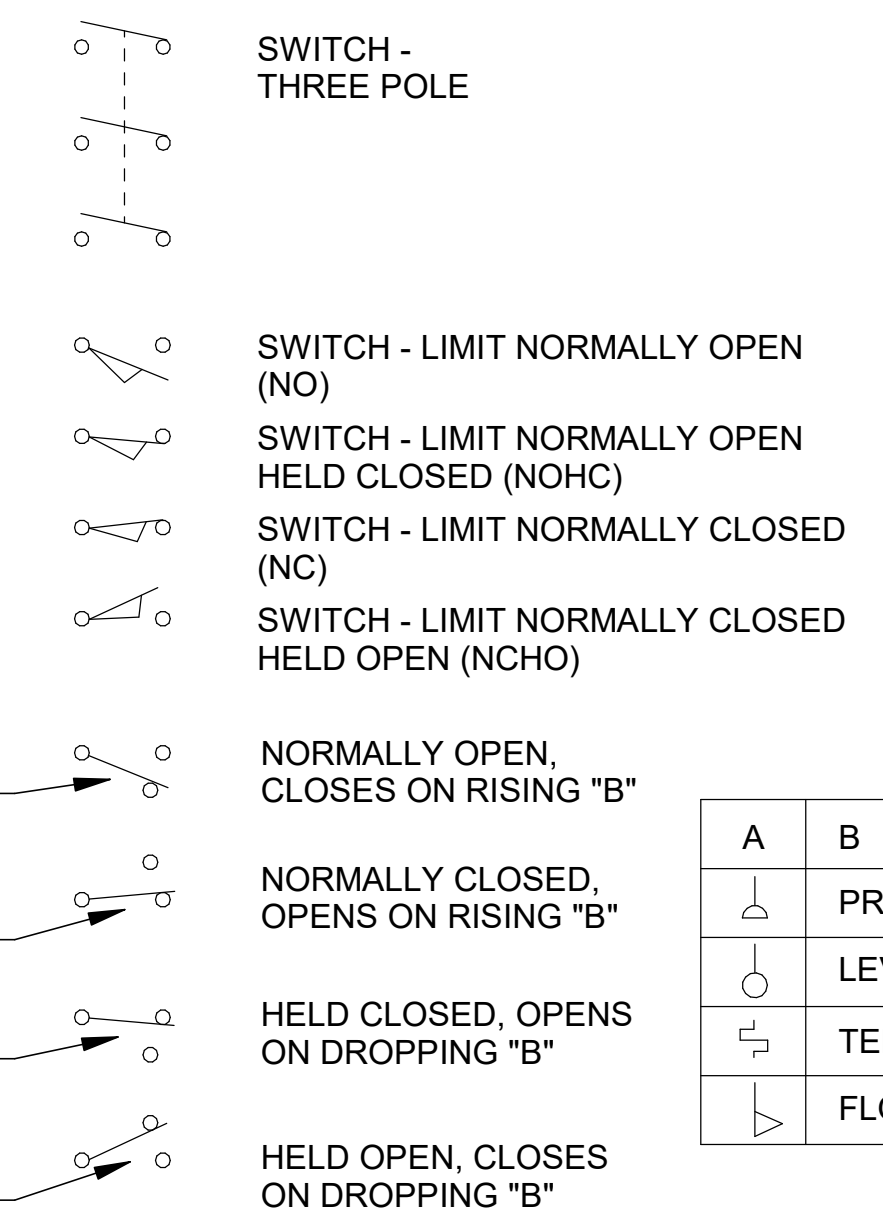
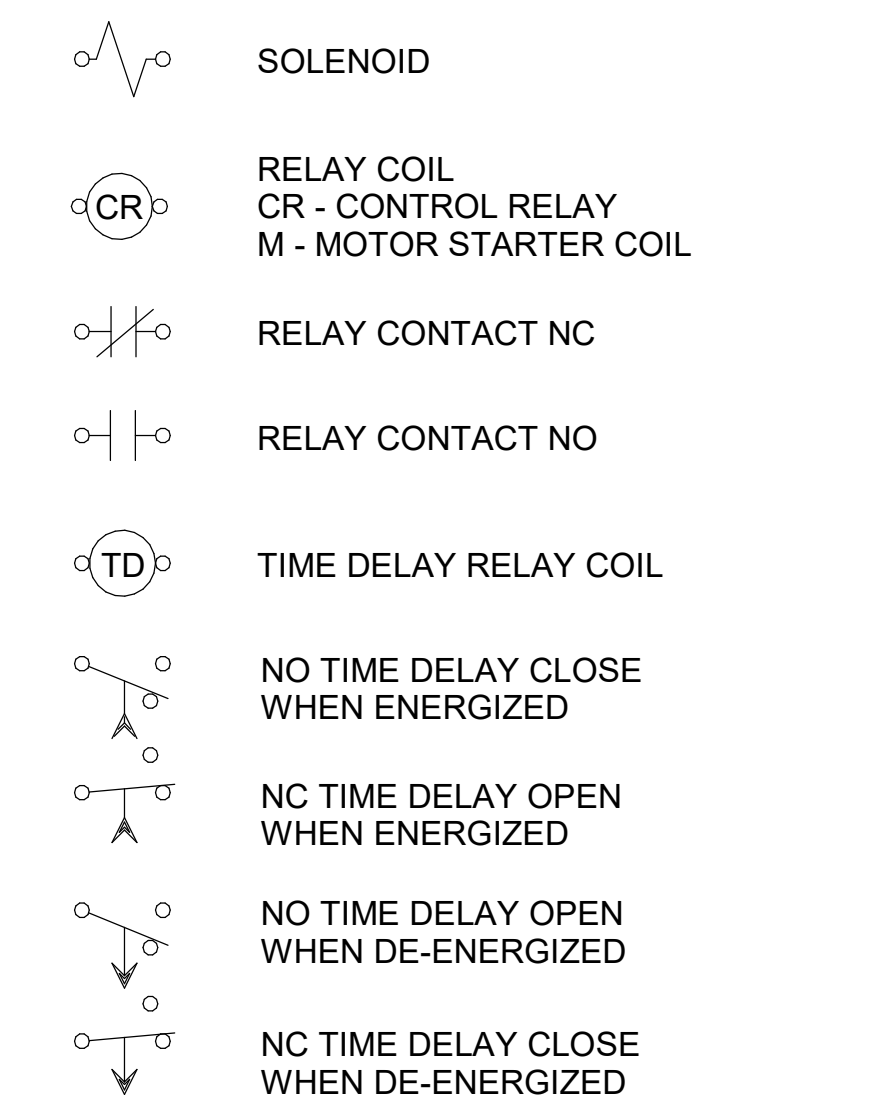
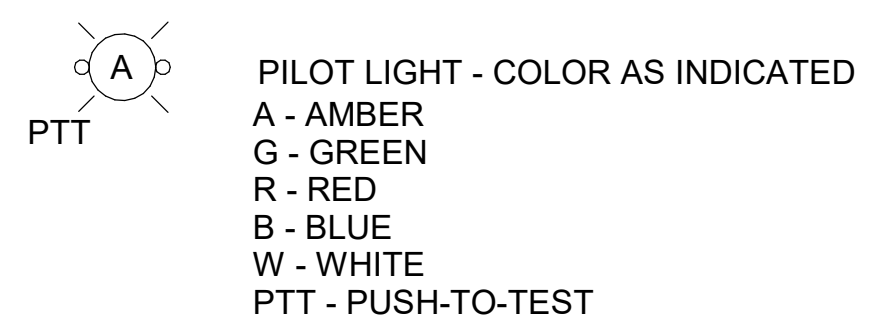
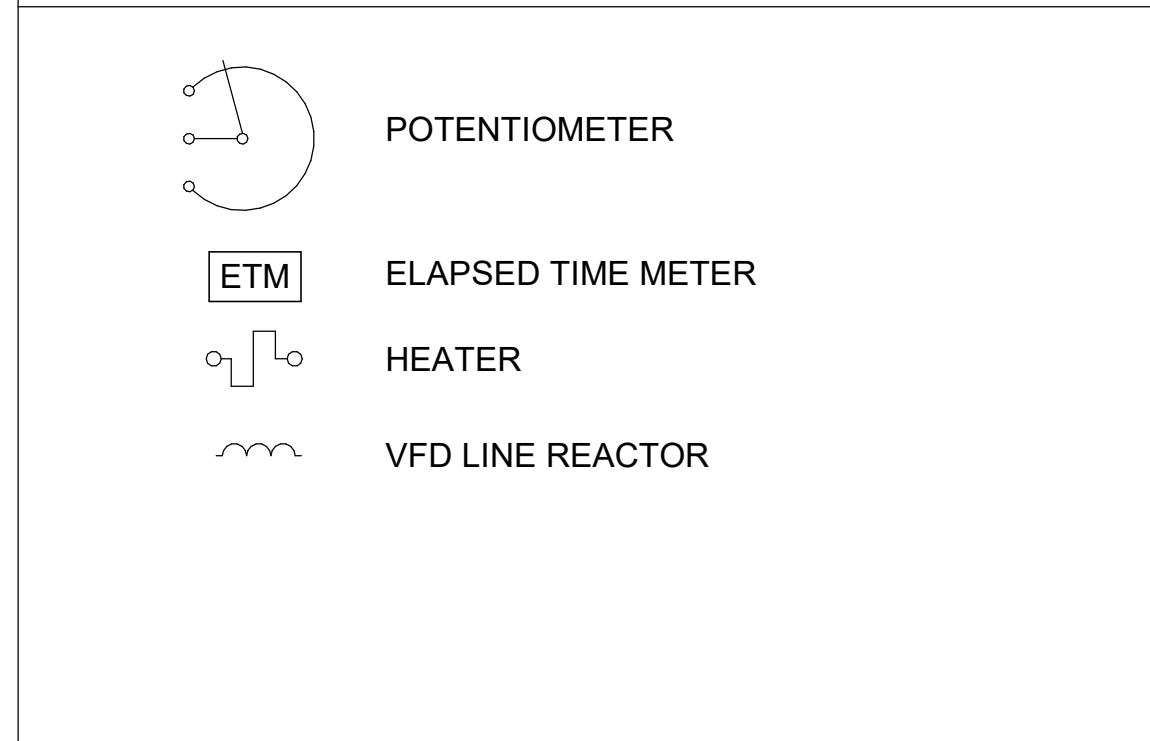
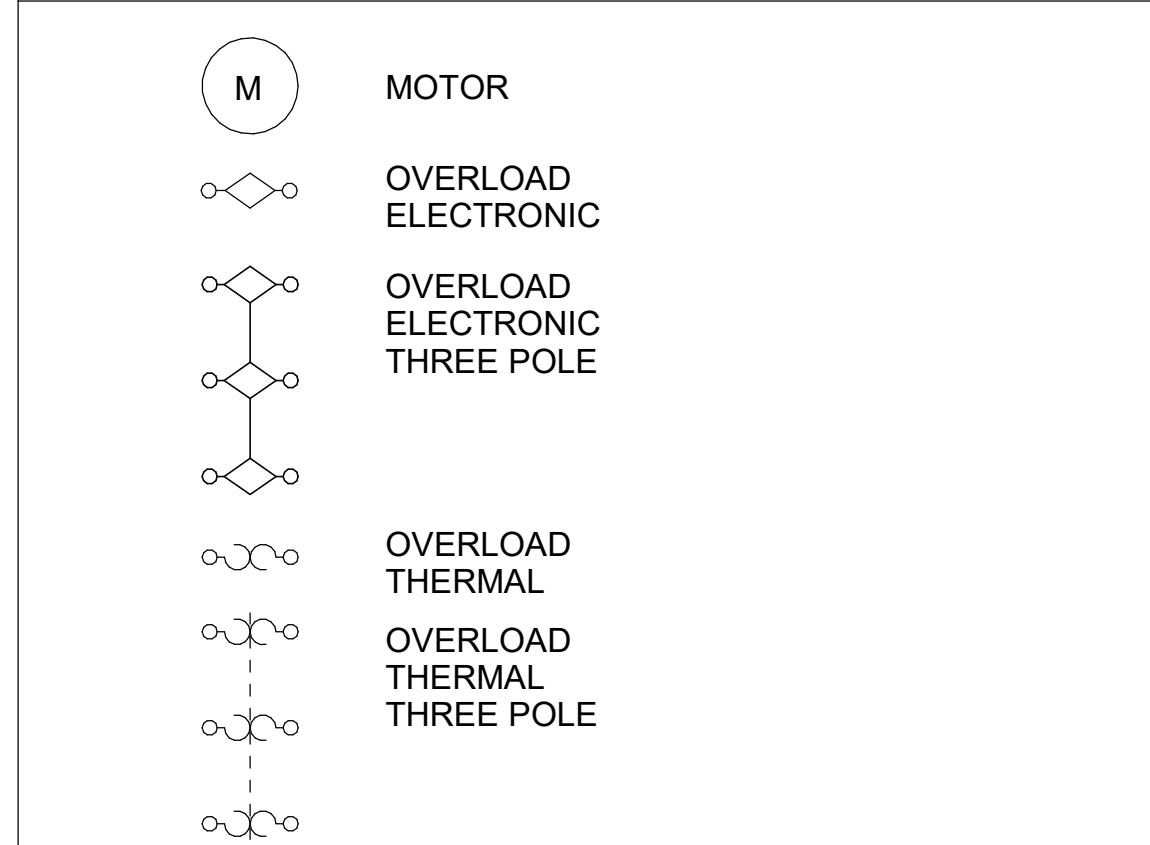
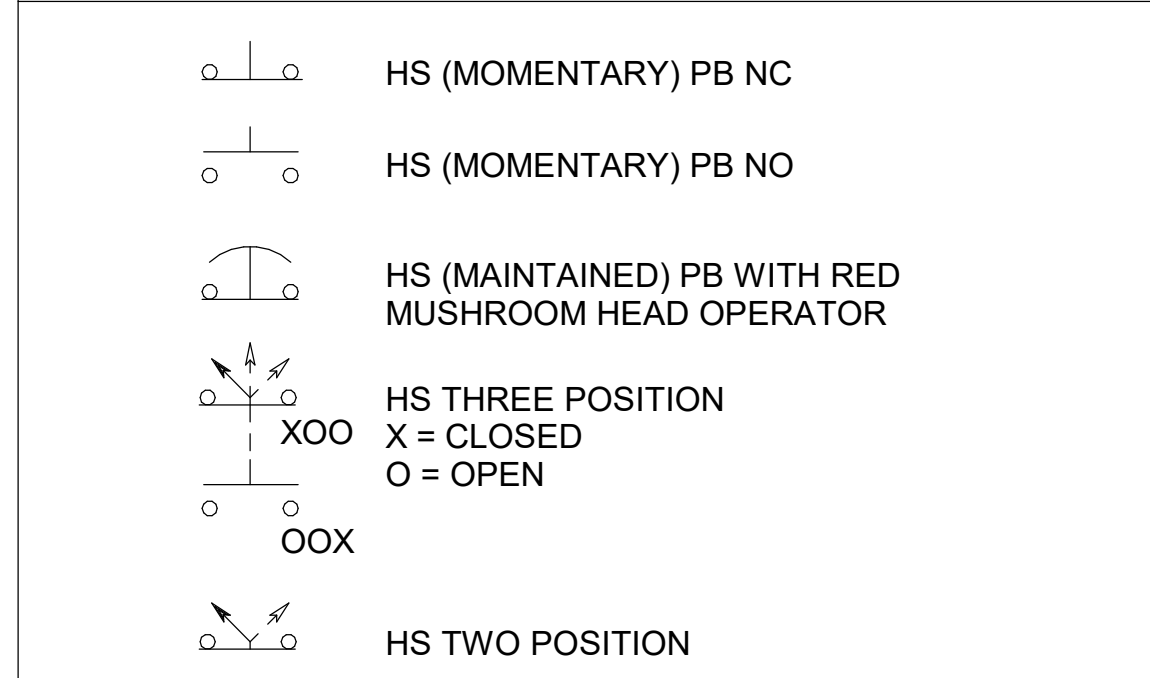
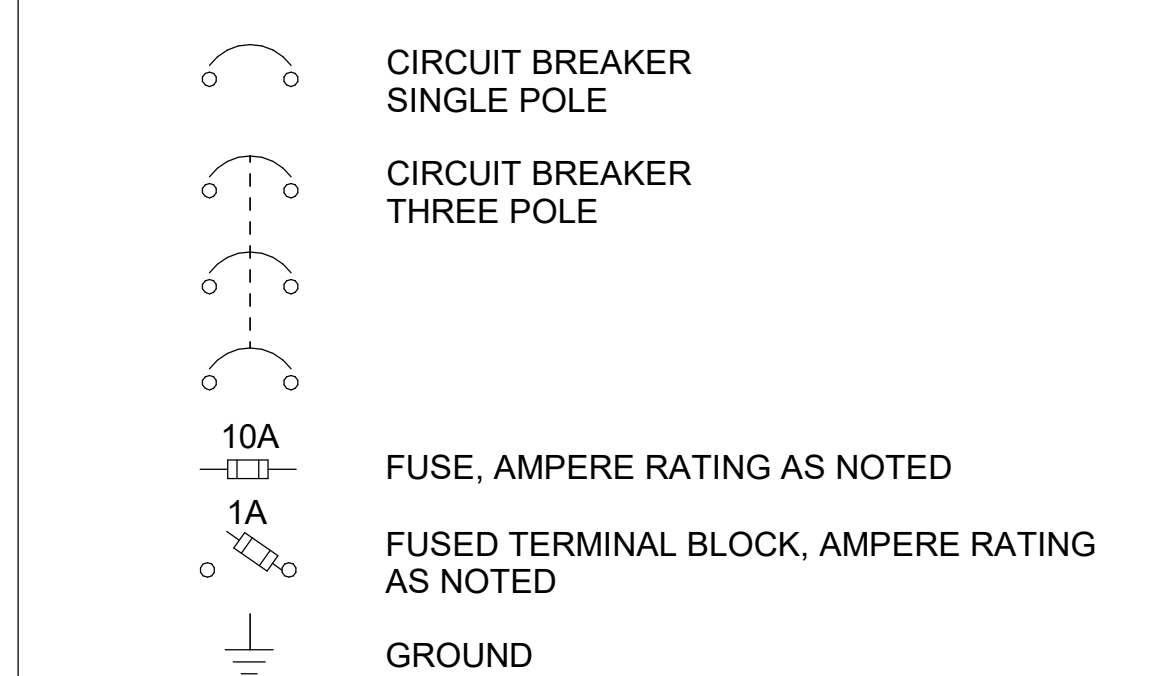
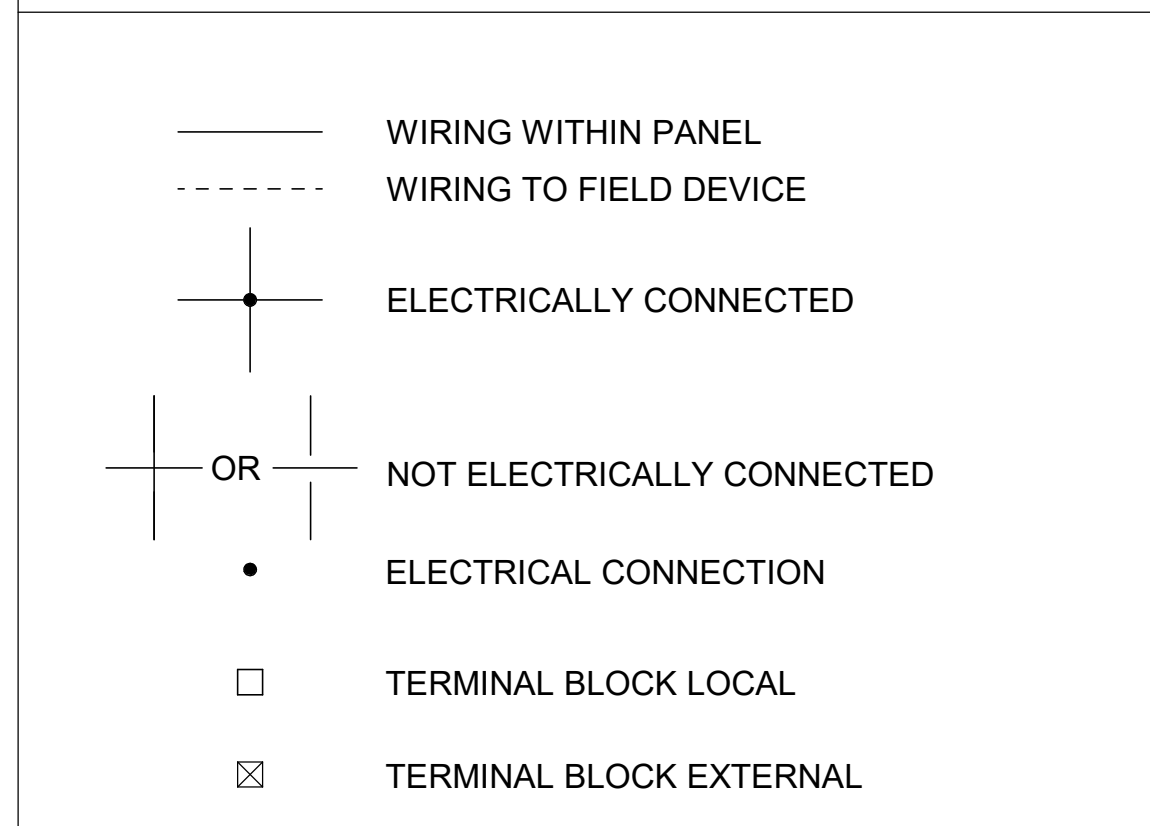
JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SAH
DRAWN BY: SAH
CHECKED BY: JCW

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DRAWING NUMBER
01-G011
SHEET NUMBER **011**

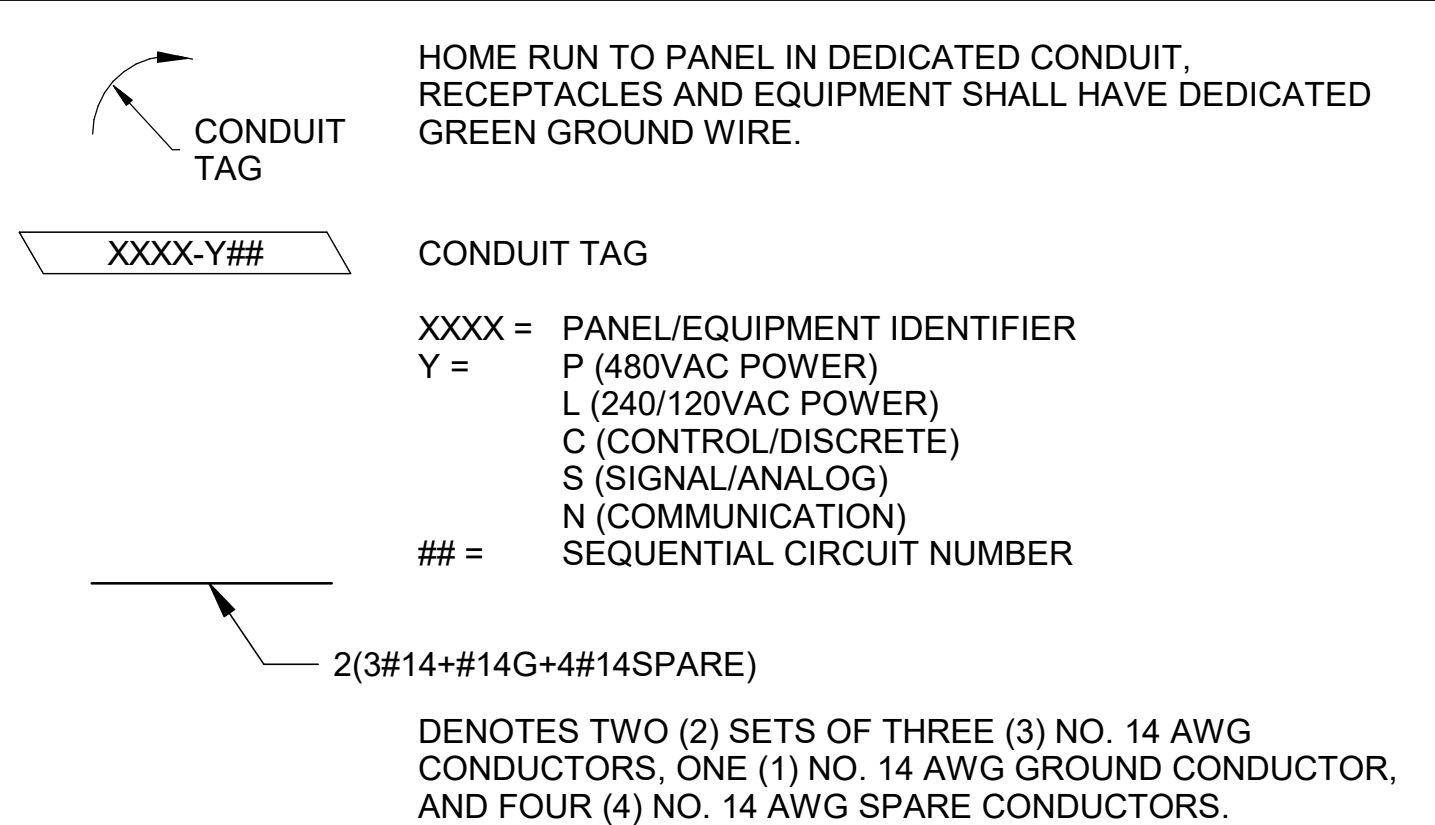
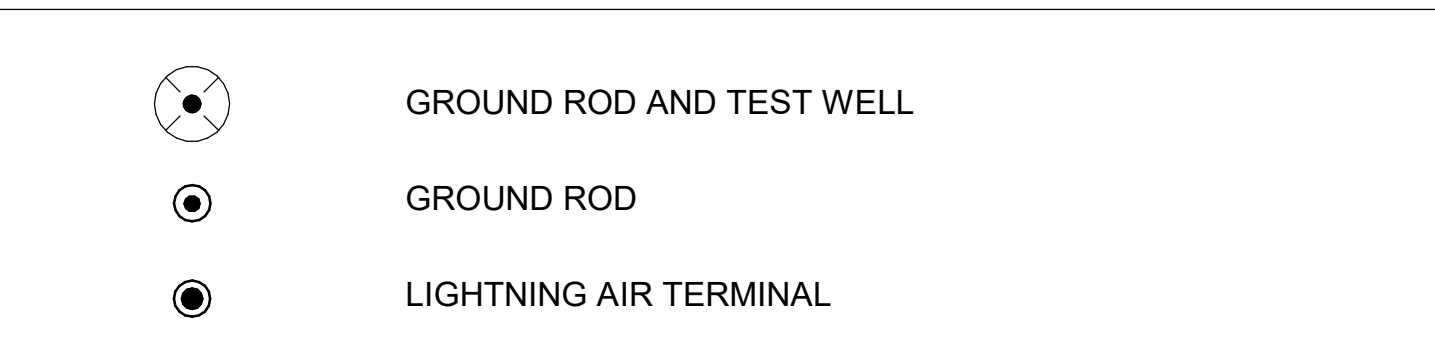
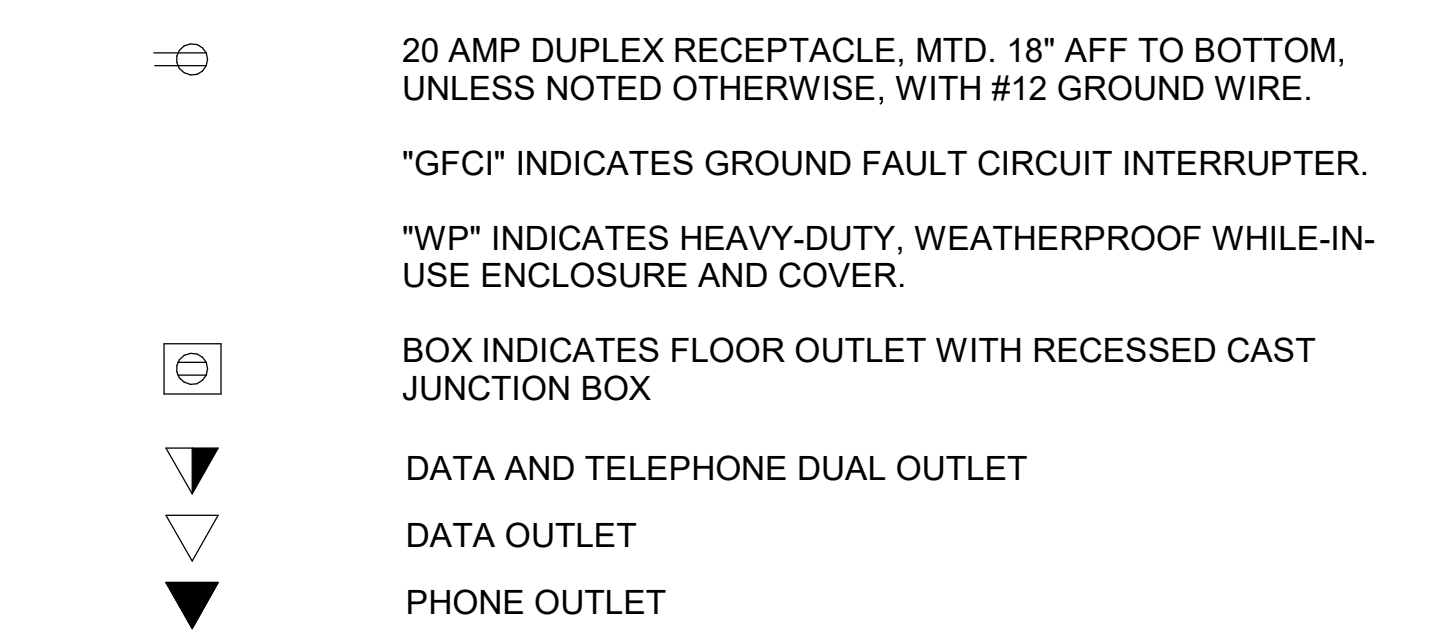
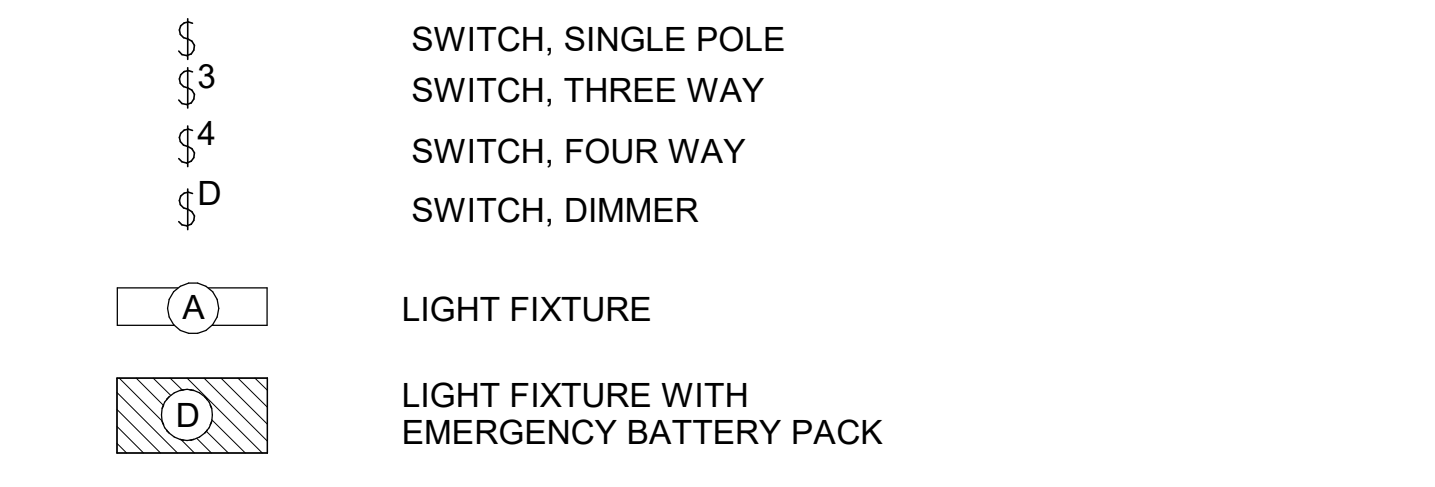
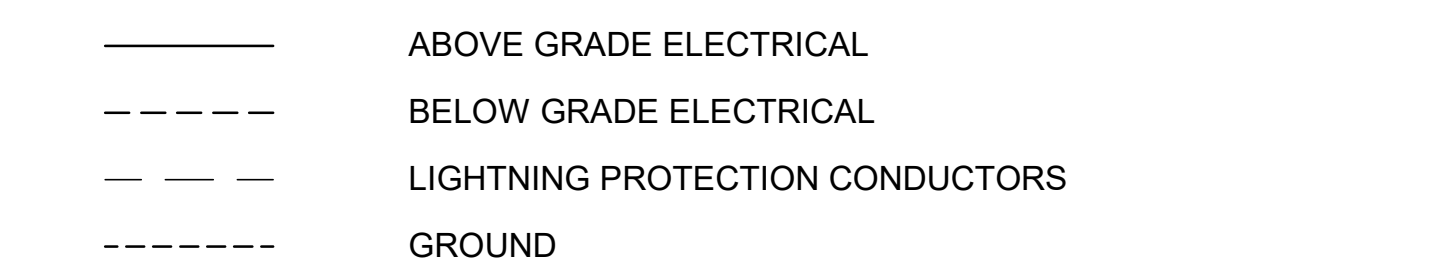
ISSUED FOR CONSTRUCTION

CONTROL SCHEMATIC LEGEND

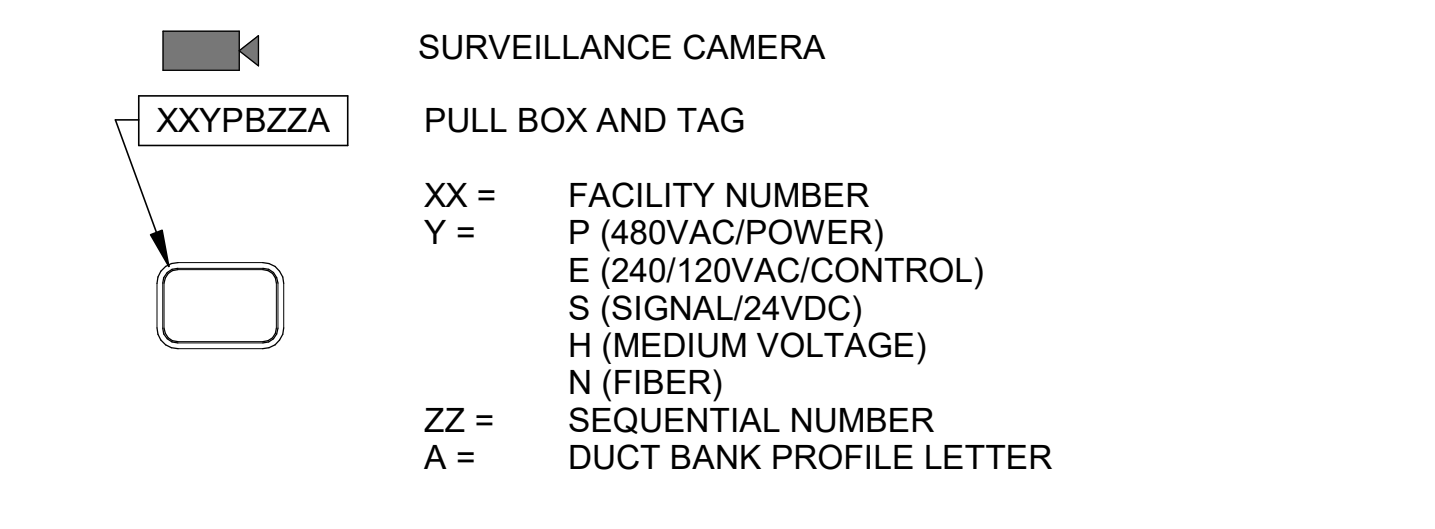


A	B
	PRESSURE
	LEVEL
	TEMPERATURE
	FLOW

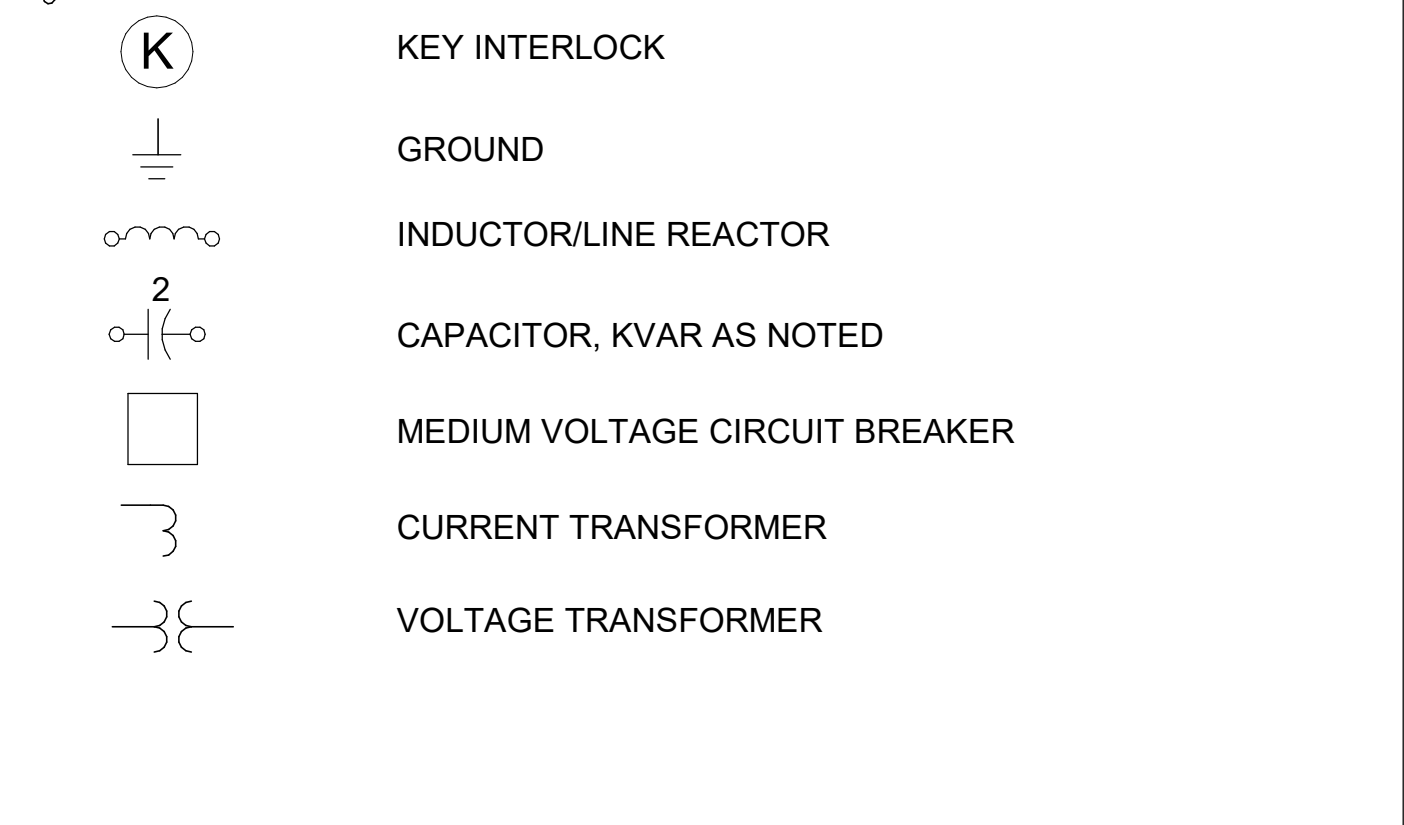
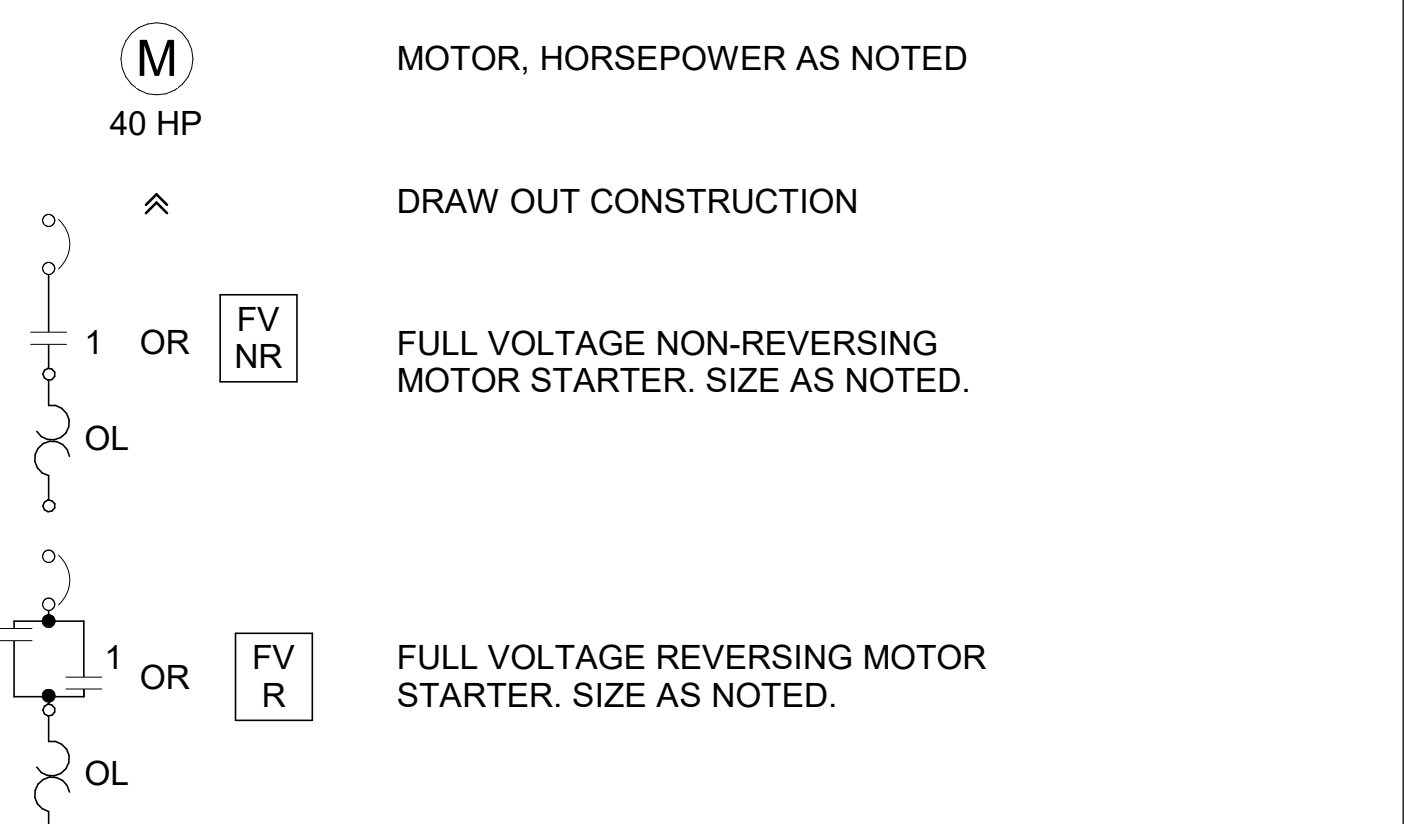
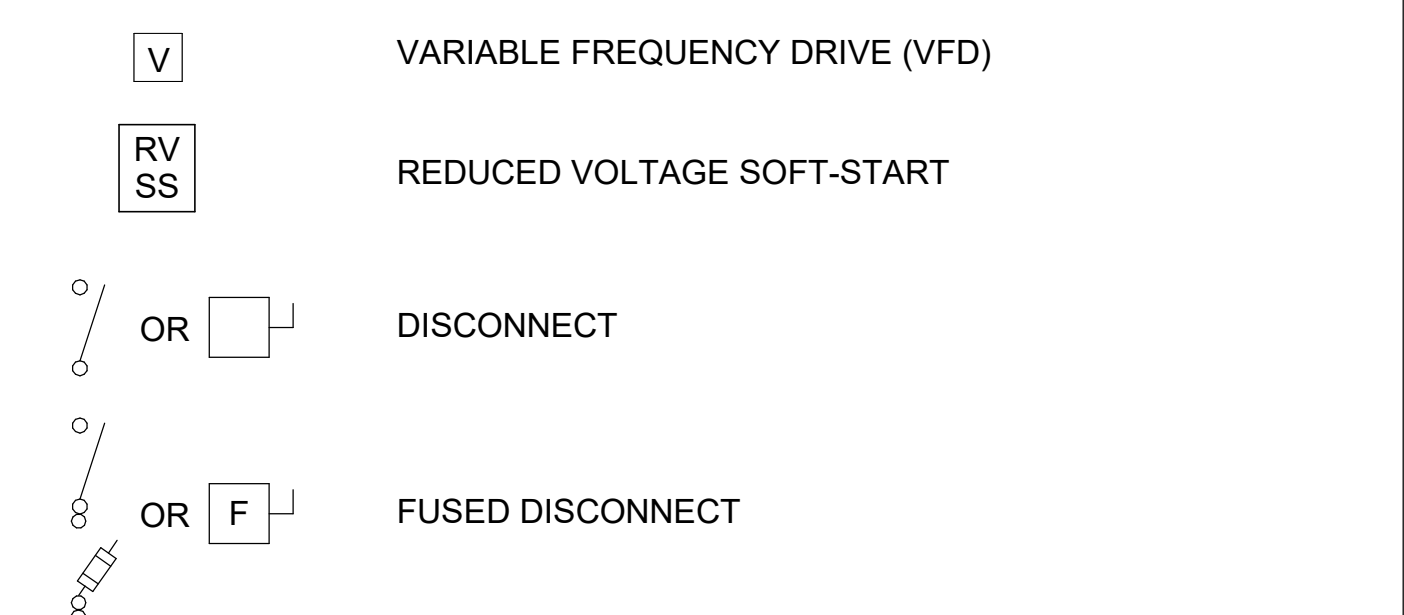
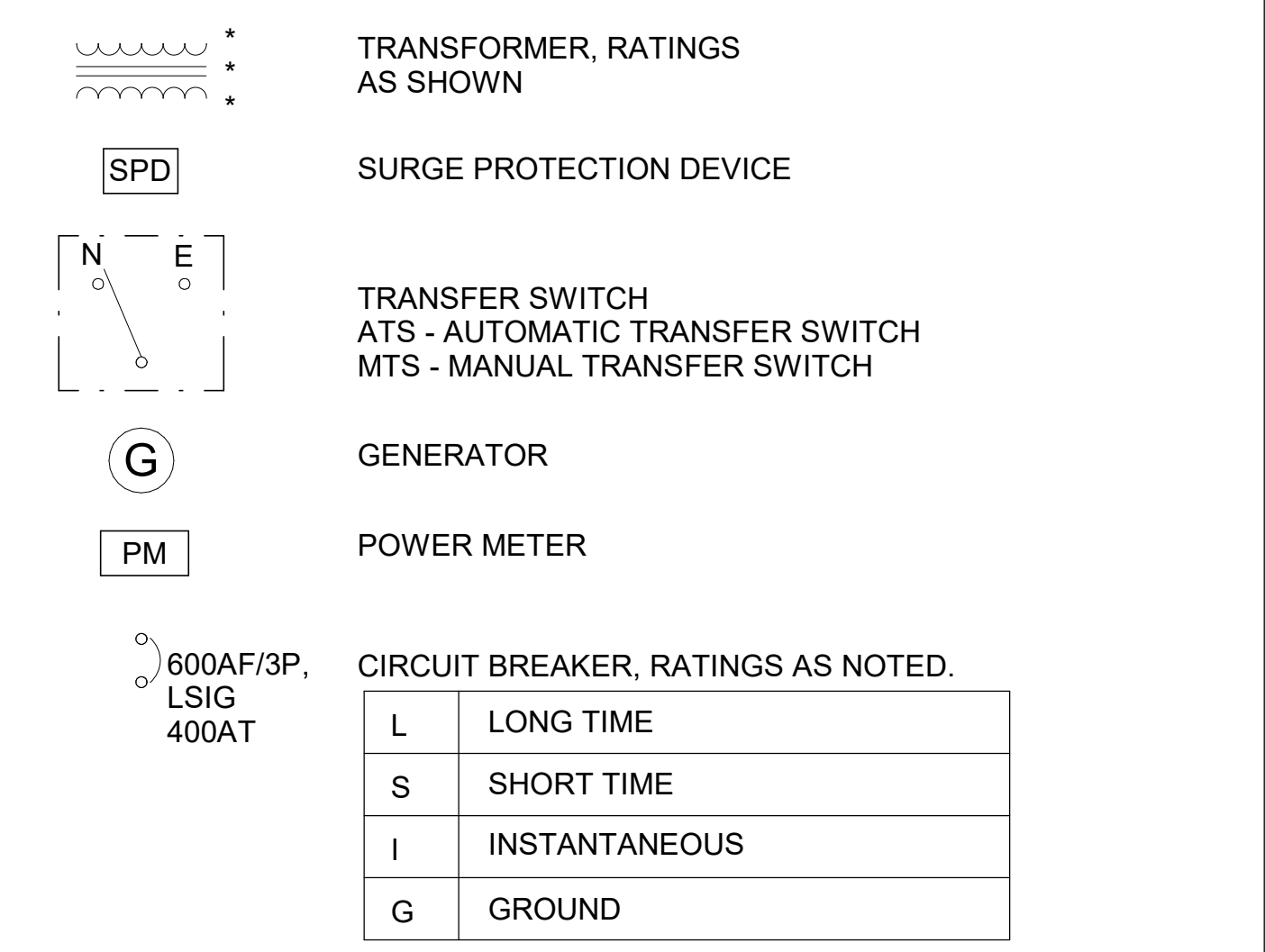
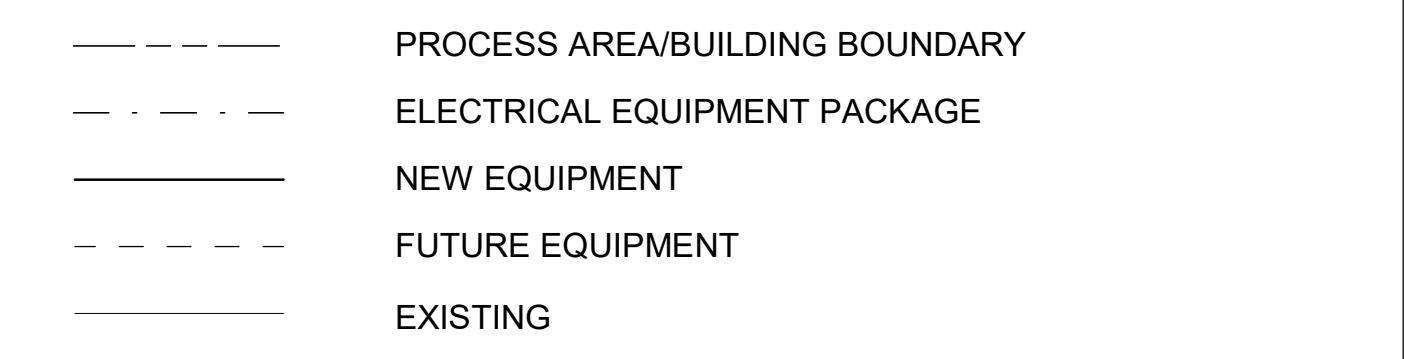
ELECTRICAL PLAN SHEETS LEGEND



XX	
OC	OCCUPANCY SENSOR
PC	PHOTO CELL
DS	DOOR SWITCH
KP	KEY PAD
WS	WINDOW SWITCH
MD	MOTION DETECTOR



ONLINE DIAGRAM SHEET LEGEND



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ELECTRICAL LEGENDS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW
 BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
01-G012
 SHEET NUMBER
012



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CITY OF TUSCALOOSA
 TUSCALOOSA, ALABAMA

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

EXISTING SITE PLAN-OVERVIEW

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: MSM
 DRAWN BY: IDC
 CHECKED BY: RWC

BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
05-C101
 SHEET NUMBER **013**

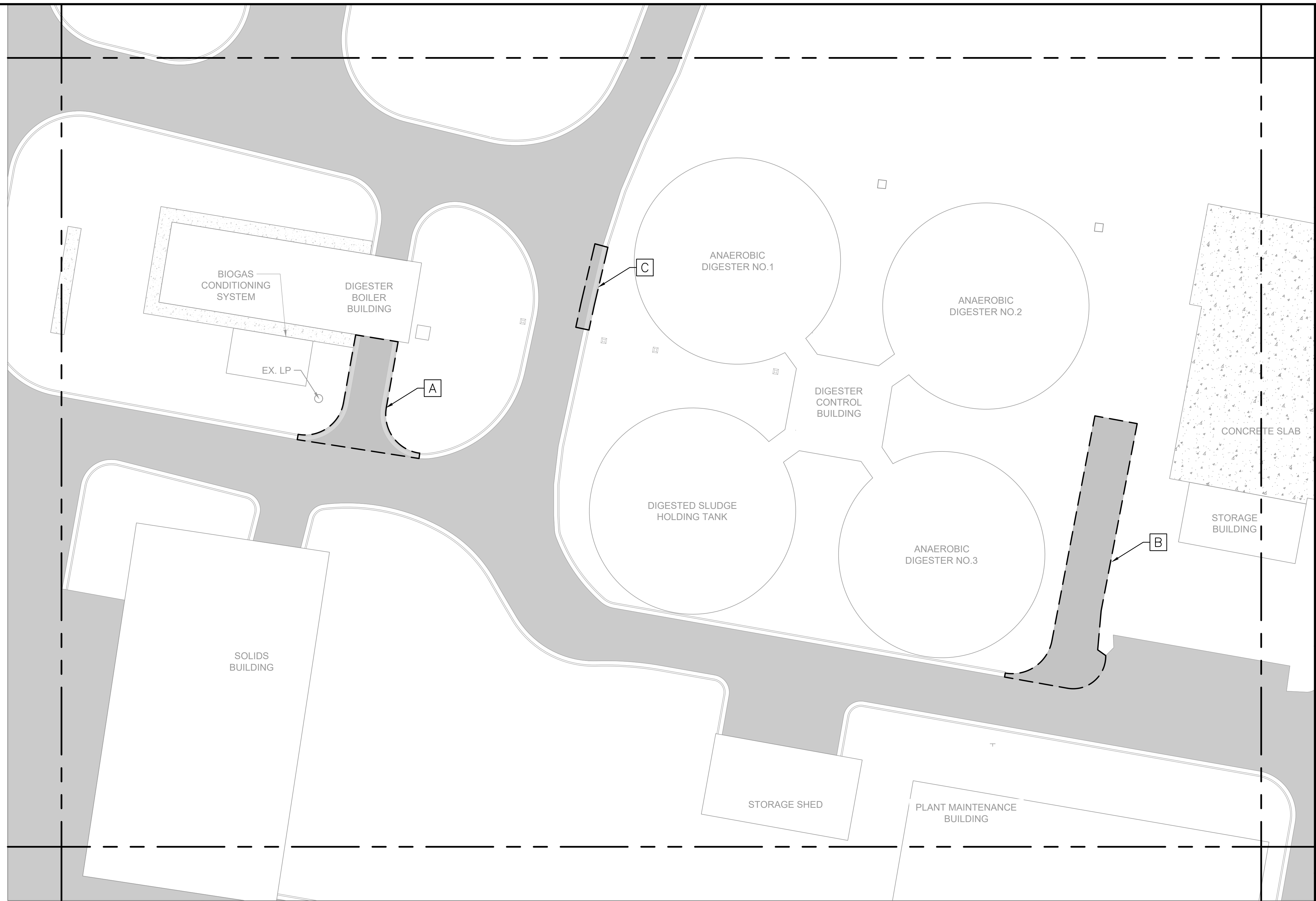


NOTES:
 1. ITEMS DENOTED WITH * HAVE BEEN TAKEN OFFLINE AND ARE NO LONGER IN SERVICE.

1
 C-101
EXISTING SITE PLAN
 SCALE: 1" = 80'

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File: L:\2019\19W10160 - Hilliard N Fletcher WRRF AnaerobicDrawings\HFWVTP-05-C101-SI.dwg Last Save: 10/30/2023 8:34 AM Last saved by: DChangGuzman
 Last plotted by: Chang Guzman, Ivan D Plot Size: AECmono.ctb Plot Scale: 1/16"=1' Plot Date: 1/15/2024 2:14 PM Plotter used: None



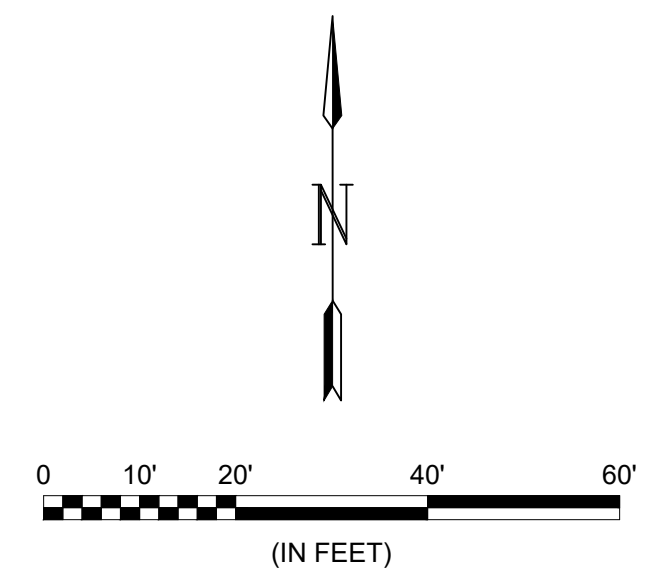
A DEMOLITION KEYNOTES

NOTES:

1. PROPERLY REMOVE AND DISPOSE OF DEBRIS UNCOVERED DURING CONSTRUCTION.

DEMOLITION KEY NOTES:

- A. CONTRACTOR TO DEMOLISH EXISTING ACCESS INCLUDING ROAD AND CURBS TO CHLORINE BUILDING.
- B. CONTRACTOR TO DEMOLISH EXISTING ACCESS ROAD.
- C. CONTRACTOR TO DEMOLISH EXISTING ROAD AND CURB.



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File: L:\2019\19W10160 - Hilliard N Fletcher WRRF AnaerobicDrawings\HWVTP-05-X102-SI.dwg Last Save: 11/5/2023 3:13 PM Last saved by: IDChangGuzman Last plotted by: Chang Guzman, Ivan D Plot Style: AECmono.ctb Plot Date: 11/5/2024 2:17 PM Plotter used: None



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, ALABAMA
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

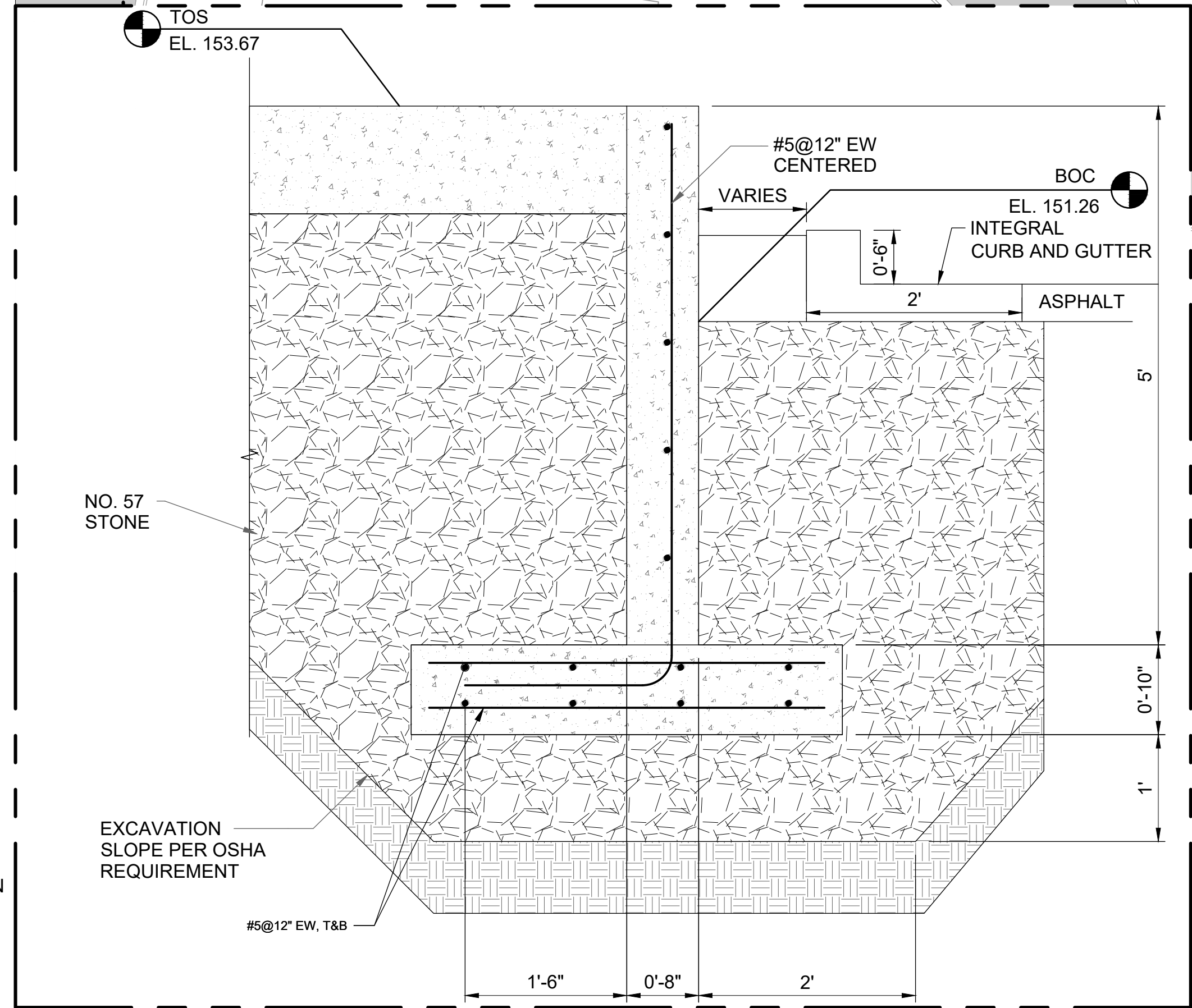
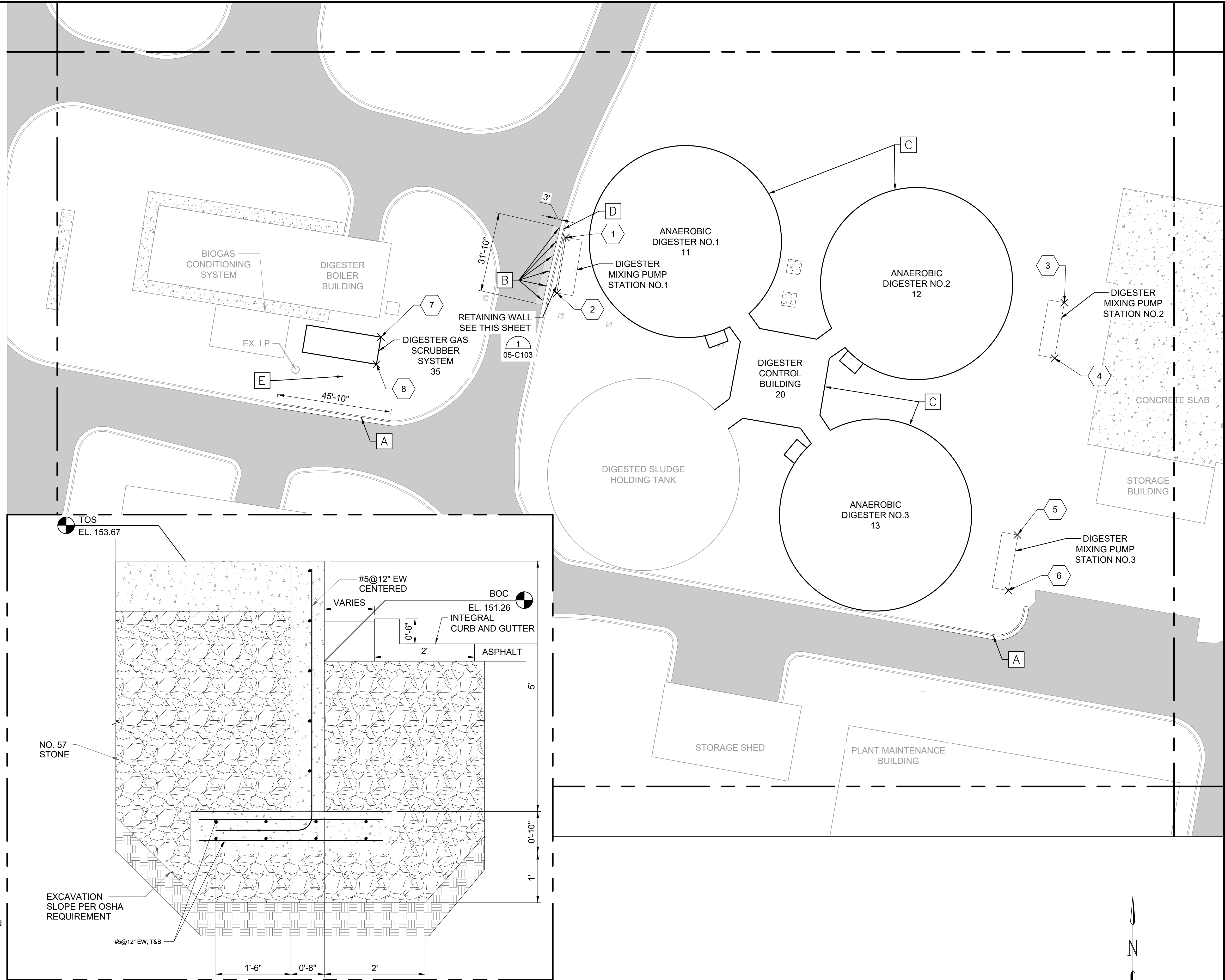
PROPOSED
DEMOLITION PLAN

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: MSM
DRAWN BY: IDC
CHECKED BY: RWC

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DRAWING NUMBER
05-X102
SHEET NUMBER
014

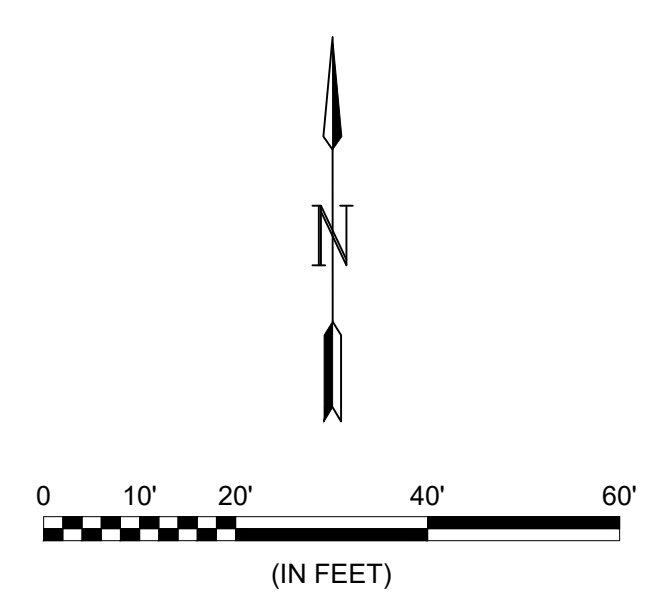
SITE WORK POINTS			
POINT #	DESCRIPTION	NORTHING	EASTING
1	NW CORNER DIGESTER MIXING PUMP STATION NO.1	1154184.39	1948607.59
2	SW CORNER DIGESTER MIXING PUMP STATION NO.1	1154162.19	1948603.98
3	NE CORNER DIGESTER MIXING PUMP STATION NO.2	1154158.35	1948806.78
4	SE CORNER DIGESTER MIXING PUMP STATION NO.2	1154136.19	1948802.87
5	NE CORNER DIGESTER MIXING PUMP STATION NO.3	1154065.53	1948788.04
6	SE CORNER DIGESTER MIXING PUMP STATION NO.3	1154043.33	1948784.37
7	NE CORNER DIGESTER GAS SCRUBBER SYSTEM	1154144.59	1948533.63
8	SE CORNER DIGESTER GAS SCRUBBER SYSTEM	1154133.74	1948531.85



- A** SITE LAYOUT KEYNOTES
- #** SITE LAYOUT COORDINATES

- KEY NOTES:**
- A. CONSTRUCT NEW CURB. MATCH ELEVATIONS TO EXISTING CURB.
 - B. INSTALL BOLLARDS.
 - C. SEE FACILITIES 11, 12, 13 AND 20 FOR IMPROVEMENTS ON EXISTING FACILITIES.
 - D. CONSTRUCT NEW CURB, REPLACE ASPHALT AROUND RETAINING WALL. MATCH ELEVATIONS TO EXISTING CURB.
 - E. REGRADE EXISTING AREA OF DEMOLISHED ROAD TO PROVIDE POSITIVE DRAINAGE AND PROVIDE A MINIMUM OF 4" VERTICAL CLEARANCE FROM DIGESTER GAS SCRUBBER SYSTEM CONCRETE PAD FINISH GRADE.

1
05-C103 05-C103
CONCRETE RETAINING WALL
SCALE: NONE



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, ALABAMA
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

PROPOSED SITE
PLAN - ENLARGED

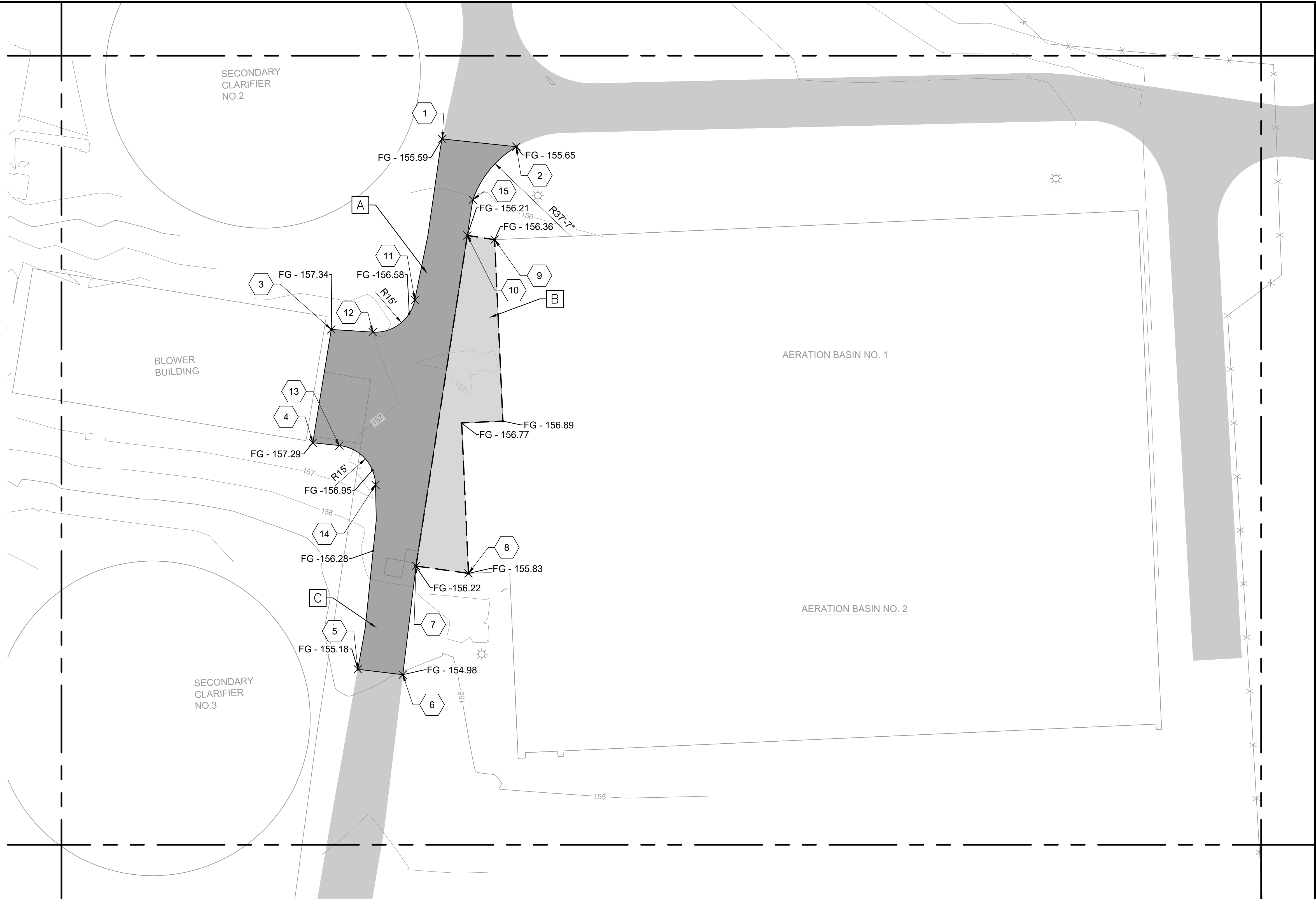
JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: MSM
DRAWN BY: IDC
CHECKED BY: RWC

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DRAWING NUMBER
05-C103
SHEET NUMBER
015

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SITE WORK POINTS			
POINT #	DESCRIPTION	NORTHING	EASTING
1	EOA	1155736.99	1948986.43
2	EOA	1155734.12	1949013.99
3	EOA	1155666.13	1948945.14
4	EOA	1155623.96	1948938.26
5	EOA	1155539.69	1948955.03
6	EOA	1155537.69	1948971.75
7	EOA	1155578.10	1948976.65
8	EOC	1155575.38	1948996.18
9	EOC	1155699.53	1949005.90
10	EOA	1155701.11	1948995.73
11	PC	1155677.12	1948976.22
12	PT	1155665.14	1948960.55
13	PT	1155622.94	1948948.15
14	PC	1155608.32	1948961.60
15	PC	1155714.38	1948997.78



- A SITE LAYOUT KEYNOTES
- # SITE LAYOUT COORDINATES

- KEY NOTES:**
- A. PROPOSED ASPHALT ROAD - MATCH EXISTING ASPHALT DRIVE AND REGRADE AS NECESSARY TO PROVIDE POSITIVE DRAINAGE.
 - B. DEMO EXISTING CONCRETE AND PAVE WITH ASPHALT. PROVIDE POSITIVE DRAINAGE.
 - C. DURING DEMOLITION, CONTRACTOR SHOULD BE RESPONSIBLE OF NOT DAMAGING OR REMOVING MORE PAVEMENT THAN SHOWN IN THIS DRAWING. IF ANY OF THIS HAPPENS REPAVE ADDITIONAL AREAS WILL BE CONTRACTOR'S EXPENSE.



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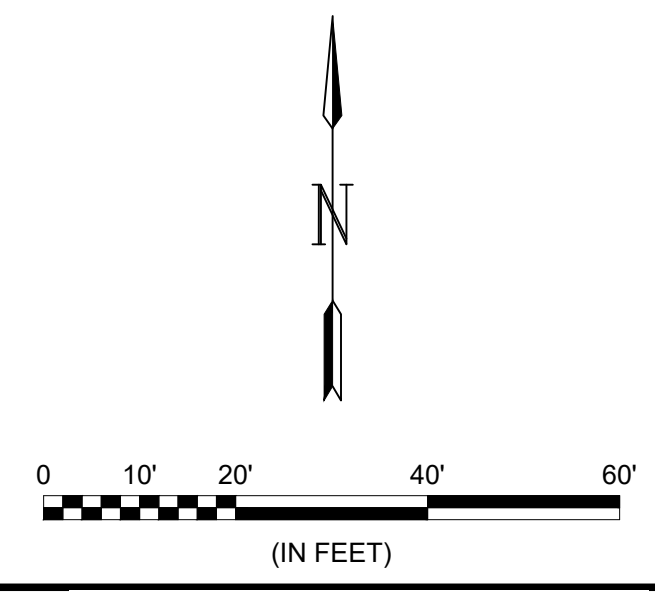
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

PROPOSED GRADING AND PAVING - ENLARGED

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: MSM
 DRAWN BY: IDC
 CHECKED BY: RWC

BAR IS ONE INCH ON ORIGINAL DRAWING
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 (IN FEET)

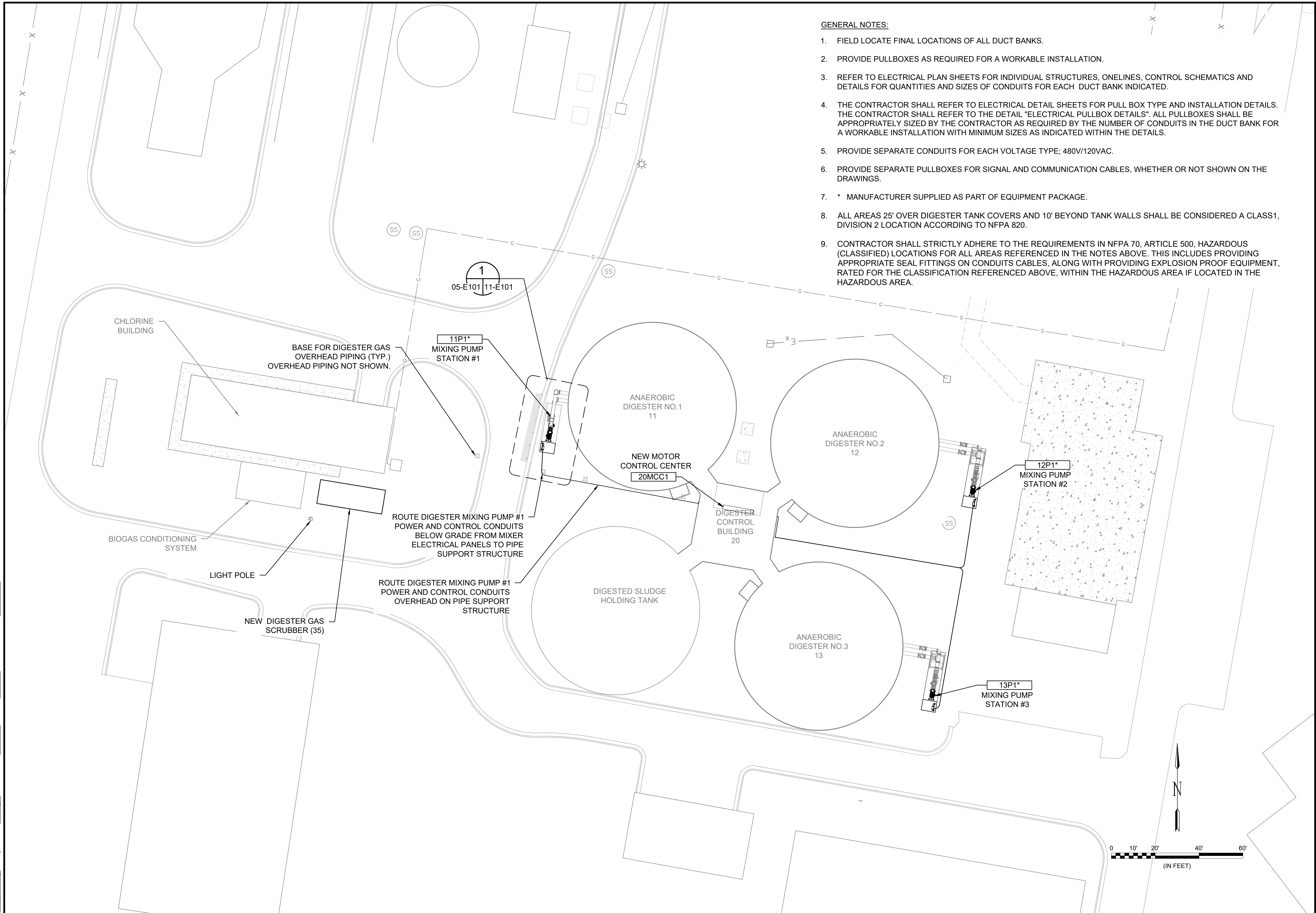
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 SHEET NUMBER
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 Last plotted by: Halsey, Scott A., Plot Style: AECmono.ctb, Plot Scale: 1:2.5849, Plot Date: 1/15/2024 1:43 PM, Plotter Used: None



GENERAL NOTES:

1. FIELD LOCATE FINAL LOCATIONS OF ALL DUCT BANKS.
2. PROVIDE PULLBOXES AS REQUIRED FOR A WORKABLE INSTALLATION.
3. REFER TO ELECTRICAL PLAN SHEETS FOR INDIVIDUAL STRUCTURES, ONELINES, CONTROL SCHEMATICS AND DETAILS FOR QUANTITIES AND SIZES OF CONDUITS FOR EACH DUCT BANK INDICATED.
4. THE CONTRACTOR SHALL REFER TO ELECTRICAL DETAIL SHEETS FOR PULL BOX TYPE AND INSTALLATION DETAILS. THE CONTRACTOR SHALL REFER TO THE DETAIL "ELECTRICAL PULLBOX DETAILS". ALL PULLBOXES SHALL BE APPROPRIATELY SIZED BY THE CONTRACTOR AS REQUIRED BY THE NUMBER OF CONDUITS IN THE DUCT BANK FOR A WORKABLE INSTALLATION WITH MINIMUM SIZES AS INDICATED WITHIN THE DETAILS.
5. PROVIDE SEPARATE CONDUITS FOR EACH VOLTAGE TYPE; 480V/120VAC.
6. PROVIDE SEPARATE PULLBOXES FOR SIGNAL AND COMMUNICATION CABLES, WHETHER OR NOT SHOWN ON THE DRAWINGS.
7. * MANUFACTURER SUPPLIED AS PART OF EQUIPMENT PACKAGE.
8. ALL AREAS 25' OVER DIGESTER TANK COVERS AND 10' BEYOND TANK WALLS SHALL BE CONSIDERED A CLASS1, DIVISION 2 LOCATION ACCORDING TO NFPA 820.
9. CONTRACTOR SHALL STRICTLY ADHERE TO THE REQUIREMENTS IN NFPA 70, ARTICLE 500, HAZARDOUS (CLASSIFIED) LOCATIONS FOR ALL AREAS REFERENCED IN THE NOTES ABOVE. THIS INCLUDES PROVIDING APPROPRIATE SEAL FITTINGS ON CONDUITS CABLES, ALONG WITH PROVIDING EXPLOSION PROOF EQUIPMENT, RATED FOR THE CLASSIFICATION REFERENCED ABOVE, WITHIN THE HAZARDOUS AREA IF LOCATED IN THE HAZARDOUS AREA.



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CITY OF TUSCALOOSA
 TUSCALOOSA, ALABAMA

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ELECTRICAL SITE PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

BAR IS ONE INCH ON ORIGINAL DRAWING
 0 10' 20' 40' 60'
 (IN FEET)

DRAWING NUMBER
05-E101
 SHEET NUMBER **019**

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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1 P&ID

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: JDS
 DRAWN BY: SAH
 CHECKED BY: JCW

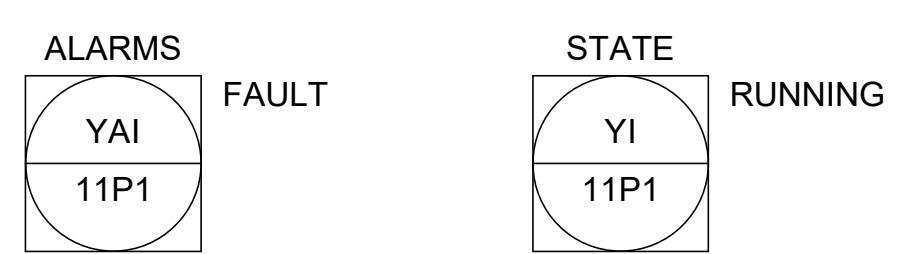
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DRAWING NUMBER
08-1111
 SHEET NUMBER
020

NOTES:

1. SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
2. FOR TAGS WITH "X", INDICATE EQUIPMENT IS SUPPLIED AS PART OF MANUFACTURER PACKAGE.
3. EQUIPMENT TAGS WITH "X", INSERT EQUIPMENT NUMBER.

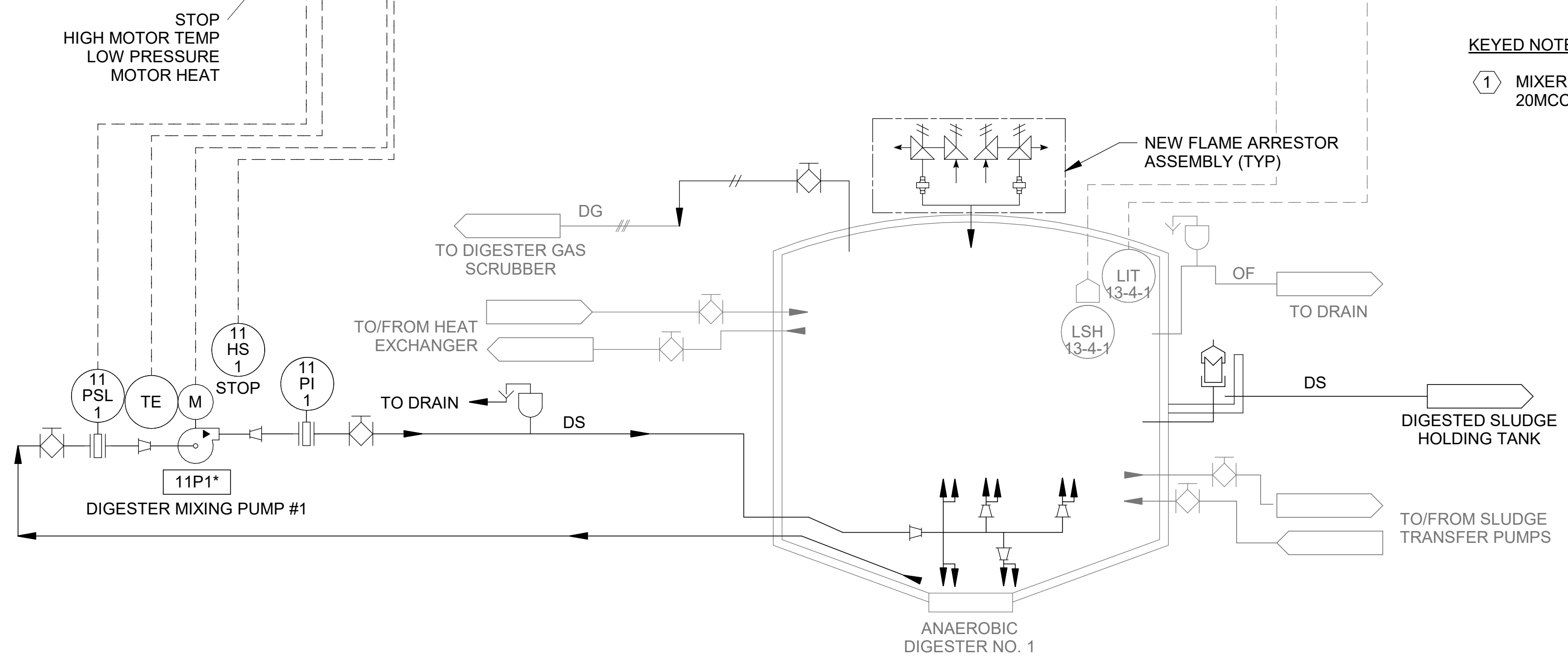
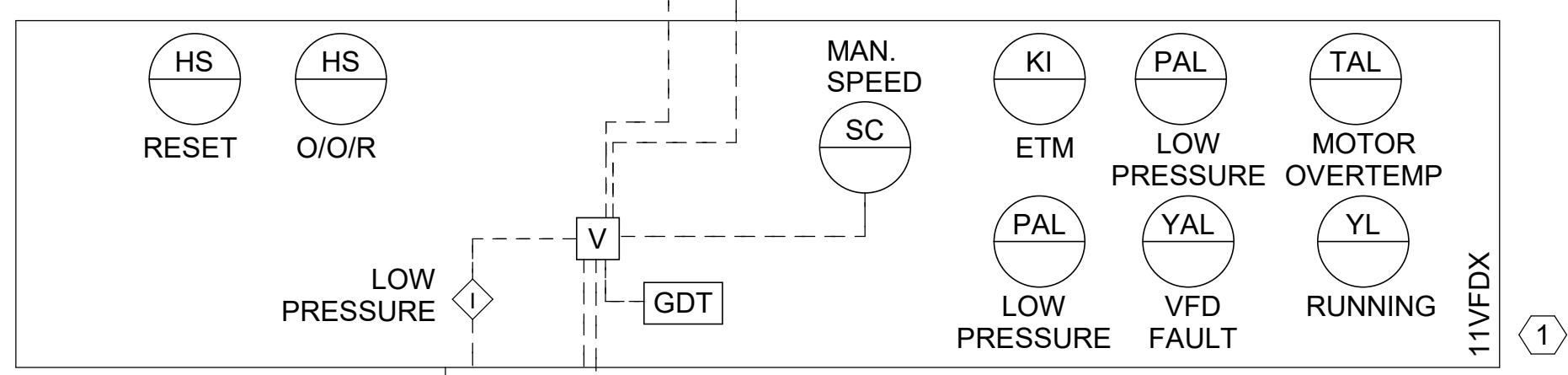
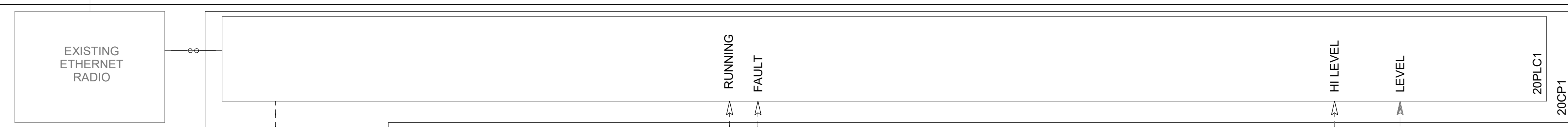
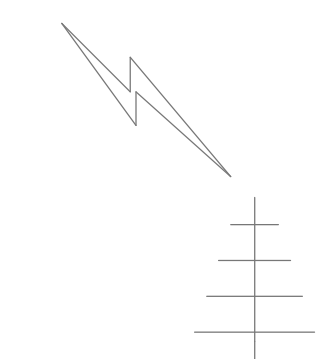
EXISTING SCADA INFORMATION TO REMAIN



HMI LEVEL

PLC LEVEL

MCC/CP LEVEL



KEYED NOTES:

- ① MIXER PUMP VFDS LOCATED IN NEW MOTOR CONTROL CENTER 20MCC1.

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF AnaerobicHFVRRF_01 - GENERAL.rvt
 Pcl Date: 11/09/2024 5:40:29 PM



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ANAEROBIC DIGESTER NO. 2 P&ID

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: JDS
 DRAWN BY: SAH
 CHECKED BY: JCW

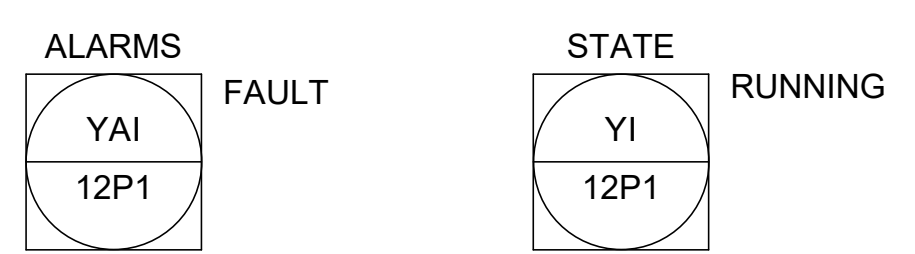
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DRAWING NUMBER
08-1121
 SHEET NUMBER
021

NOTES:

- SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
- FOR TAGS WITH "X", INDICATE EQUIPMENT IS SUPPLIED AS PART OF MANUFACTURER PACKAGE.
- EQUIPMENT TAGS WITH "X", INSERT EQUIPMENT NUMBER.

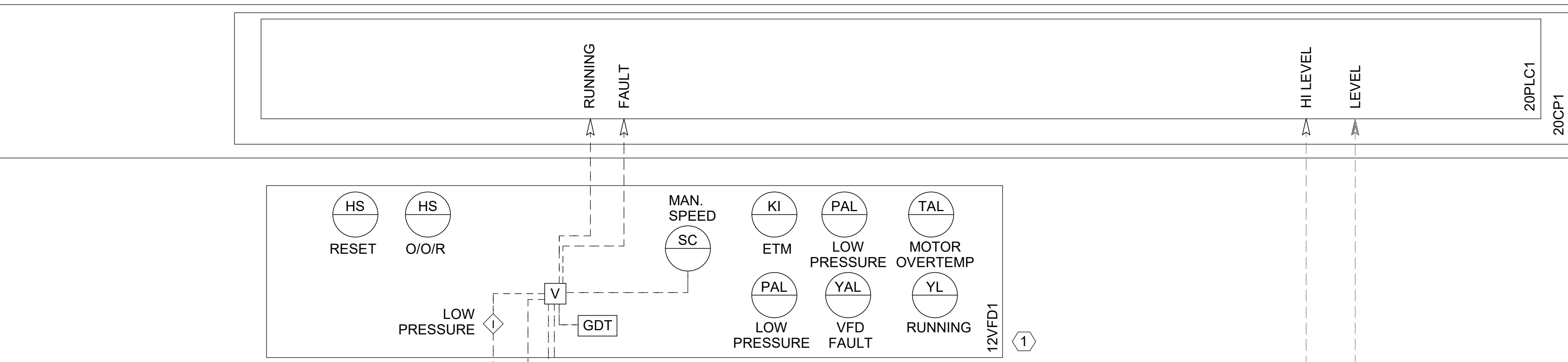
EXISTING SCADA INFORMATION TO REMAIN



HMI LEVEL

PLC LEVEL

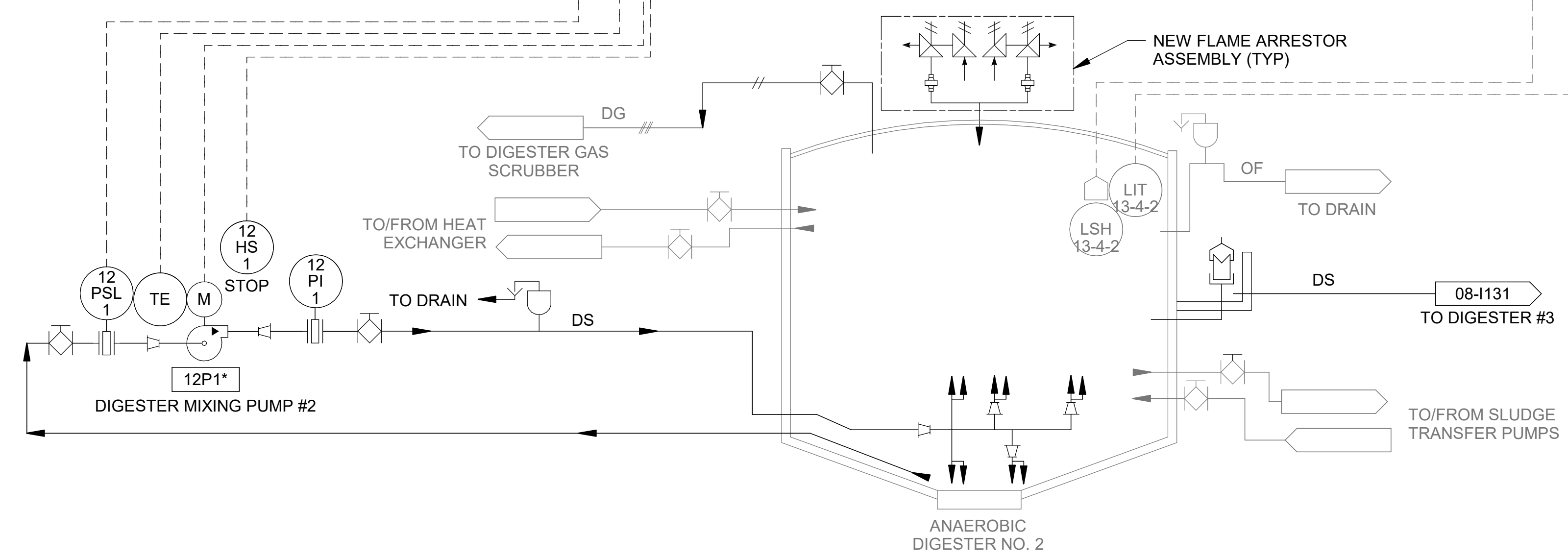
MCC/CP LEVEL



STOP
 HIGH MOTOR TEMP
 LOW PRESSURE
 MOTOR HEAT

KEYED NOTES:

- ① MIXER PUMP VFDS LOCATED IN NEW MOTOR CONTROL CENTER 20MCC1.



Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF AnaerobicHFVRRF_01 - GENERAL.rvt
 Plot Date: 11/09/2024 5:40:30 PM



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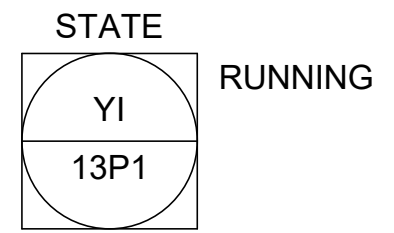
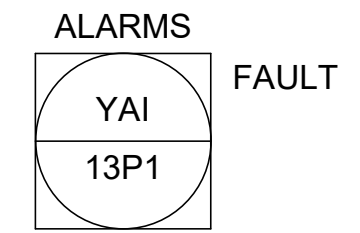
CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 AND DEWATERING FEED PUMPS P&ID

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: JDS
 DRAWN BY: SAH
 CHECKED BY: JCW

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 DRAWING NUMBER
08-1131
 SHEET NUMBER
022



EXISTING SCADA INFORMATION TO REMAIN

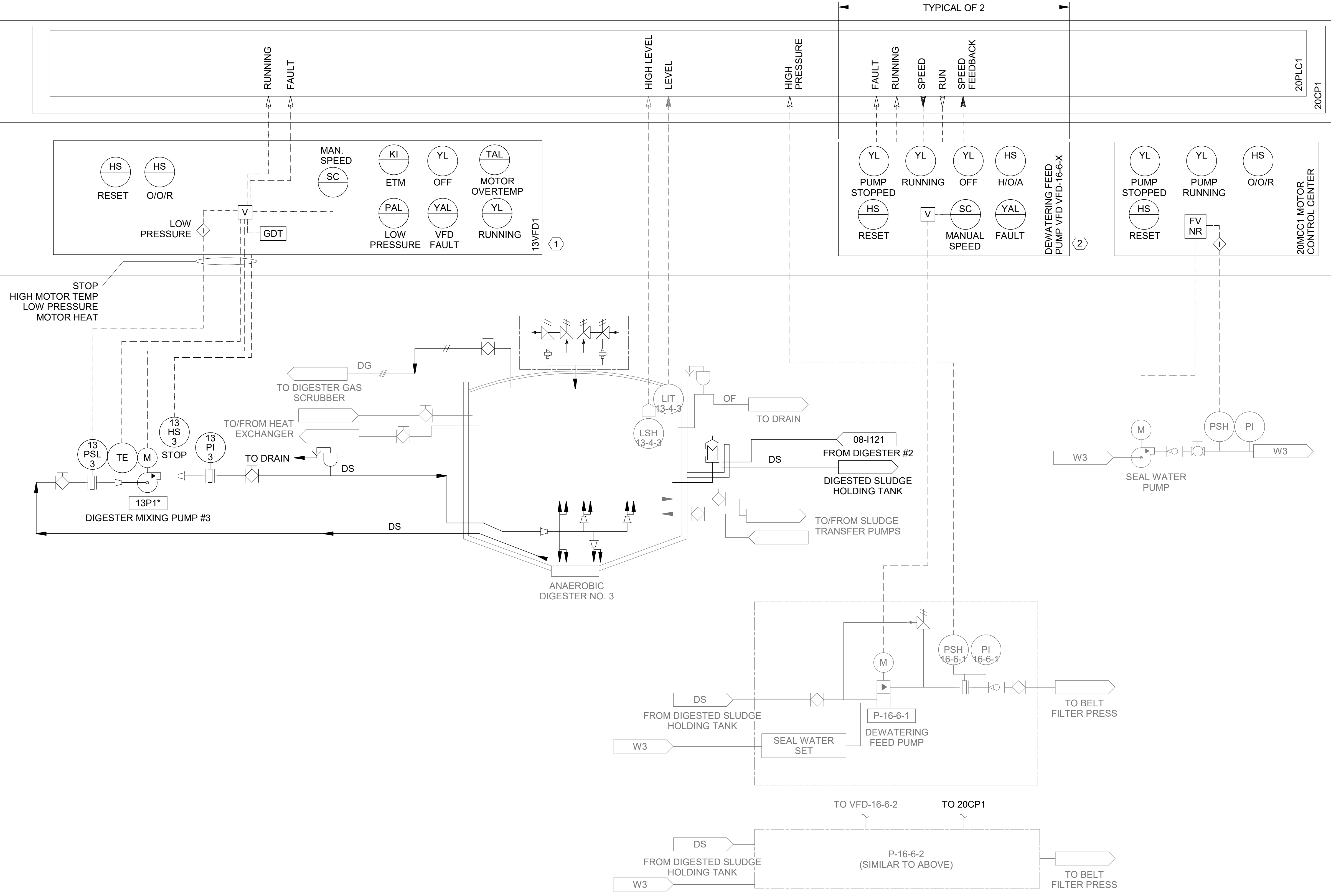
- KEYED NOTES:
- MIXER PUMP VFDS LOCATED IN NEW MOTOR CONTROL CENTER 20MCC1.
 - DEWATERING FEED PUMP VFD LOCATED IN NEW MOTOR CONTROL CENTER 20MCC1.

- NOTES:
- SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
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HMI LEVEL

PLC LEVEL

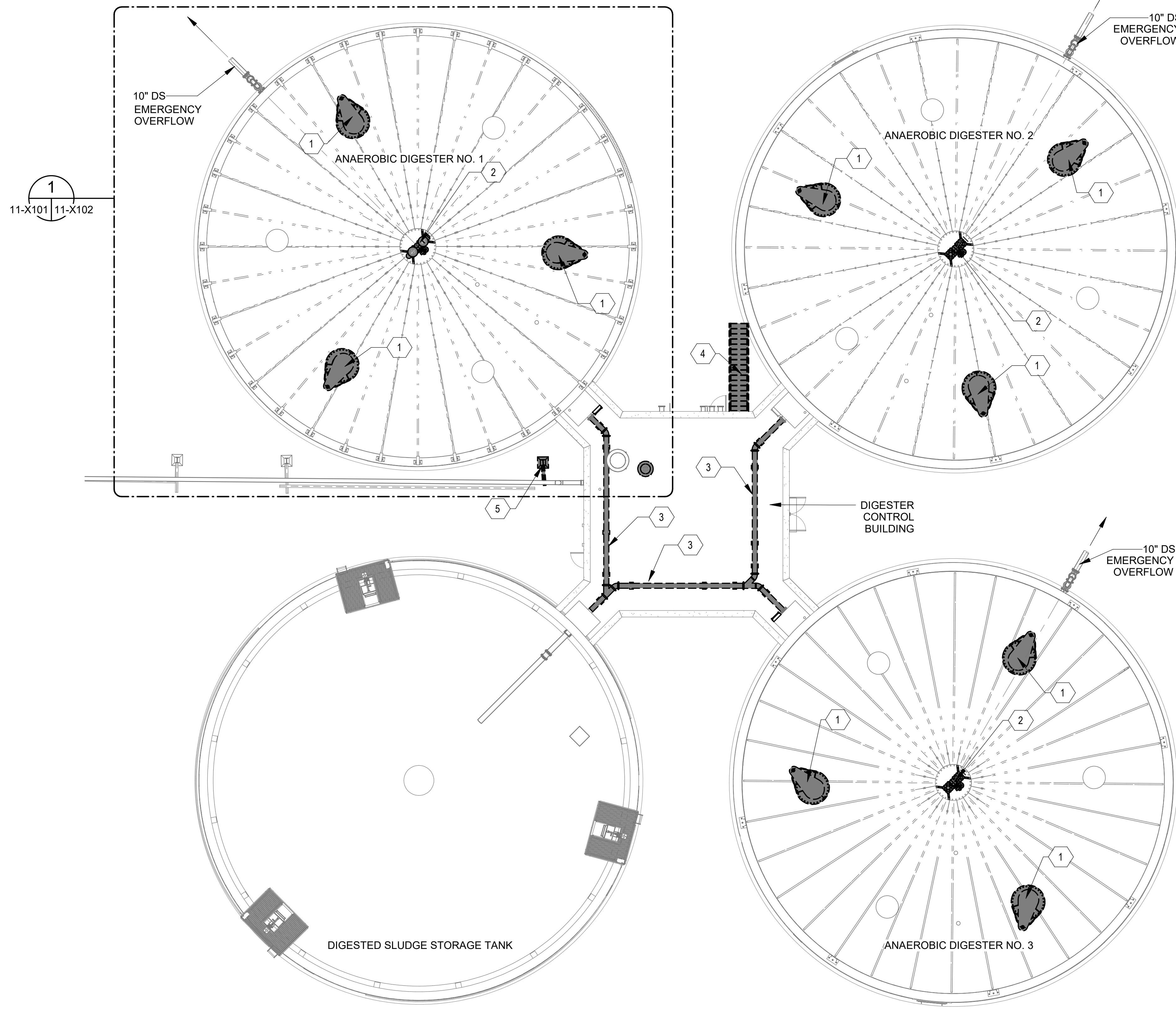
MCC/CP LEVEL



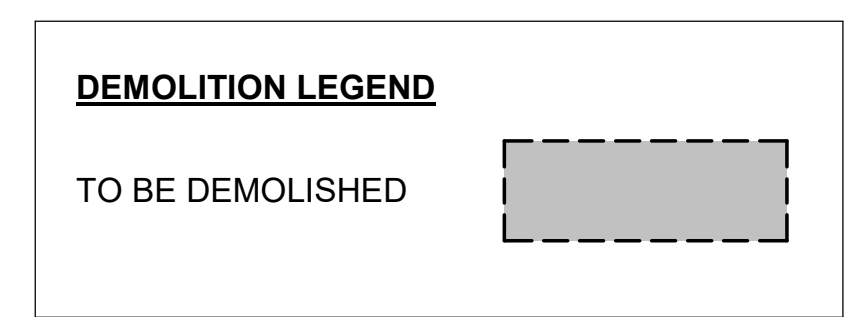
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 Plot Date: 11/29/2024 5:40:31 PM

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:22:59 PM



KEYNOTES:	DENOTED BY SYMBOL (X)
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB. PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
3	DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.
4	DEMOLISH AND DISPOSE EXISTING STAIRS.
5	RELOCATE EXISTING PIPE SUPPORT. PROVIDE TEMPORARY PIPE SUPPORT DURING CONSTRUCTION PHASE.



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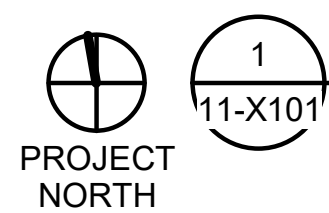
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 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION FACILITY UPPER DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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 DRAWING NUMBER
11-X101
 SHEET NUMBER **023**

**ANAEROBIC DIGESTION FACILITY
 OVERALL UPPER DEMOLITION PLAN**
 SCALE: 3/32" = 1'-0"



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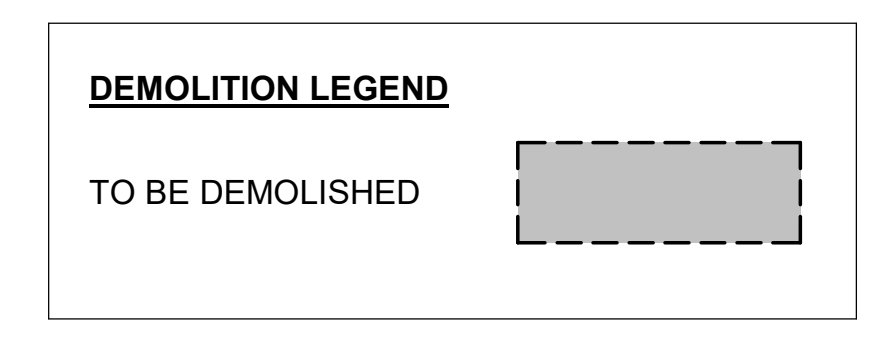
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 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1 UPPER DEMOLITION PLAN

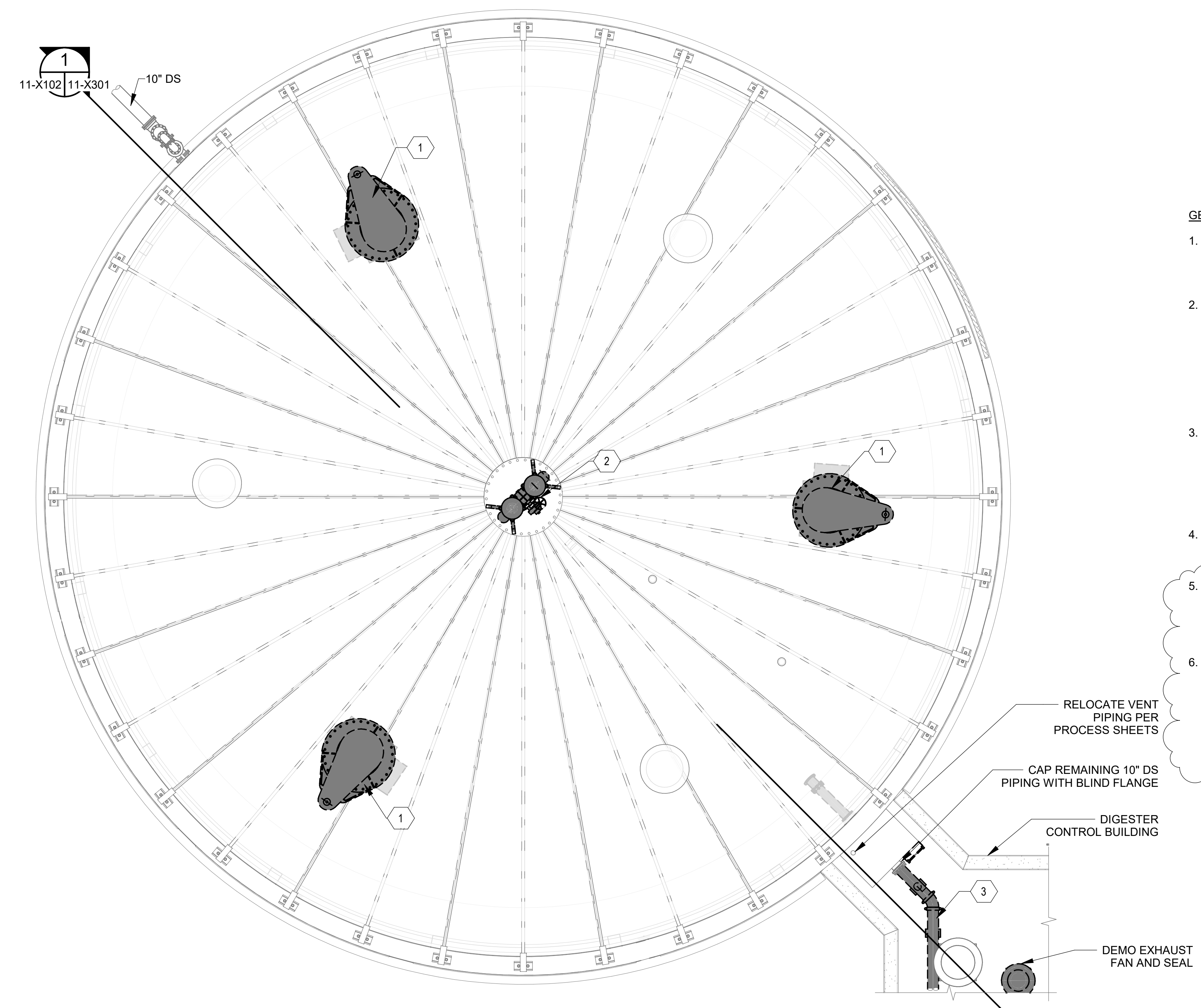
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.
 DRAWING NUMBER
11-X102
 SHEET NUMBER
024

KEYNOTES:	DENOTED BY SYMBOL (X)
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
3	DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.

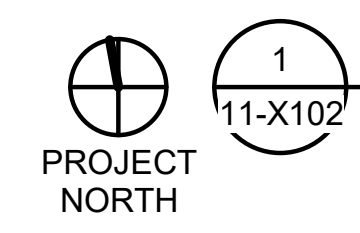


- GENERAL NOTES:**
- OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
 - IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
 - CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.
 - EXISTING DOME FRAMING SUPPORT MEMBERS SHALL NOT BE DAMAGED DURING SAWCUTTING OR OTHER MEANS USED FOR REMOVAL OF THE PLATE SECTIONS.
 - CONTRACTOR SHALL REMOVE ALL EXISTING EXPOSED CONDUIT TO COVER MOUNTED EQUIPMENT, INSTRUMENTATION, AND OTHER DEVICES THAT IS/WILL BE NO LONGER IN SERVICE. SEAL/PATCH ANY HOLES, AS REQUIRED.
 - CONTRACTOR SHALL ASSESS THE STRUCTURAL STABILITY OF ALL EXPOSED BRICK SECTIONS/FACADES ON EXTERIOR OF DIGESTER TANK. ANY ADDITIONAL REPAIRS AND/OR DEMOLITION NECESSARY TO ADDRESS THESE AREAS SHALL BE PAID FROM USING THE CONTINGENCY ALLOWANCE BASED ON EXTENT OF REPAIRS OR ADDITIONAL DEMOLITION.



**ANAEROBIC DIGESTER NO. 1
 UPPER DEMOLITION PLAN**

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



Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:23:02 PM

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KEYNOTES: DENOTED BY SYMBOL (X)

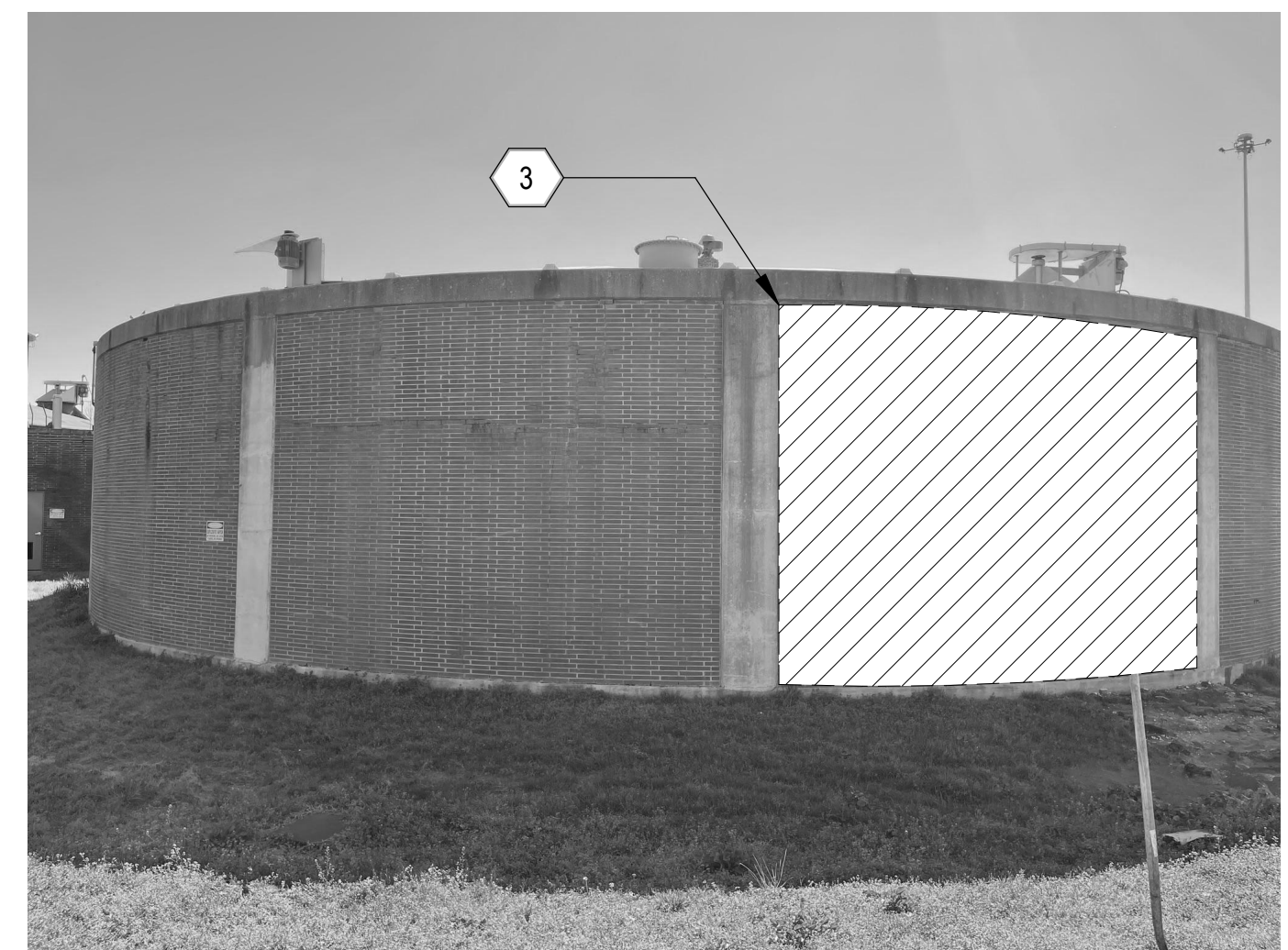
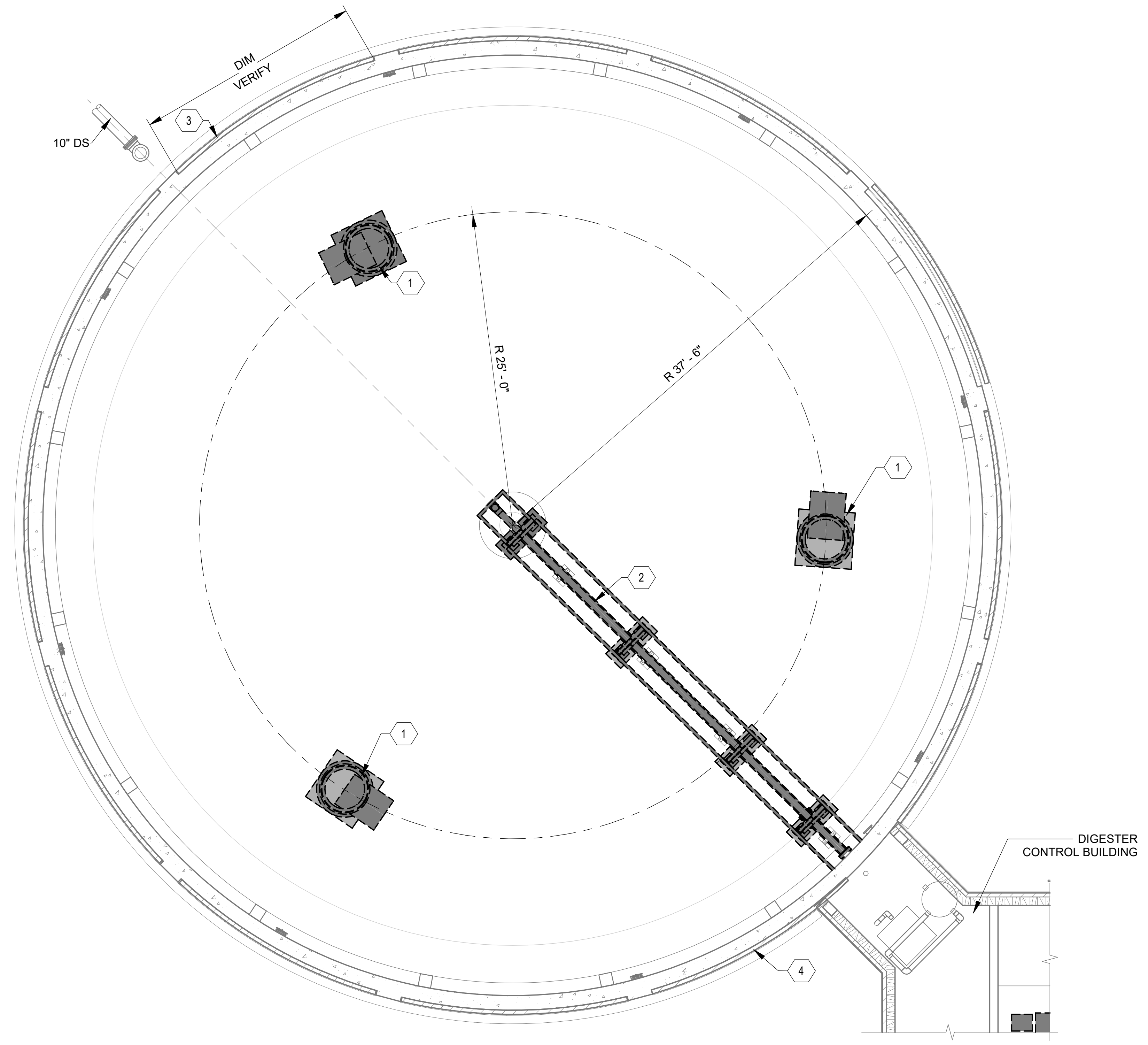
- 1 DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
- 2 DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.
- 3 DEMOLISH EXISTING DAMAGED BRICK SECTION AND REPLACE IN KIND WITH MATCHING BRICK FACADE.
- 4 DEMOLISH EXISTING BRICK FACADE TO EXTENT NECESSARY TO INSTALL NEW DIGESTER TRANSFER BOX. REPLACE BRICK FACADE UP TO THE EDGE OF THE TRANSFER BOXES WITH MATCHING BRICK.

DEMOLITION LEGEND

TO BE DEMOLISHED

GENERAL NOTES:

1. OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
2. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
3. CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.



ANAEROBIC DIGESTER NO. 1
 LOWER DEMOLITION PLAN

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

PROJECT NORTH
 1
 11-X103

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:23:05 PM

REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 1 LOWER
 DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
11-X103
 SHEET NUMBER
025

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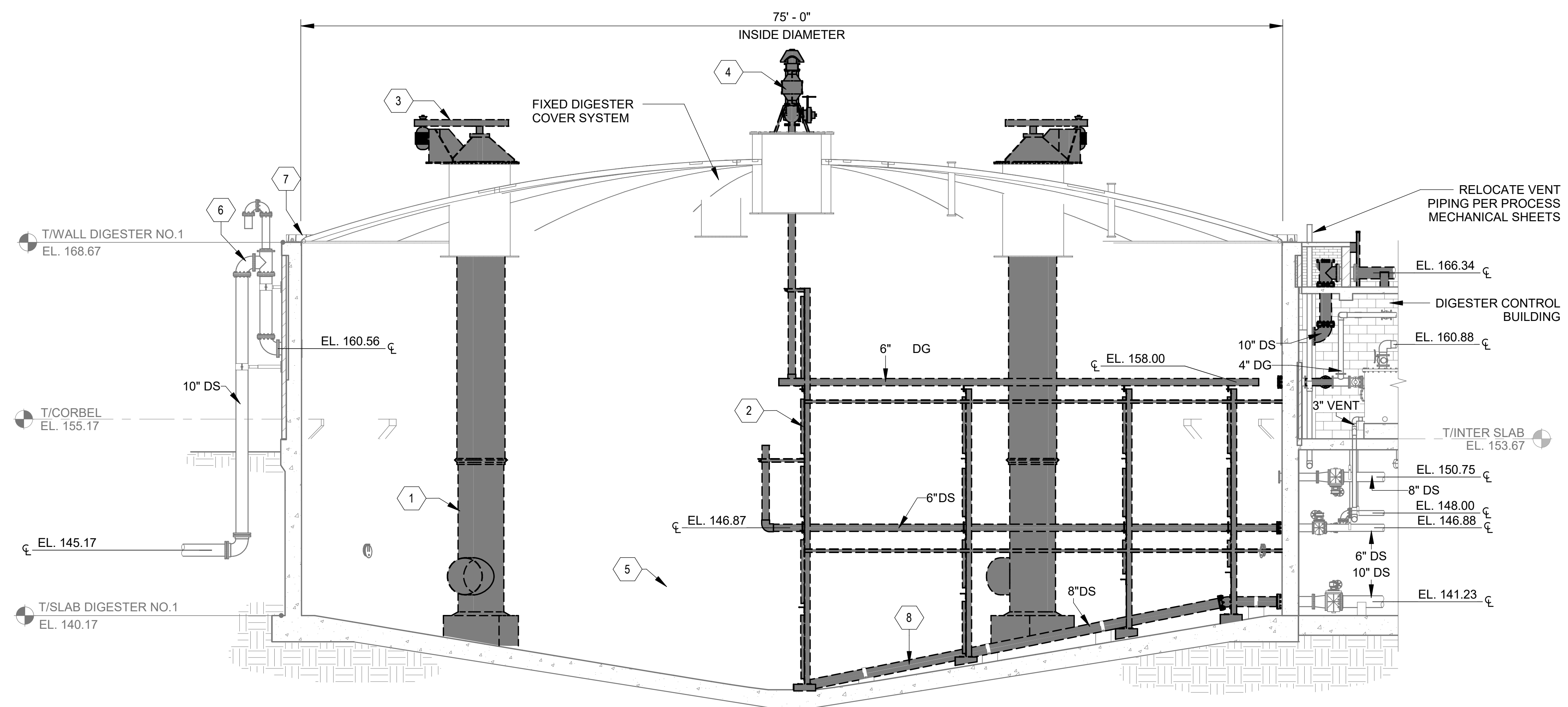
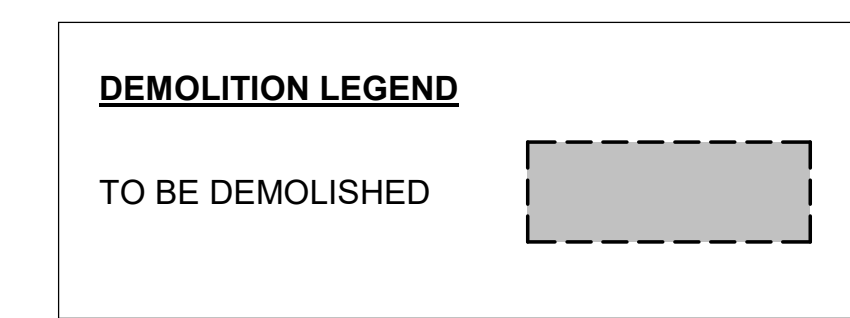


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KEYNOTES:	DENOTED BY SYMBOL (X)
1	DEMOLISH ALL EXISTING INTERIOR DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.
2	DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.
3	REMOVE ALL EXISTING EXTERIOR DIGESTER MIXING EQUIPMENT. PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
4	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
5	REFER TO SPECIFICATION SECTION 44 10 00 FOR DIGESTER CLEANOUT REQUIREMENTS.
6	CONTRACTOR TO JET AND CLEANOUT EXISTING OVERFLOW PIPING TO REMOVE ANY OBSTRUCTIONS OR BLOCKAGE. SANDBLAST AND RECOAT PIPING ACCORDING TO COATING SCHEDULE SPECIFIED IN SECTION 09 90 00.
7	CONTRACTOR TO INSPECT EXISTING SIDE SHEET CONNECTION INCLUDING ANNULAR SEAL AND RETAINER PLATE. SEE STRUCTURAL DRAWINGS FOR ADDITIONAL DETAILS FOR REPLACEMENT.
8	CONTRACTOR TO REMOVE AND REPLACE EXISTING DIGESTED SLUDGE TRANSFER PIPING AND PIPE SUPPORT HARDWARE. EXISTING PIPE SUPPORTS TO REMAIN. PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL.



NOTES:

1. INTERIOR TANK DETAILS HAVE BEEN PROVIDED BASED ON AVAILABLE RECORD DRAWINGS. DIMENSIONS HAVE NOT BEEN VERIFIED FOR ACCURACY.
2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.

1
 11-X102 | 11-X301 ANAEROBIC DIGESTER NO. 1 DEMOLITION SECTION
 SCALE: 3/16" = 1'-0"

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HWRP_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:23:08 PM

REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 1 DEMOLITION
 SECTION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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 DRAWING NUMBER
11-X301
 SHEET NUMBER
026

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2. AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
3. THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.



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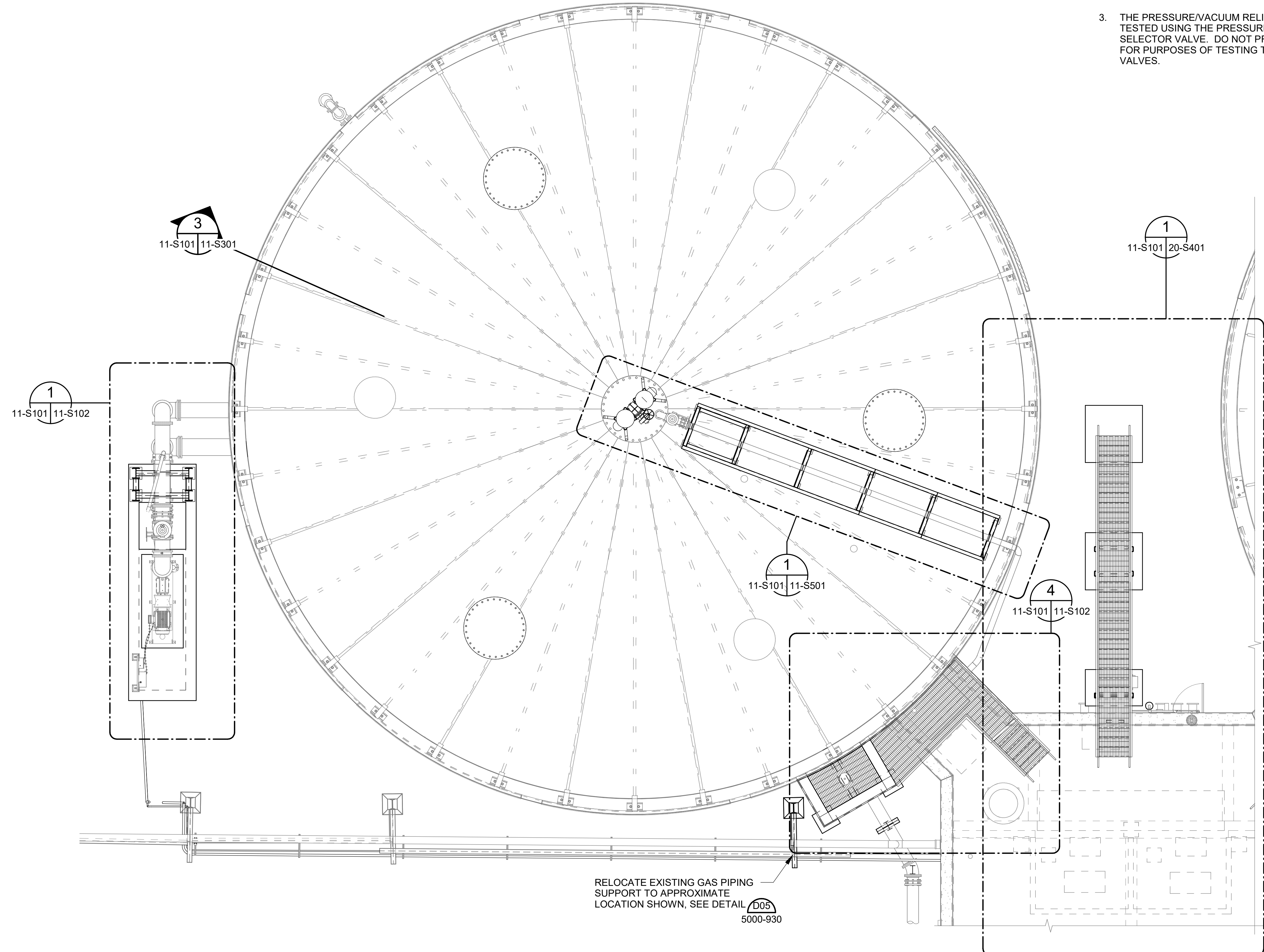
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TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1 REHABILITATION PLAN

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: KAU
DRAWN BY: EGB
CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
11-S101
SHEET NUMBER **027**



RELOCATE EXISTING GAS PIPING SUPPORT TO APPROXIMATE LOCATION SHOWN, SEE DETAIL D05 5000-930

ANAEROBIC DIGESTER NO. 1 REHABILITATION PLAN

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



PROJECT NORTH

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic Digester No. 1.rvt
Plot Date: 11/19/2024 5:22:41 PM

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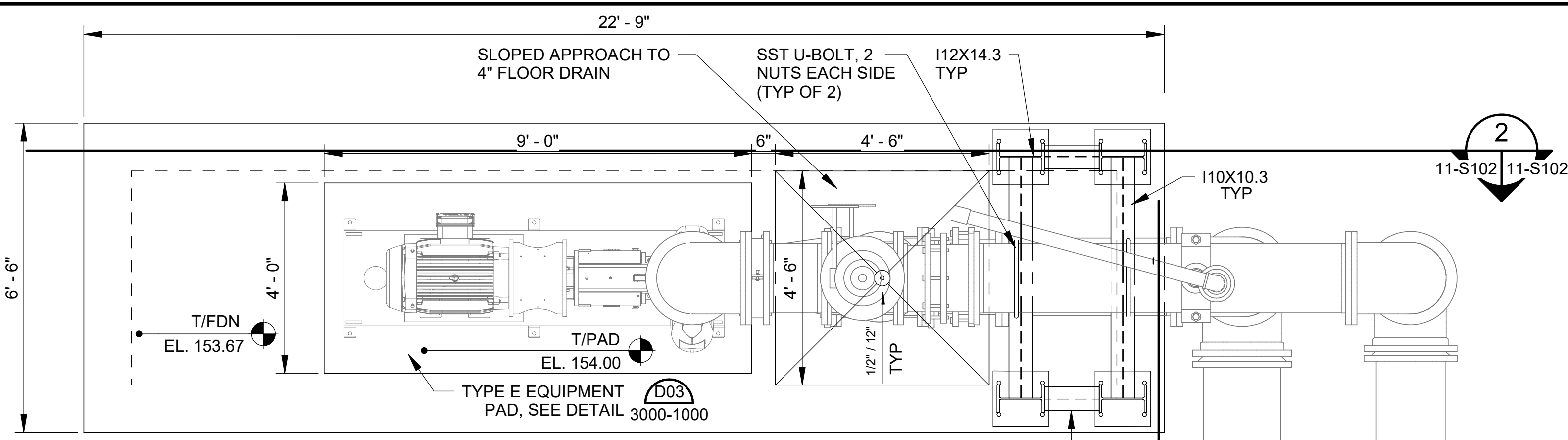
CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

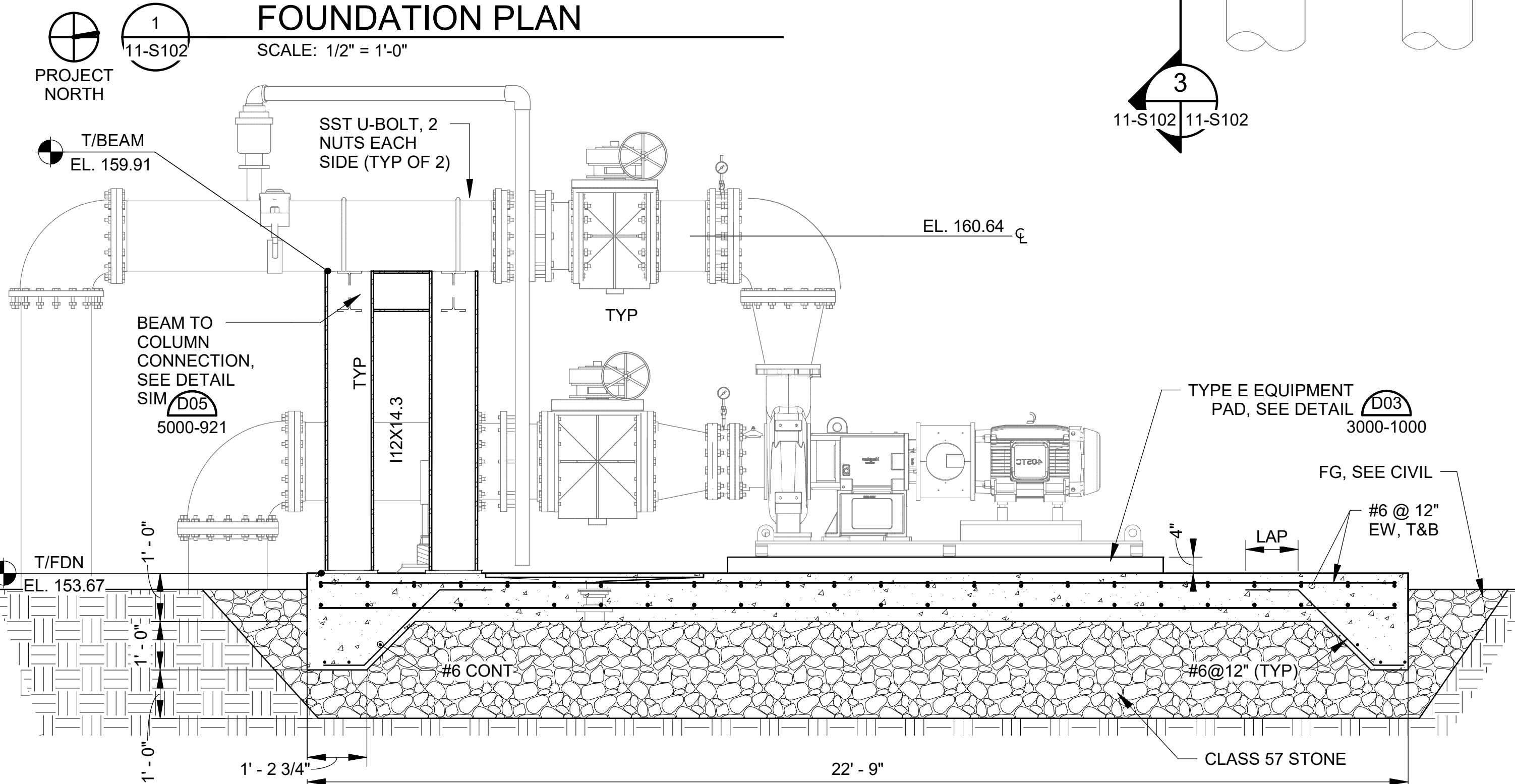
ANAEROBIC DIGESTER NO. 1 REHABILITATION SECTIONS AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWf
 DRAWN BY: ADA
 CHECKED BY: KAM

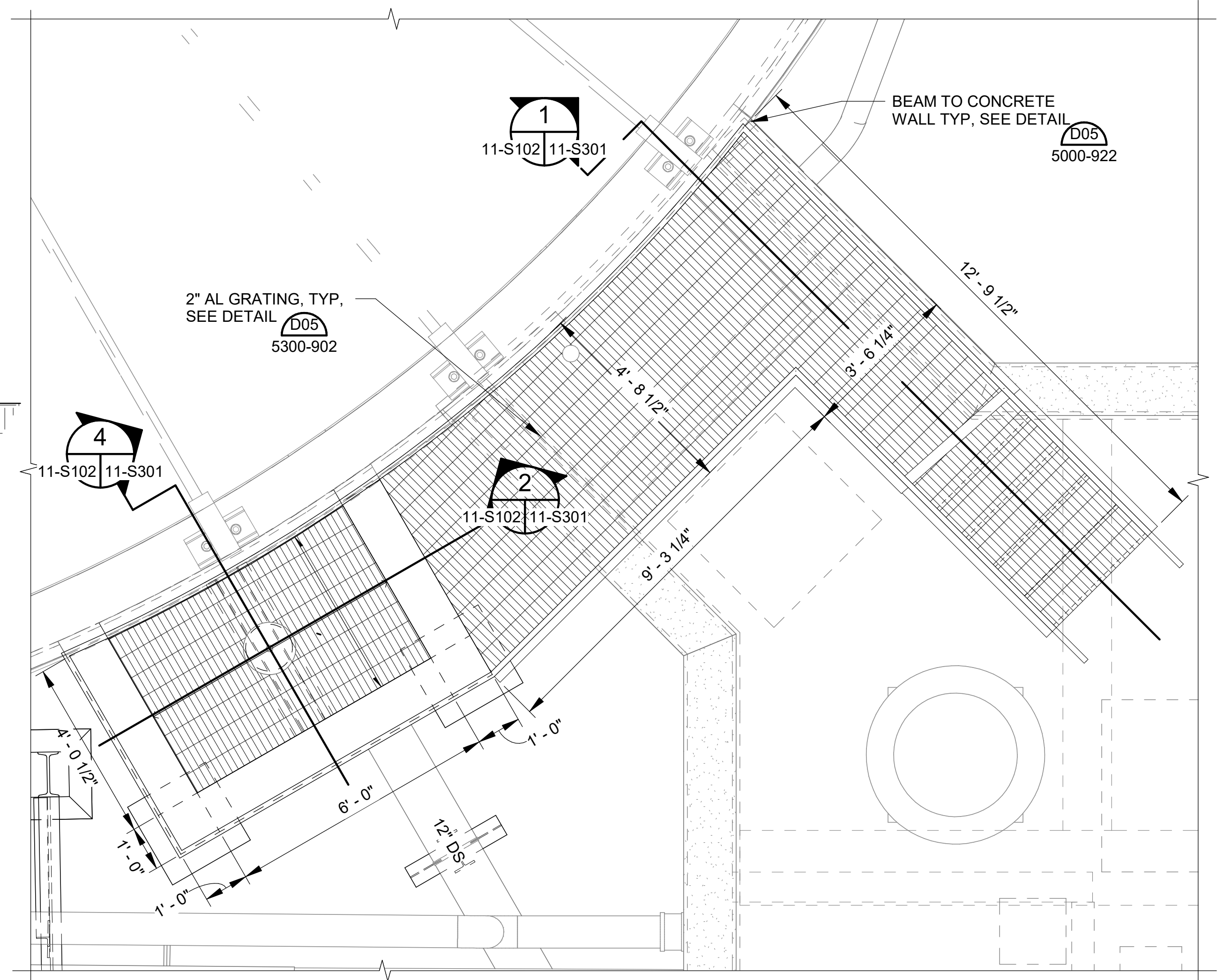
BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
11-S102
 SHEET NUMBER
028



DIGESTER MIXING PUMP FOUNDATION PLAN
 SCALE: 1/2" = 1'-0"



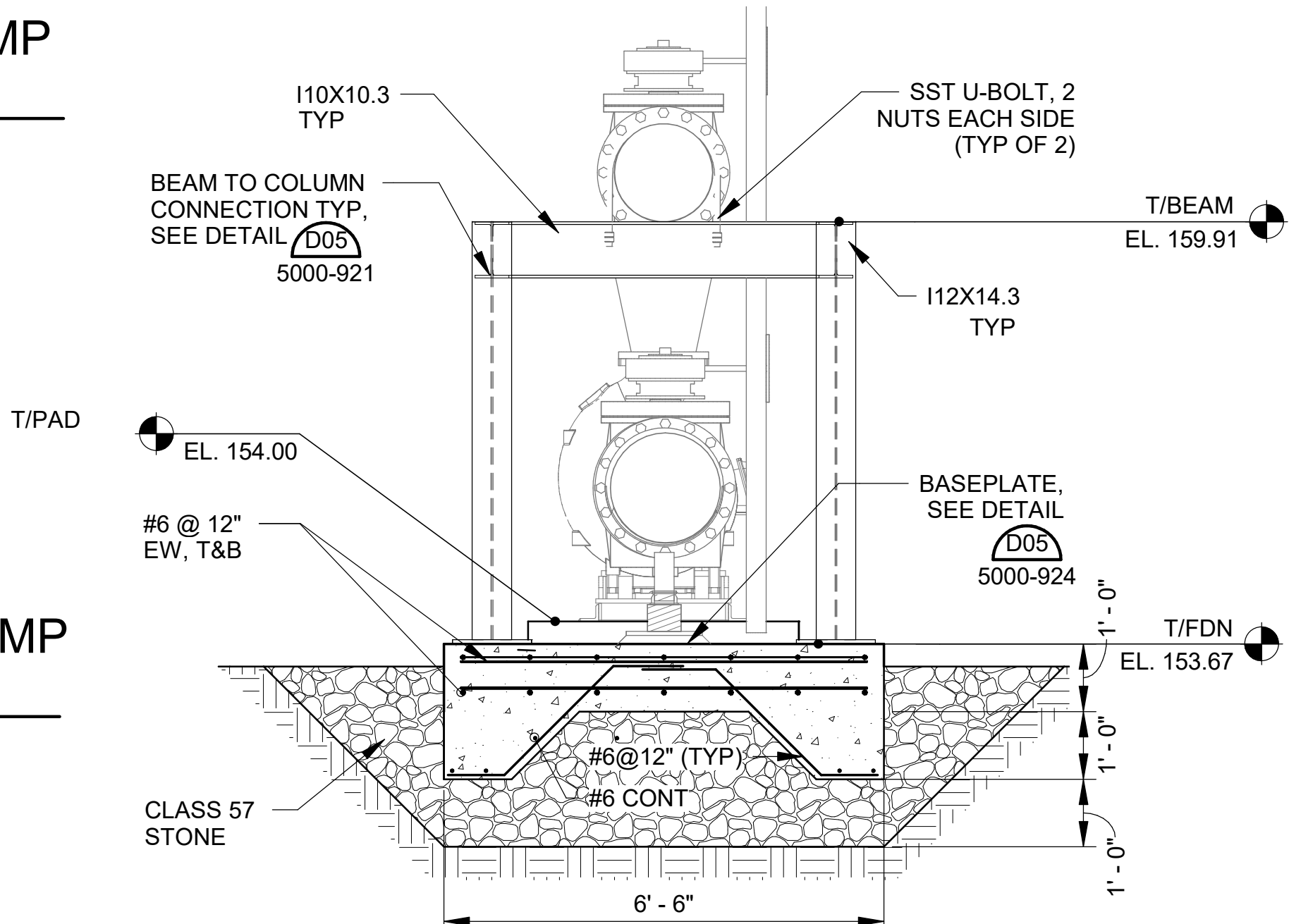
DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



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

DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"

DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic Digester No. 1.rvt
 Plot Date: 11/19/2024 5:22:46 PM



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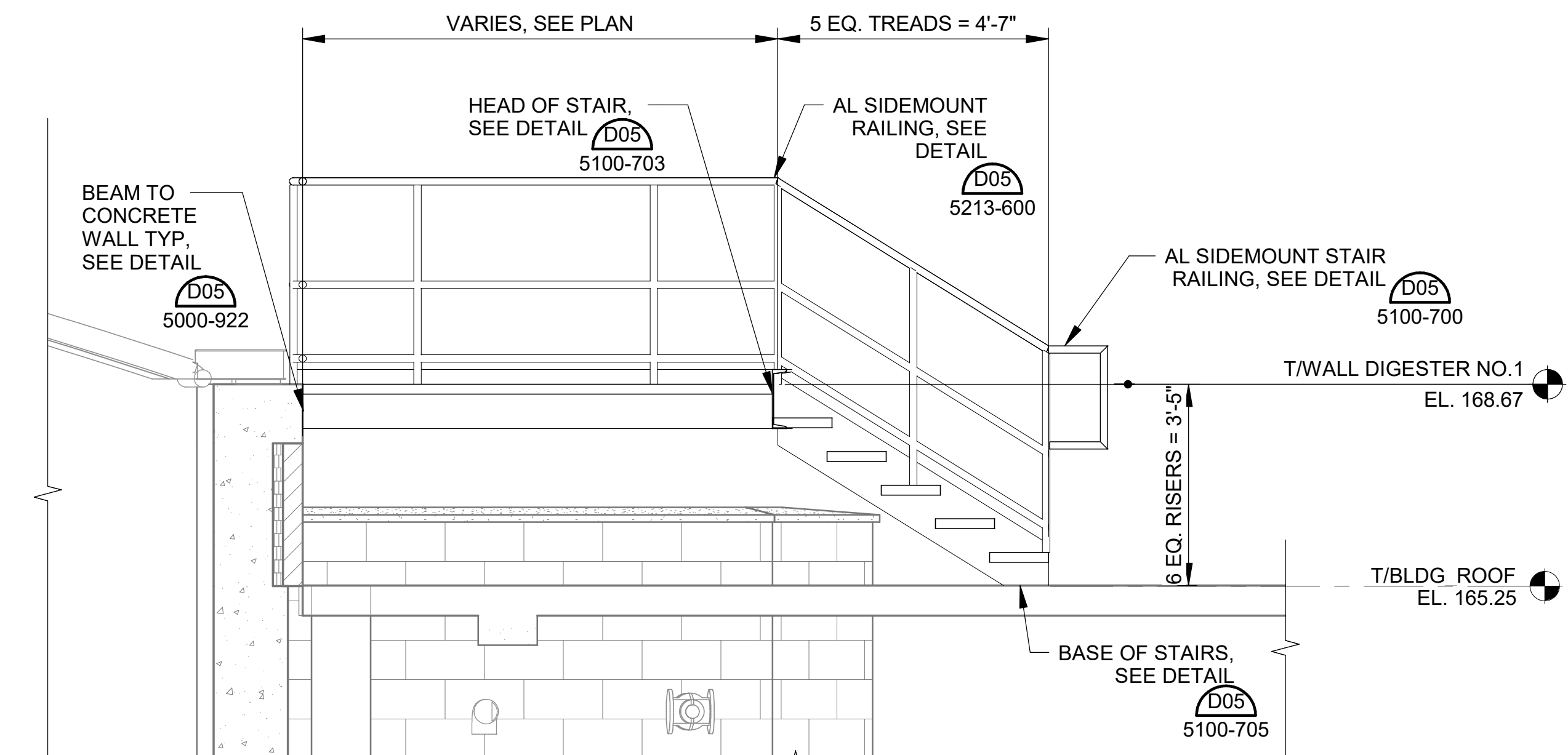
REV	DATE	DESCRIPTION	BY

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 PHASE II IMPROVEMENTS

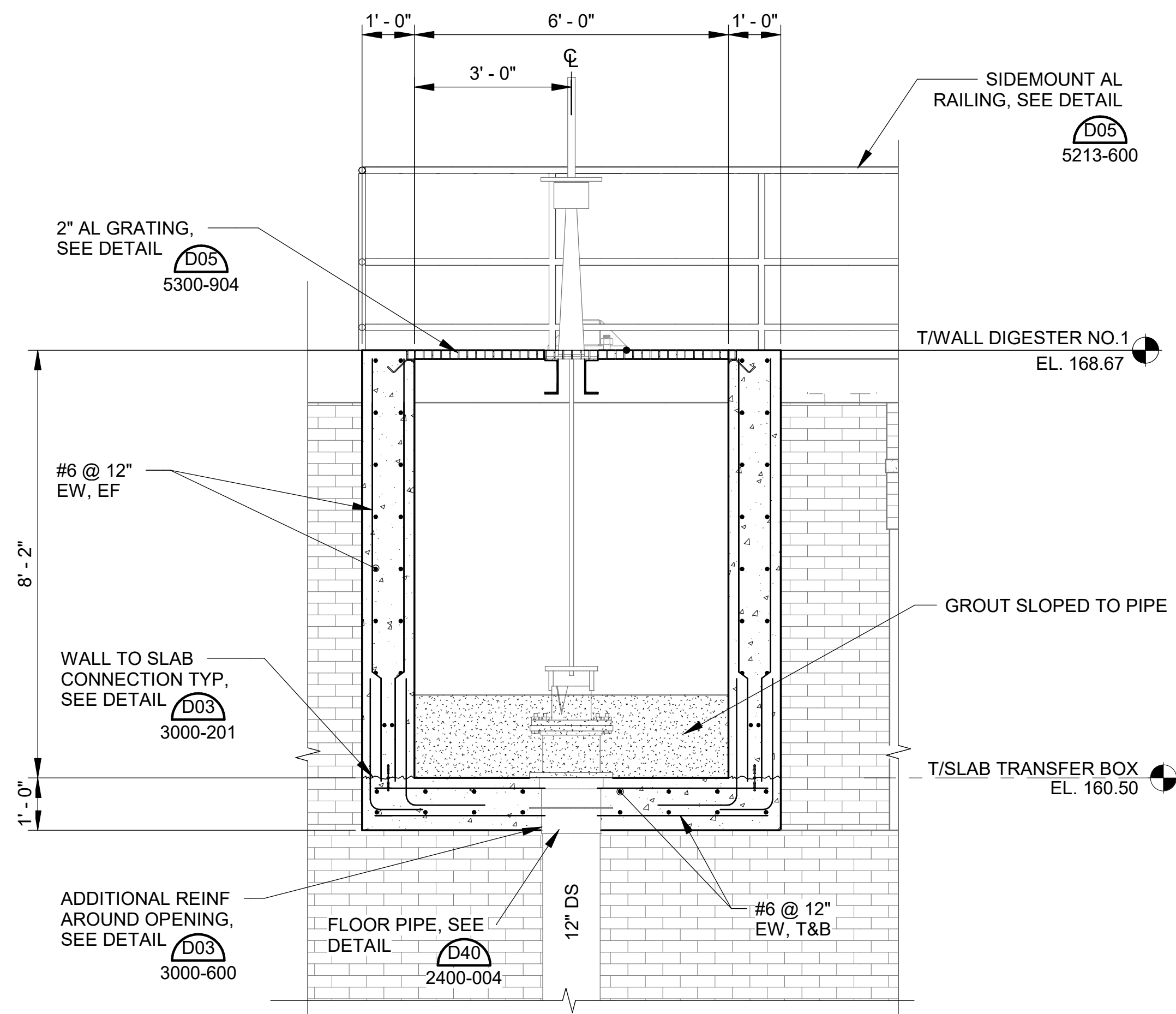
ANAEROBIC DIGESTER NO. 1 REHABILITATION SECTIONS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWf
 DRAWN BY: ADA
 CHECKED BY: KAM

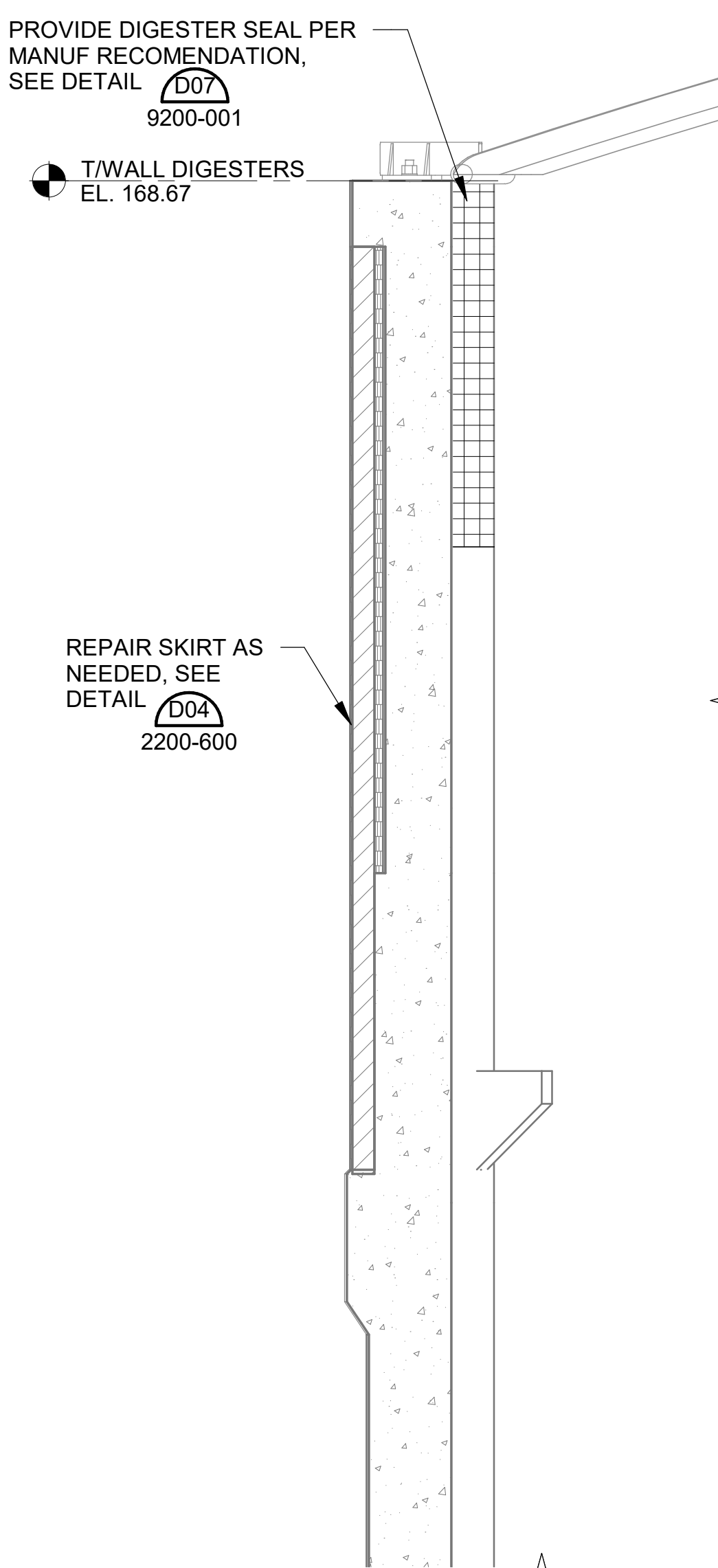
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 DRAWING NUMBER
11-S301
 SHEET NUMBER
029



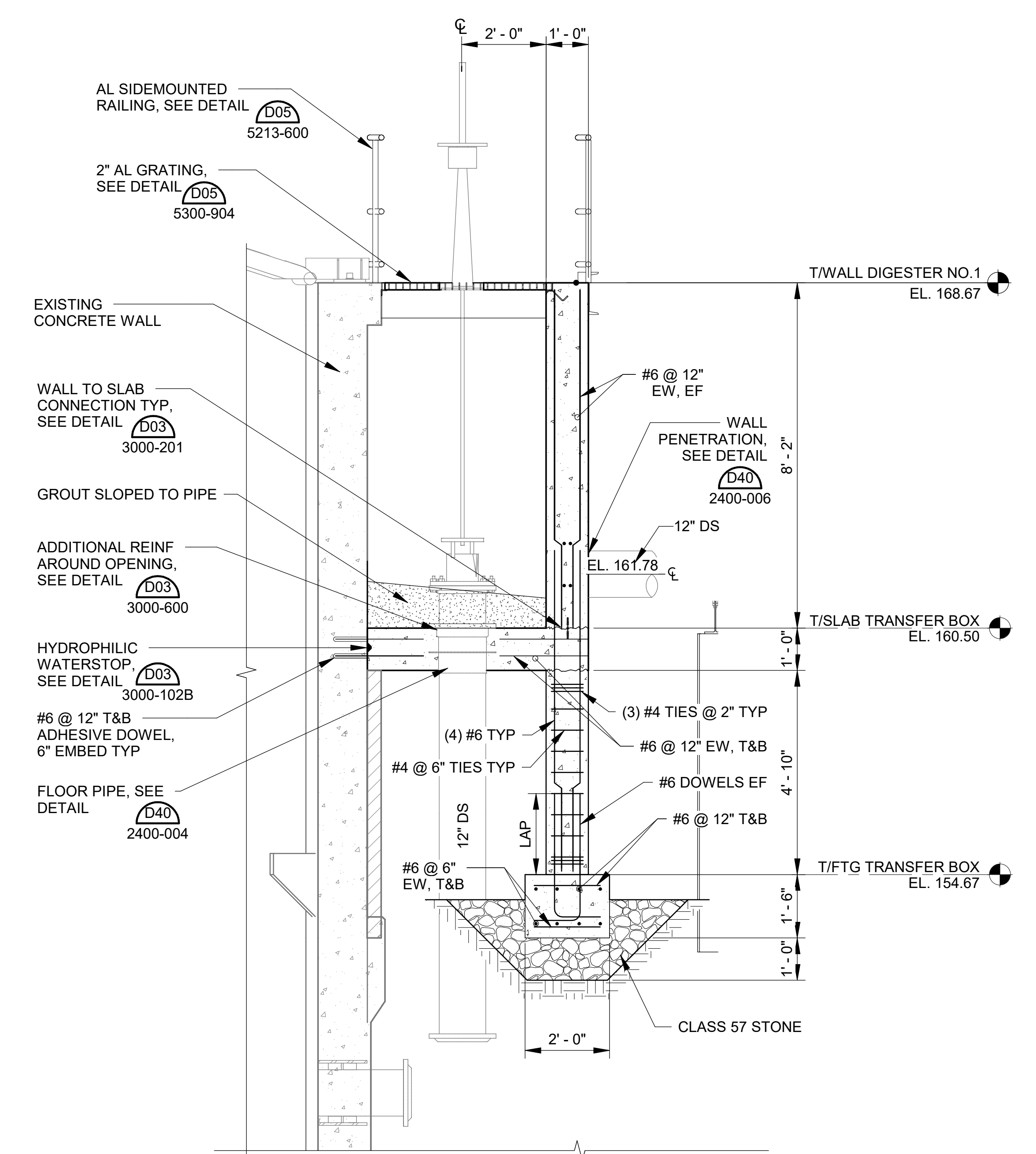
1 STAIR SECTION
 11-S102 | 11-S301 SCALE: 1/2" = 1'-0"



2 DIGESTED SLUDGE TRANSFER BOX SECTION
 11-S102 | 11-S301 SCALE: 1/2" = 1'-0"



3 WALL SKIRT SECTION
 11-S101 | 11-S301 SCALE: 1/2" = 1'-0"



4 DIGESTED SLUDGE TRANSFER BOX SECTION
 11-S102 | 11-S301 SCALE: 1/2" = 1'-0"

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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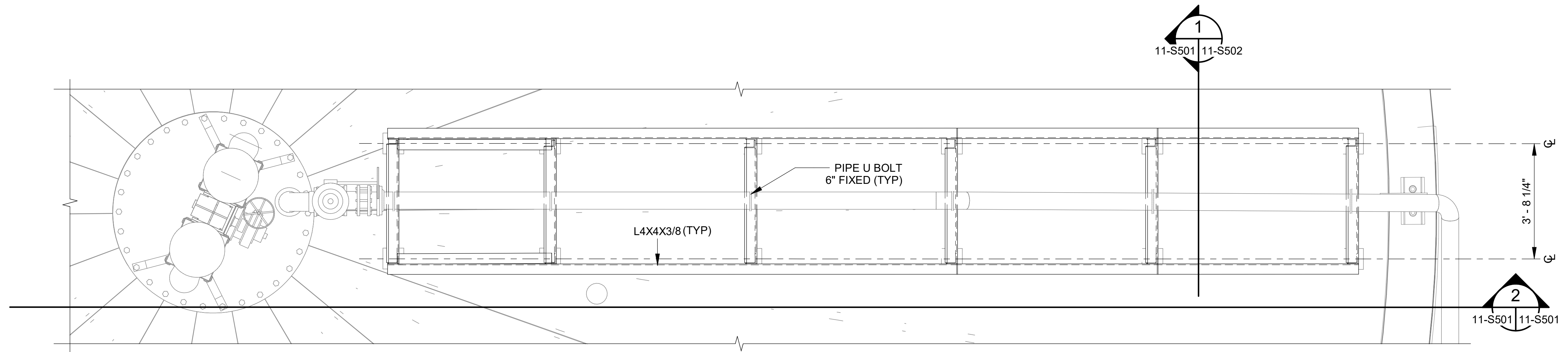
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER PIPE SUPPORT NO. 1
 REHABILITATION
 DETAIL AND SECTION

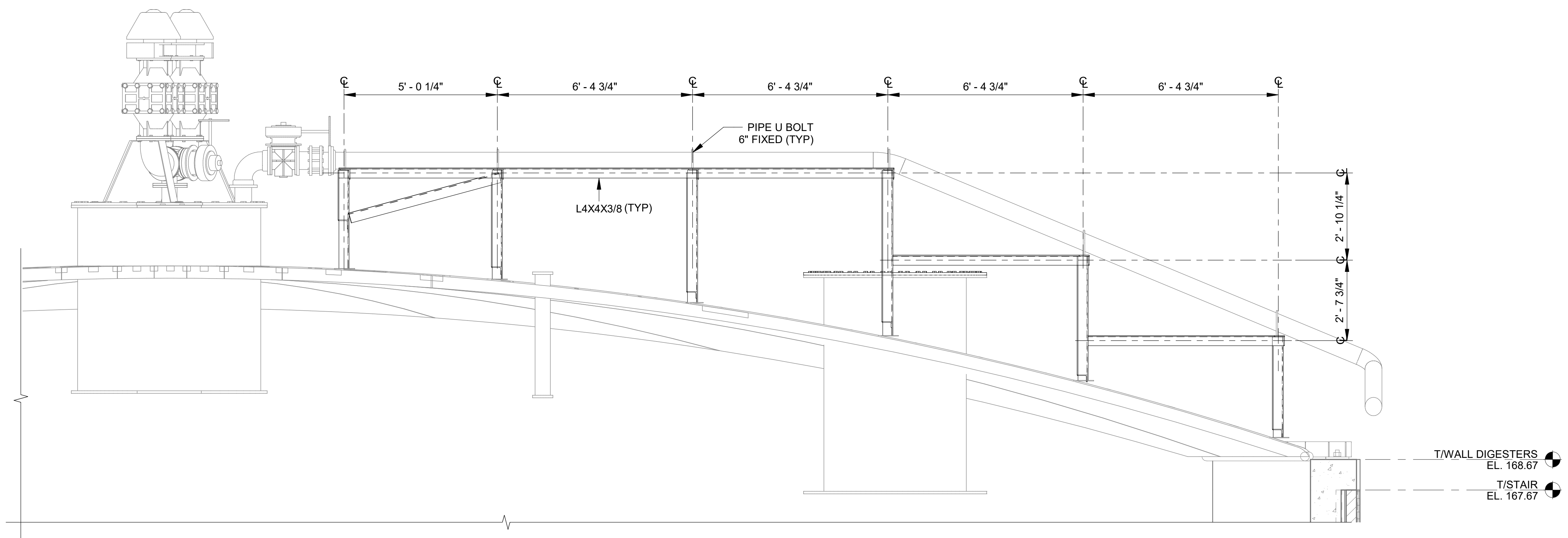
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWf
 DRAWN BY: GBA
 CHECKED BY: KAM

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DRAWING NUMBER
11-S501
 SHEET NUMBER **030**



CALLOUT
 SCALE: 1/2" = 1'-0"
 PROJECT NORTH



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

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:22:51 PM



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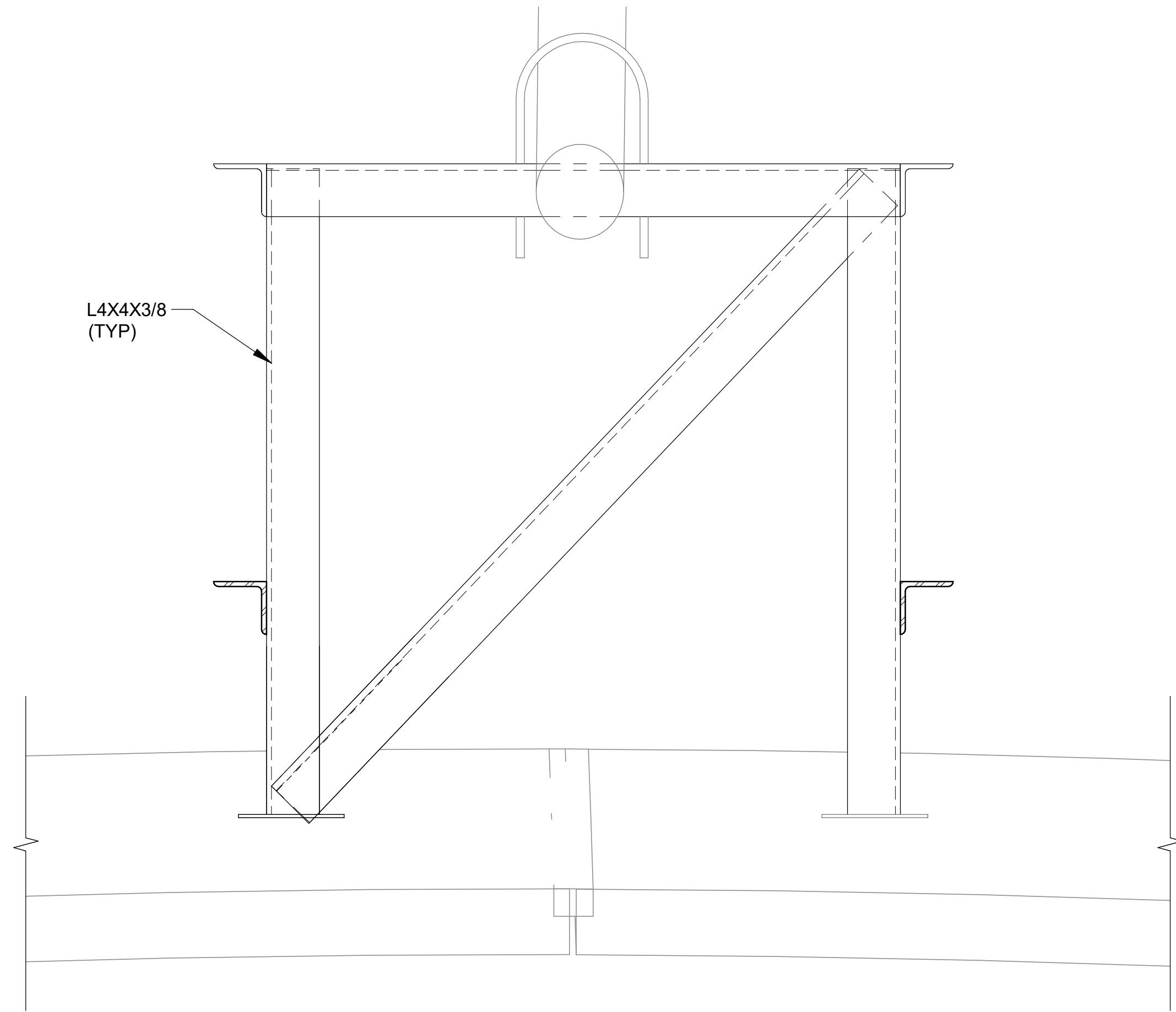
REV	DATE	DESCRIPTION	BY

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 PHASE II IMPROVEMENTS

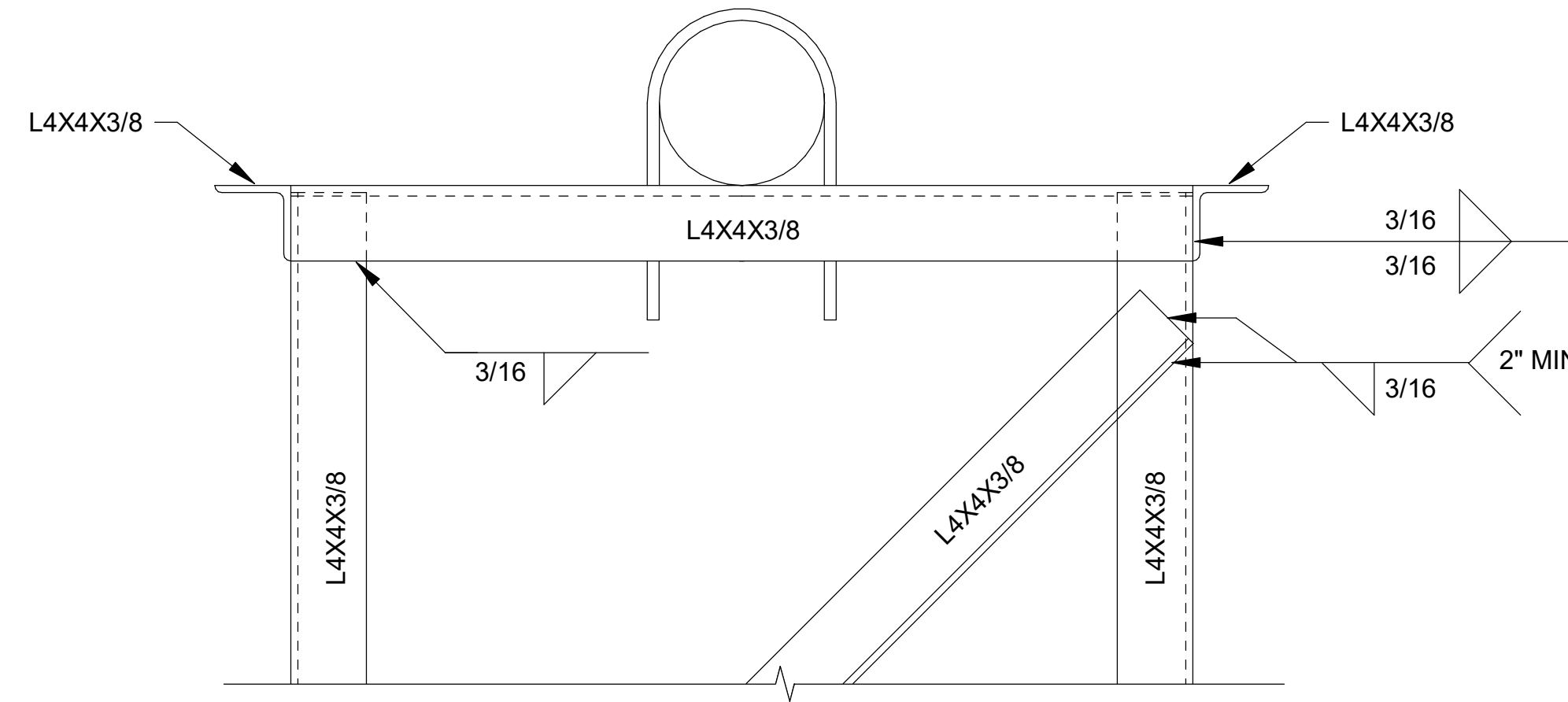
ANAEROBIC DIGESTER PIPE SUPPORT NO. 1
 REHABILITATION
 DETAIL

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: GBA
 CHECKED BY: KAM

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 DRAWING NUMBER
11-S502
 SHEET NUMBER
031



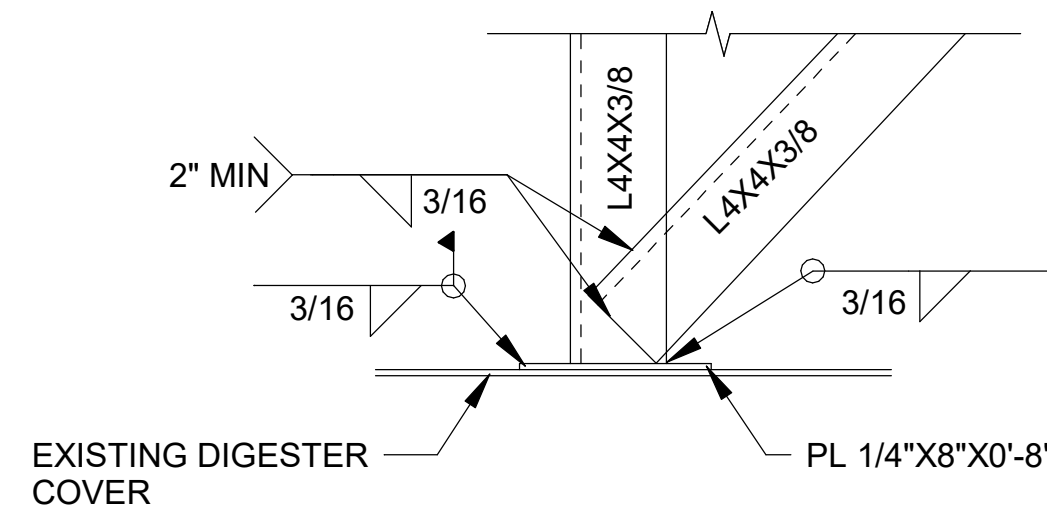
SECTION 1
 11-S501 | 11-S502 SCALE: 1 1/2" = 1'-0"



DETAIL 2
 11-S502 SCALE: 1 1/2" = 1'-0"

NOTES:

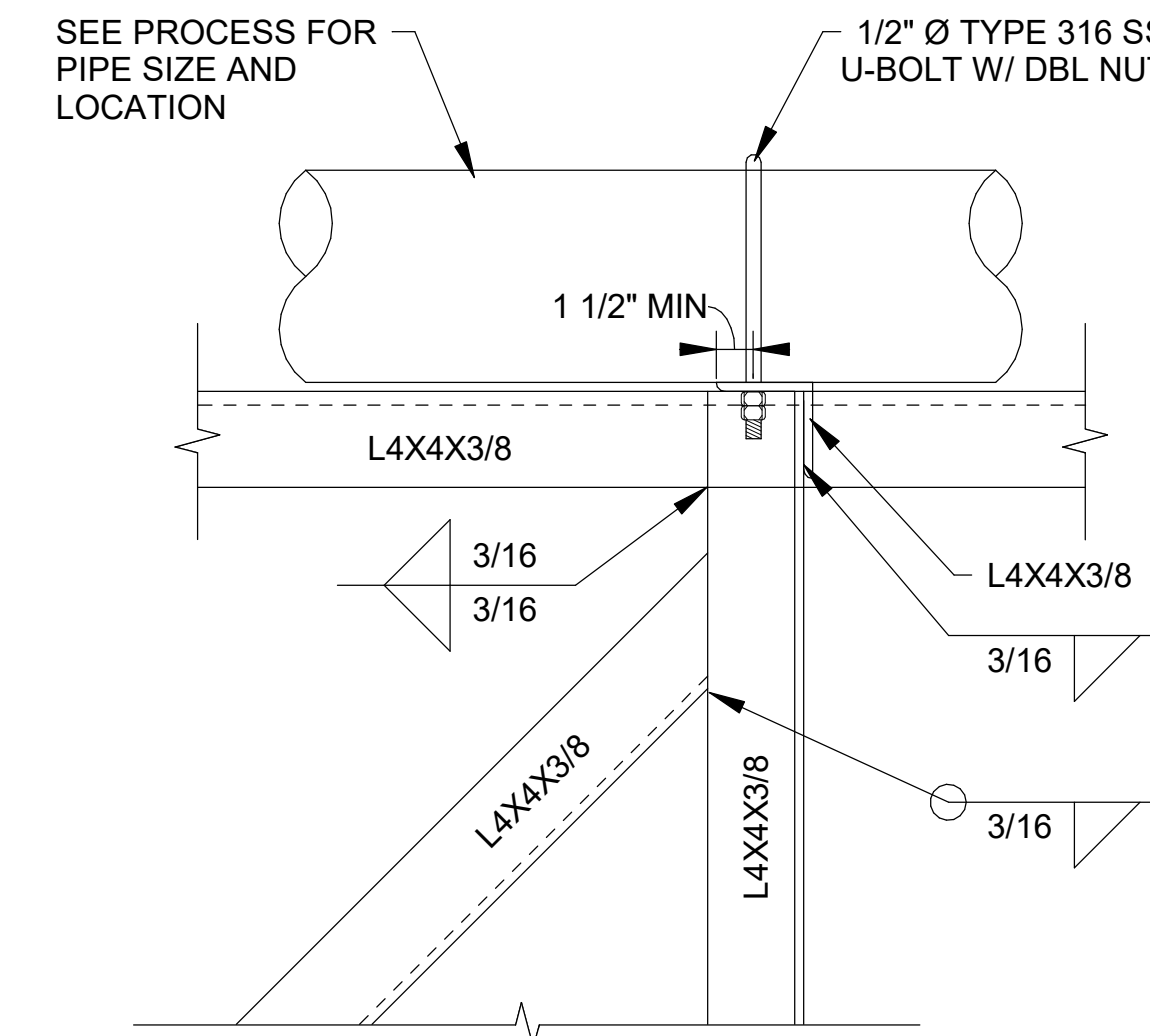
1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS



NOTES:

1. THOROUGHLY CLEAN EXISTING DIGESTER COVER PRIOR TO WELDING
2. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

DETAIL 3
 11-S502 SCALE: 1 1/2" = 1'-0"

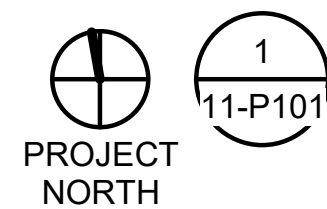
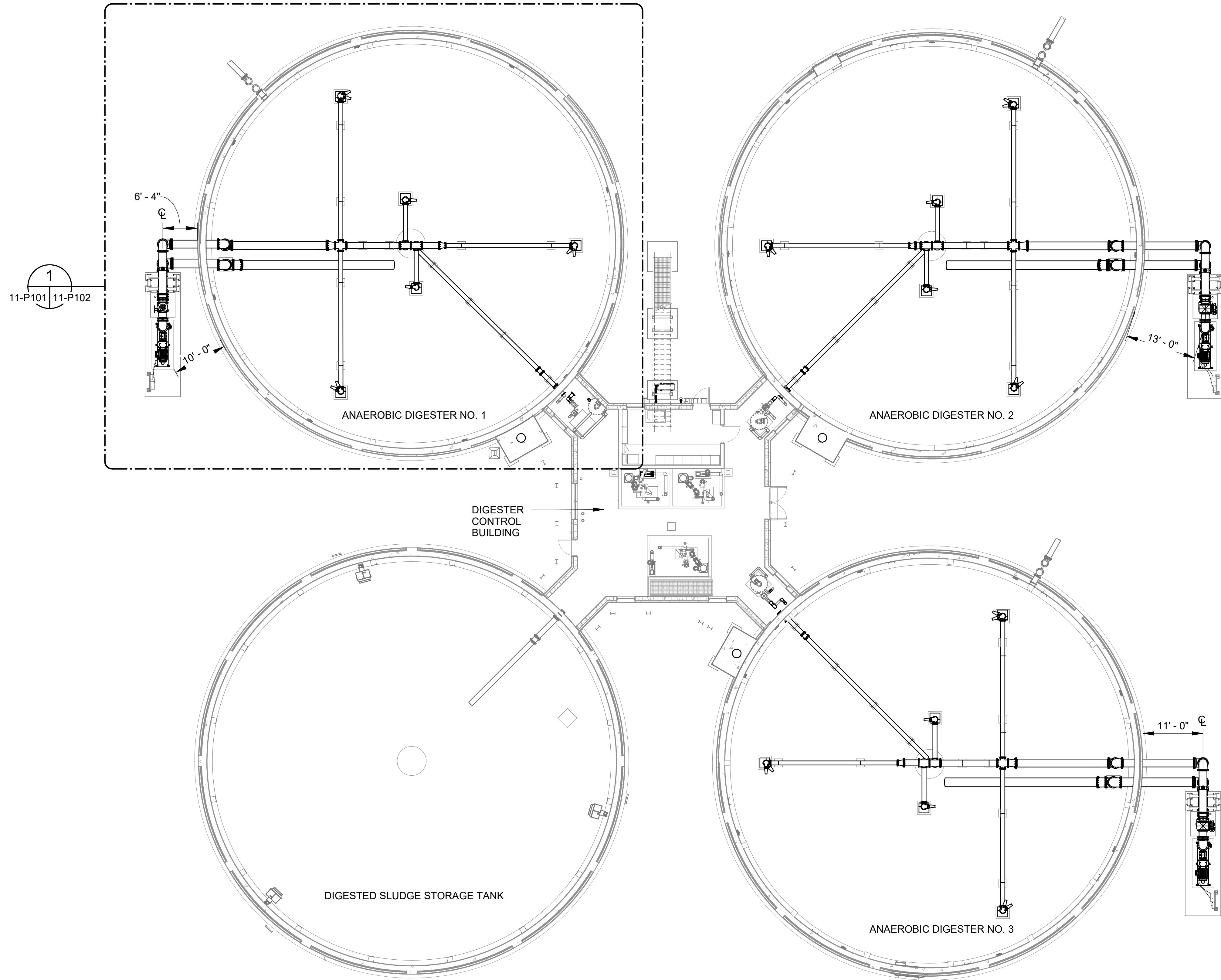


DETAIL 4
 11-S502 SCALE: 1 1/2" = 1'-0"

NOTES:

1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:21:45 PM



**ANAEROBIC DIGESTION
 REHABILITATION OVERALL
 FACILITY LOWER PLAN**

SCALE: 3/32" = 1'-0"



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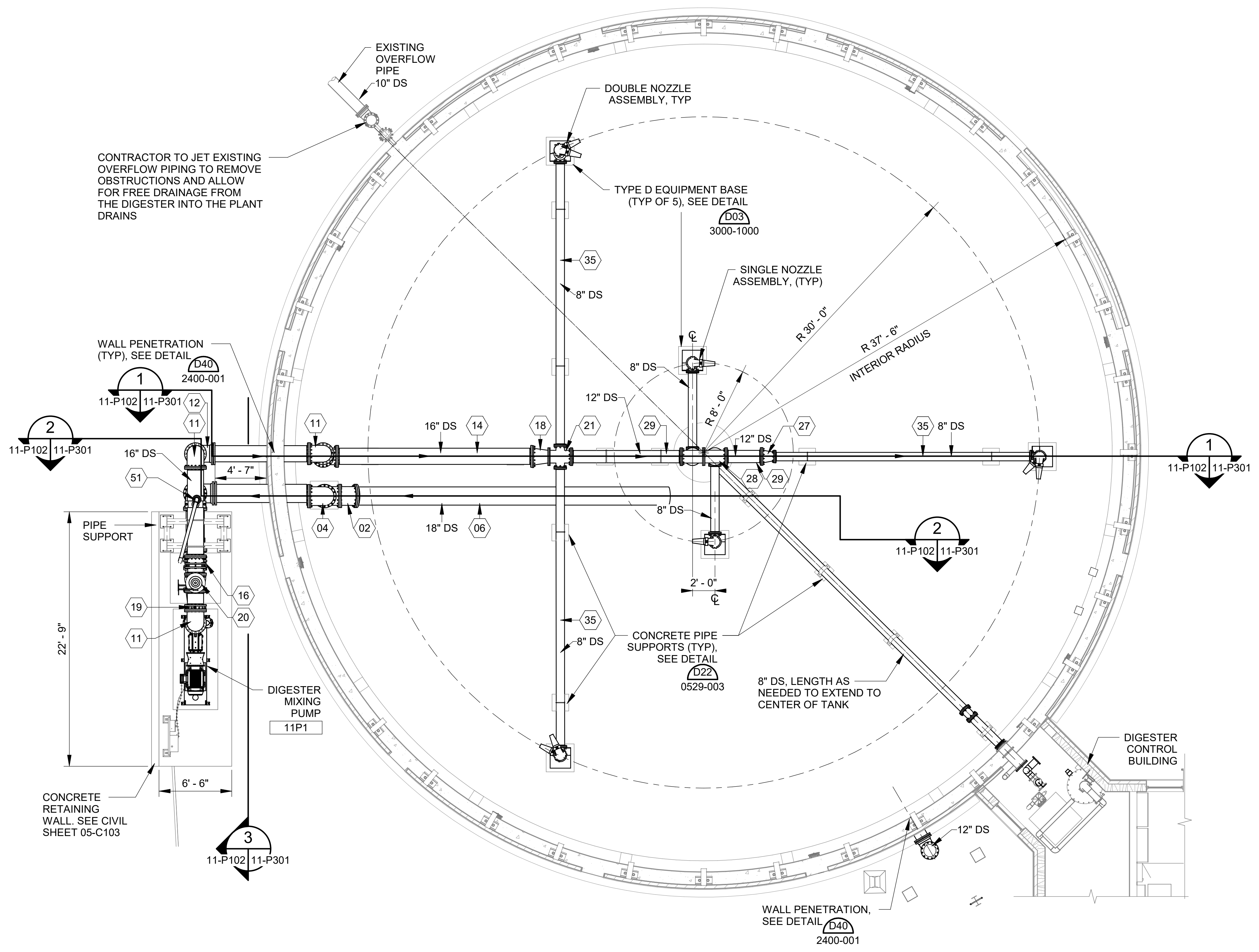
OVERALL ANAEROBIC
 DIGESTION
 REHABILITATION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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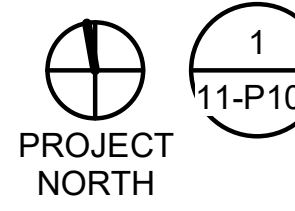
DRAWING NUMBER
11-P101
 SHEET
 NUMBER **032**

ISSUED FOR CONSTRUCTION



ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS LOWER PLAN

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



KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752



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NOTES:	
1.	CONTRACTOR SHALL COORDINATE NOZZLE LOCATION, CONFIGURATION, AND QUANTITY, AS REQUIRED, WITH DIGESTER MIXING SYSTEM MANUFACTURER.
2.	DIMENSIONS AND OVERALL MIXING SYSTEM LAYOUT IS BASED ON VAUGHAN ROTAMIX SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF PIPE AND NOZZLE SUPPORTS AT NO ADDITIONAL COST TO OWNER.
3.	PIPING SUPPORTS SHOWN FOR ALL INTERIOR PIPING SHOULD BE CONSIDERED TO BE REPRESENTATIVE. CONTRACTOR SHALL LOCATE AND INSTALL THE NECESSARY NUMBER OF SUPPORTS BASED ON THE FINAL PIPING CONFIGURATION AND SUPPORT REQUIREMENTS DETAILED IN THE SPECIFICATIONS.
4.	ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL

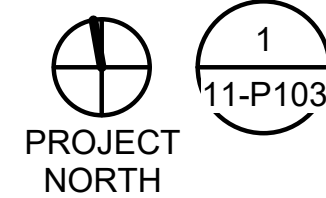
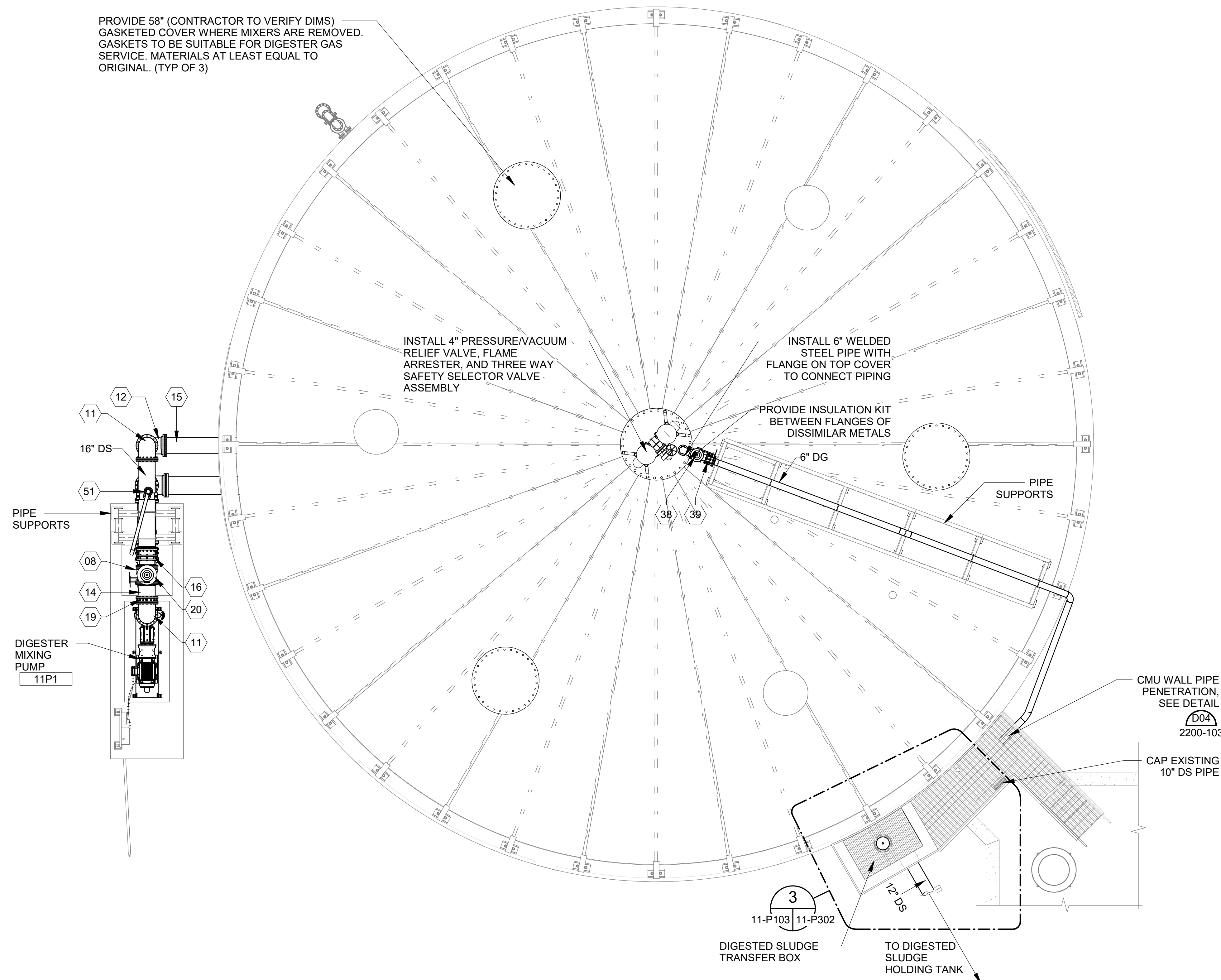
CITY OF TUSCALOOSA
 TUSCALOOSA, AL
**HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS**

**ANAEROBIC DIGESTER
 NO. 1 IMPROVEMENTS
 LOWER PLAN**

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT
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 DRAWING NUMBER
11-P102
 SHEET NUMBER **033**

Revit File: BM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic Digester NO. 1.rvt
 Plot Date: 11/09/2024 5:21:55 PM

PROVIDE 58" (CONTRACTOR TO VERIFY DIMS)
 GASKETED COVER WHERE MIXERS ARE REMOVED.
 GASKETS TO BE SUITABLE FOR DIGESTER GAS
 SERVICE. MATERIALS AT LEAST EQUAL TO
 ORIGINAL. (TYP OF 3)



ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS UPPER PLAN


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

KEYNOTES: DENOTED BY SYMBOL (X)

01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE COVER MANUFACTURER (OVIVO/EIMCO) BEFORE ANY MODIFICATIONS OR WORK IS PERFORMED (INCLUDING ADDITIONAL PIPE SUPPORTS) BASED ON CONDITION OF THE COVER ONCE TAKEN OUT OF SERVICE. ANY DEVIATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
- AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
- THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.



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 Suite 100
 Birmingham, AL 35244
 (205) 443-3080

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REV	DATE	DESCRIPTION	BY
2	12/5/23	ADDENDUM NO. 2	RWC

CITY OF TUSCALOOSA



TUSCALOOSA, AL

HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1 IMPROVEMENTS UPPER PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
11-P103

SHEET NUMBER
034

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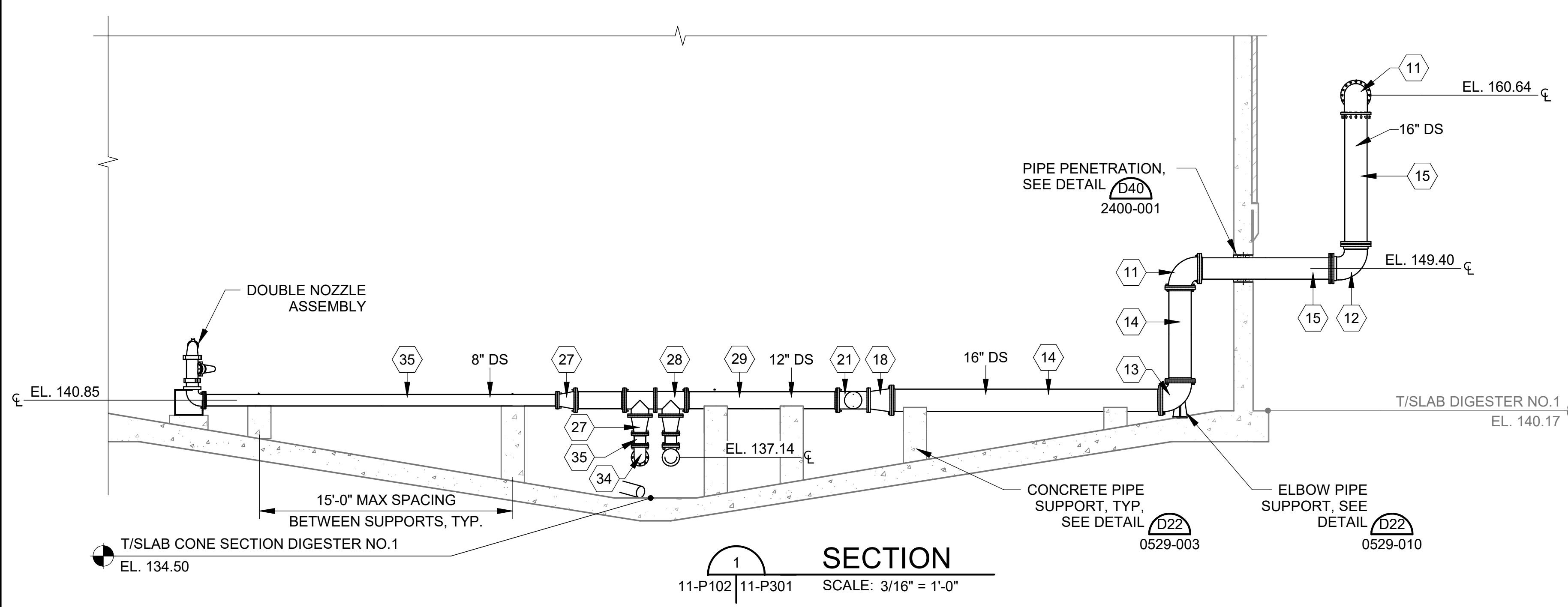
ANAEROBIC DIGESTER NO. 1
MIXING SECTIONS AND DETAILS

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT

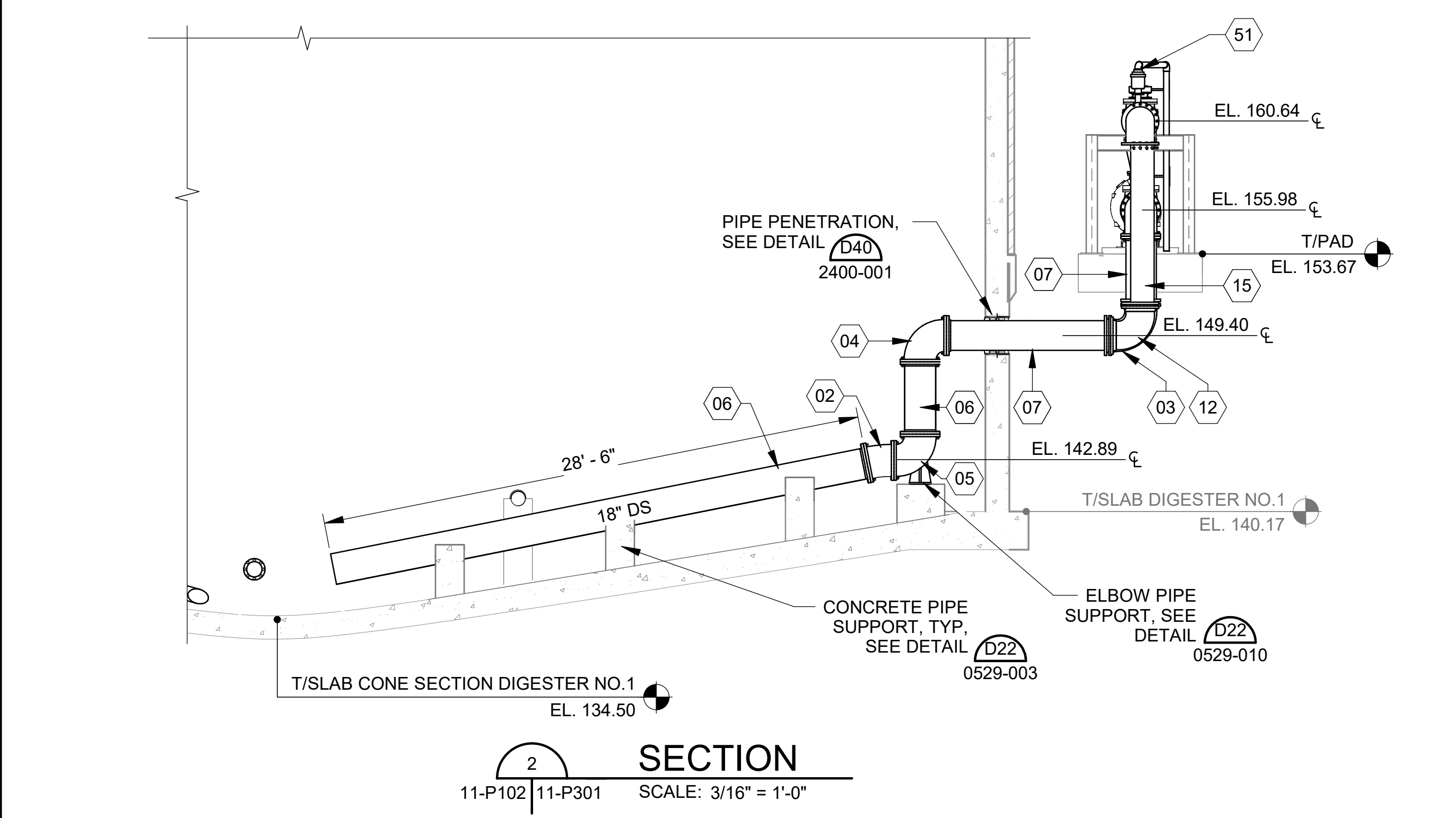
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DRAWING NUMBER
11-P301
SHEET NUMBER
035

- NOTES:
- CONTRACTOR SHALL COORDINATE NOZZLE LOCATION, CONFIGURATION, AND QUANTITY, AS REQUIRED, WITH DIGESTER MIXING SYSTEM MANUFACTURER.
 - DIMENSIONS AND OVERALL MIXING SYSTEM LAYOUT IS BASED ON VAUGHAN ROTAMIX SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF PIPE AND NOZZLE SUPPORTS AT NO ADDITIONAL COST TO OWNER.
 - PIPING SUPPORTS SHOWN FOR ALL INTERIOR PIPING SHOULD BE CONSIDERED TO BE REPRESENTATIVE. CONTRACTOR SHALL LOCATE AND INSTALL THE NECESSARY NUMBER OF SUPPORTS BASED ON THE FINAL PIPING CONFIGURATION AND SUPPORT REQUIREMENTS DETAILED IN THE SPECIFICATIONS.
 - DIGESTER GEOMETRY HAS BEEN TAKEN FROM AVAILABLE RECORD DRAWINGS AND HAS NOT BEEN FIELD VERIFIED. CONTRACTOR SHALL CONFIRM ALL ELEVATIONS AND DIMENSIONS OF EXISTING DIGESTERS PRIOR TO ORDERING ANY PIPE MATERIAL. OWNER WILL NOT BE RESPONSIBLE FOR COSTS ASSOCIATED WITH PIPING MODIFICATIONS BASED ON DIFFERING FIELD CONDITIONS IF THIS IS NOT PERFORMED.
 - ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL

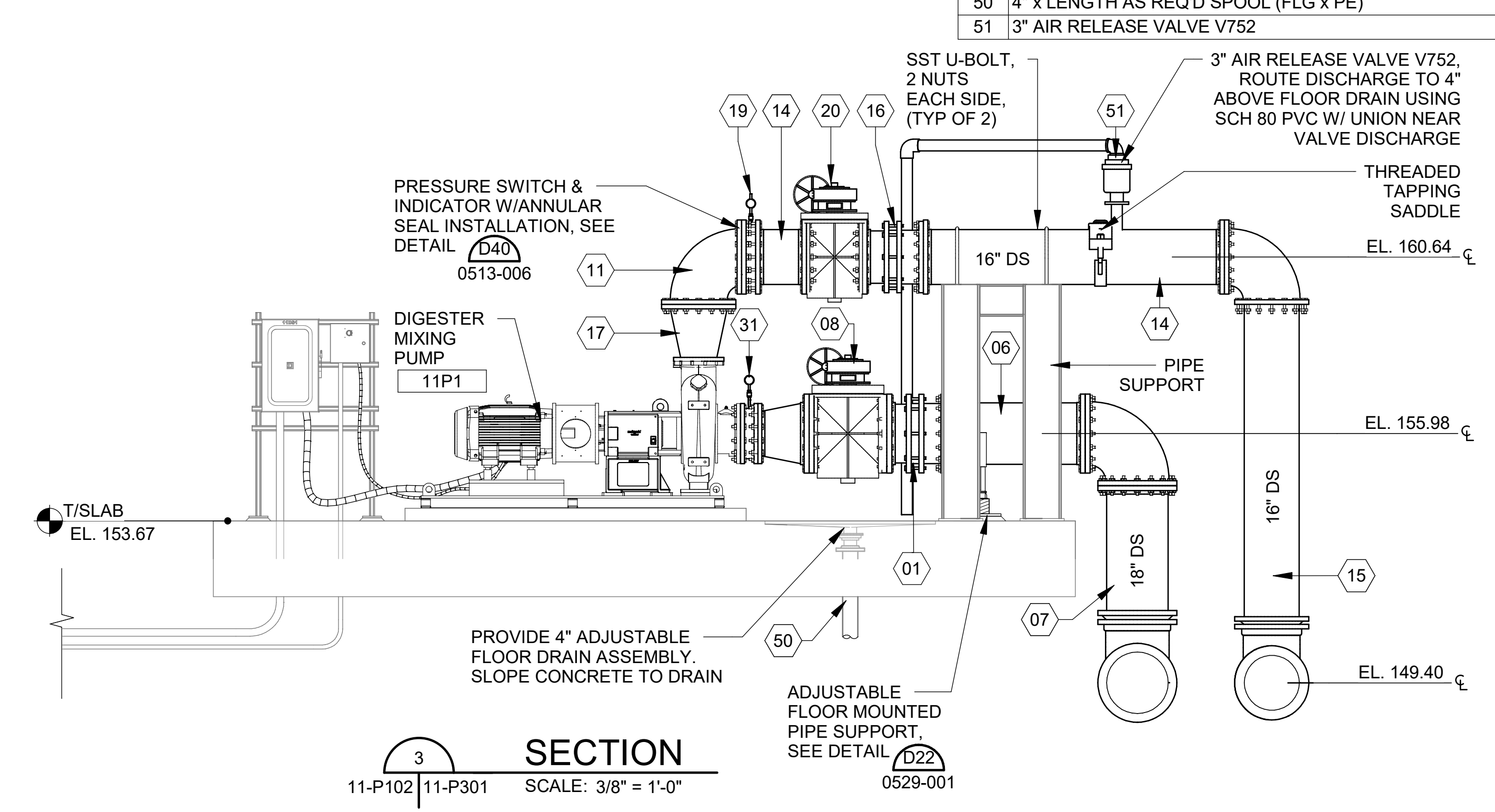
KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" x 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" x 10" REDUCER (FLG x FLG)
18	16" x 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" x 12" x 8" x 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" x 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" x 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
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45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752



SECTION 1
11-P102 | 11-P301
SCALE: 3/16" = 1'-0"



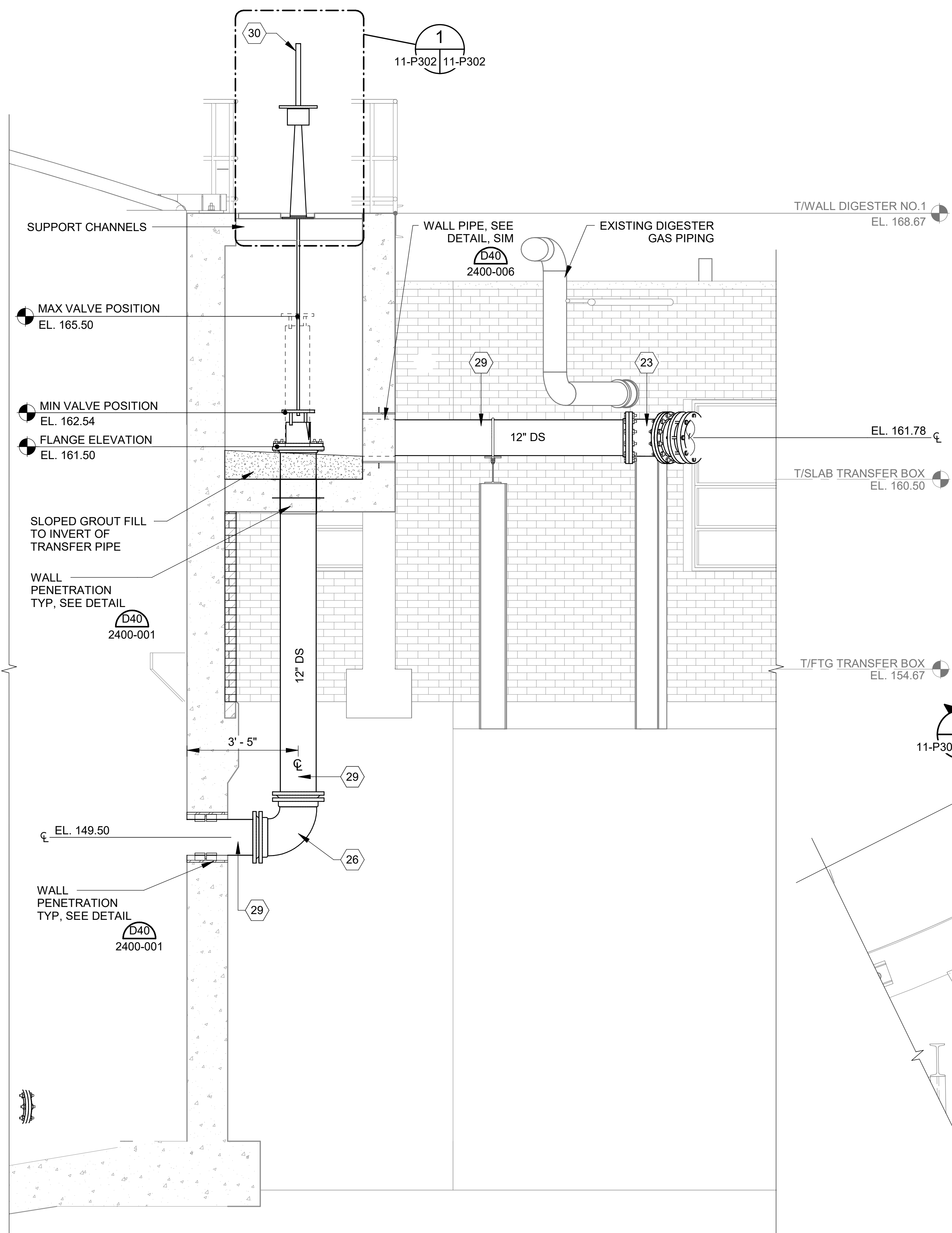
SECTION 2
11-P102 | 11-P301
SCALE: 3/16" = 1'-0"



SECTION 3
11-P102 | 11-P301
SCALE: 3/8" = 1'-0"

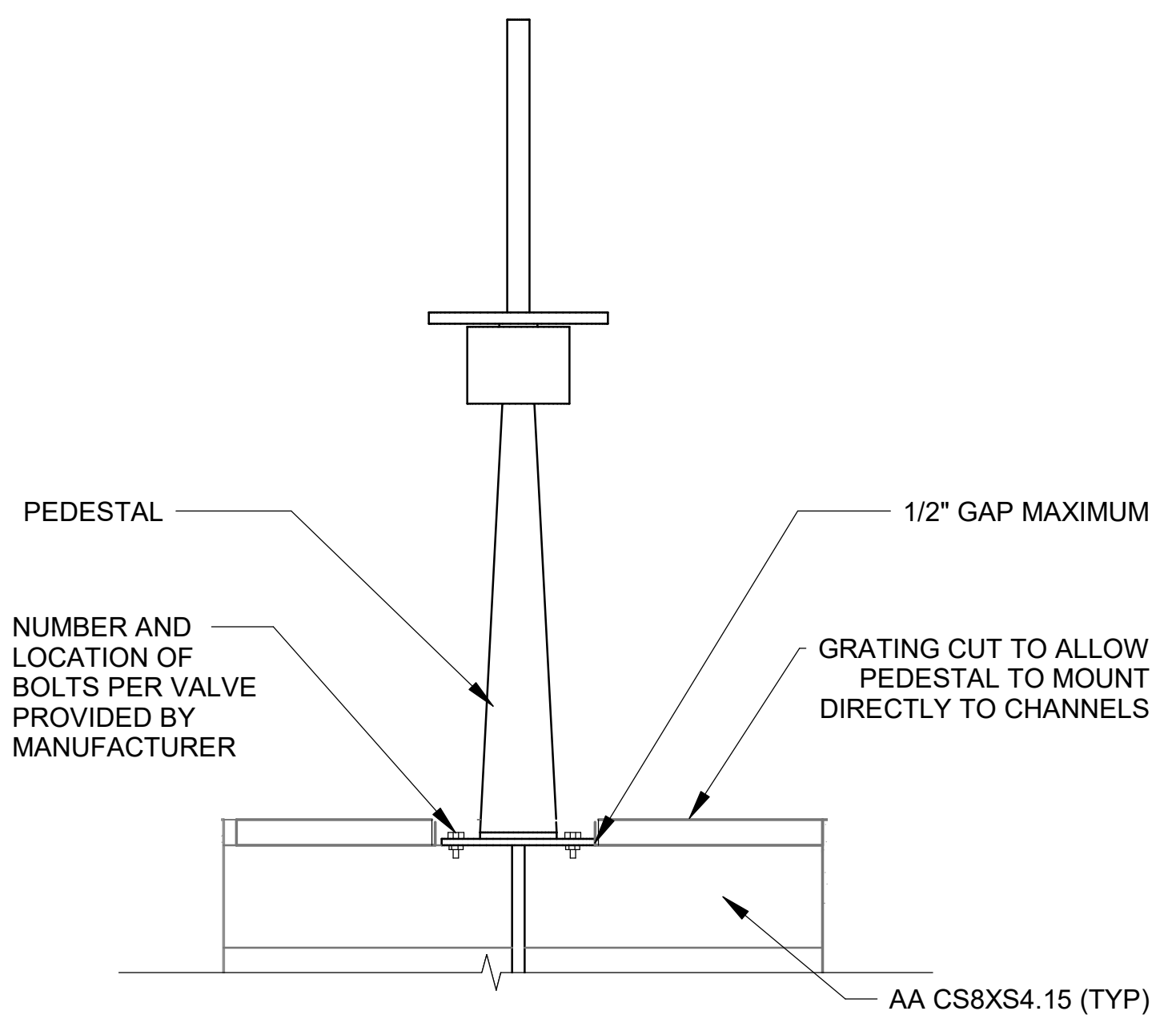
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Plot Date: 11/29/2024 5:21:59 PM

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:22:03 PM



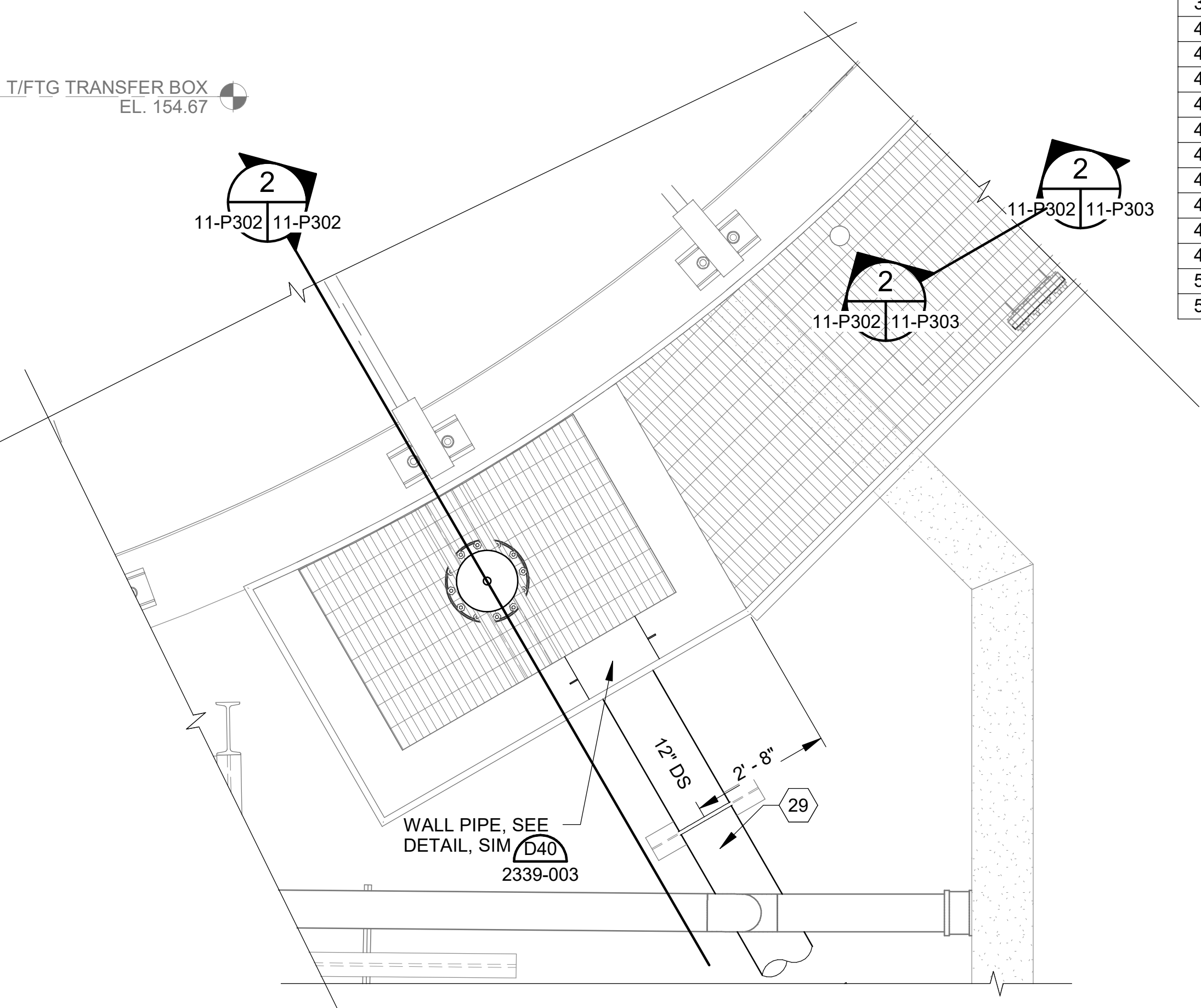
2
 11-P302 | 11-P302
 SCALE: 1/2" = 1'-0"

DIGESTED SLUDGE TRANSFER BOX SECTION



1
 11-P302
 SCALE: 1" = 1'-0"

DIGESTED SLUDGE TRANSFER BOX PLAN DETAIL



3
 11-P302
 SCALE: 1/2" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
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08	18" PLUG VALVE V406 (FLG x FLG)
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24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
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36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" X LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

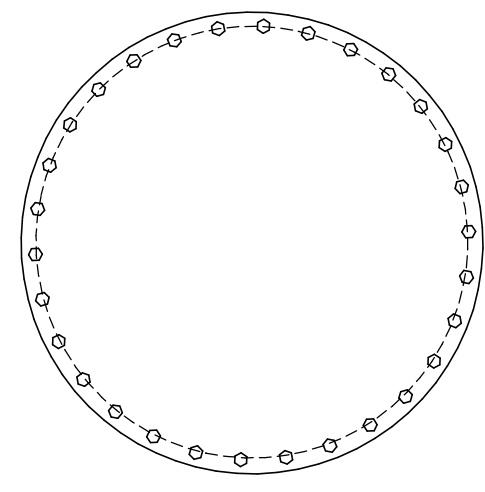
ANAEROBIC DIGESTER NO. 1 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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11-P302
 SHEET NUMBER
036

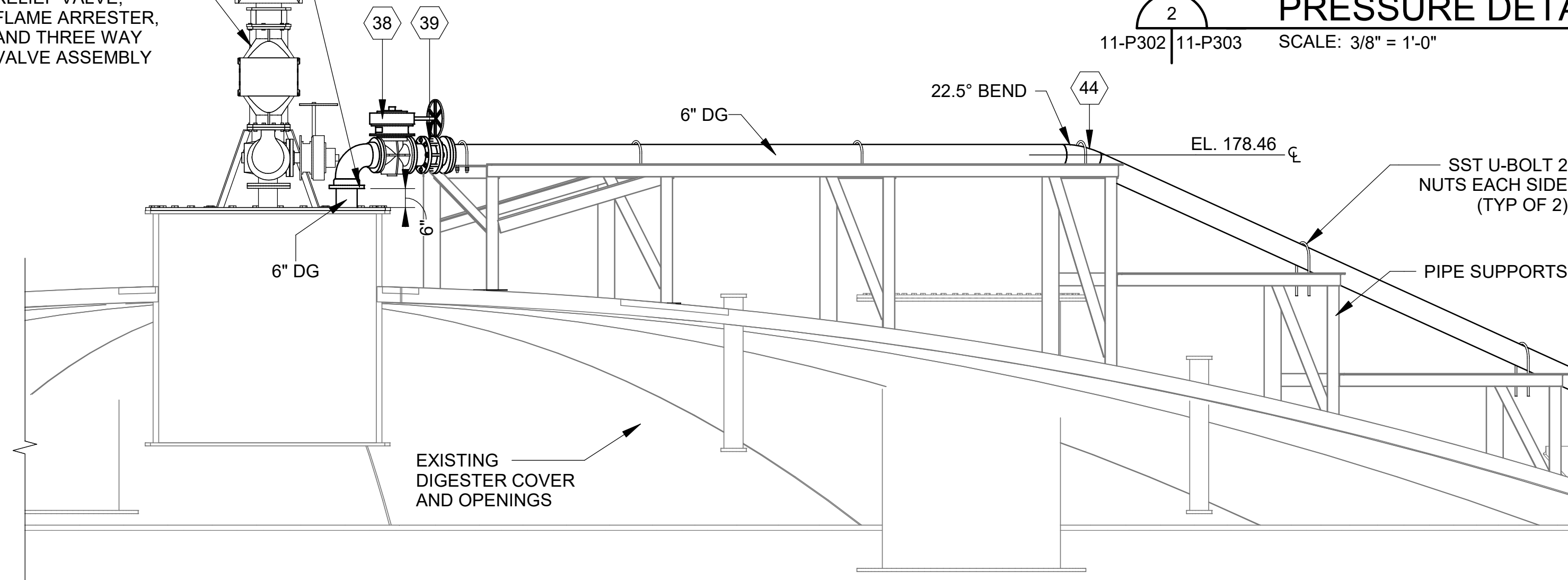
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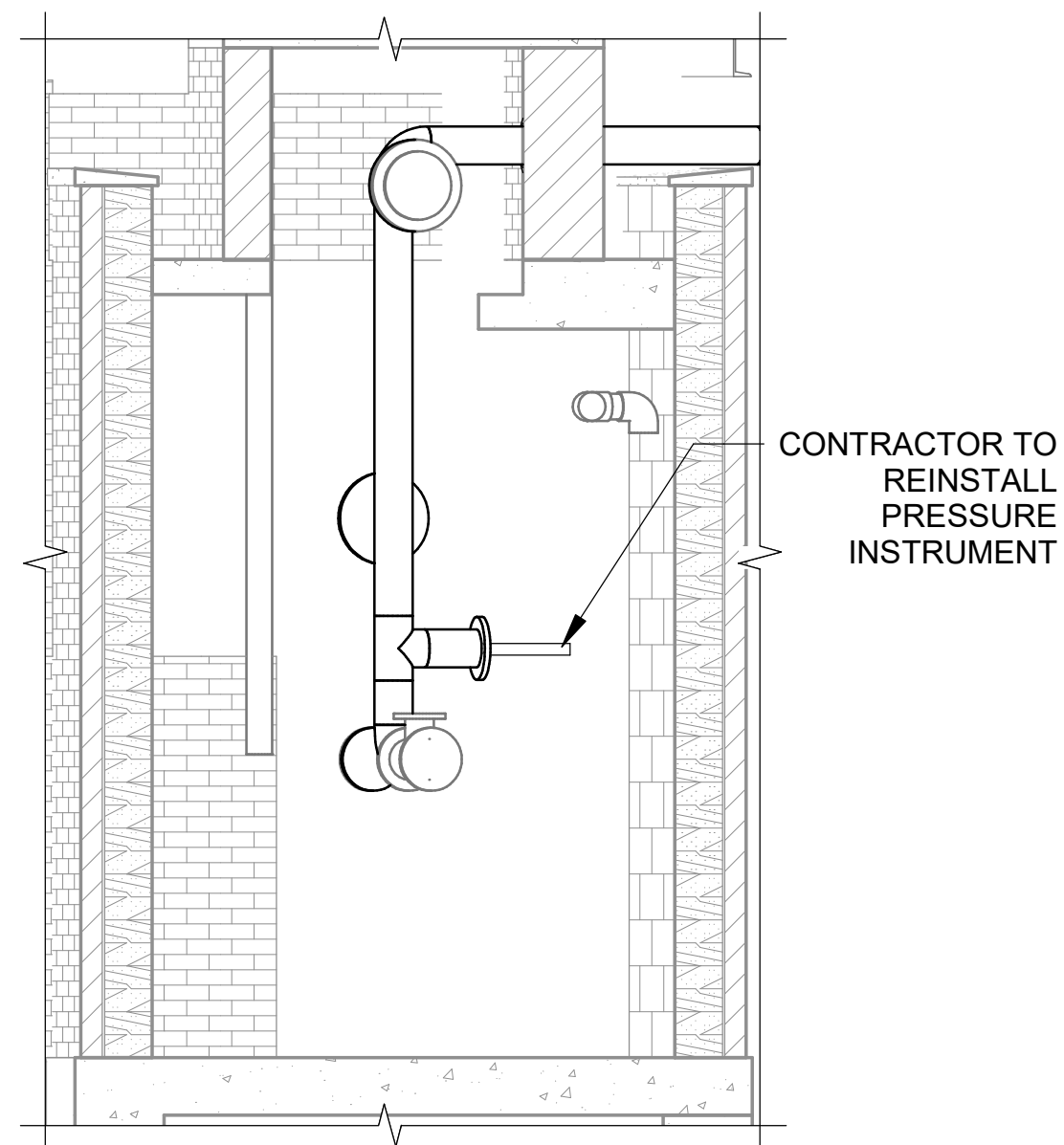
3
11-P303 **GASKETED COVER DETAIL**
SCALE: 3/8" = 1'-0"

INSTALL 6" WELDED STEEL PIPE WITH FLANGE ON TOP COVER TO CONNECT PIPING

INSTALL 4" PRESSURE/VACUUM RELIEF VALVE, FLAME ARRESTER, AND THREE WAY VALVE ASSEMBLY



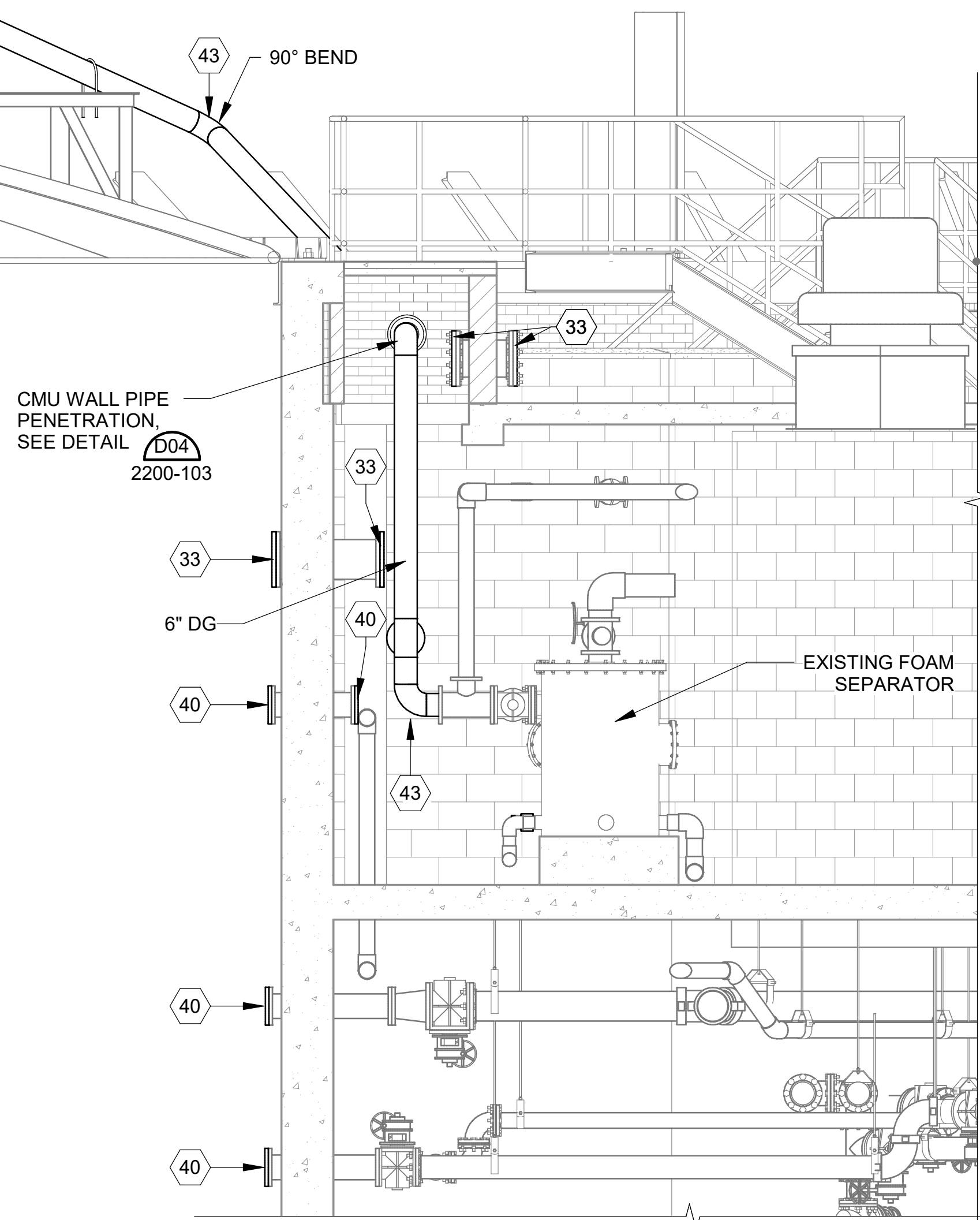
2
11-P302 11-P303 **PRESSURE DETAIL**
SCALE: 3/8" = 1'-0"



KEYNOTES:	DENOTED BY SYMBOL
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
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49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

1
20-P101 11-P303 **SECTION**
SCALE: 3/8" = 1'-0"



T/WALL DIGESTER NO.1
EL. 168.67

Revit File: BM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
Plot Date: 11/09/2024 5:22:07 PM



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER
RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
NO. 1 DIGESTER
BIOGAS HANDLING
SECTION AND DETAIL

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT

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DRAWING NUMBER
11-P303
SHEET NUMBER
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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

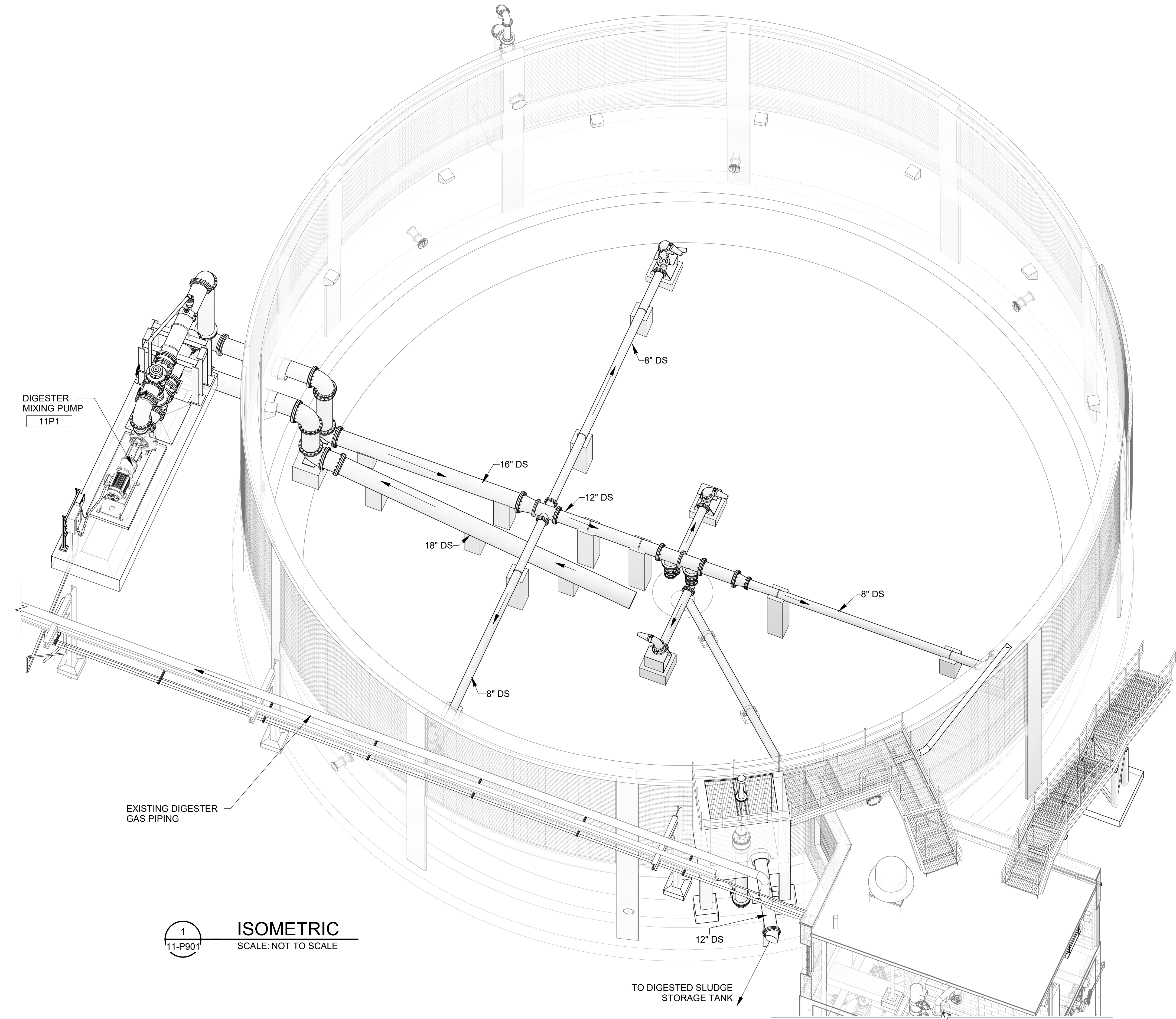
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1
 DIGESTER MIXING ISOMETRIC

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
11-P901
 SHEET NUMBER **038**



DIGESTER MIXING PUMP
 11P1

EXISTING DIGESTER GAS PIPING

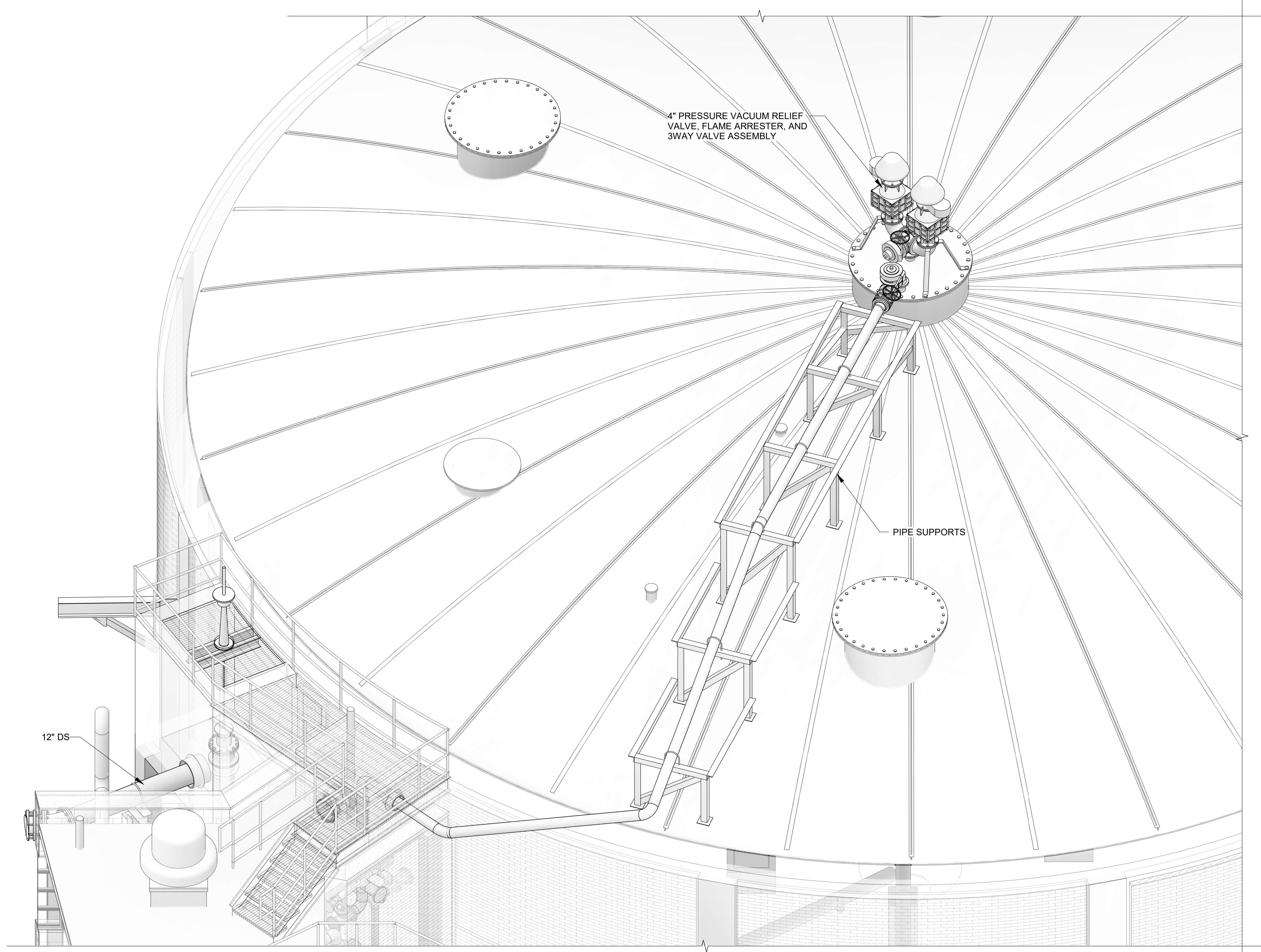
TO DIGESTED SLUDGE STORAGE TANK

1
 11-P901
ISOMETRIC
 SCALE: NOT TO SCALE

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic Digester No. 1.rvt
 Plot Date: 11/19/2024 5:22:24 PM

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Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:22:37 PM



1
11-P902

ISOMETRIC
SCALE: NOT TO SCALE



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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1
 COVER BIOGAS PIPING ISOMETRIC

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: ADA
 CHECKED BY: RDT

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
11-P902
 SHEET NUMBER
039

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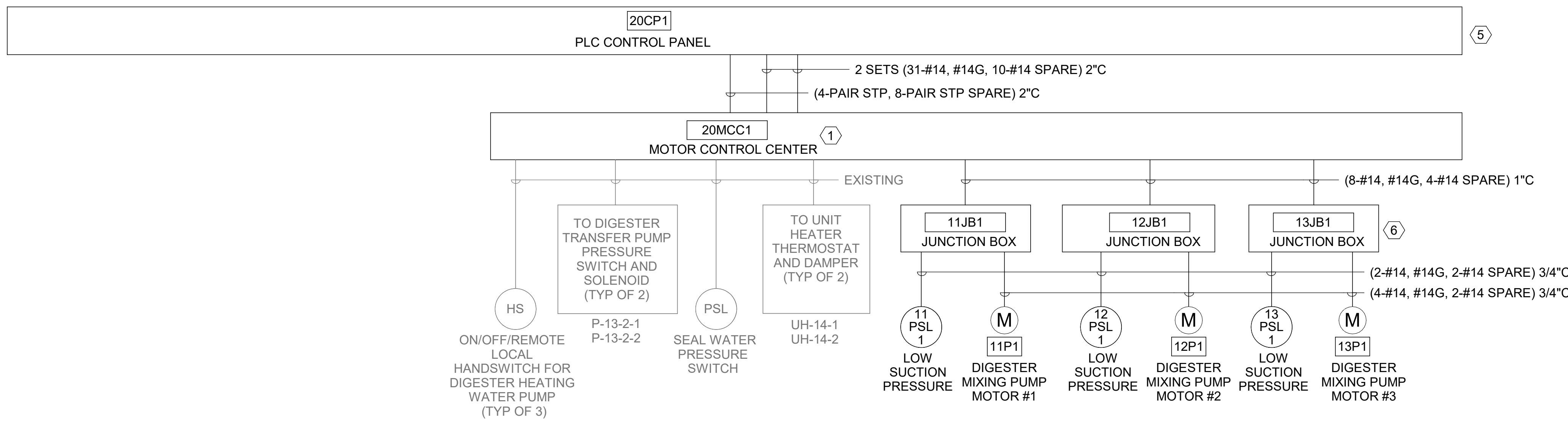
REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 1 MIXER ELECTRICAL PLAN (TYP OF 3)

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SAH
DRAWN BY: SAH
CHECKED BY: JCW

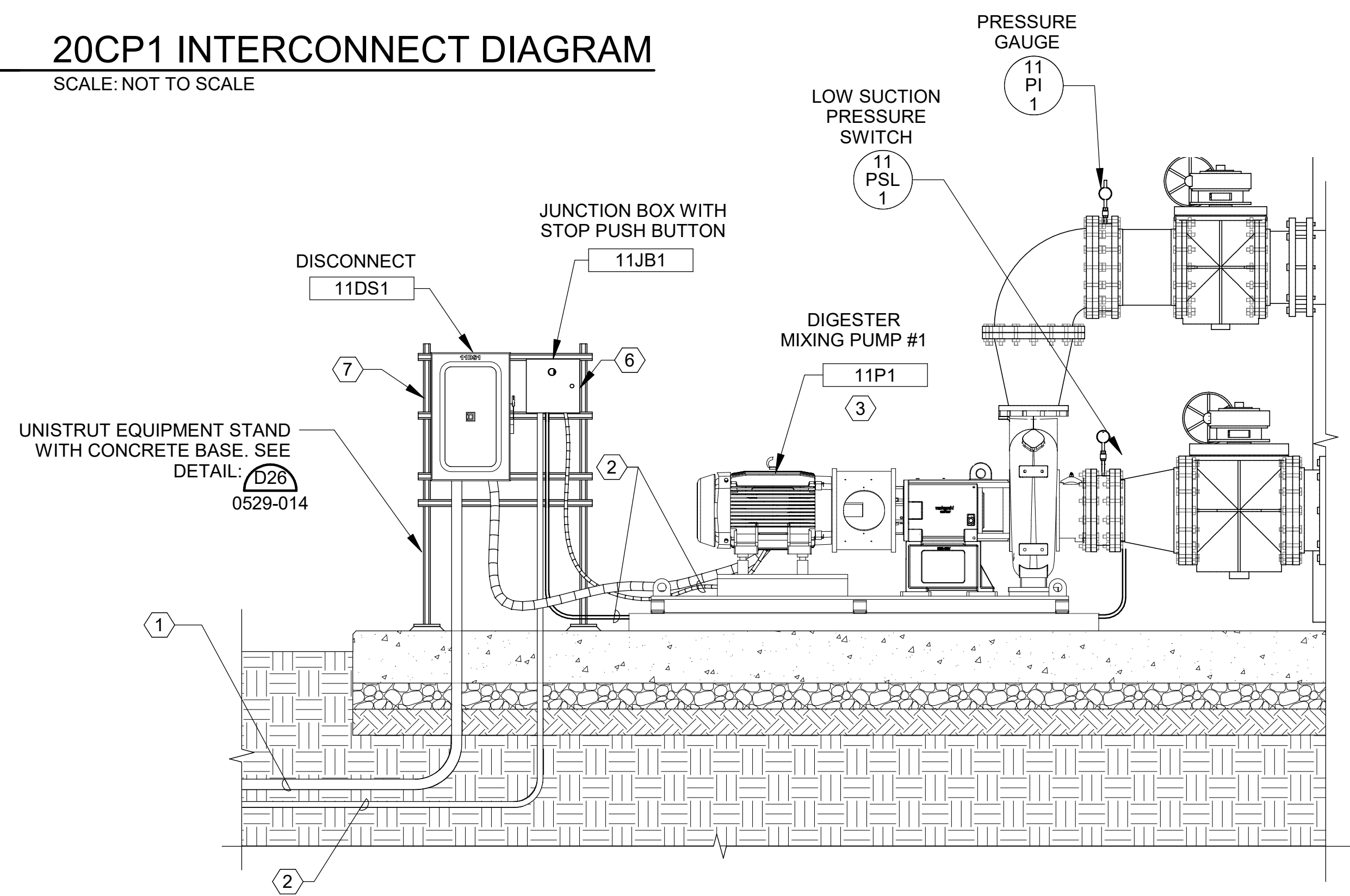
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DRAWING NUMBER
11-E101
SHEET NUMBER **040**



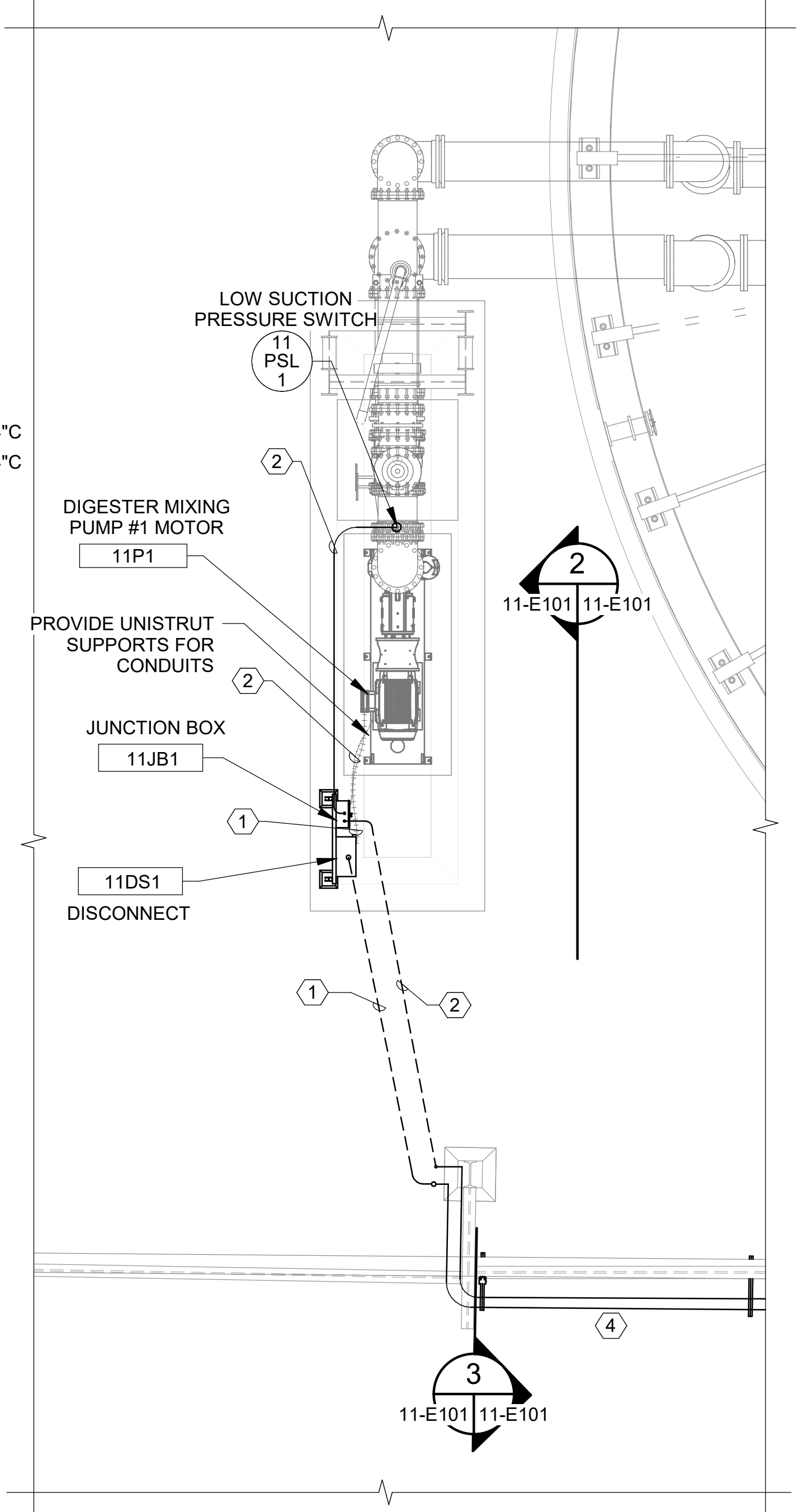
20CP1 INTERCONNECT DIAGRAM
SCALE: NOT TO SCALE

GENERAL NOTES:

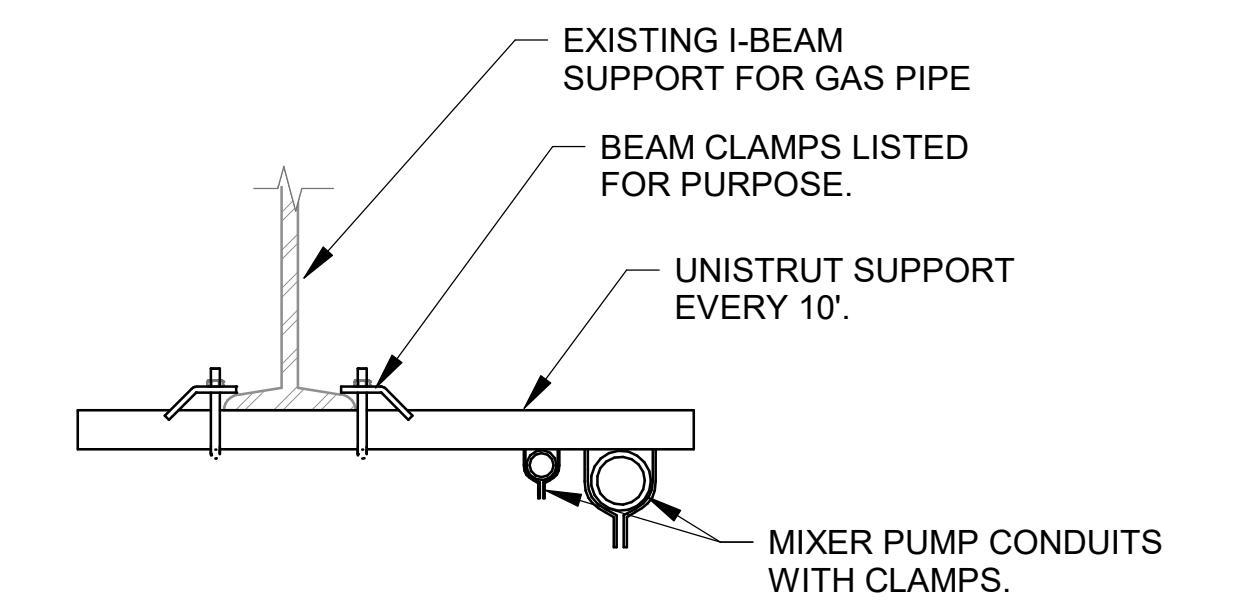
1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING, TERMINATIONS, DISCONNECTS, CONTROL RELAYS, CONTROL ENCLOSURES AND OTHER ITEMS AS NECESSARY FOR A COMPLETE AND FUNCTIONAL PUMP MIXING SYSTEM. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED.
2. CONTRACTOR SHALL COORDINATE CONDUIT, WIRE AND INTERCONNECTIONS AS REQUIRED BY MIXER PUMP EQUIPMENT SUPPLIER. MAKE ALL REQUIRED CONNECTIONS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. NOT ALL CONNECTIONS SHOWN.
3. CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING NUMBER OF REQUIRED CONDUITS AND PLACEMENT OF THESE CONDUITS. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A CONDUIT ROUTING PLAN FOR REVIEW PRIOR TO INSTALLATION.
4. ALL AREAS 25' OVER DIGESTER TANK COVERS AND 10' BEYOND TANK WALLS SHALL BE CONSIDERED A CLASS 1, DIVISION 2 LOCATION ACCORDING TO NFPA 820.
5. CONTRACTOR SHALL STRICTLY ADHERE TO THE REQUIREMENTS IN NFPA 70, ARTICLE 500, HAZARDOUS (CLASSIFIED) LOCATIONS FOR ALL AREAS REFERENCED IN THE NOTES ABOVE. THIS INCLUDES PROVIDING APPROPRIATE SEAL FITTINGS ON CONDUITS CABLES, ALONG WITH PROVIDING EXPLOSION PROOF EQUIPMENT, RATED FOR THE CLASSIFICATION REFERENCED ABOVE, WITHIN THE HAZARDOUS AREA IF LOCATED IN THE HAZARDOUS AREA.



DIGESTER MIXING PUMP STATION #1 SECTION (TYP OF 3)
SCALE: 1/2" = 1'-0"



MIXER PUMP STATION #1
SCALE: 1/4" = 1'-0"



CONDUIT SUPPORT DETAIL
SCALE: 1 1/2" = 1'-0"

KEYNOTES:

1. SEE ONELINE ON SHEET 90-E502 FOR 480V CONDUIT AND CONDUCTORS.
2. SEE INTERCONNECT DIAGRAM ON THIS SHEET FOR MIXER PUMP SIGNAL AND CONTROL CONDUIT AND CONDUCTORS.
3. FOR MIXER PUMP CONTROL SCHEMATIC SEE SHEET 11-E601.
4. ROUTE CONDUITS ON EXISTING DIGESTER GAS SUPPORT STRUCTURE TO MCC IN DIGESTER CONTROL BUILDING. SEE SHEETS 05-E101, 20-E101 AND CONDUIT SUPPORT DETAIL ON THIS SHEET. ROUTE CONDUITS FOR MIXER PUMPS #2 AND #3 BELOW GRADE FROM MIXER PUMP STATIONS TO DIGESTER CONTROL BUILDING. SEE SHEETS 05-E101 AND 20-E101.
5. MAKE ALL REQUIRED CONNECTIONS AT NEW PLC CONTROL PANEL.
6. 12" X 12" X 6" NEMA 4X SS ENCLOSURE WITH BACK PANEL, TERMINAL STRIPS AND FACE-MOUNTED MAINTAINED "STOP" PUSHBUTTON.
7. INSTALL UNISTRUT STAND, DISCONNECT AND JUNCTION BOX OUTSIDE OF HAZARDOUS AREA. PROVIDE SEAL FITTINGS AS REQUIRED, AS DEFINED IN GENERAL NOTES ABOVE.

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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CITY OF TUSCALOOSA
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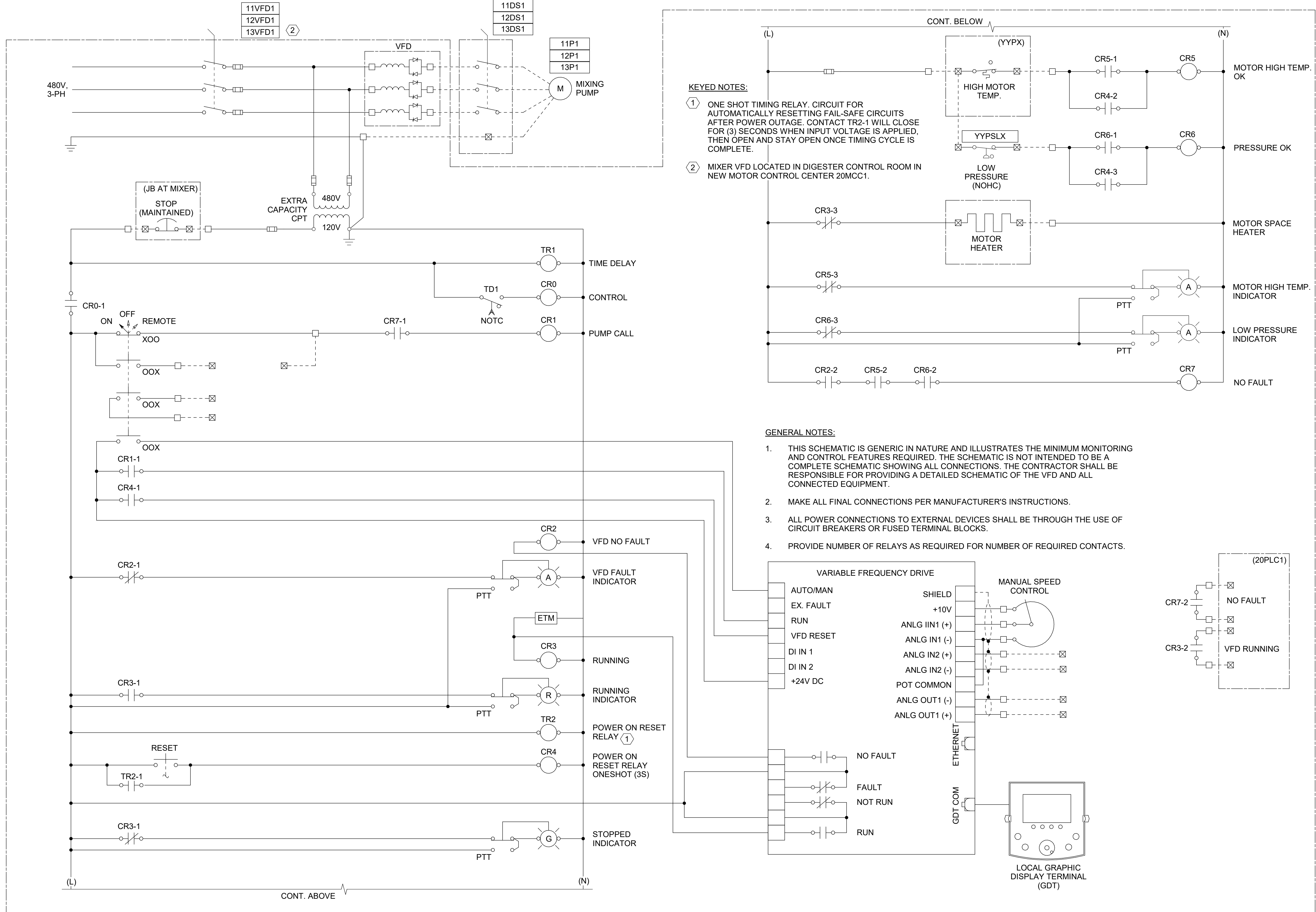
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER MIXING SYSTEM - CONTROL SCHEMATIC (TYP OF 3)

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
11-E601
 SHEET NUMBER
041

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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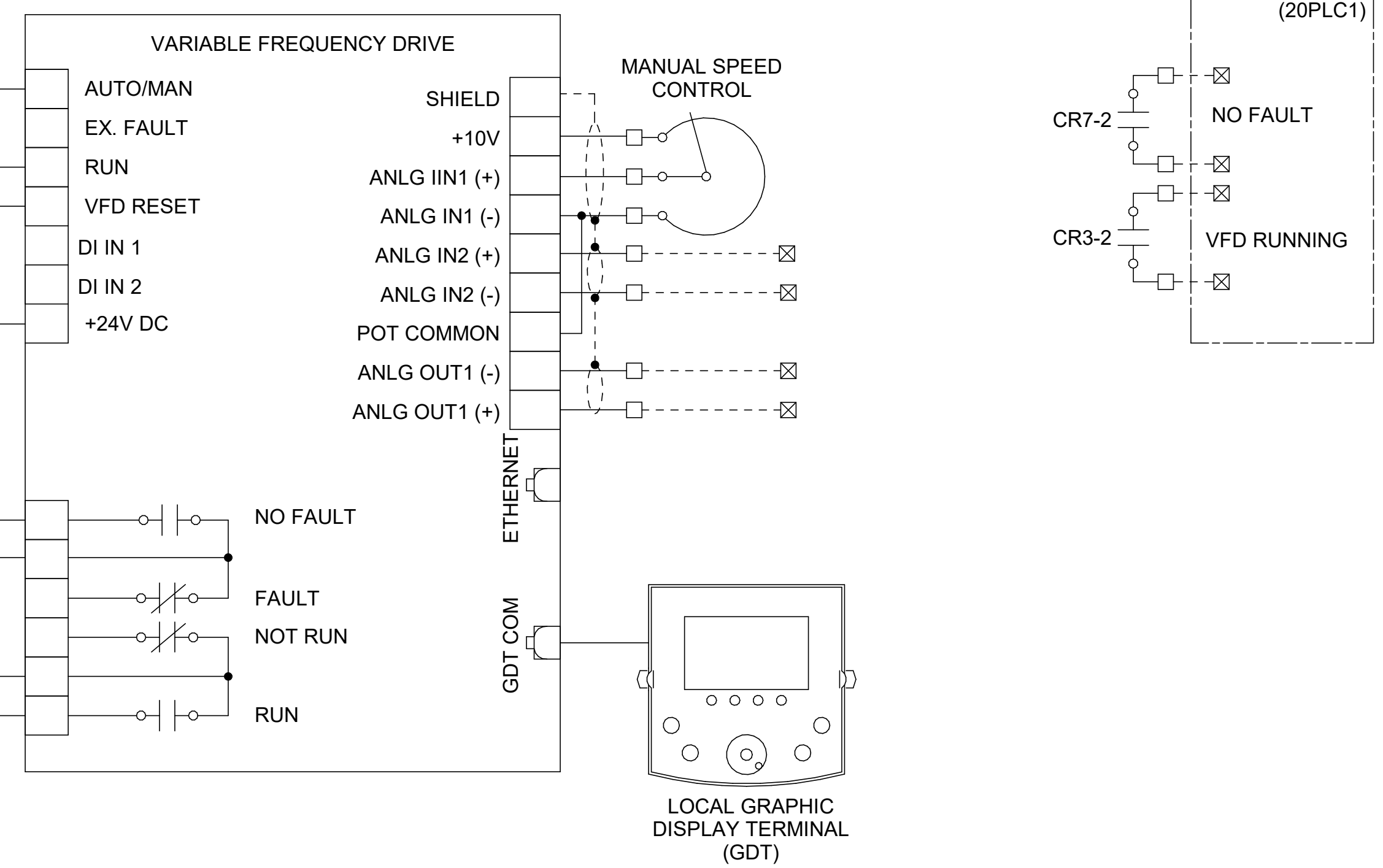


KEYED NOTES:

- ONE SHOT TIMING RELAY. CIRCUIT FOR AUTOMATICALLY RESETTING FAIL-SAFE CIRCUITS AFTER POWER OUTAGE. CONTACT TR2-1 WILL CLOSE FOR (3) SECONDS WHEN INPUT VOLTAGE IS APPLIED, THEN OPEN AND STAY OPEN ONCE TIMING CYCLE IS COMPLETE.
- MIXER VFD LOCATED IN DIGESTER CONTROL ROOM IN NEW MOTOR CONTROL CENTER 20MCC1.

GENERAL NOTES:

- THIS SCHEMATIC IS GENERIC IN NATURE AND ILLUSTRATES THE MINIMUM MONITORING AND CONTROL FEATURES REQUIRED. THE SCHEMATIC IS NOT INTENDED TO BE A COMPLETE SCHEMATIC SHOWING ALL CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A DETAILED SCHEMATIC OF THE VFD AND ALL CONNECTED EQUIPMENT.
- MAKE ALL FINAL CONNECTIONS PER MANUFACTURER'S INSTRUCTIONS.
- ALL POWER CONNECTIONS TO EXTERNAL DEVICES SHALL BE THROUGH THE USE OF CIRCUIT BREAKERS OR FUSED TERMINAL BLOCKS.
- PROVIDE NUMBER OF RELAYS AS REQUIRED FOR NUMBER OF REQUIRED CONTACTS.





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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION FACILITY UPPER DEMOLITION PLAN

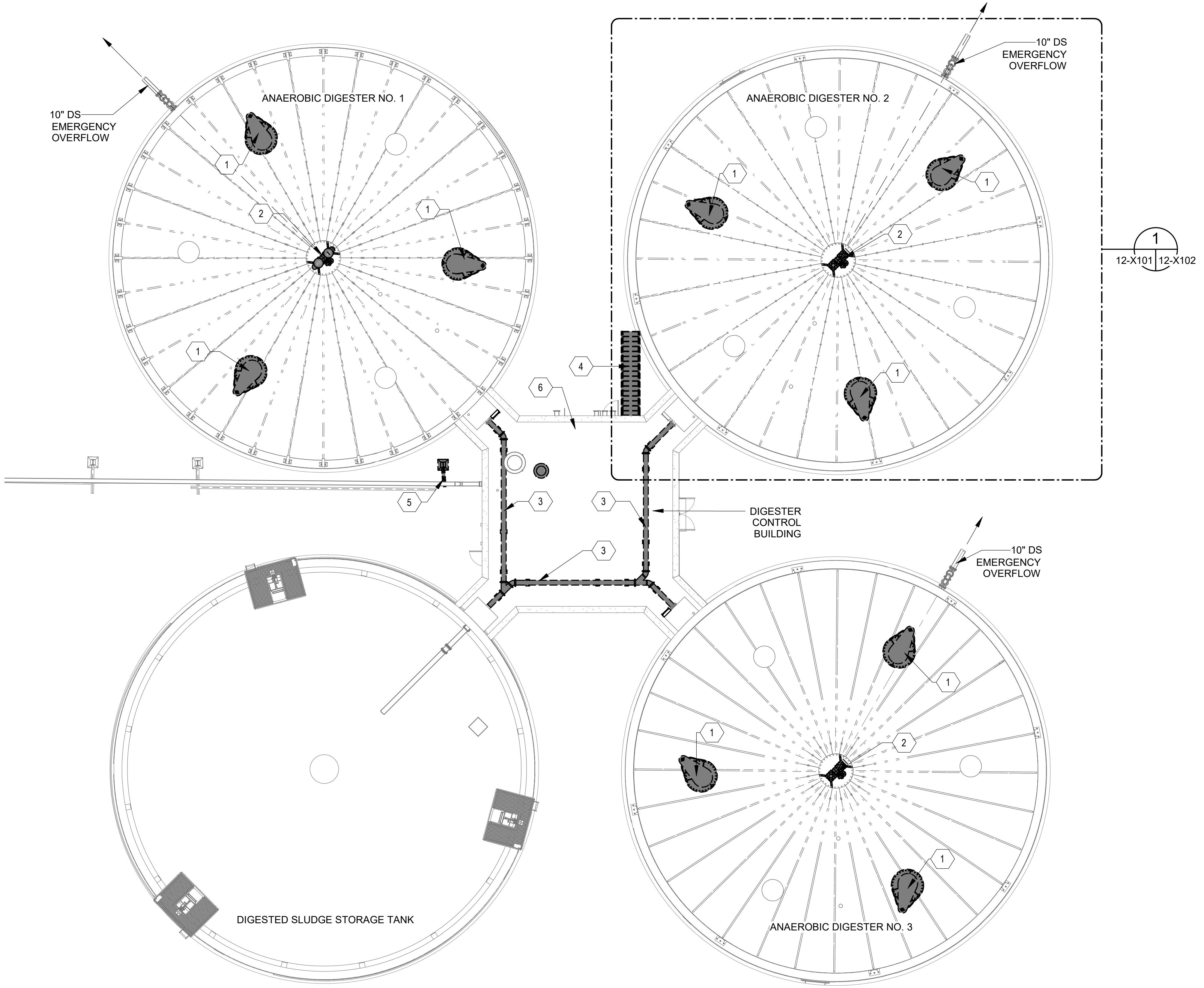
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
12-X101
 SHEET NUMBER **042**

DEMOLITION LEGEND
 TO BE DEMOLISHED

- KEYNOTES:** DENOTED BY SYMBOL
- 1 DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
 - 2 REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
 - 3 DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.
 - 4 DEMOLISH AND DISPOSE EXISTING STAIRS.
 - 5 RELOCATE EXISTING PIPE SUPPORT. PROVIDE TEMPORARY PIPE SUPPORT DURING CONSTRUCTION PHASE.
 - 6 CLEAN AND PREP ROOF FOR SPECIFIED COATING.



**ANAEROBIC DIGESTION FACILITY
 OVERALL UPPER DEMOLITION PLAN**

PROJECT NORTH

 12-X101

SCALE: 3/32" = 1'-0"

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2 UPPER DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

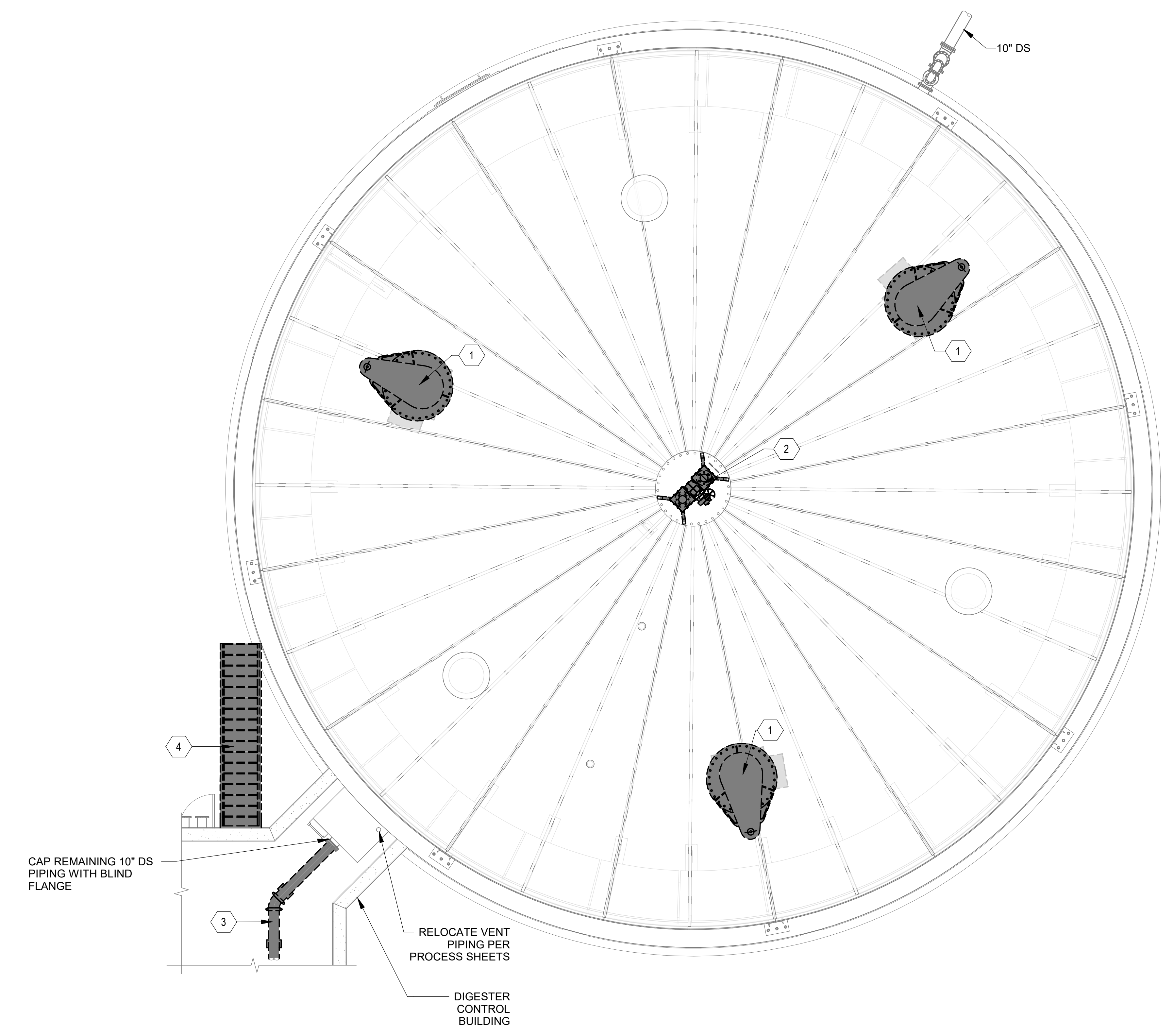
BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
12-X102
 SHEET NUMBER
043

KEYNOTES:	DENOTED BY SYMBOL (X)
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
3	DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.
4	DEMOLISH AND DISPOSE EXISTING STAIRS.

DEMOLITION LEGEND

TO BE DEMOLISHED

- GENERAL NOTES:**
- OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
 - IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
 - CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.
 - EXISTING DOME FRAMING SUPPORT MEMBERS SHALL NOT BE DAMAGED DURING SAWCUTTING OR OTHER MEANS USED FOR REMOVAL OF THE PLATE SECTIONS.
 - CONTRACTOR SHALL REMOVE ALL EXISTING EXPOSED CONDUIT TO COVER MOUNTED EQUIPMENT, INSTRUMENTATION, AND OTHER DEVICES THAT IS/WILL BE NO LONGER IN SERVICE. SEAL/PATCH ANY HOLES, AS REQUIRED.
 - CONTRACTOR SHALL ASSESS THE STRUCTURAL STABILITY OF ALL EXPOSED BRICK SECTIONS/FACADES ON EXTERIOR OF DIGESTER TANK. ANY ADDITIONAL REPAIRS AND/OR DEMOLITION NECESSARY TO ADDRESS THESE AREAS SHALL BE PAID FROM USING THE CONTINGENCY ALLOWANCE BASED ON EXTENT OF REPAIRS OR ADDITIONAL DEMOLITION.



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**ANAEROBIC DIGESTER NO. 2
 UPPER DEMOLITION PLAN**

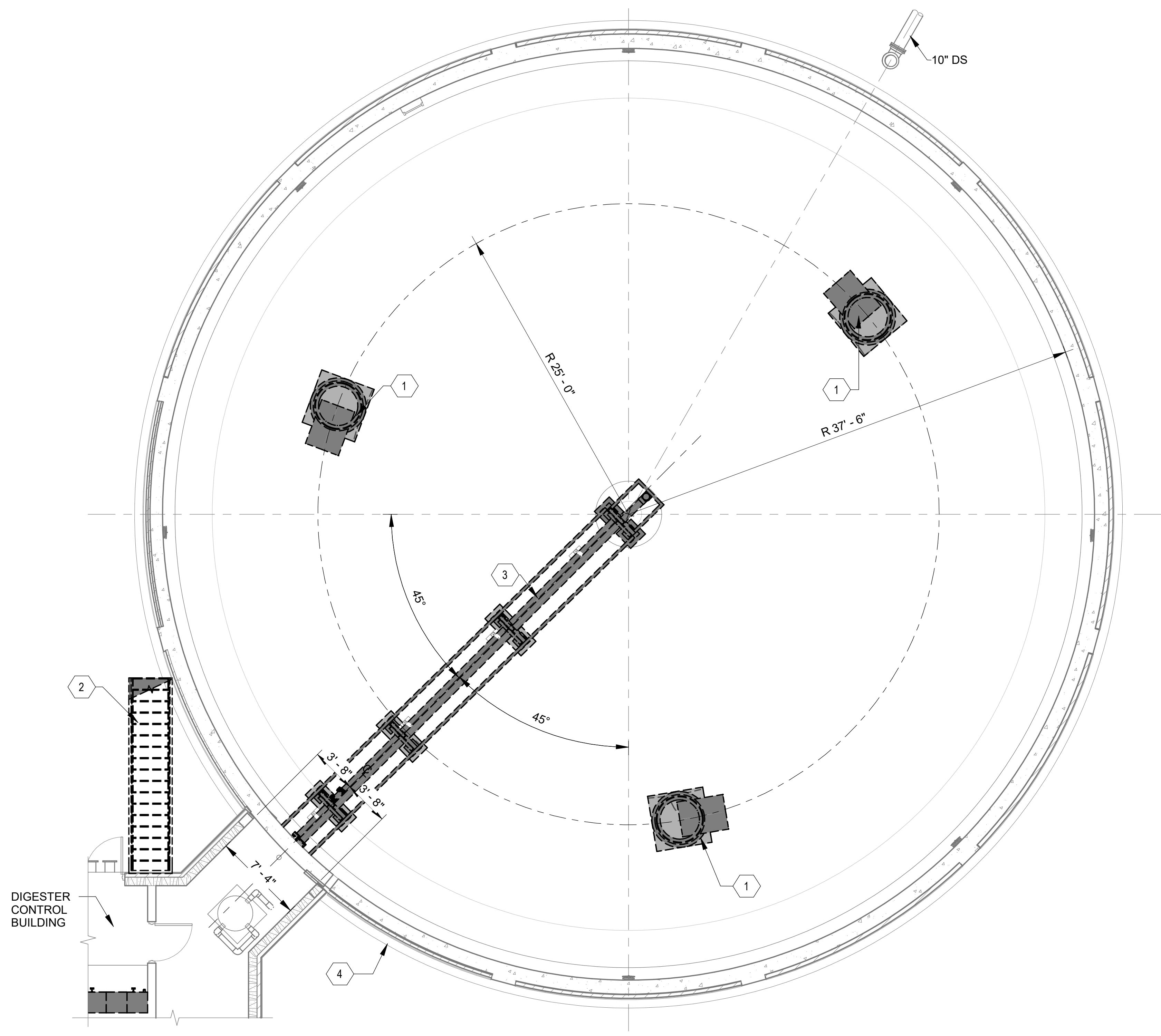
PROJECT NORTH

1
 12-X102

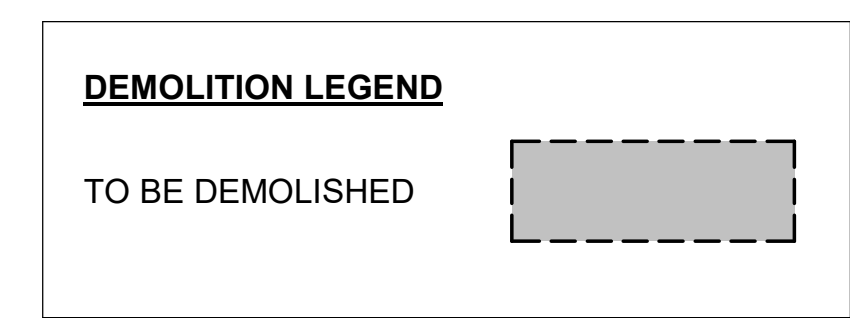
SCALE: 3/16" = 1'-0"

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Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:24:26 PM



KEYNOTES:	DENOTED BY SYMBOL
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB. PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	DEMOLISH AND DISPOSE EXISTING STAIRS.
3	DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.
4	DEMOLISH EXISTING BRICK FACADE TO EXTENT NECESSARY TO INSTALL NEW DIGESTER TRANSFER BOX. REPLACE BRICK FACADE UP TO THE EDGE OF THE TRANSFER BOXES WITH MATCHING BRICK.



- GENERAL NOTES:**
- OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
 - IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
 - CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.



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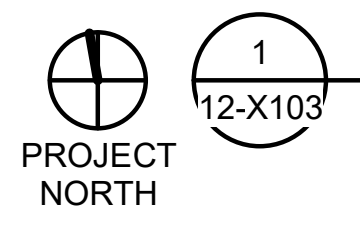
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2 LOWER DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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12-X103
 SHEET NUMBER
044

ANAEROBIC DIGESTER NO. 2
LOWER DEMOLITION PLAN
 SCALE: 3/16" = 1'-0"



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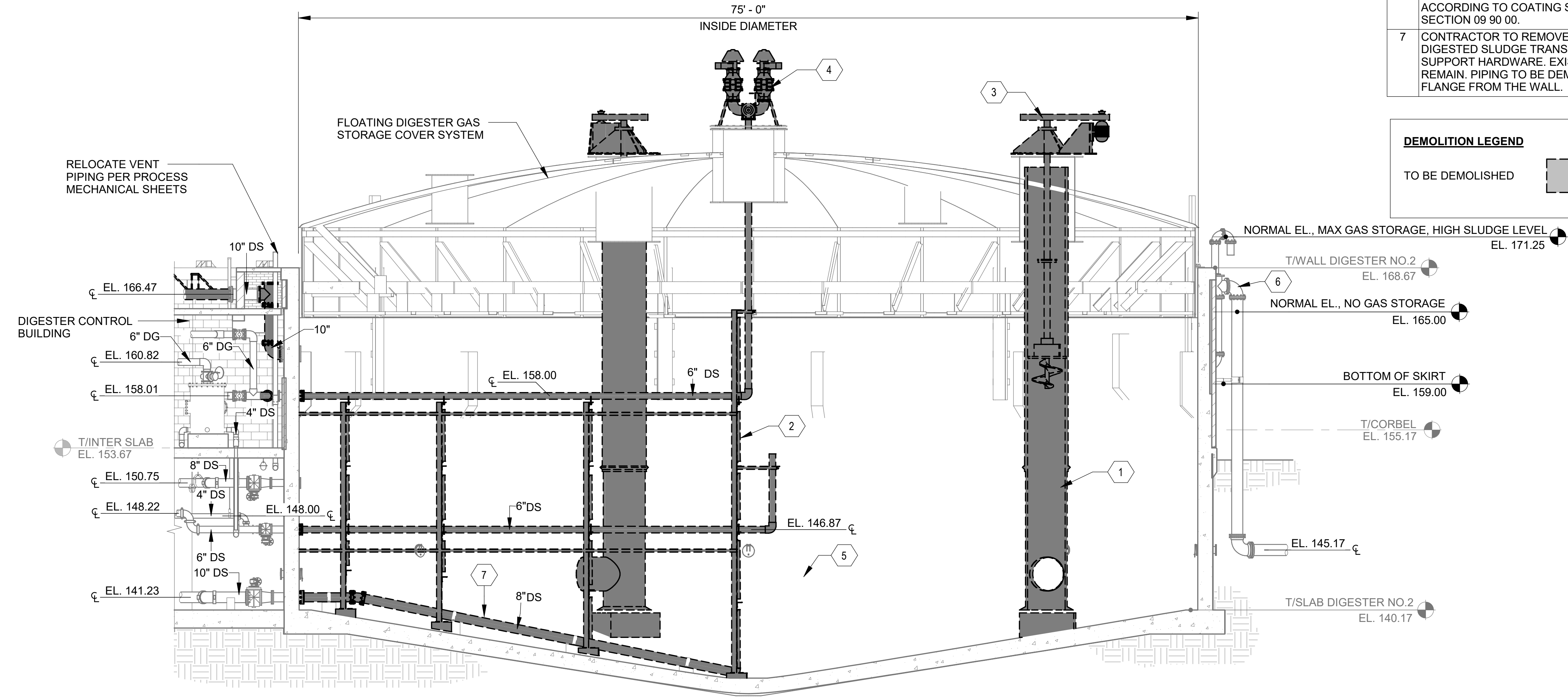
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KEYNOTES:	NOTED BY SYMBOL (X)
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2 DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.	
3 REMOVE ALL EXISTING EXTERIOR DIGESTER MIXING EQUIPMENT. PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.	
4 REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.	
5 REFER TO SPECIFICATION SECTION 44 10 00 FOR DIGESTER CLEANOUT REQUIREMENTS.	
6 CONTRACTOR TO JET AND CLEANOUT EXISTING OVERFLOW PIPING TO REMOVE ANY OBSTRUCTIONS OR BLOCKAGE. SANDBLAST AND RECOAT PIPING ACCORDING TO COATING SCHEDULE SPECIFIED IN SECTION 09 90 00.	
7 CONTRACTOR TO REMOVE AND REPLACE EXISTING DIGESTED SLUDGE TRANSFER PIPING AND PIPE SUPPORT HARDWARE. EXISTING PIPE SUPPORTS TO REMAIN. PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL.	

DEMOLITION LEGEND	
TO BE DEMOLISHED	



NOTES:

- INTERIOR TANK DETAILS HAVE BEEN PROVIDED BASED ON AVAILABLE RECORD DRAWINGS. DIMENSIONS HAVE NOT BEEN VERIFIED FOR ACCURACY.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.

1
 12-X301 ANAEROBIC DIGESTER NO. 2 DEMOLITION SECTION
 SCALE: 3/16" = 1'-0"

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic Digester NO. 1.rvt
 Plot Date: 11/09/2024 5:24:30 PM

BY	DESCRIPTION	REV	DATE

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 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

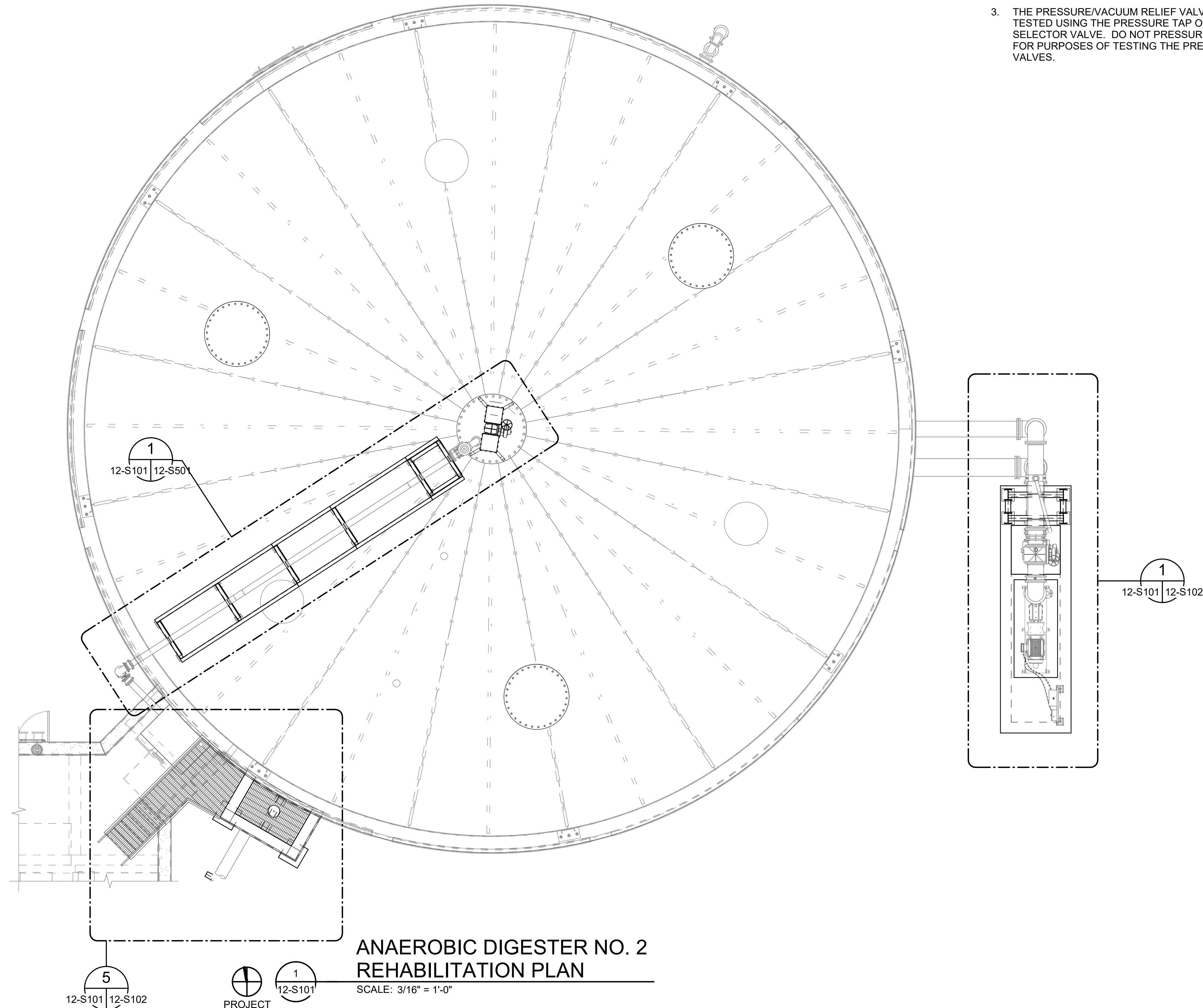
ANAEROBIC DIGESTER NO. 2 DEMOLITION SECTION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
12-X301
 SHEET NUMBER
045

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**ANAEROBIC DIGESTER NO. 2
REHABILITATION PLAN**

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



5
12-S101 12-S102

1
12-S101

1
12-S101 12-S102

1
12-S101 12-S501

- AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
- THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.



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CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER
RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
NO. 2 REHABILITATION
PLAN

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: KAU
DRAWN BY: EGB
CHECKED BY: KAM

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DRAWING NUMBER
12-S101
SHEET NUMBER **046**

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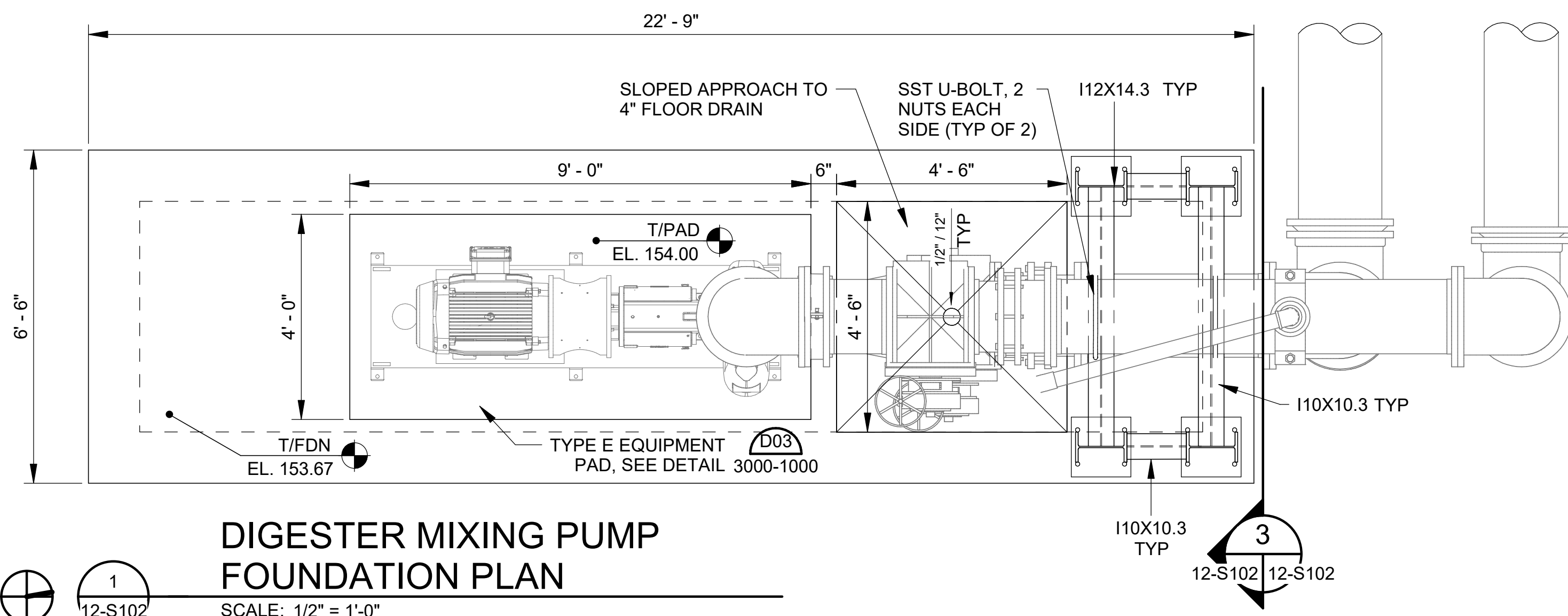
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

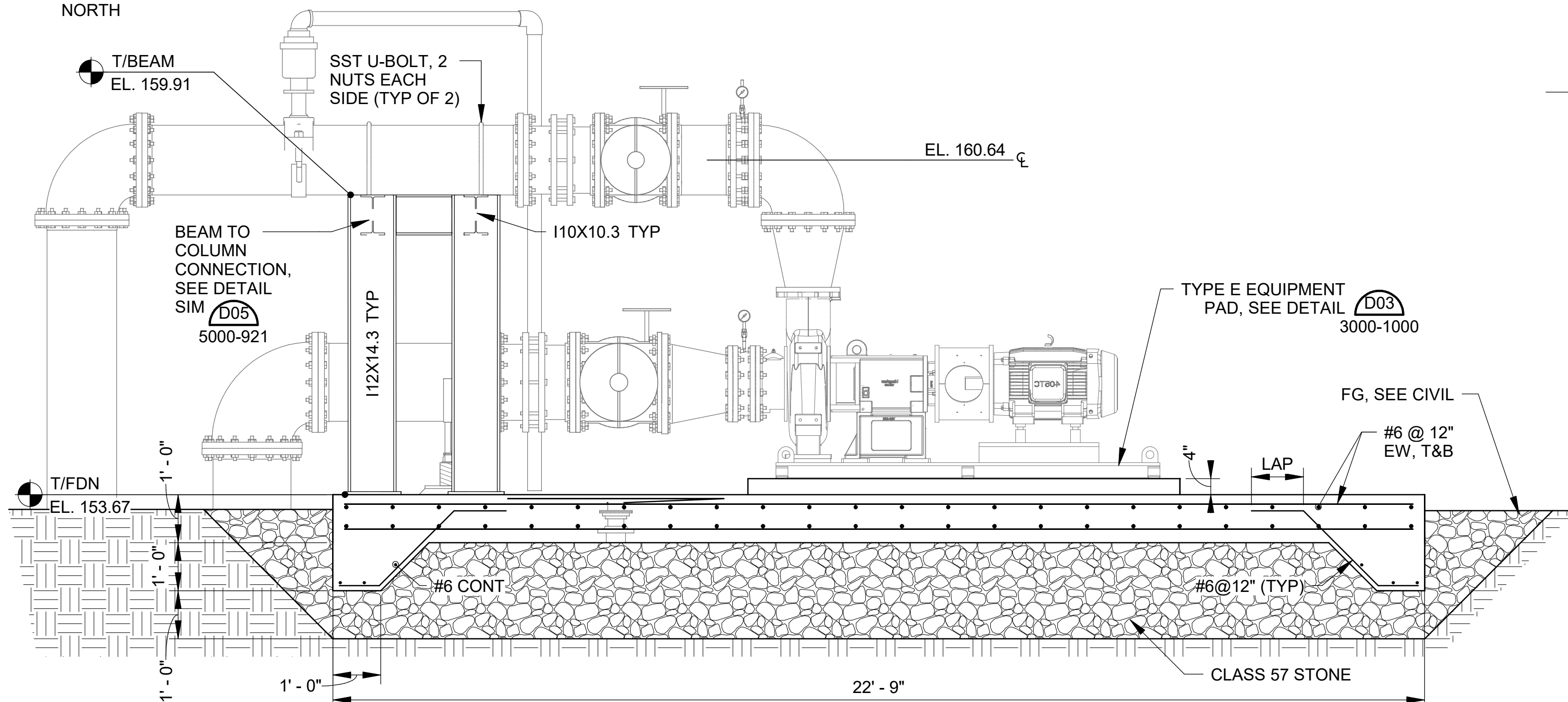
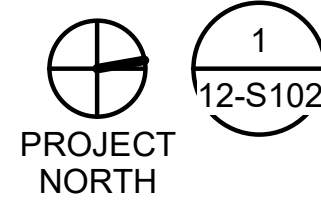
ANAEROBIC DIGESTER NO. 2 REHABILITATION SECTIONS AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: ADA
 CHECKED BY: KAM

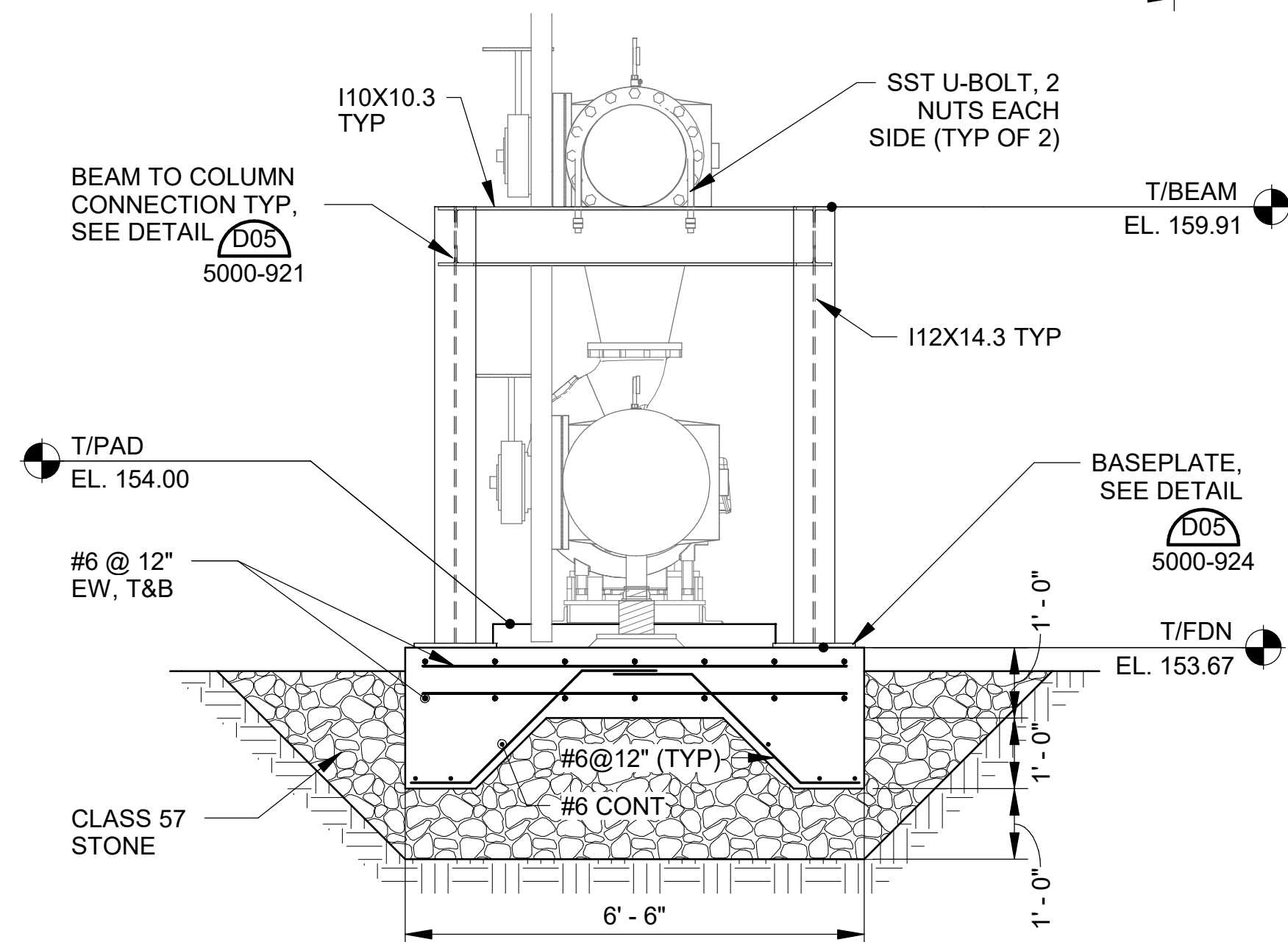
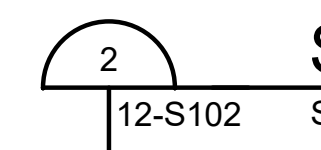
BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
12-S102
 SHEET NUMBER
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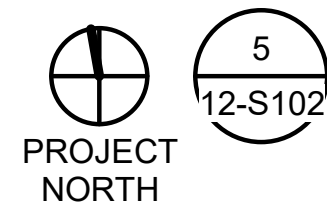
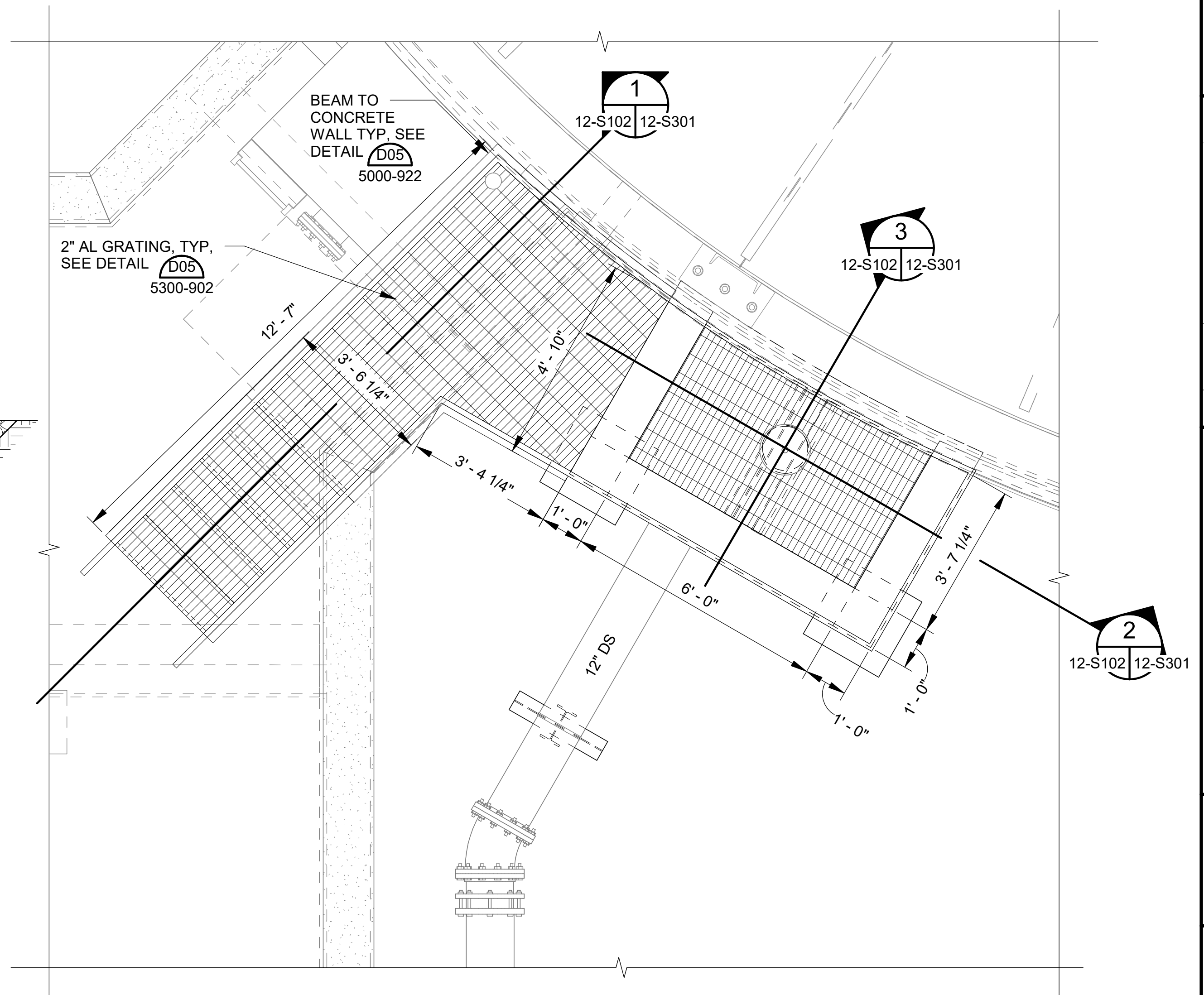
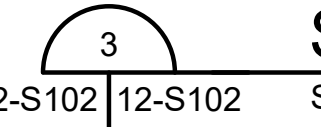
DIGESTER MIXING PUMP FOUNDATION PLAN
 SCALE: 1/2" = 1'-0"



DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



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

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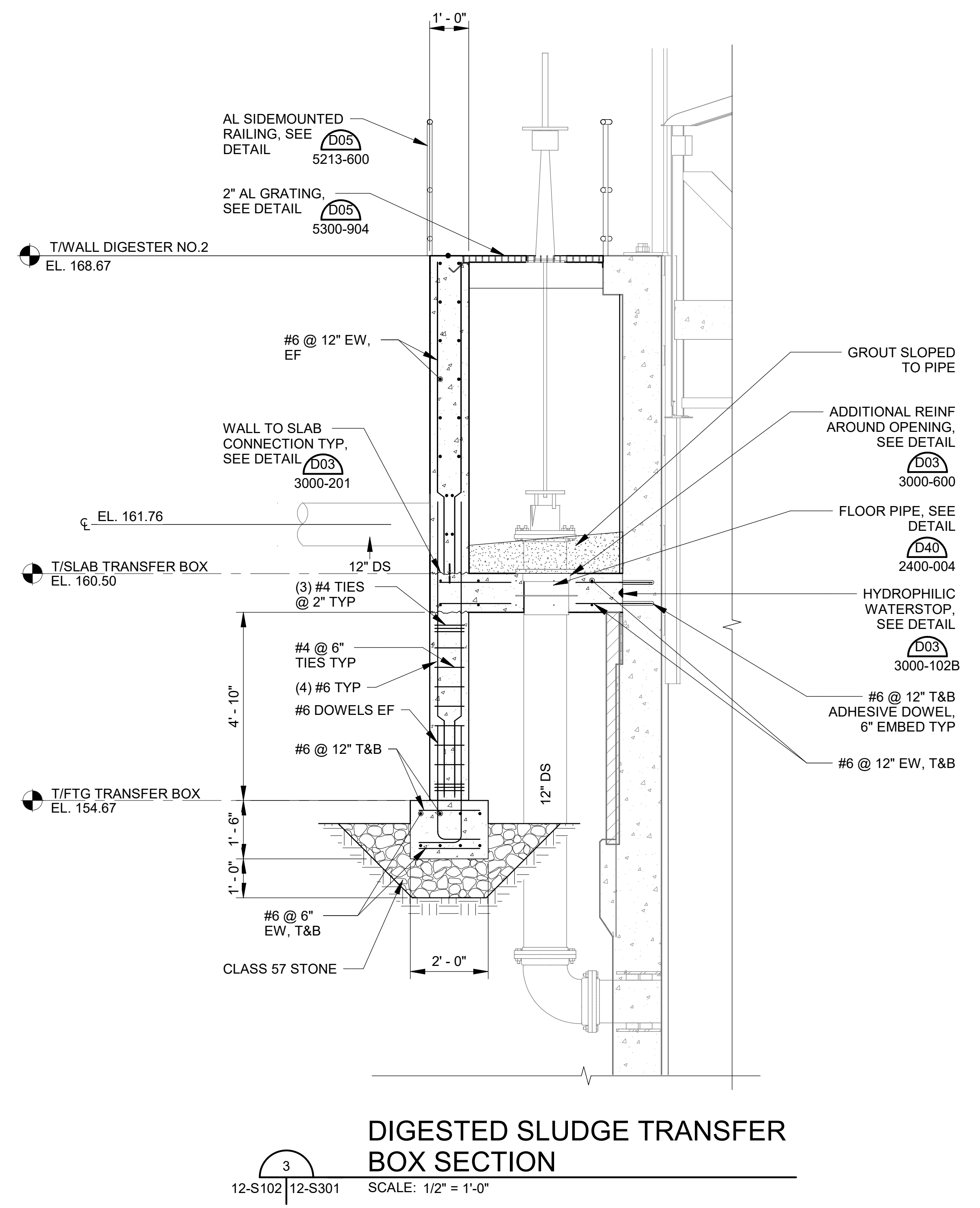
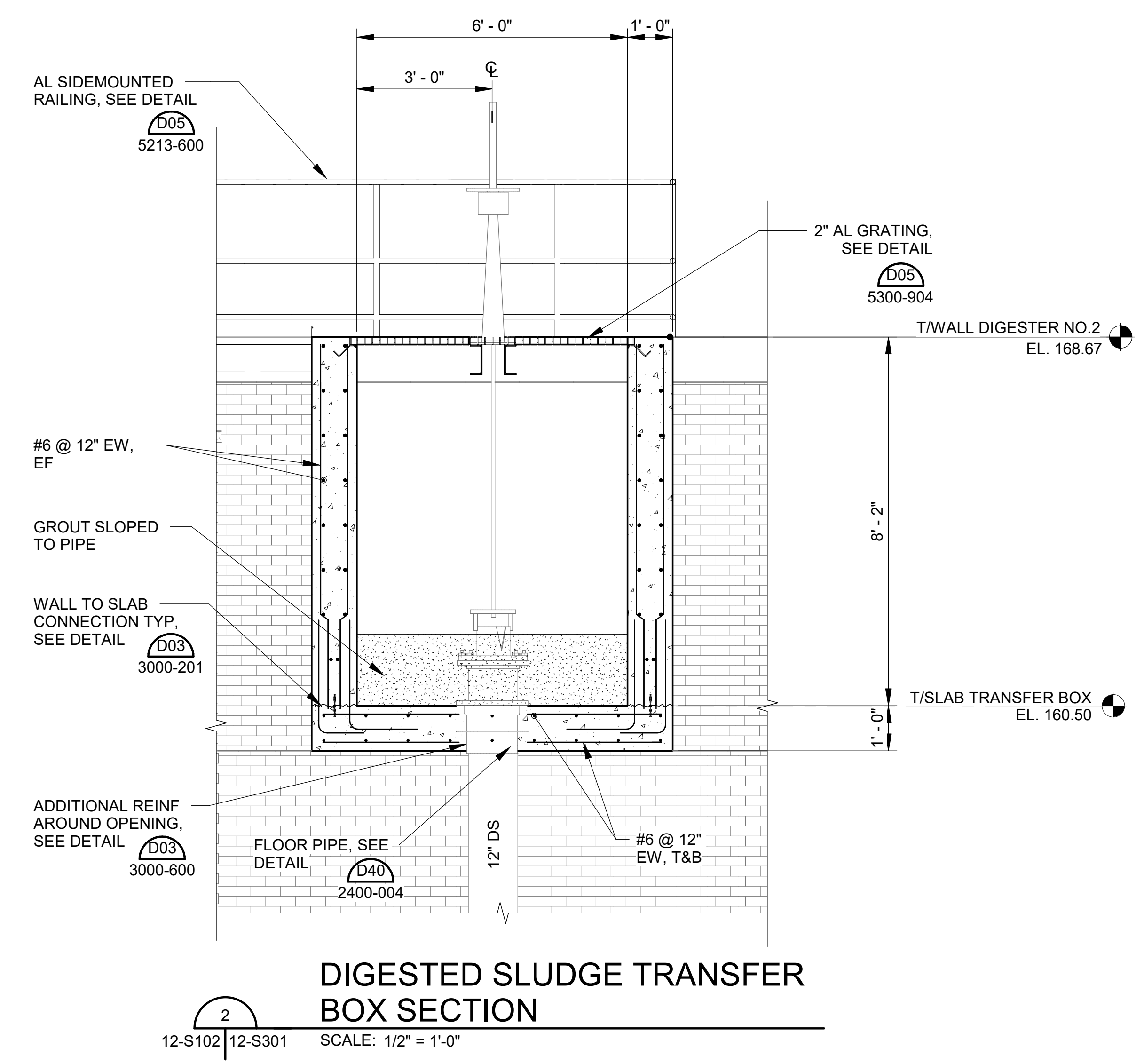
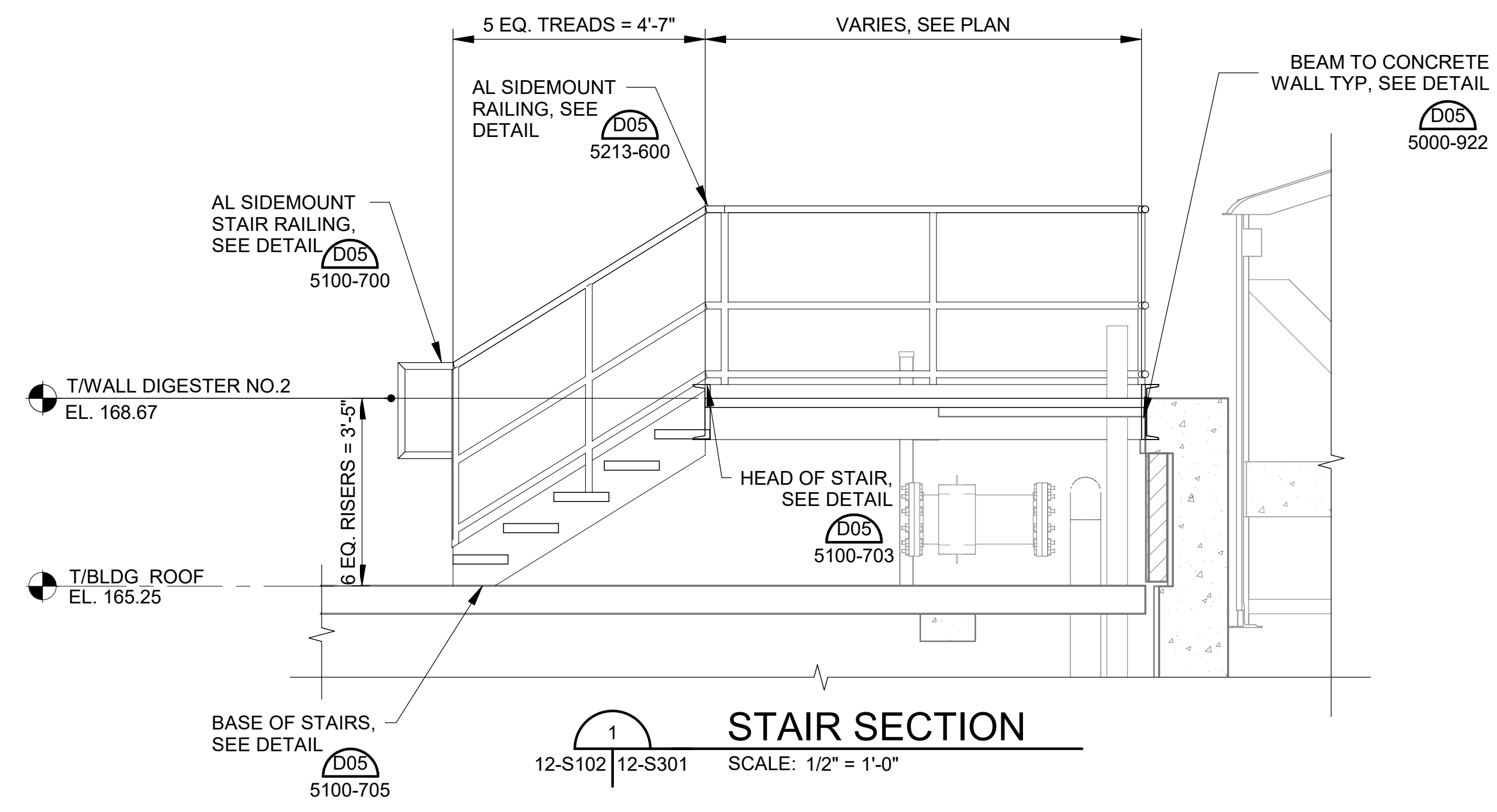
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 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2 REHABILITATION SECTIONS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: ADA
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12-S301
 SHEET NUMBER
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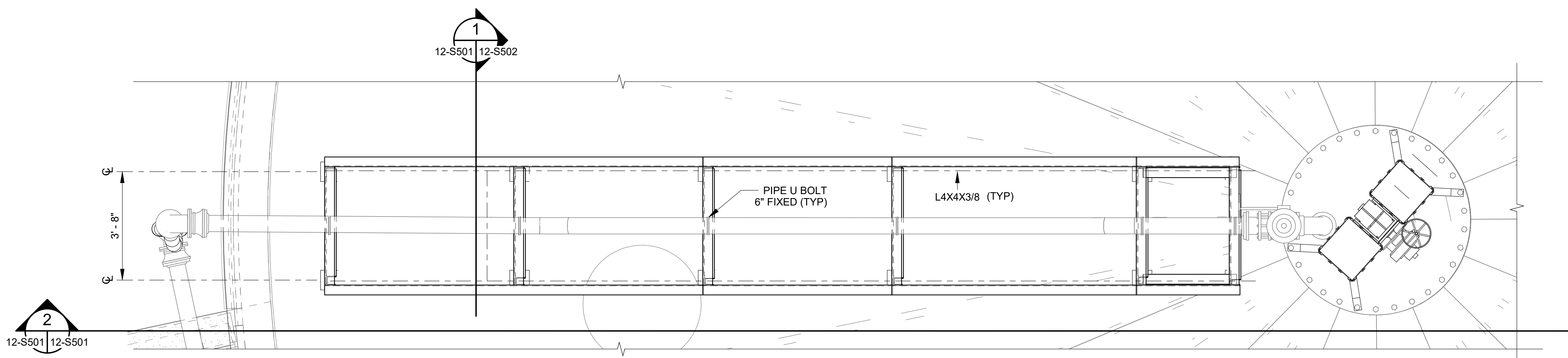
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 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 PIPE SUPPORT NO. 2
 REHABILITATION
 DETAIL AND SECTION

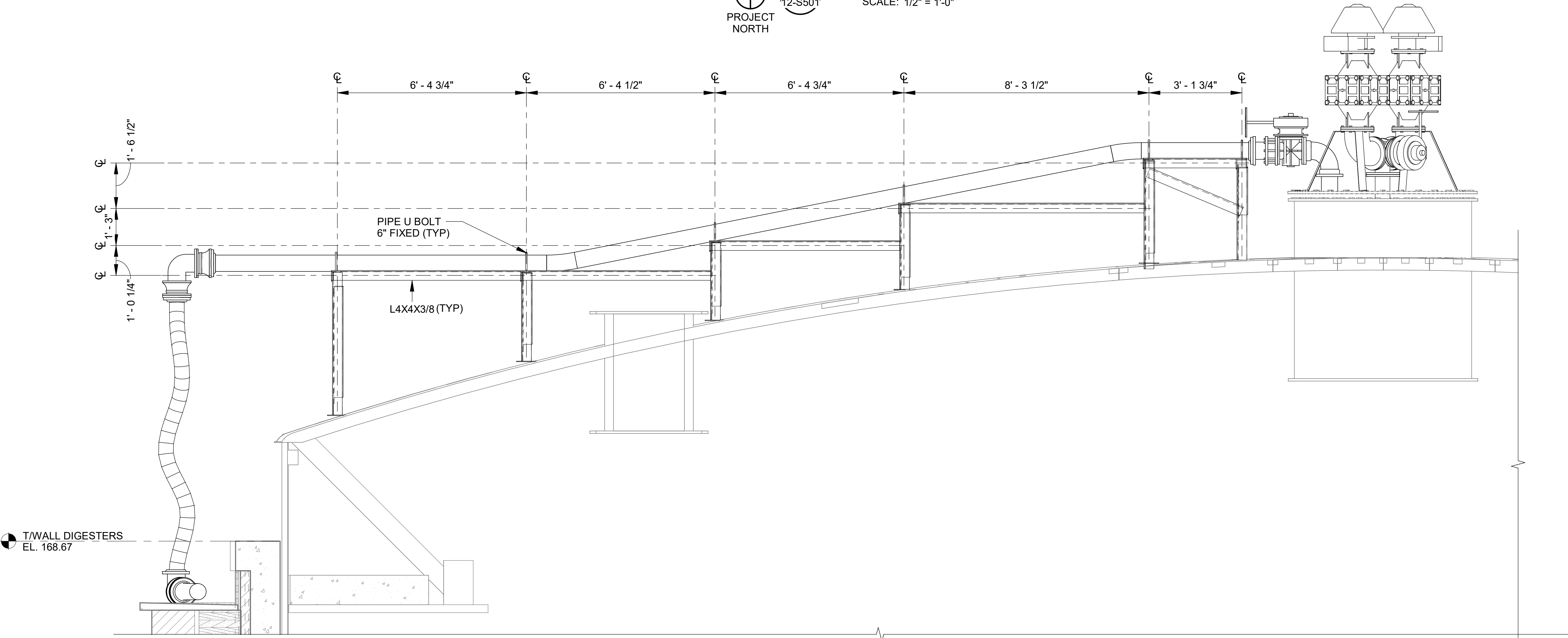
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: GBA
 CHECKED BY: KAM

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DRAWING NUMBER
12-S501
 SHEET NUMBER **049**



1
 12-S501
 PROJECT NORTH
CALLOUT
 SCALE: 1/2" = 1'-0"



2
 12-S501 | 12-S501
SECTION
 SCALE: 1/2" = 1'-0"

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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T/WALL DIGESTERS
 EL. 168.67

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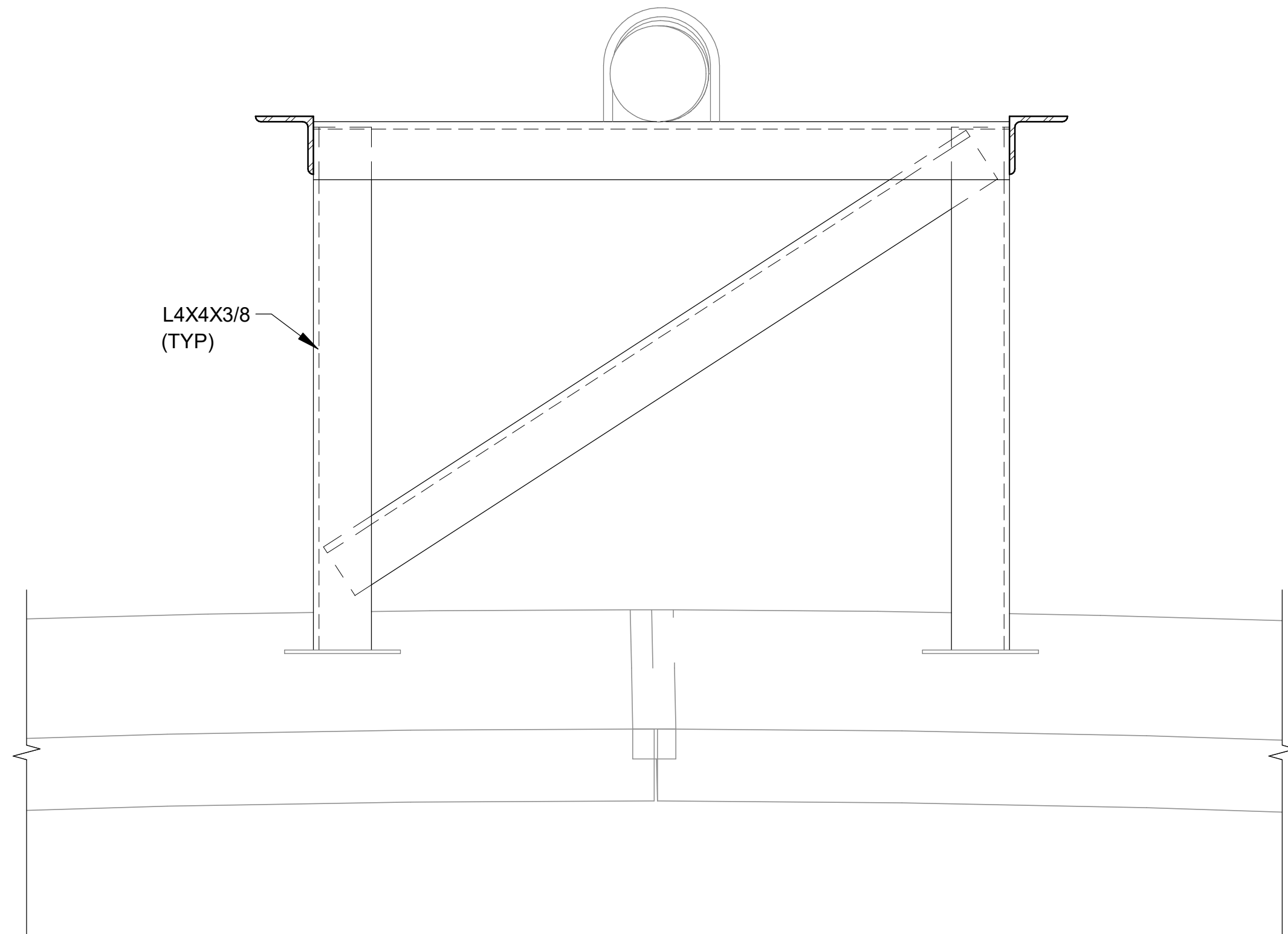
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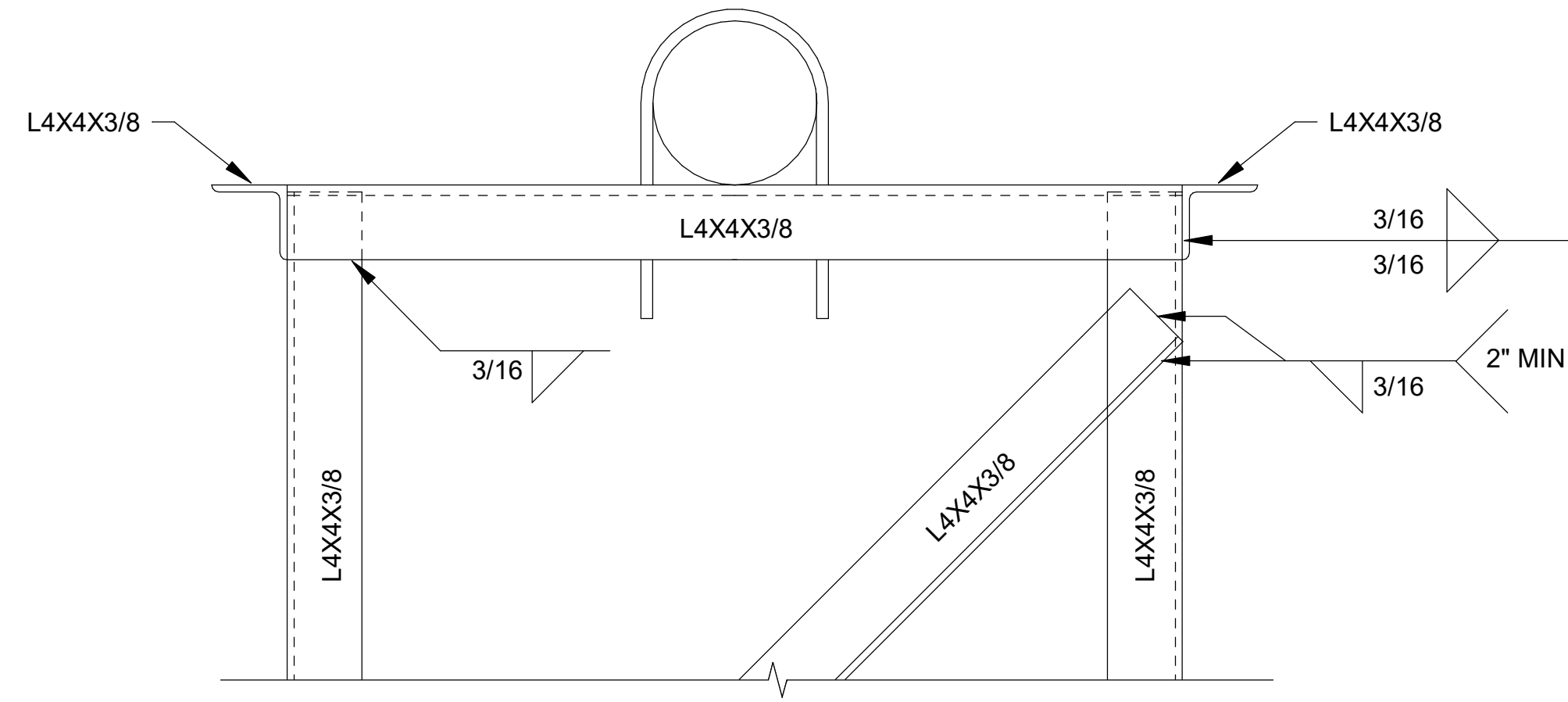
ANAEROBIC DIGESTER PIPE SUPPORT NO. 2 REHABILITATION
 DETAIL

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: GBA
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 DRAWING NUMBER
12-S502
 SHEET NUMBER
050



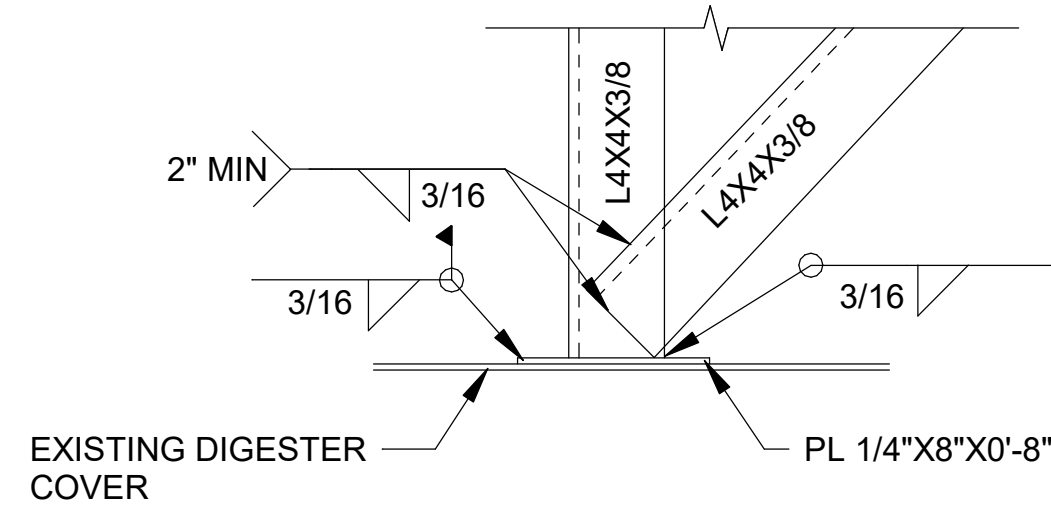
SECTION 1
 12-S501 | 12-S502 SCALE: 1 1/2" = 1'-0"



DETAIL 2
 12-S502 SCALE: 1 1/2" = 1'-0"

NOTES:

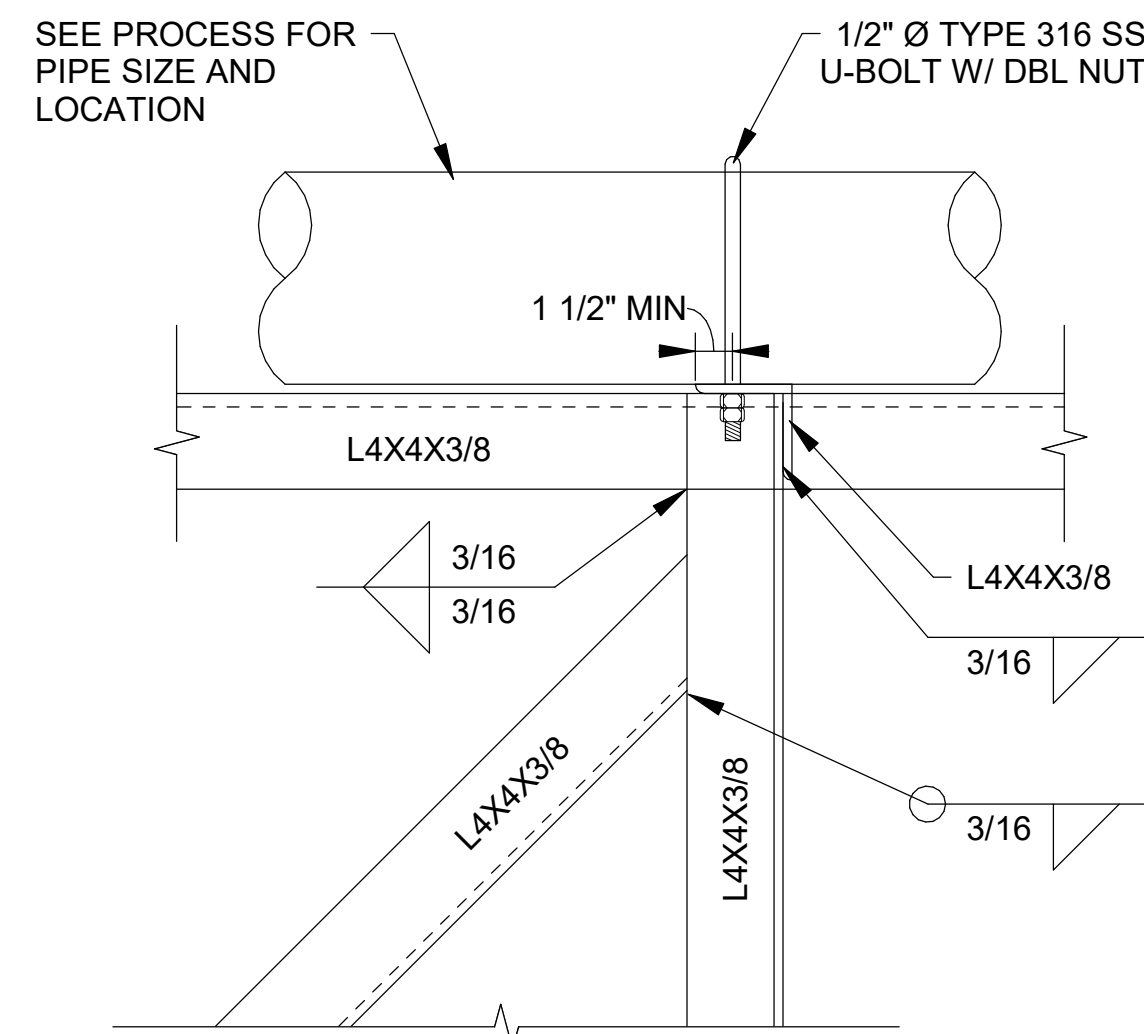
1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS



NOTES:

1. THOROUGHLY CLEAN EXISTING DIGESTER COVER PRIOR TO WELDING
2. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

DETAIL 3
 12-S502 SCALE: 1 1/2" = 1'-0"

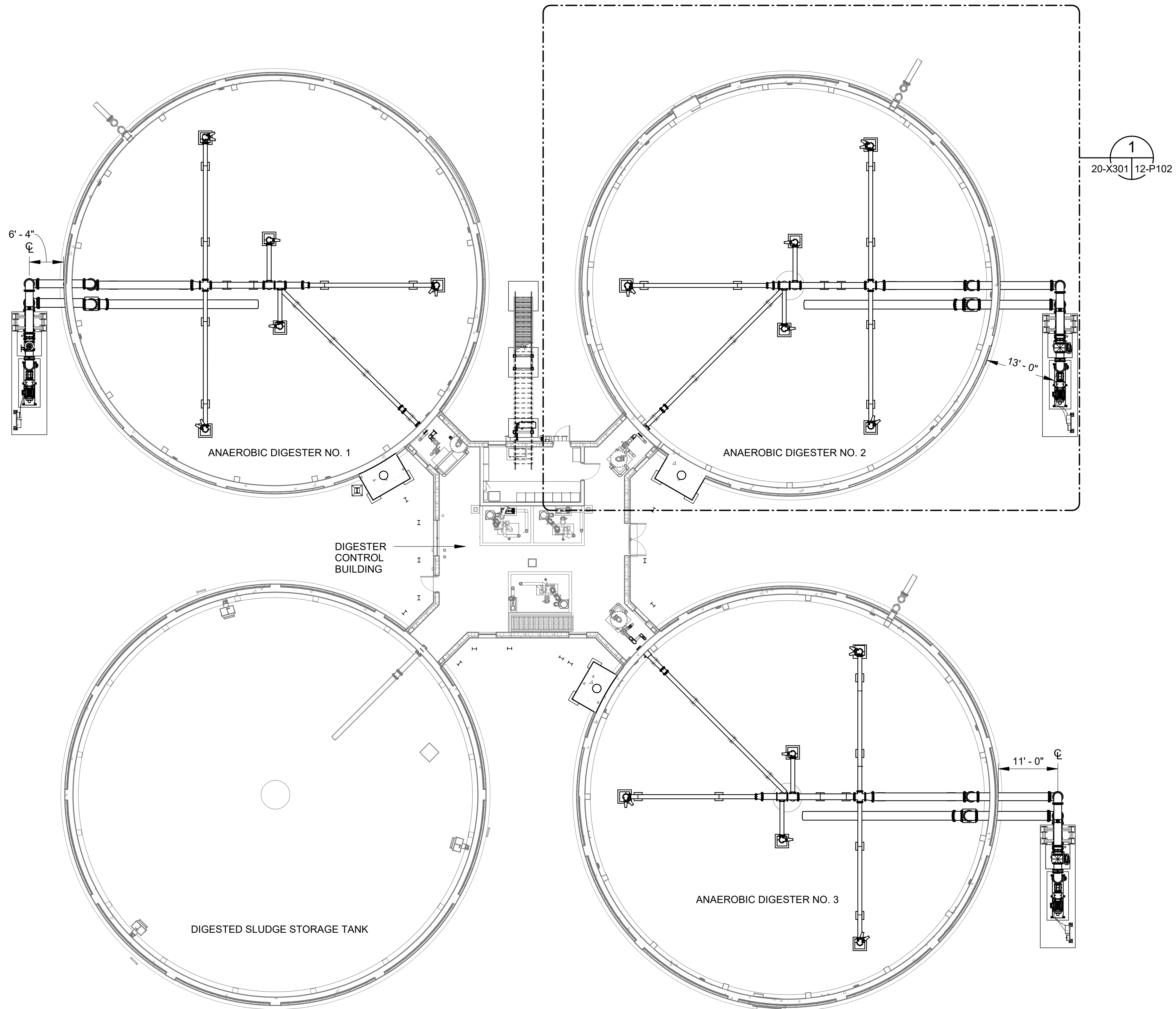


NOTES:

1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

DETAIL 4
 12-S502 SCALE: 1 1/2" = 1'-0"

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 Plot Date: 11/09/2024 5:23:14 PM



**ANAEROBIC DIGESTION
 REHABILITATION OVERALL
 FACILITY LOWER PLAN**

PROJECT NORTH

SCALE: 3/32" = 1'-0"

1
 20-X301 12-P102



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OVERALL ANAEROBIC
 DIGESTION
 REHABILITATION PLAN

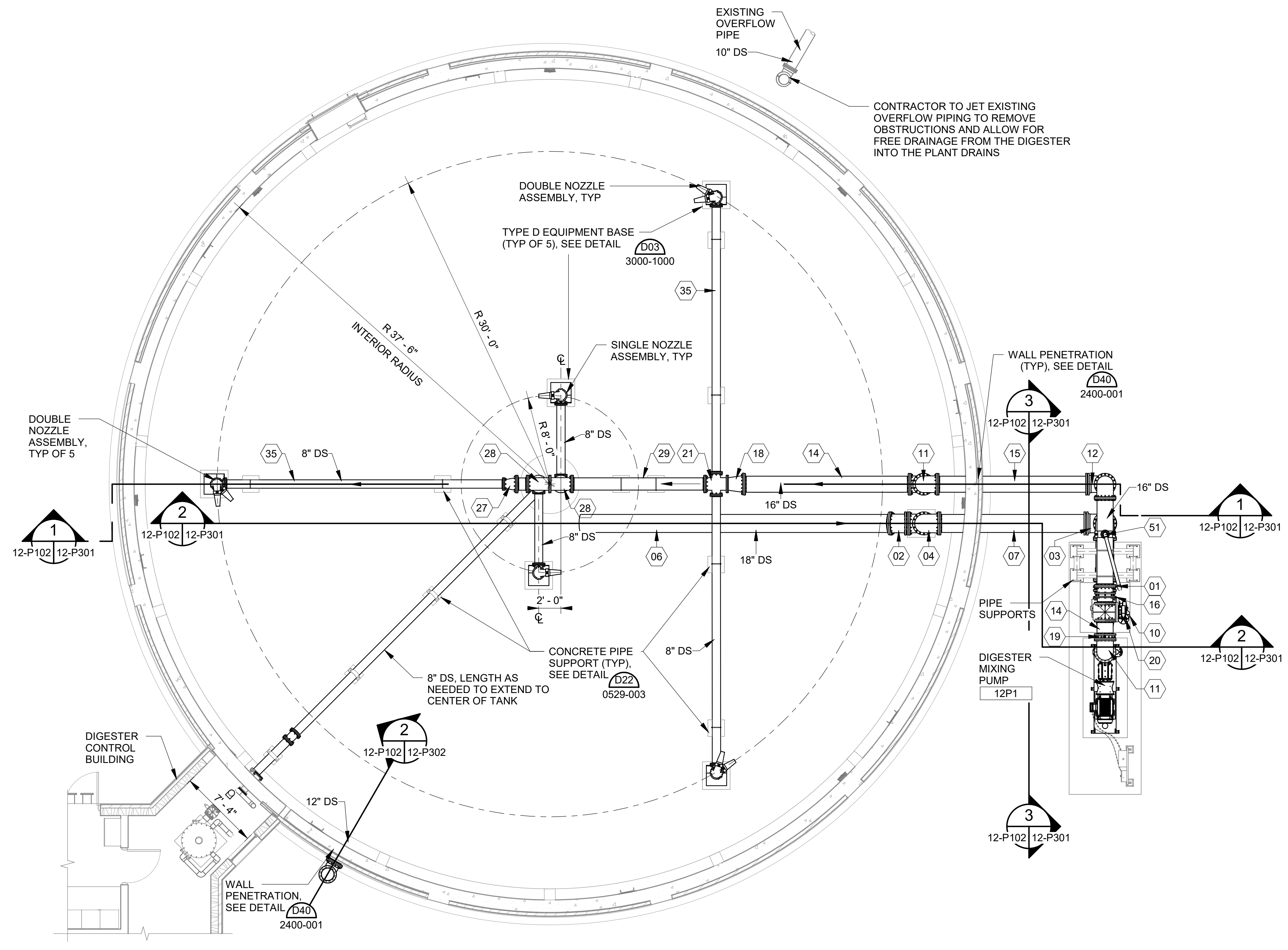
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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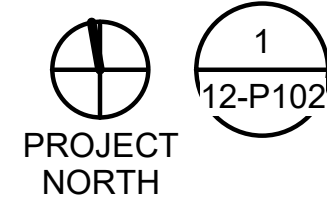
DRAWING NUMBER
12-P101
 SHEET NUMBER
051

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ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS LOWER PLAN




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

KEYNOTES: DENOTED BY SYMBOL (X)

01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" x 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" x 10" REDUCER (FLG x FLG)
18	16" x 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" x 12" x 8" x 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" x 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" x 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

- NOTES:
- CONTRACTOR SHALL COORDINATE NOZZLE LOCATION, CONFIGURATION, AND QUANTITY, AS REQUIRED, WITH DIGESTER MIXING SYSTEM MANUFACTURER.
 - DIMENSIONS AND OVERALL MIXING SYSTEM LAYOUT IS BASED ON VAUGHAN ROTAMIX SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF PIPE AND NOZZLE SUPPORTS AT NO ADDITIONAL COST TO OWNER.
 - PIPING SUPPORTS SHOWN FOR ALL INTERIOR PIPING SHOULD BE CONSIDERED TO BE REPRESENTATIVE. CONTRACTOR SHALL LOCATE AND INSTALL THE NECESSARY NUMBER OF SUPPORTS BASED ON THE FINAL PIPING CONFIGURATION AND SUPPORT REQUIREMENTS DETAILED IN THE SPECIFICATIONS.
 - ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL



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HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 2 IMPROVEMENTS
 LOWER PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

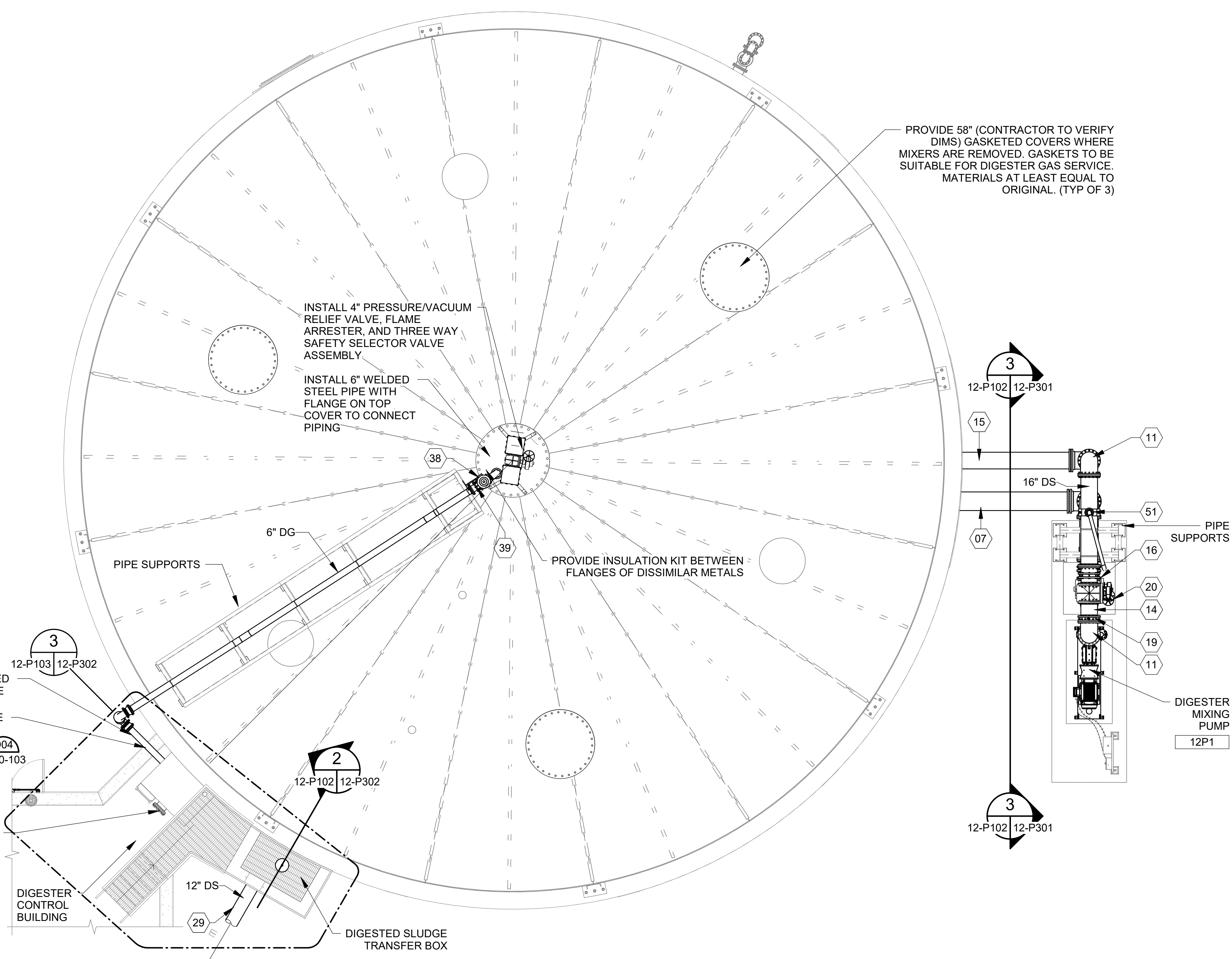
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SHEET NUMBER
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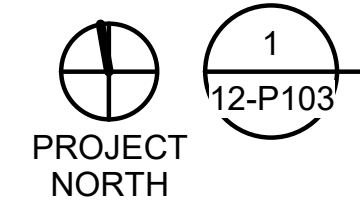
PROVIDE 58" (CONTRACTOR TO VERIFY DIMS) GASKETED COVERS WHERE MIXERS ARE REMOVED. GASKETS TO BE SUITABLE FOR DIGESTER GAS SERVICE. MATERIALS AT LEAST EQUAL TO ORIGINAL. (TYP OF 3)

INSTALL 4" PRESSURE/VACUUM RELIEF VALVE, FLAME ARRESTER, AND THREE WAY SAFETY SELECTOR VALVE ASSEMBLY.

INSTALL 6" WELDED STEEL PIPE WITH FLANGE ON TOP COVER TO CONNECT PIPING

PROVIDE INSULATION KIT BETWEEN FLANGES OF DISSIMILAR METALS

ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS UPPER PLAN



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

KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

- GENERAL NOTES:**
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE COVER MANUFACTURER (OVIVO/EIMCO) BEFORE ANY MODIFICATIONS OR WORK IS PERFORMED (INCLUDING ADDITIONAL PIPE SUPPORTS) BASED ON CONDITION OF THE COVER ONCE TAKEN OUT OF SERVICE. ANY DEVIATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
 - AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
 - THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.

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REV	DATE	DESCRIPTION	BY
2	12/5/23	ADDENDUM NO. 2	RWC

CITY OF TUSCALOOSA

HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2 IMPROVEMENTS UPPER PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

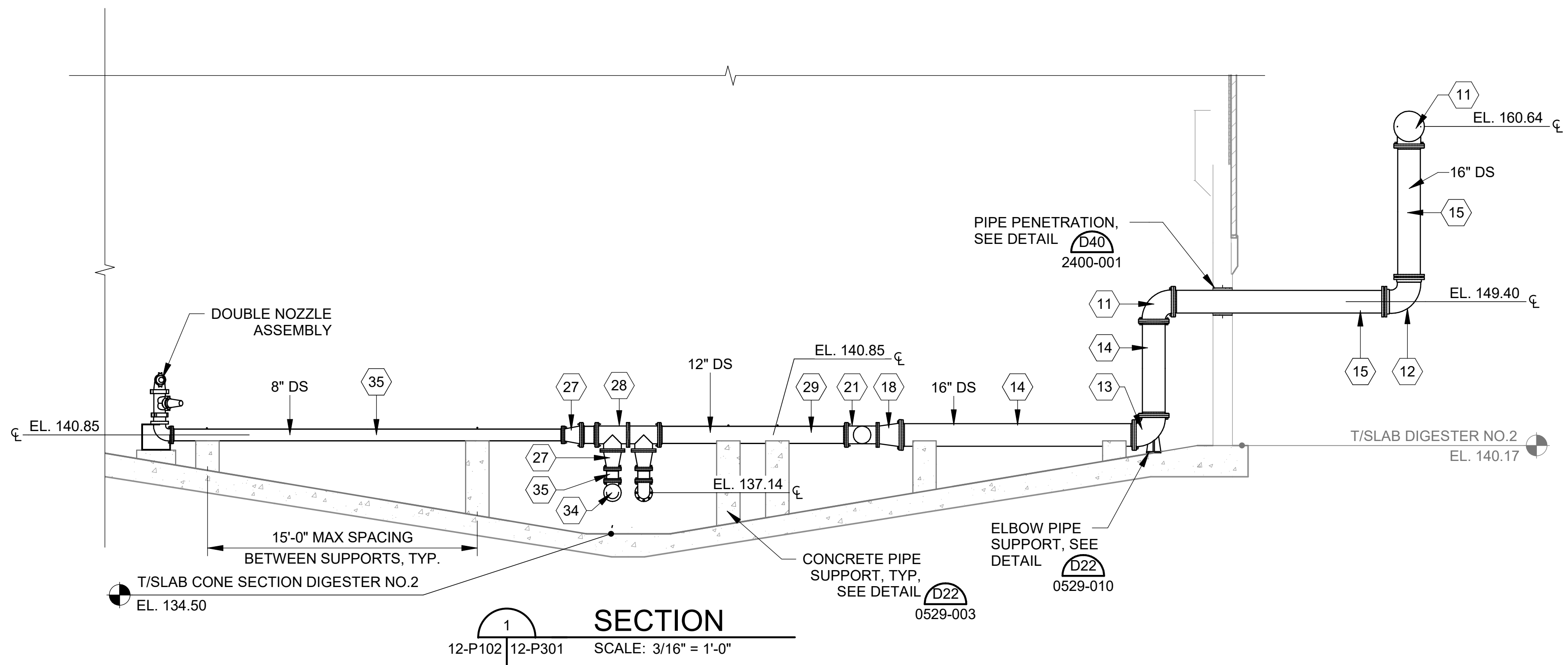
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DRAWING NUMBER
12-P103

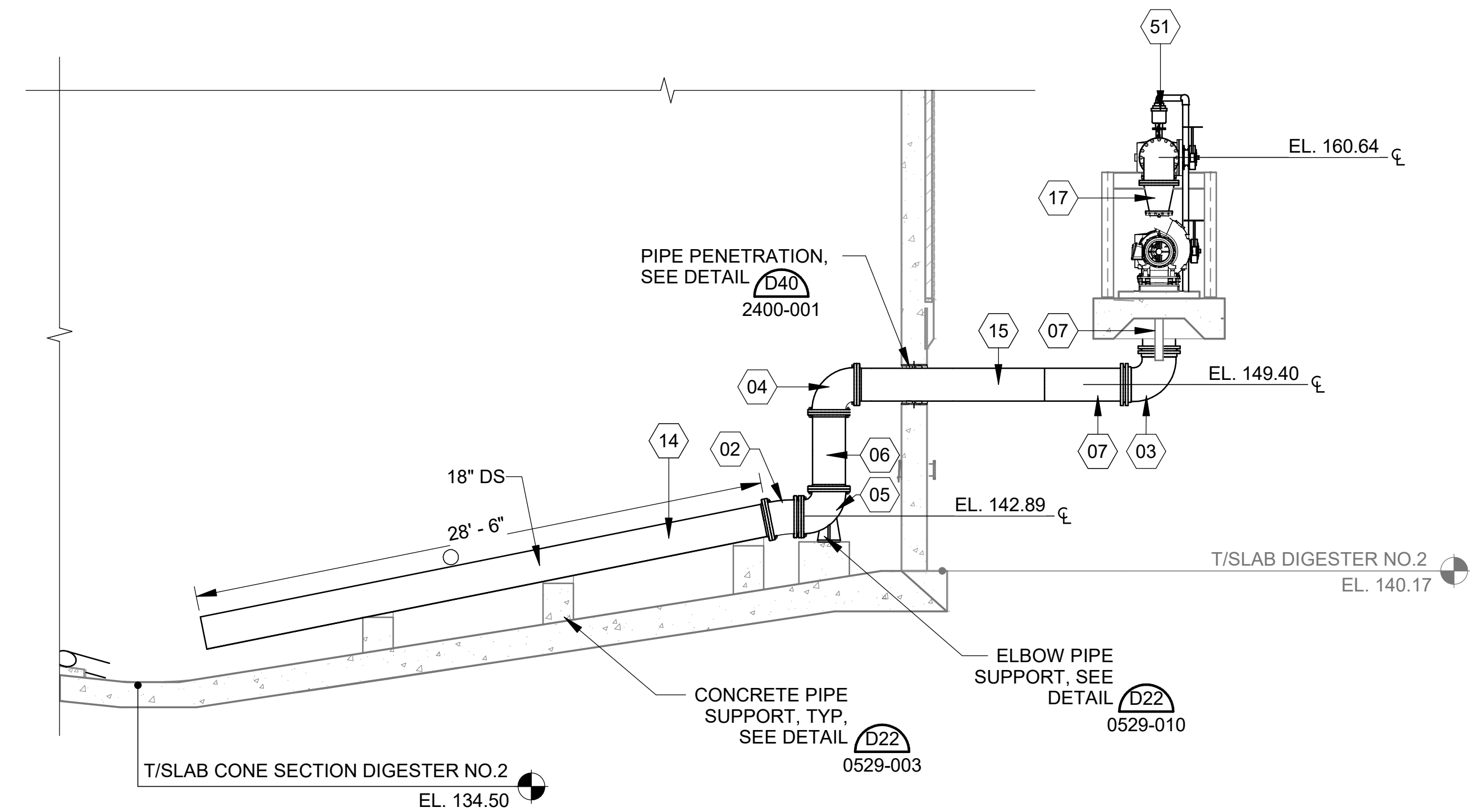
SHEET NUMBER
053

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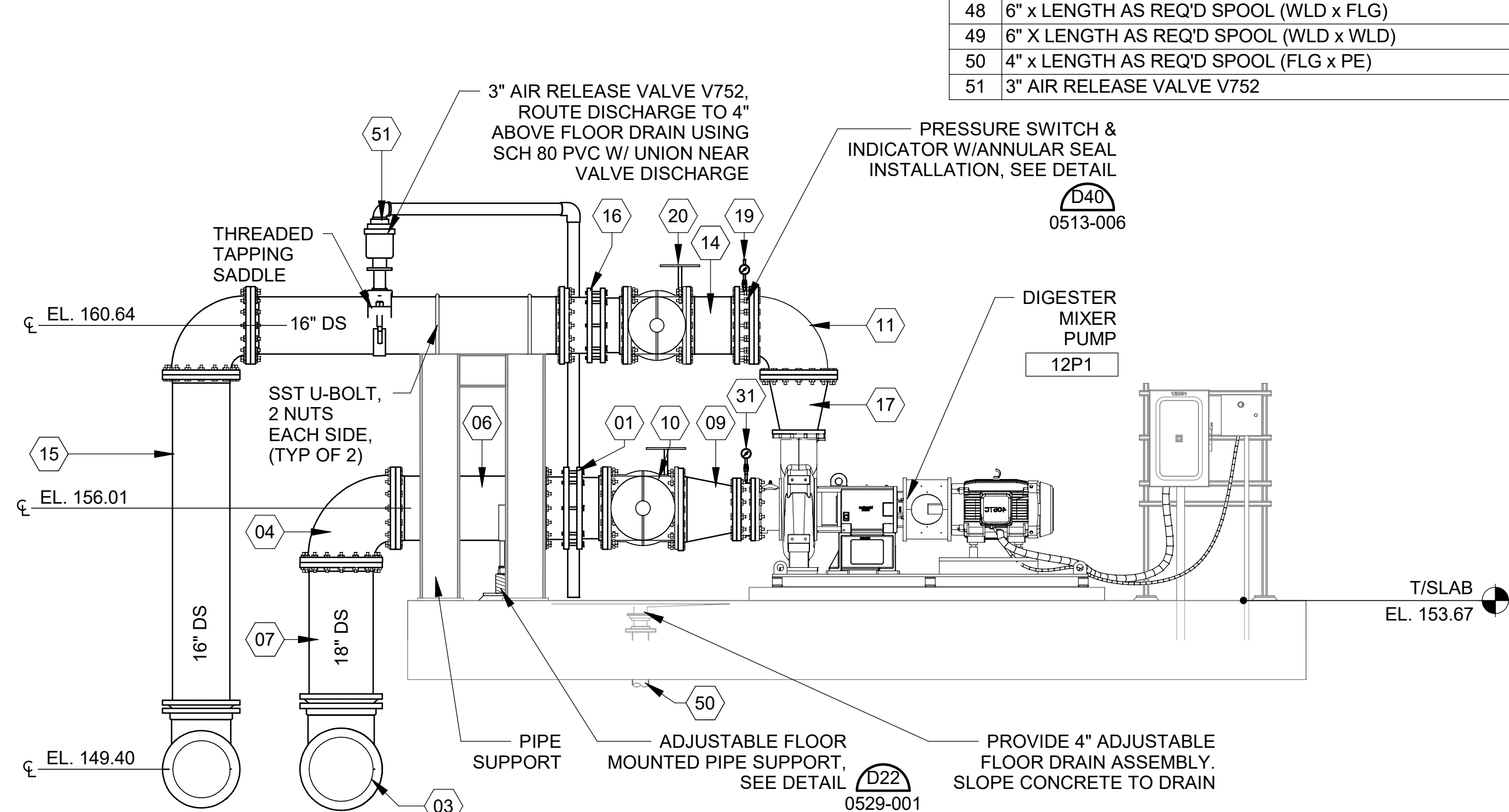
Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRFR_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:23:27 PM



SECTION 1
 12-P102 12-P301 SCALE: 3/16" = 1'-0"



SECTION 2
 12-P102 12-P301 SCALE: 3/16" = 1'-0"



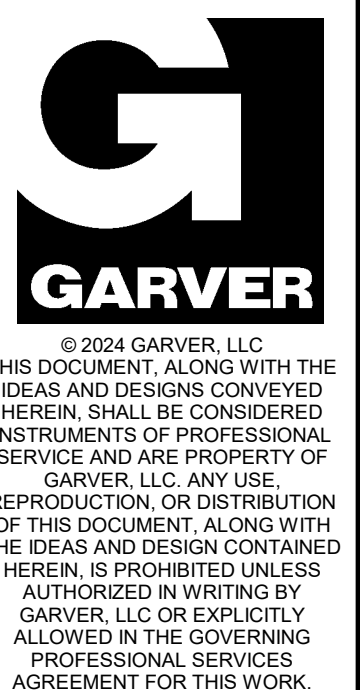
SECTION 3
 12-P102 12-P301 SCALE: 3/8" = 1'-0"

NOTES:

- CONTRACTOR SHALL COORDINATE NOZZLE LOCATION, CONFIGURATION, AND QUANTITY, AS REQUIRED, WITH DIGESTER MIXING SYSTEM MANUFACTURER.
- DIMENSIONS AND OVERALL MIXING SYSTEM LAYOUT IS BASED ON VAUGHAN ROTAMIX SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF PIPE AND NOZZLE SUPPORTS AT NO ADDITIONAL COST TO OWNER.
- PIPING SUPPORTS SHOWN FOR ALL INTERIOR PIPING SHOULD BE CONSIDERED TO BE REPRESENTATIVE. CONTRACTOR SHALL LOCATE AND INSTALL THE NECESSARY NUMBER OF SUPPORTS BASED ON THE FINAL PIPING CONFIGURATION AND SUPPORT REQUIREMENTS DETAILED IN THE SPECIFICATIONS.
- DIGESTER GEOMETRY HAS BEEN TAKEN FROM AVAILABLE RECORD DRAWINGS AND HAS NOT BEEN FIELD VERIFIED. CONTRACTOR SHALL CONFIRM ALL ELEVATIONS AND DIMENSIONS OF EXISTING DIGESTERS PRIOR TO ORDERING ANY PIPE MATERIAL. OWNER WILL NOT BE RESPONSIBLE FOR COSTS ASSOCIATED WITH PIPING MODIFICATIONS BASED ON DIFFERING FIELD CONDITIONS IF THIS IS NOT PERFORMED.
- ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL

KEYNOTES: DENOTED BY SYMBOL (X)

01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" X LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752



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REV	DATE	DESCRIPTION

CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

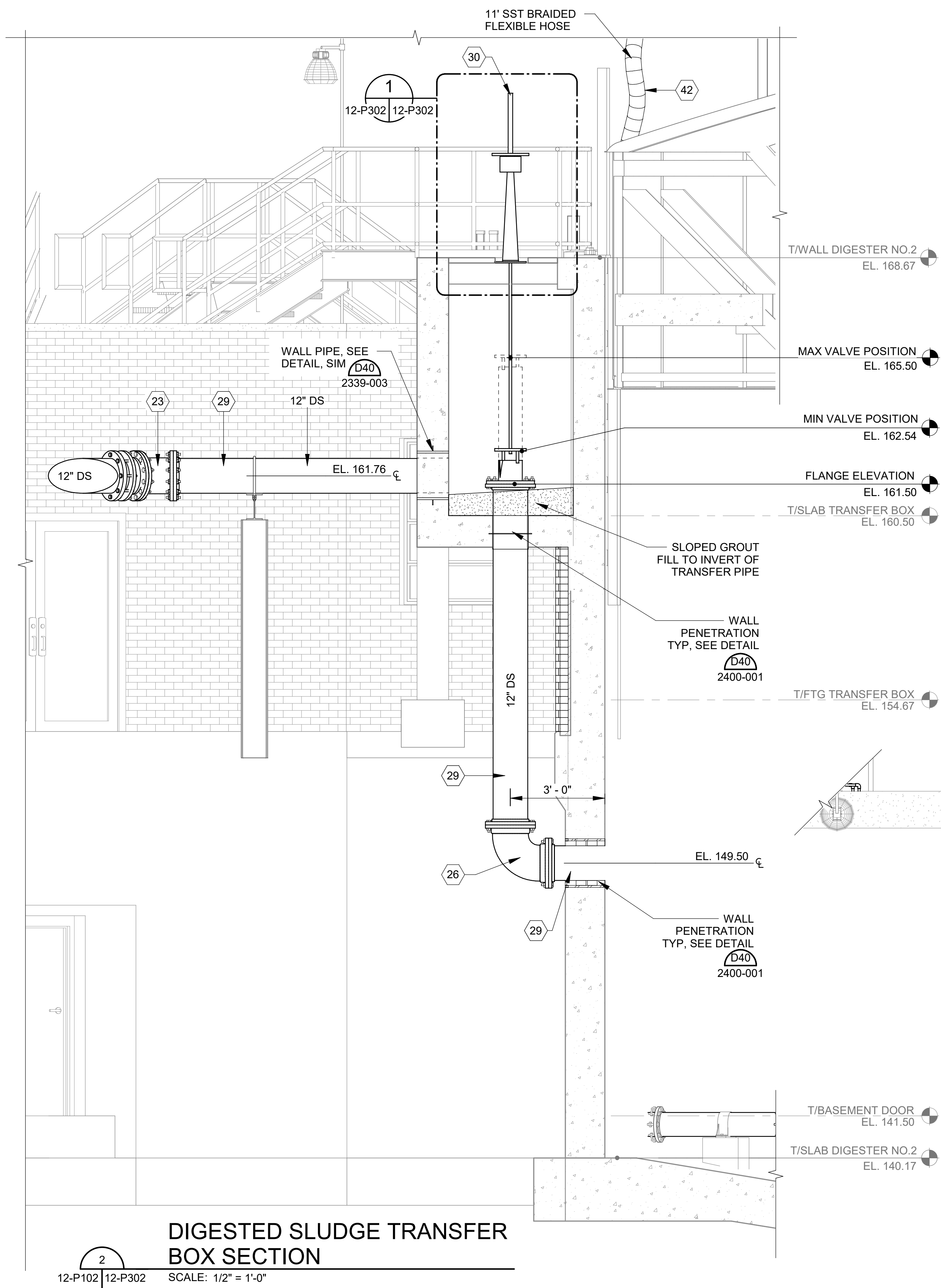
ANAEROBIC DIGESTER NO. 2 DIGESTER MIXING SECTIONS AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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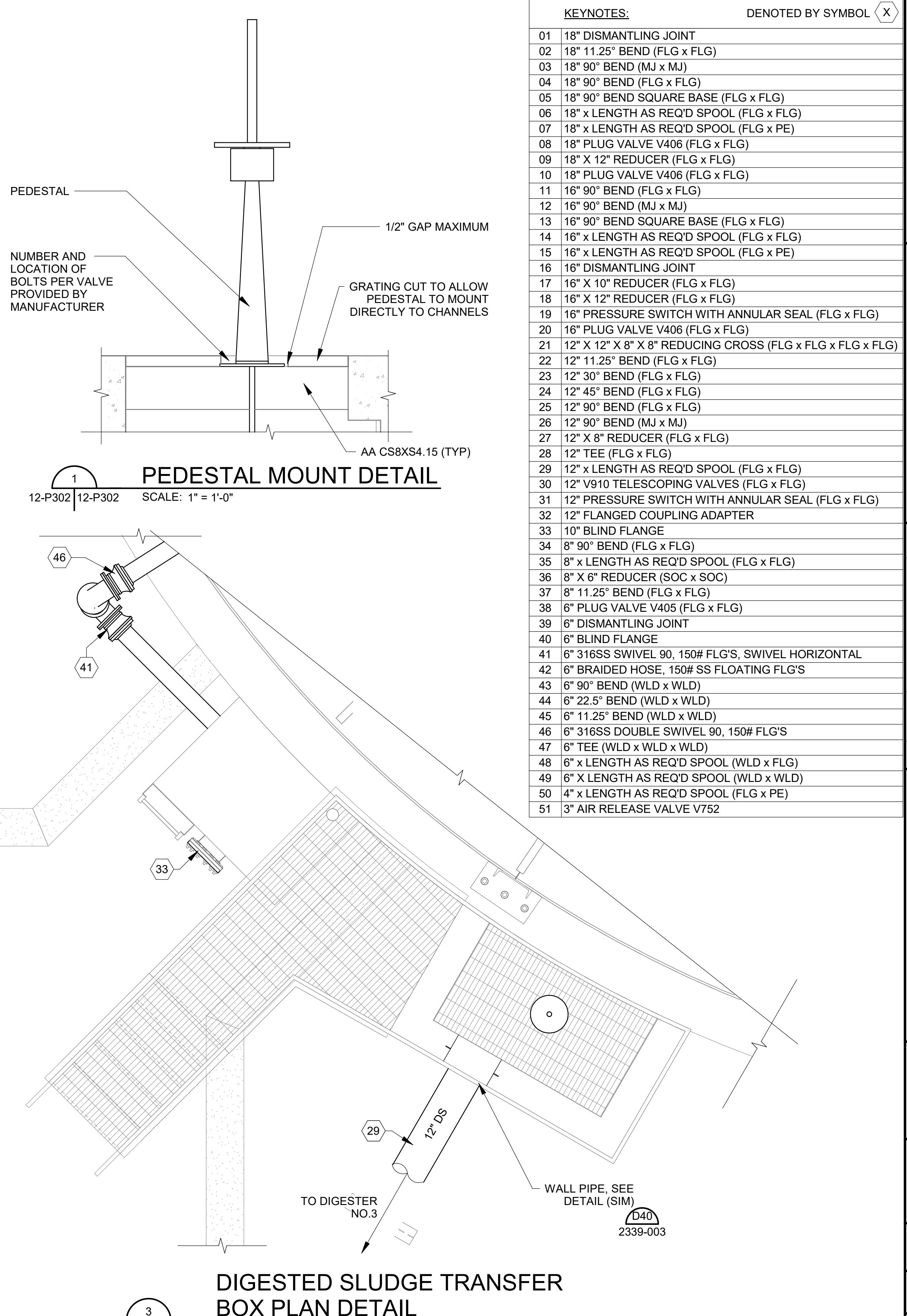
DRAWING NUMBER
12-P301
 SHEET NUMBER
054

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/29/2024 5:23:31 PM



DIGESTED SLUDGE TRANSFER BOX SECTION

12-P102 | 12-P302 SCALE: 1/2" = 1'-0"



DIGESTED SLUDGE TRANSFER BOX PLAN DETAIL

12-P103 | 12-P302 SCALE: 1/2" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
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16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
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28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" X LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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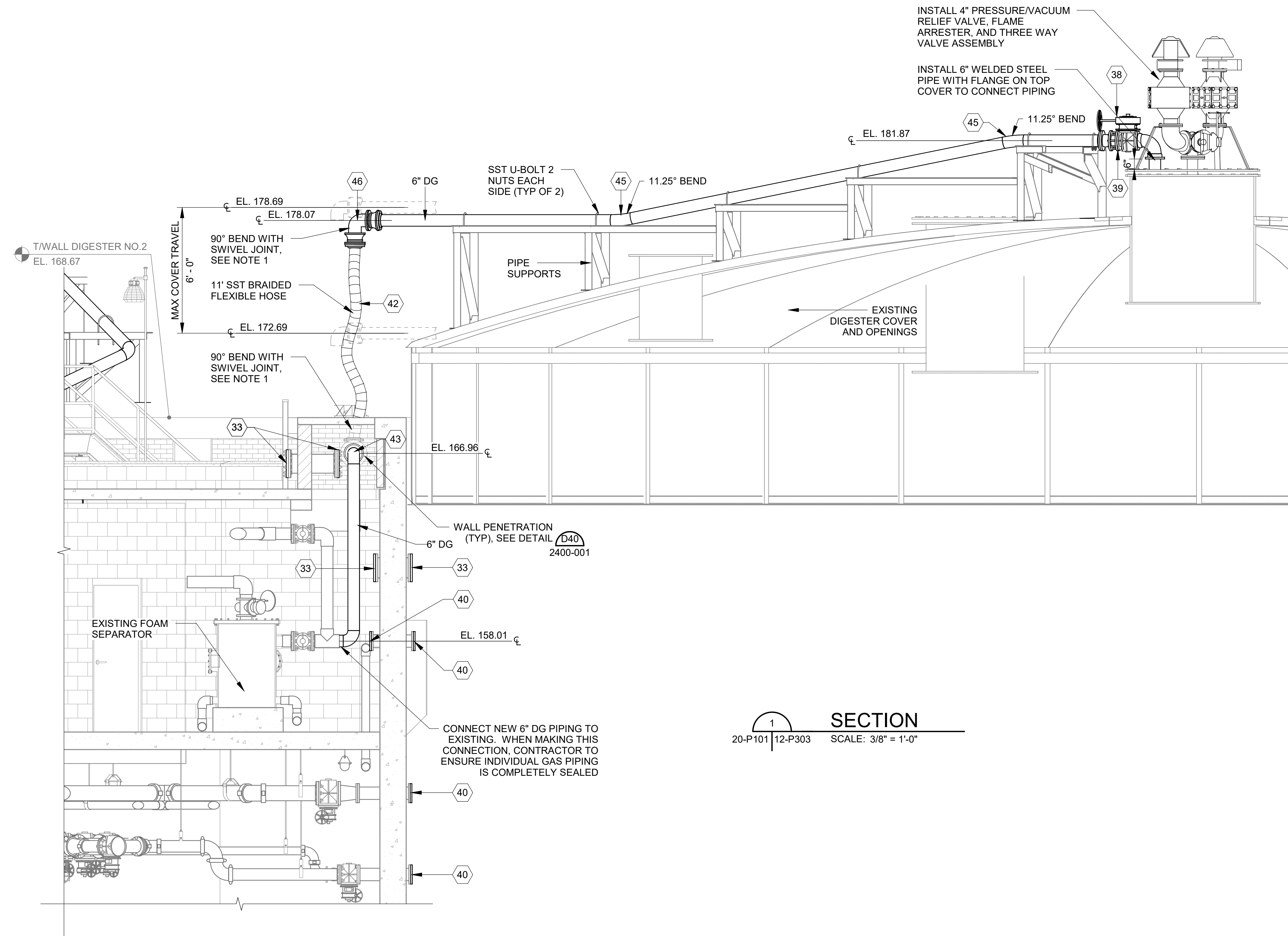
DRAWING NUMBER
12-P302

SHEET NUMBER
055

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REV	DATE	DESCRIPTION	BY

KEYNOTES:	DENOTED BY SYMBOL	X
01	18" DISMANTLING JOINT	
02	18" 11.25° BEND (FLG x FLG)	
03	18" 90° BEND (MJ x MJ)	
04	18" 90° BEND (FLG x FLG)	
05	18" 90° BEND SQUARE BASE (FLG x FLG)	
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)	
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12	16" 90° BEND (MJ x MJ)	
13	16" 90° BEND SQUARE BASE (FLG x FLG)	
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)	
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)	
16	16" DISMANTLING JOINT	
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18	16" X 12" REDUCER (FLG x FLG)	
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)	
20	16" PLUG VALVE V406 (FLG x FLG)	
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)	
22	12" 11.25° BEND (FLG x FLG)	
23	12" 30° BEND (FLG x FLG)	
24	12" 45° BEND (FLG x FLG)	
25	12" 90° BEND (FLG x FLG)	
26	12" 90° BEND (MJ x MJ)	
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28	12" TEE (FLG x FLG)	
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)	
30	12" V910 TELESCOPING VALVES (FLG x FLG)	
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)	
32	12" FLANGED COUPLING ADAPTER	
33	10" BLIND FLANGE	
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35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)	
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38	6" PLUG VALVE V405 (FLG x FLG)	
39	6" DISMANTLING JOINT	
40	6" BLIND FLANGE	
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL	
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S	
43	6" 90° BEND (WLD x WLD)	
44	6" 22.5° BEND (WLD x WLD)	
45	6" 11.25° BEND (WLD x WLD)	
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S	
47	6" TEE (WLD x WLD x WLD)	
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)	
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)	
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)	
51	3" AIR RELEASE VALVE V752	



SECTION
20-P101 | 12-P303 SCALE: 3/8" = 1'-0"

NOTE:
1. SWIVEL JOINTS SHALL BE 150# FLANGED V-RING STYLE SWIVEL MADE OF STAINLESS STEEL WITH TEFLON PRESSURE SEAL, AS MANUFACTURED BY DIXON VALVE AND COUPLING (RING STYLE 30 & 60), OR EQUAL

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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 2 DIGESTER
 MIXING ISOMETRICS

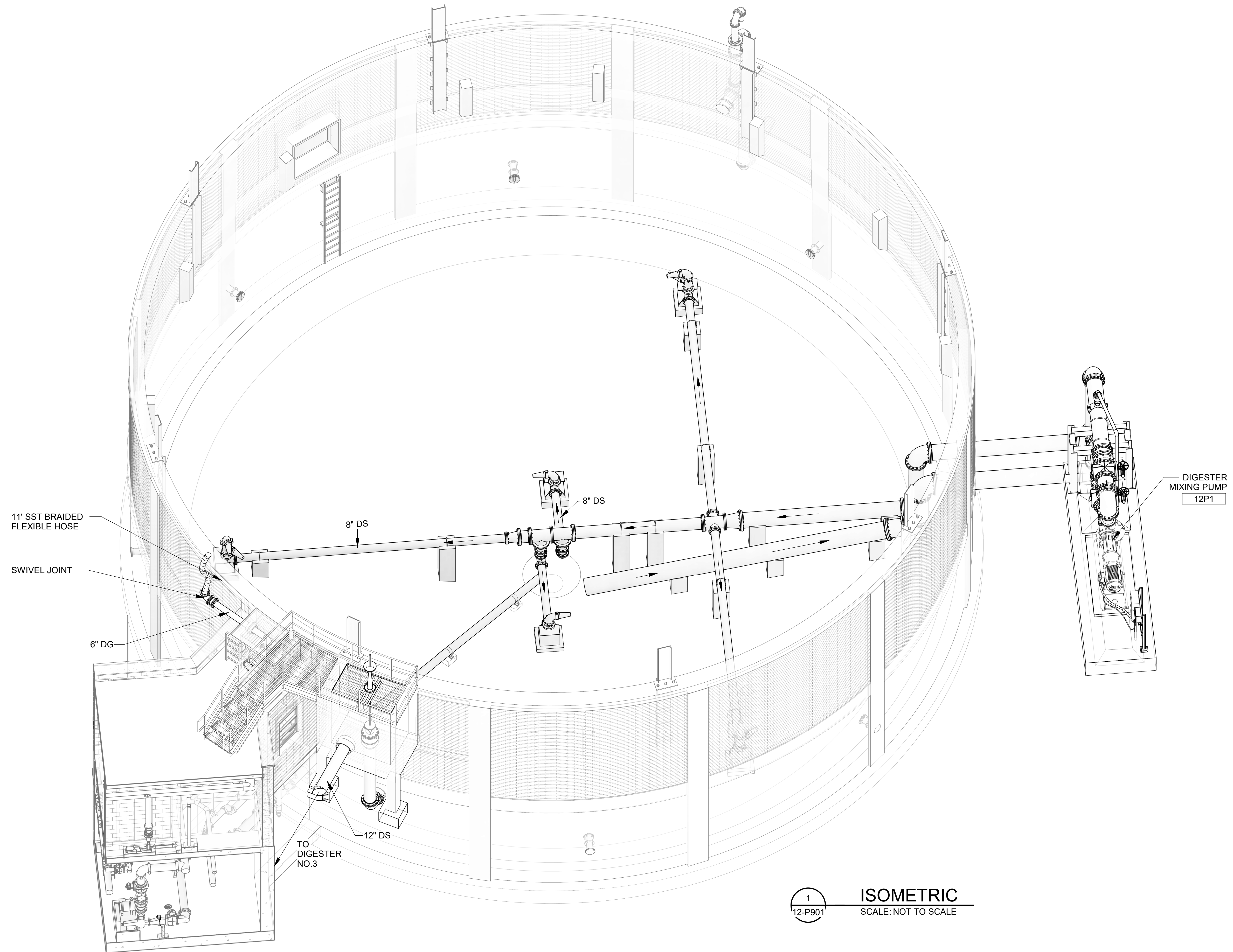
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
12-P901

SHEET NUMBER
057



1
 12-P901

ISOMETRIC
 SCALE: NOT TO SCALE

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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 2
 COVER BIOGAS PIPING ISOMETRIC

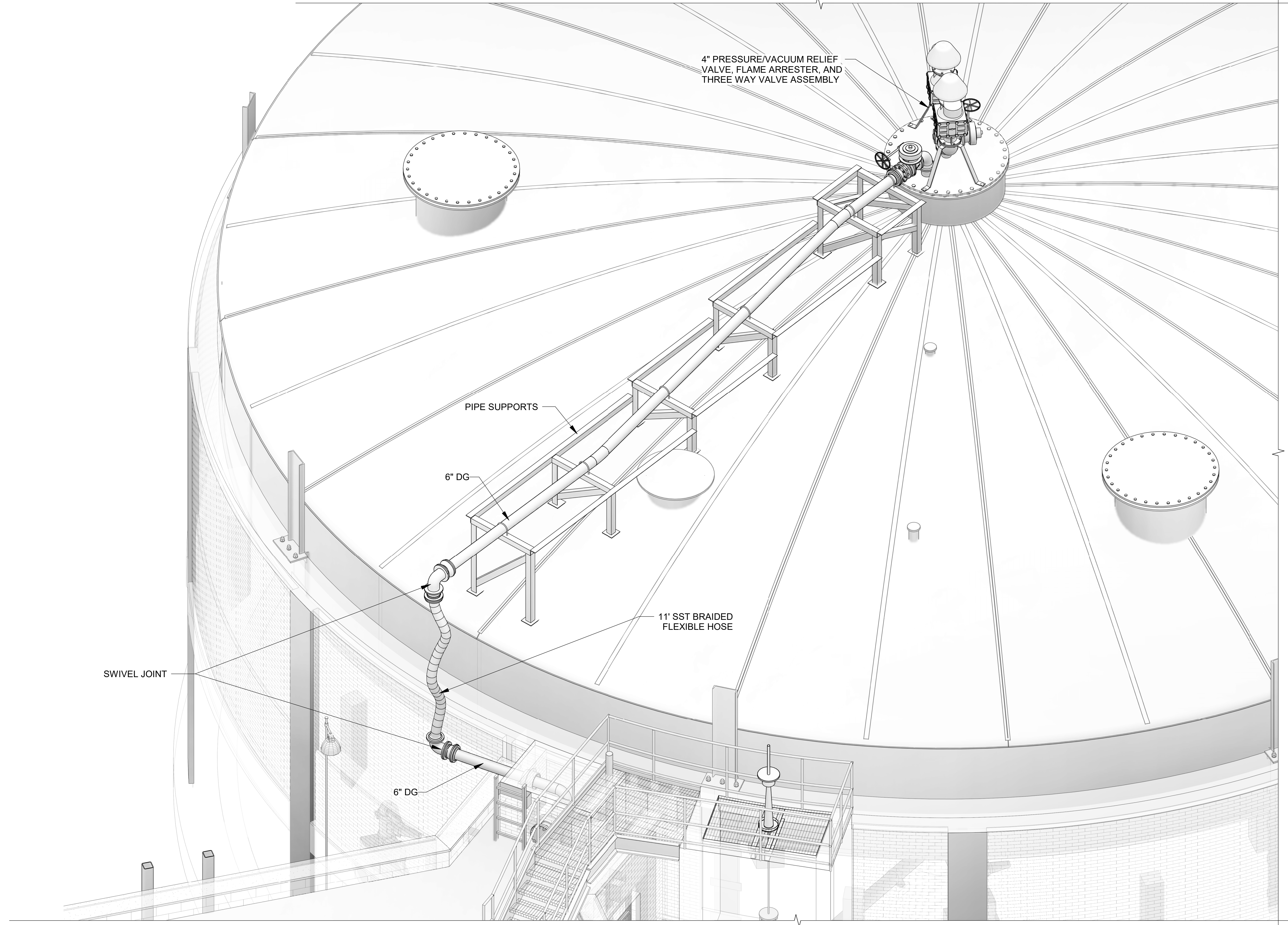
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
12-P902

SHEET NUMBER
058



1
 12-P902
ISOMETRIC
 SCALE: NOT TO SCALE

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF AnaerobicHWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION FACILITY
 UPPER DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

BAR IS ONE INCH ON ORIGINAL DRAWING
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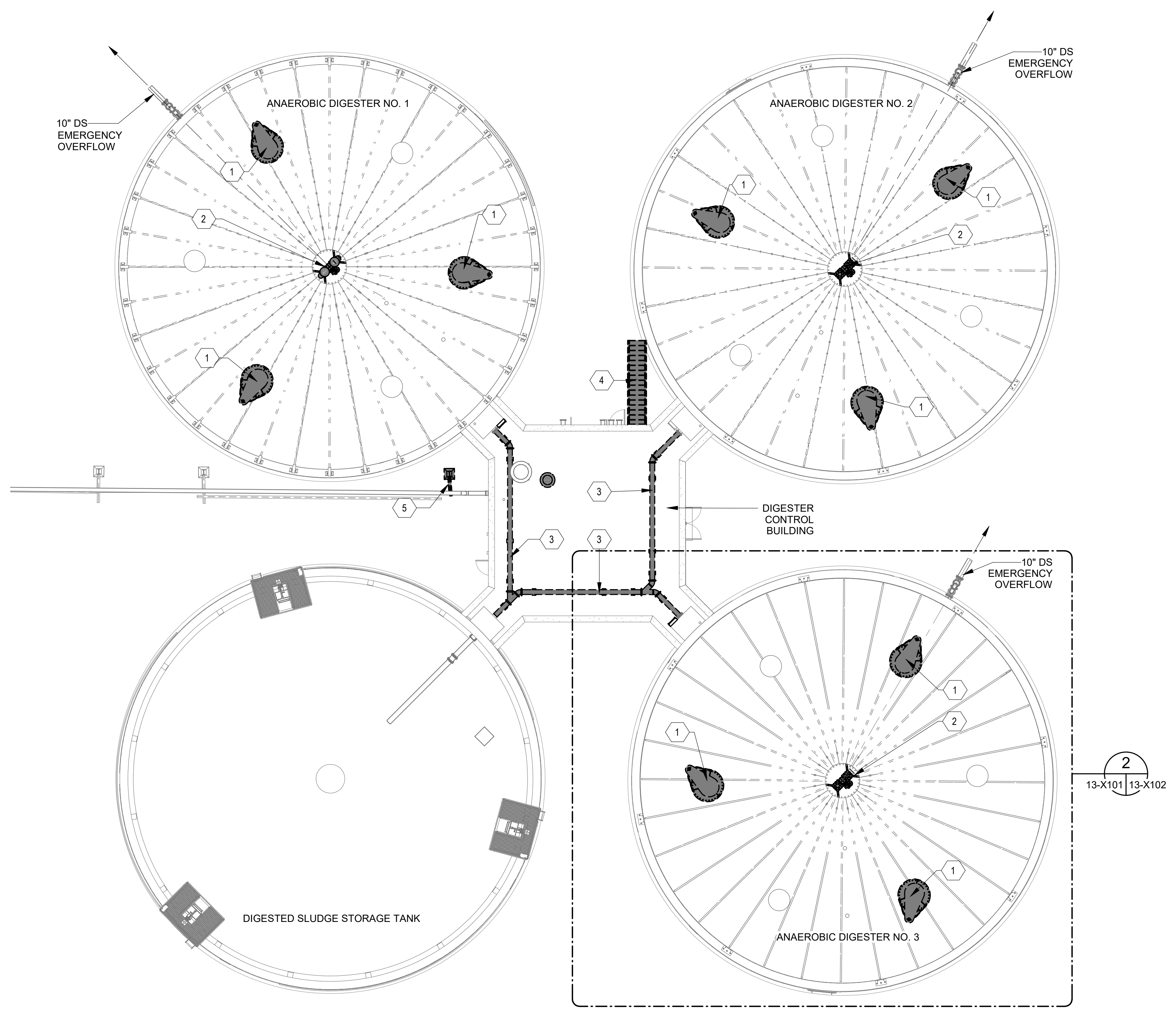
DRAWING NUMBER
13-X101
 SHEET NUMBER
059

DEMOLITION LEGEND

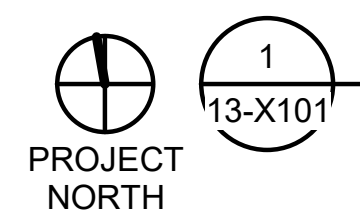
TO BE DEMOLISHED	
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KEYNOTES: DENOTED BY SYMBOL (X)

1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
3	DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.
4	DEMOLISH AND DISPOSE EXISTING STAIRS.
5	RELOCATE EXISTING PIPE SUPPORT. PROVIDE TEMPORARY PIPE SUPPORT DURING CONSTRUCTION PHASE.



**ANAEROBIC DIGESTION FACILITY
 OVERALL UPPER DEMOLITION PLAN**



SCALE: 3/32" = 1'-0"

2
 13-X101 13-X102

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:25:48 PM

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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 UPPER DEMOLITION PLAN

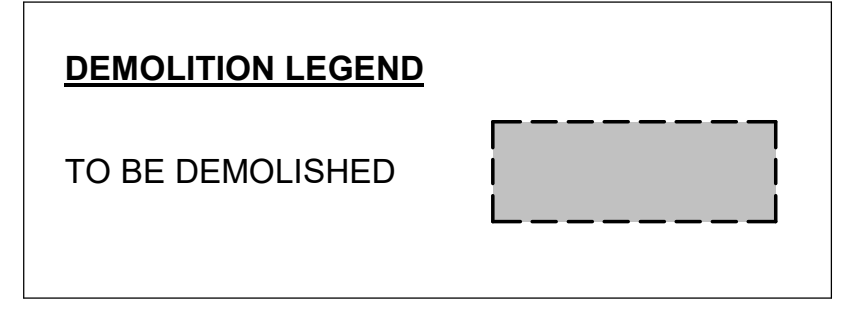
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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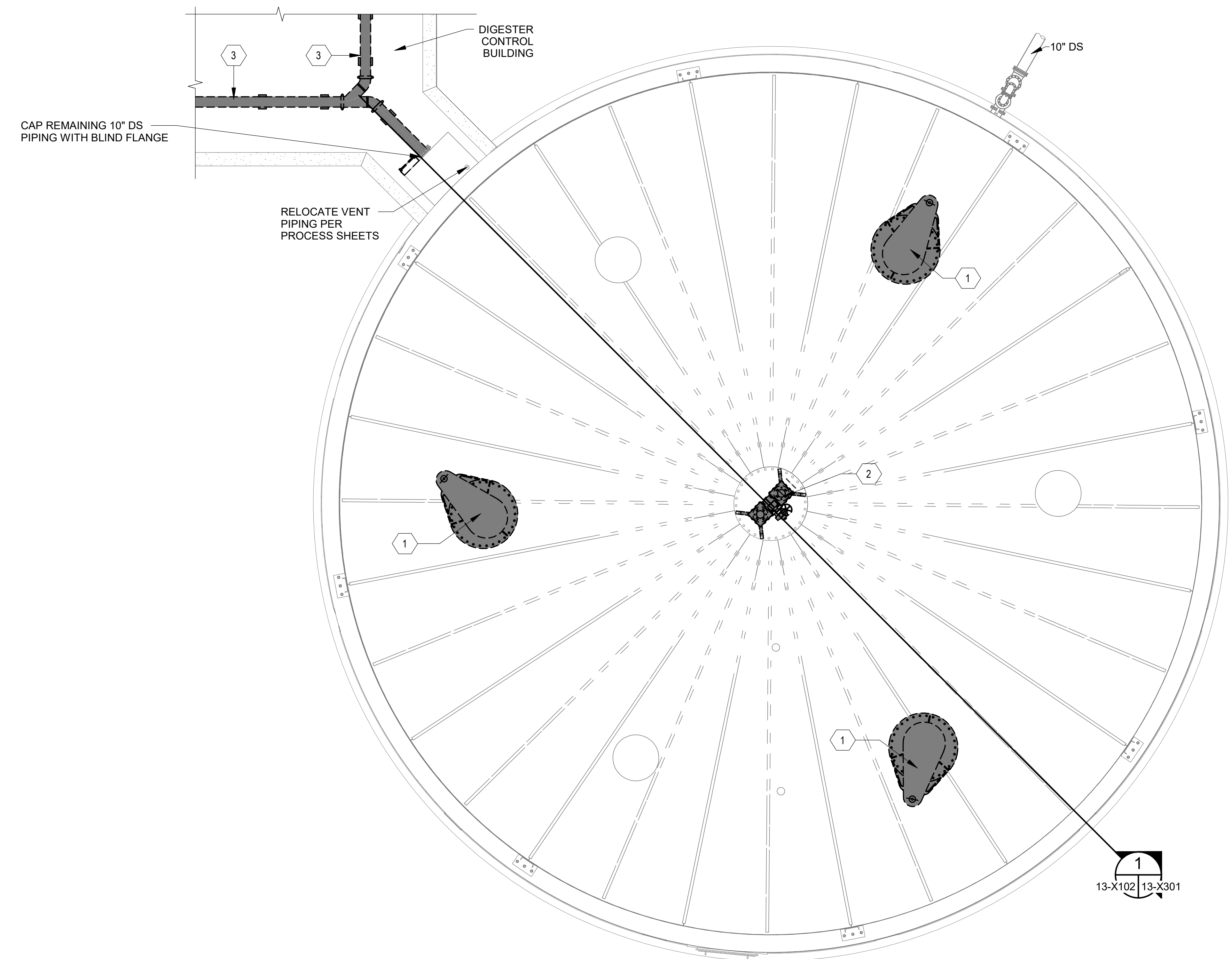
DRAWING NUMBER
13-X102
 SHEET NUMBER **060**

KEYNOTES: DENOTED BY SYMBOL (X)

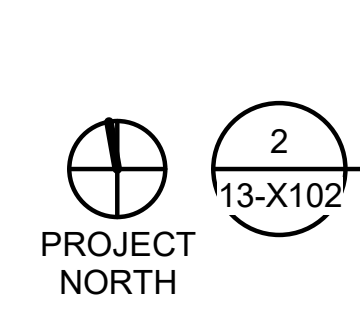
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB, PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.
3	DEMOLISH AND DISPOSE EXISTING 10" DIGESTED SLUDGE TRANSFER PIPE AND ASSOCIATED SUPPORTS ON ROOF.



- GENERAL NOTES:**
- OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
 - IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
 - CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.
 - EXISTING DOME FRAMING SUPPORT MEMBERS SHALL NOT BE DAMAGED DURING SAWCUTTING OR OTHER MEANS USED FOR REMOVAL OF THE PLATE SECTIONS.
 - CONTRACTOR SHALL REMOVE ALL EXISTING EXPOSED CONDUIT TO COVER MOUNTED EQUIPMENT, INSTRUMENTATION, AND OTHER DEVICES THAT IS/WILL BE NO LONGER IN SERVICE. SEAL/PATCH ANY HOLES, AS REQUIRED.
 - CONTRACTOR SHALL ASSESS THE STRUCTURAL STABILITY OF ALL EXPOSED BRICK SECTIONS/FACADES ON EXTERIOR OF DIGESTER TANK. ANY ADDITIONAL REPAIRS AND/OR DEMOLITION NECESSARY TO ADDRESS THESE AREAS SHALL BE PAID FROM USING THE CONTINGENCY ALLOWANCE BASED ON EXTENT OF REPAIRS OR ADDITIONAL DEMOLITION.



Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:25:51 PM

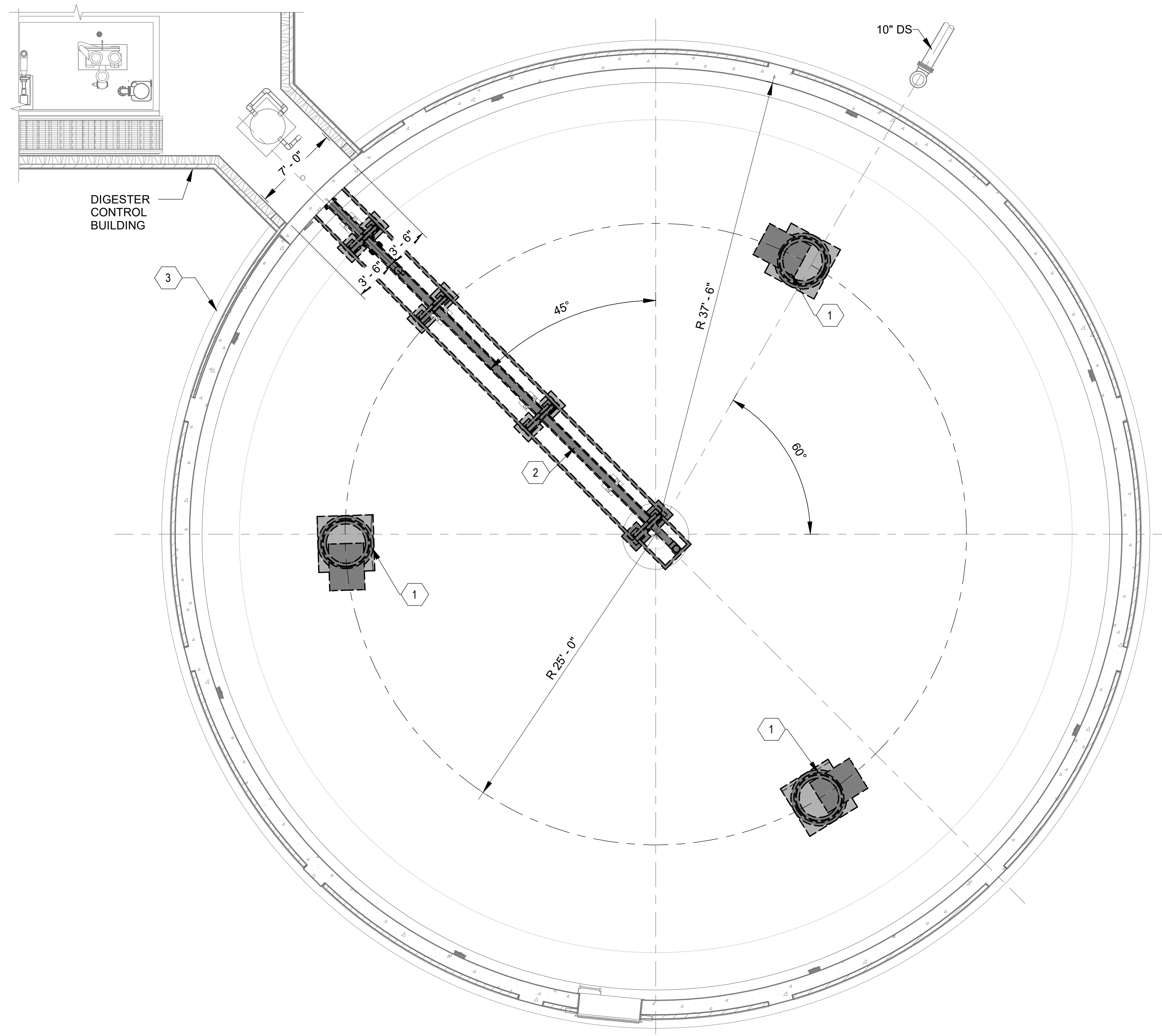


**ANAEROBIC DIGESTER NO.3
 UPPER DEMOLITION PLAN**

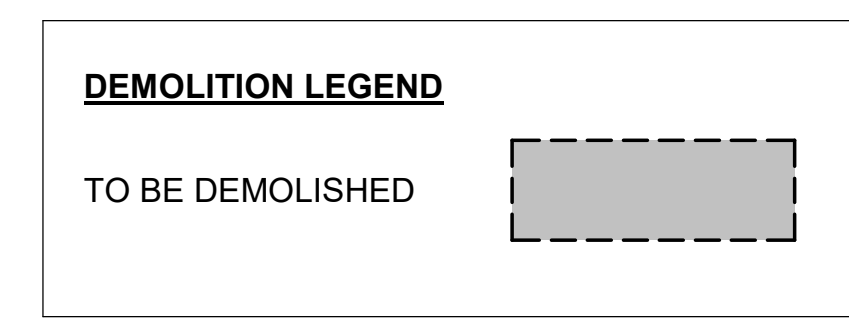
SCALE: 3/16" = 1'-0"

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Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRP_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:25:54 PM



KEYNOTES:	DENOTED BY SYMBOL
1	DEMOLISH ALL EXISTING DIGESTER MIXING EQUIPMENT, TUBE SECTIONS, AND CONCRETE MIXER SUPPORTS. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB. PROVIDE BOLT-ON COVER OVER COVER OPENING WITH APPROPRIATE GASKET SYSTEM FOR SEALING.
2	DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.
3	DEMOLISH EXISTING BRICK FACADE TO EXTENT NECESSARY TO INSTALL NEW DIGESTER TRANSFER BOX. REPLACE BRICK FACADE UP TO THE EDGE OF THE TRANSFER BOXES WITH MATCHING BRICK.



- GENERAL NOTES:**
- OWNER SHALL REMOVE ALL EXISTING SOLIDS TO THE GREATEST EXTENT POSSIBLE. ALL REMAINING SOLIDS SHALL BE REMOVED BY THE CONTRACTOR AS DETAILED IN SPECIFICATION SECTION 44 10 00.
 - IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE TANK AND ITS COMPONENT PARTS DURING REHABILITATION AND TO PROVIDE ANY REQUIRED TEMPORARY BRACING, GUYS, OR TIE-DOWNS AS NECESSARY FOR COMPLETION OF THE WORK. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE AND REMAIN THE CONTRACTOR'S PROPERTY AFTER COMPLETION OF THE WORK.
 - CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN DRAINING AND/OR FILLING THE DIGESTER TANK. ALL PRESSURE RELIEF AND VACUUM RELIEF VALVES SHALL BE IN WORKING CONDITION UNLESS OTHER MEANS ARE PROVIDED TO PREVENT PRESSURIZED OR VACUUM CONDITIONS WITHIN THE DIGESTER, WHICH MAY CAUSE DAMAGE TO THE COVER.

PROJECT NORTH

ANAEROBIC DIGESTER NO. 3
LOWER DEMOLITION PLAN
 SCALE: 3/16" = 1'-0"



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 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
NO. 3 LOWER
DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
13-X103
SHEET NUMBER **061**

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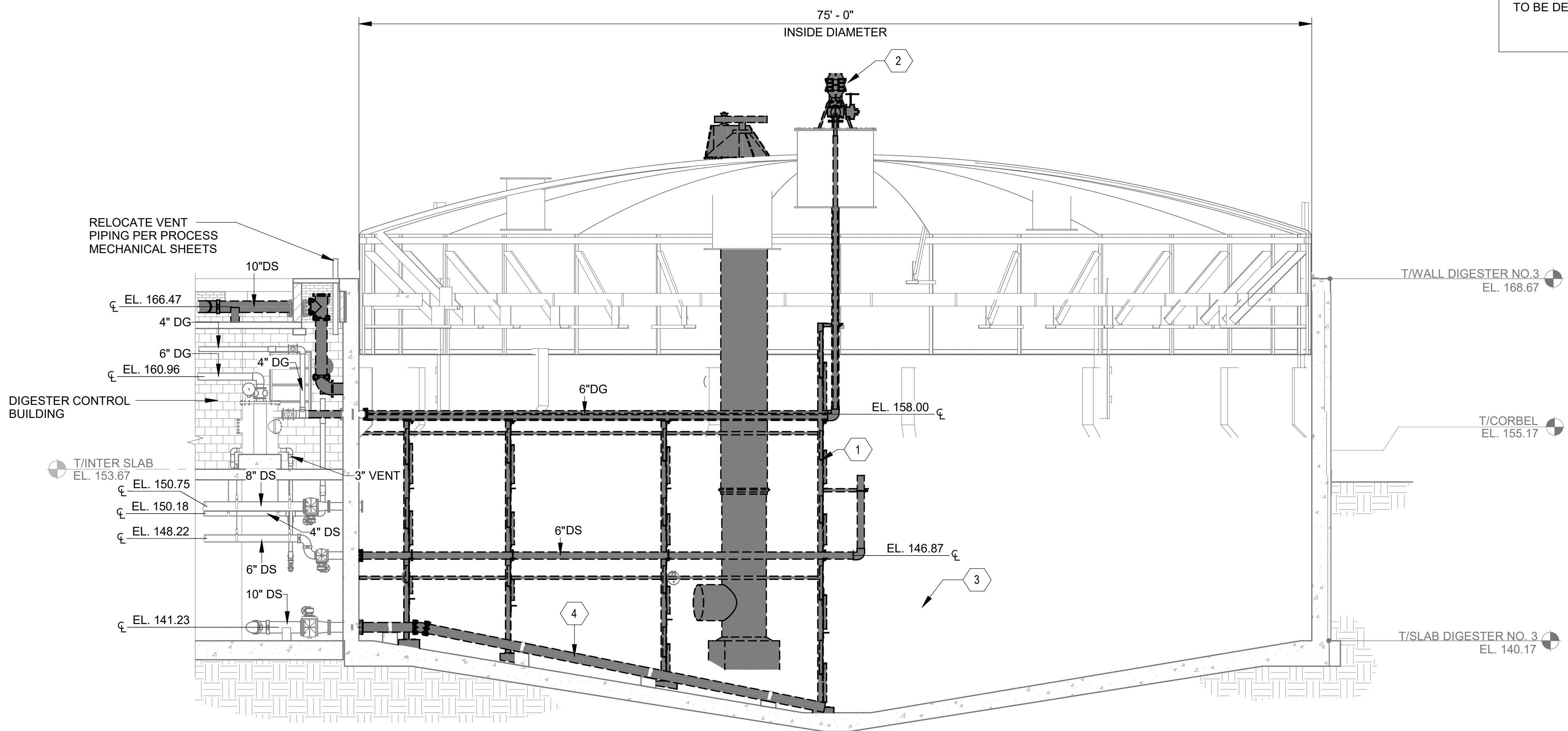
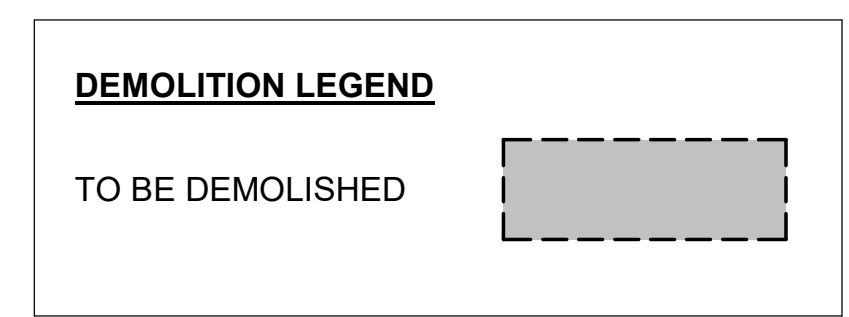
ANAEROBIC DIGESTER NO. 3 DEMOLITION SECTION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
13-X301
 SHEET NUMBER
062

KEYNOTES:	DENOTED BY SYMBOL (X)
1 DEMOLISH AND REMOVE EXISTING DIGESTER RECIRCULATION PIPING AND SUPPORT STRUCTURE. EXISTING PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL. DRILL OUT EXPOSED REINFORCEMENT AS NEEDED AND PATCH SURFACE OF DIGESTER SLAB.	(X)
2 REMOVE FLAME ARRESTORS, PRESSURE/VACUUM RELIEF VALVES AND THREE WAY VALVE.	(X)
3 REFER TO SPECIFICATION SECTION 44 10 00 FOR DIGESTER CLEANOUT REQUIREMENTS.	(X)
4 CONTRACTOR TO REMOVE AND REPLACE EXISTING DIGESTED SLUDGE TRANSFER PIPING AND PIPE SUPPORT HARDWARE. EXISTING PIPE SUPPORTS TO REMAIN. PIPING TO BE DEMO'D UP TO THE FIRST FLANGE FROM THE WALL.	(X)



NOTES:

- INTERIOR TANK DETAILS HAVE BEEN PROVIDED BASED ON AVAILABLE RECORD DRAWINGS. DIMENSIONS HAVE NOT BEEN VERIFIED FOR ACCURACY.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK.

1
 13-X102 | 13-X301
ANAEROBIC DIGESTER NO. 3 DEMOLITION SECTION
 SCALE: 3/16" = 1'-0"

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic Digester NO. 1.rvt
 Plot Date: 11/09/2024 5:25:56 PM

- AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
- THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.



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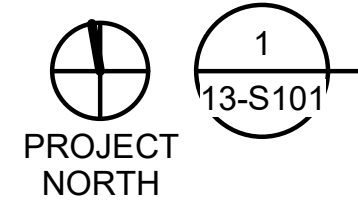
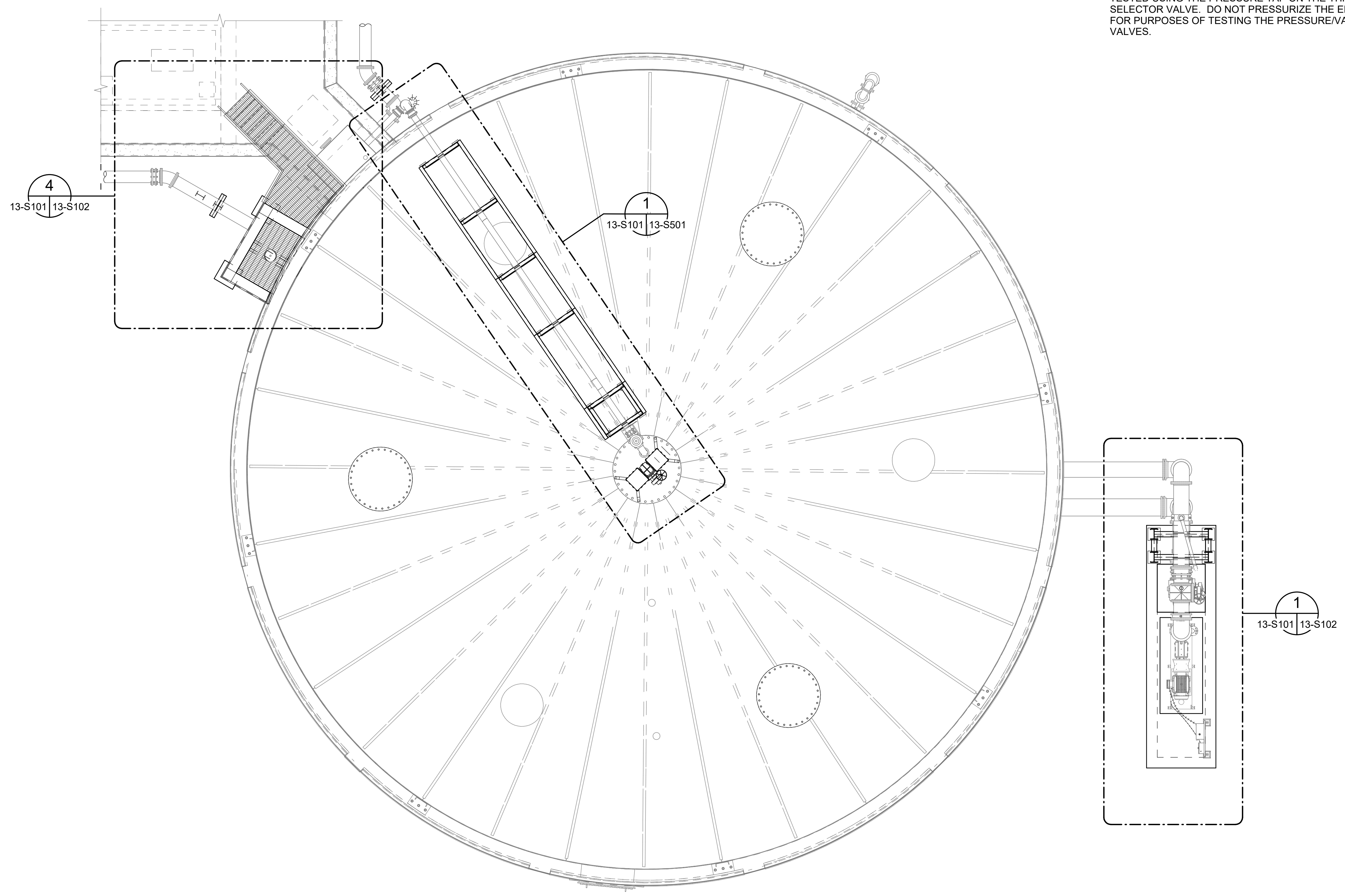
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 REHABILITATION PLAN AND DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAU
 DRAWN BY: EGB
 CHECKED BY: KAM

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DRAWING NUMBER
13-S101
 SHEET NUMBER
063



**ANAEROBIC DIGESTER NO. 3
 REHABILITATION PLAN**
 SCALE: 3/16" = 1'-0"

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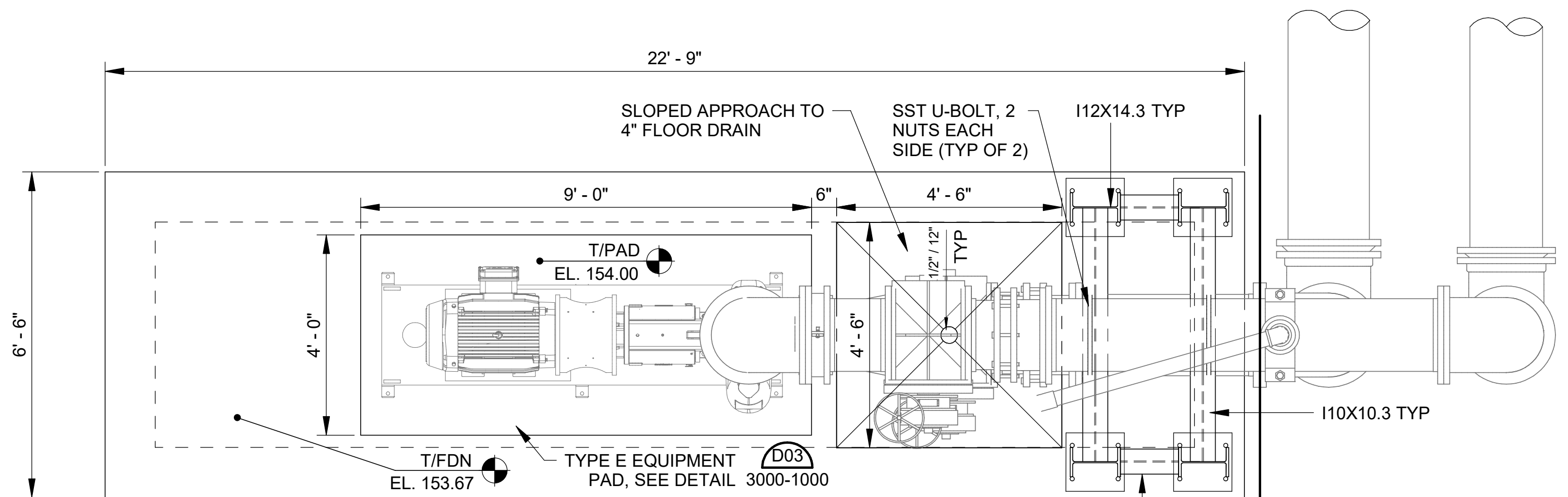
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ANAEROBIC DIGESTER NO. 3 REHABILITATION SECTIONS AND DETAILS

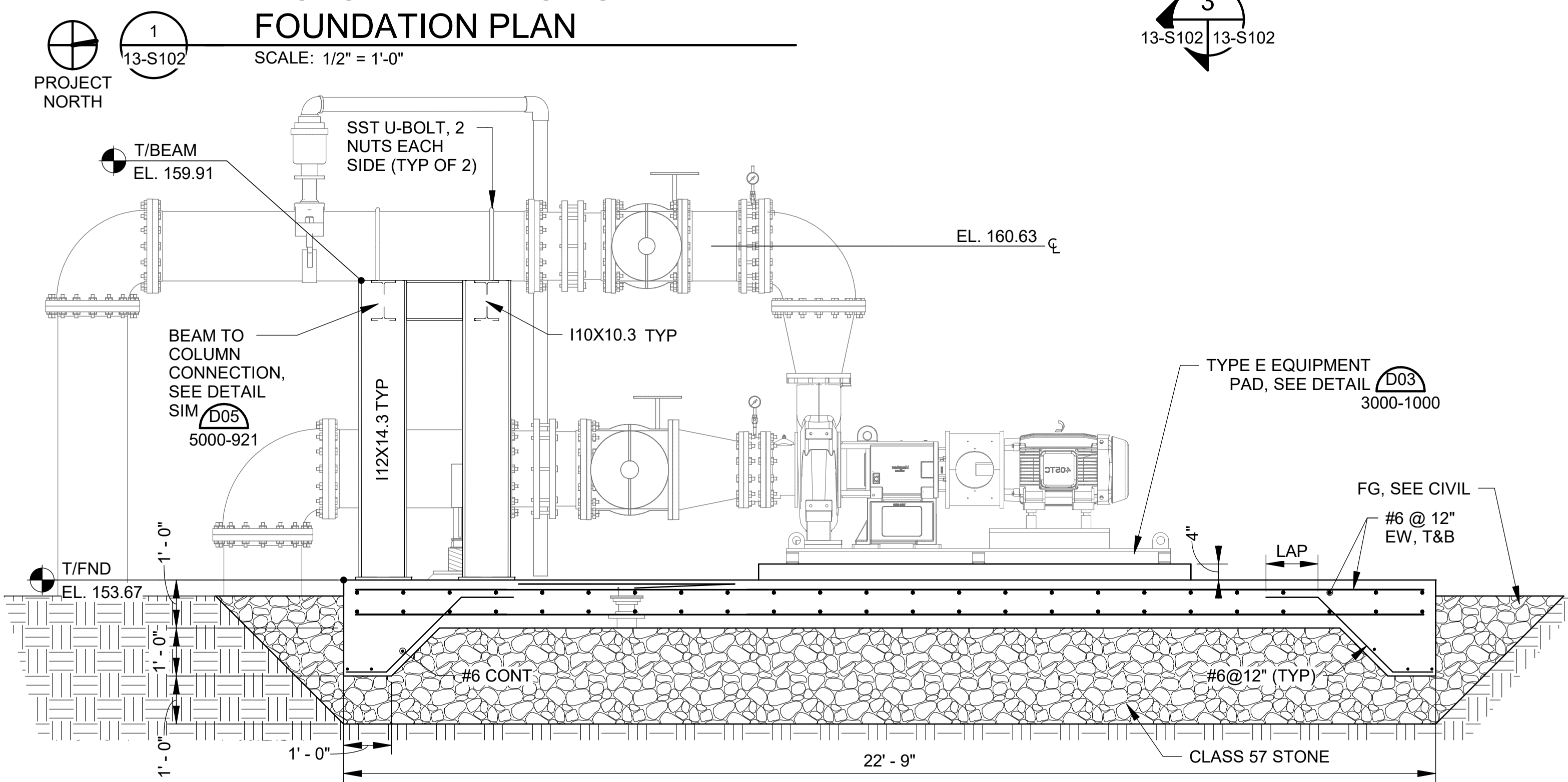
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWV
 DRAWN BY: ADA
 CHECKED BY: KAM

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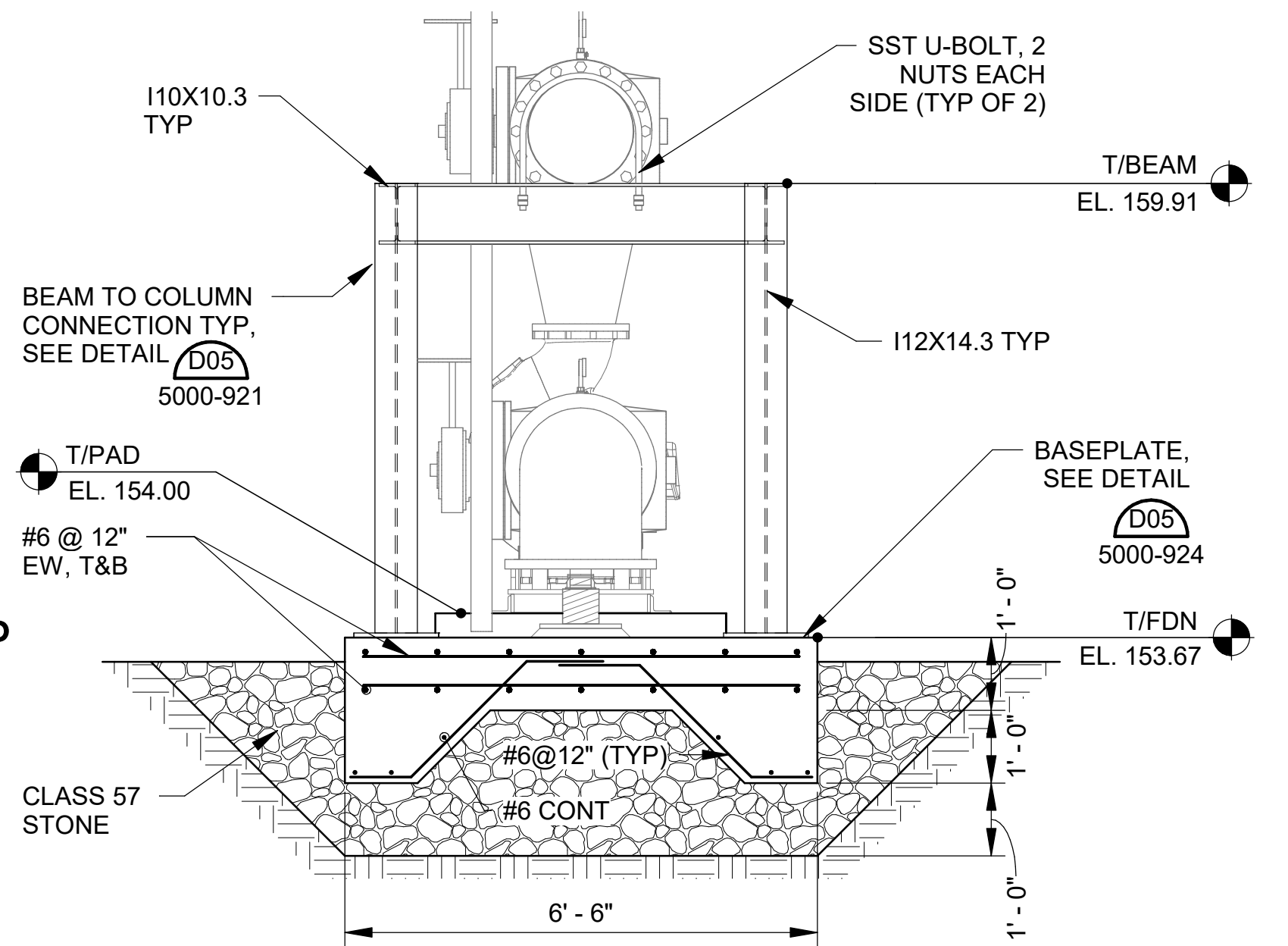
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 SHEET NUMBER
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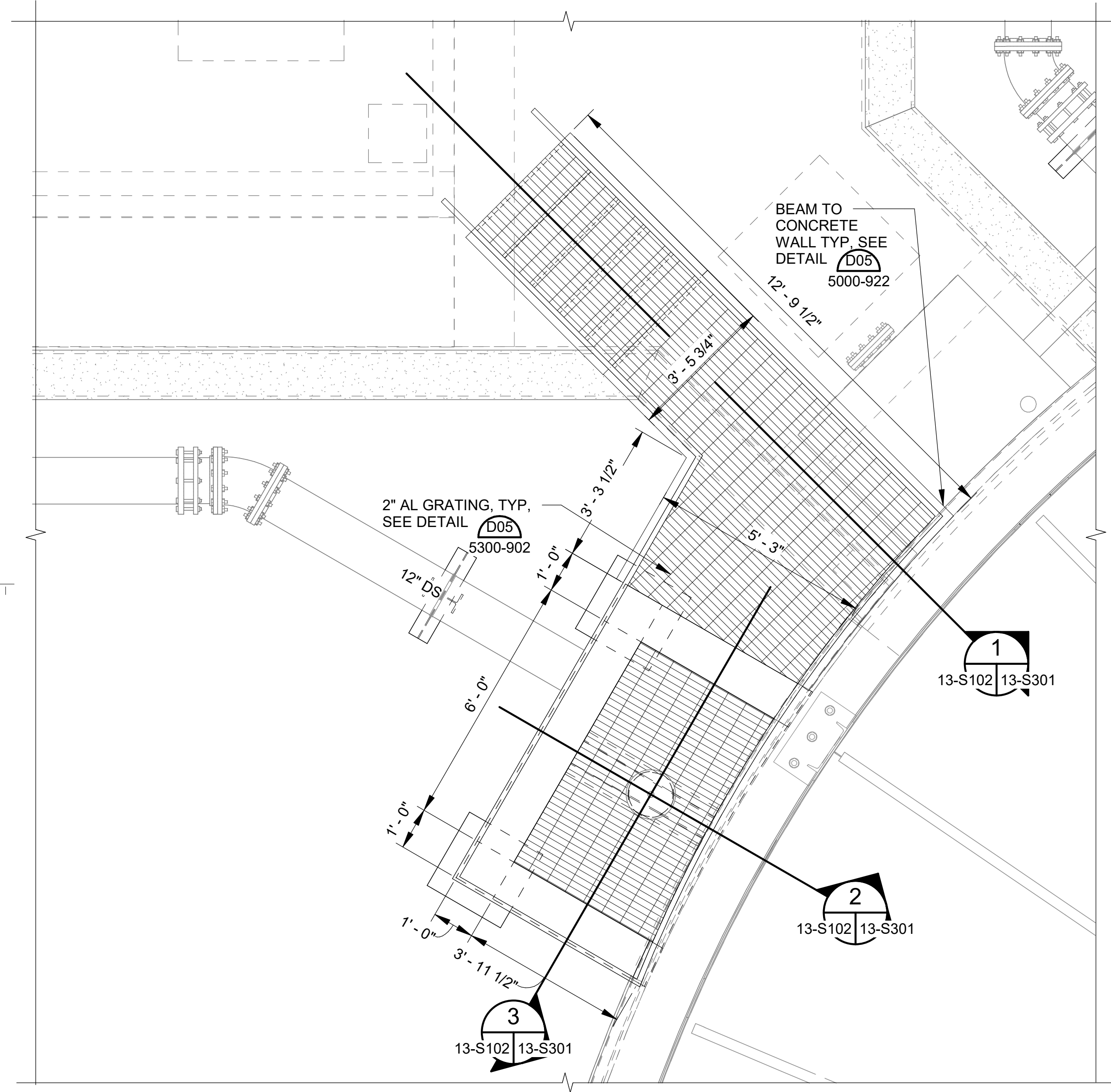
DIGESTER MIXING PUMP FOUNDATION PLAN
 SCALE: 1/2" = 1'-0"



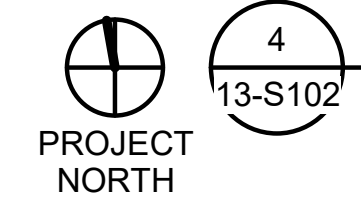
DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



DIGESTER MIXING PUMP SECTION
 SCALE: 1/2" = 1'-0"



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



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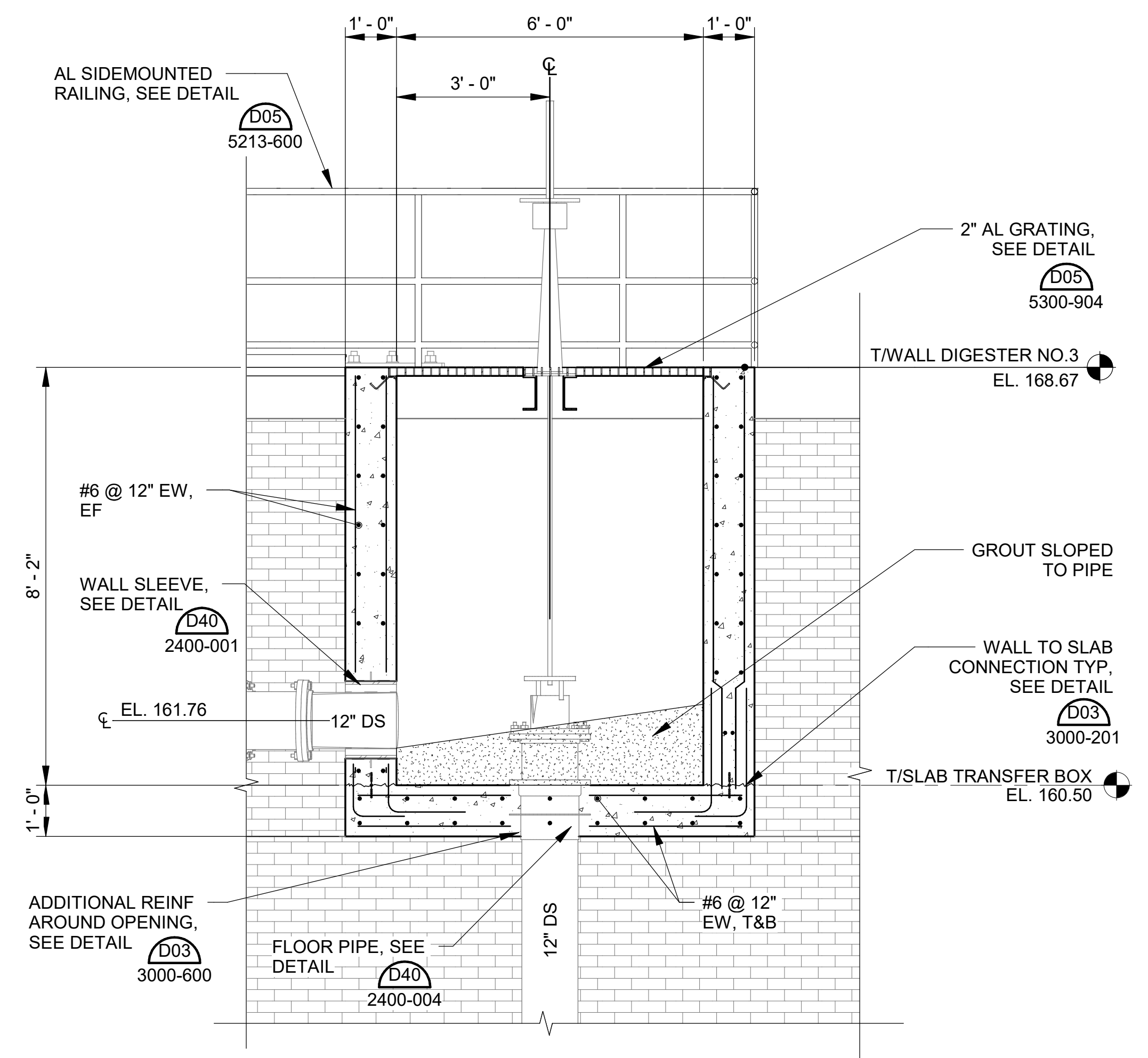
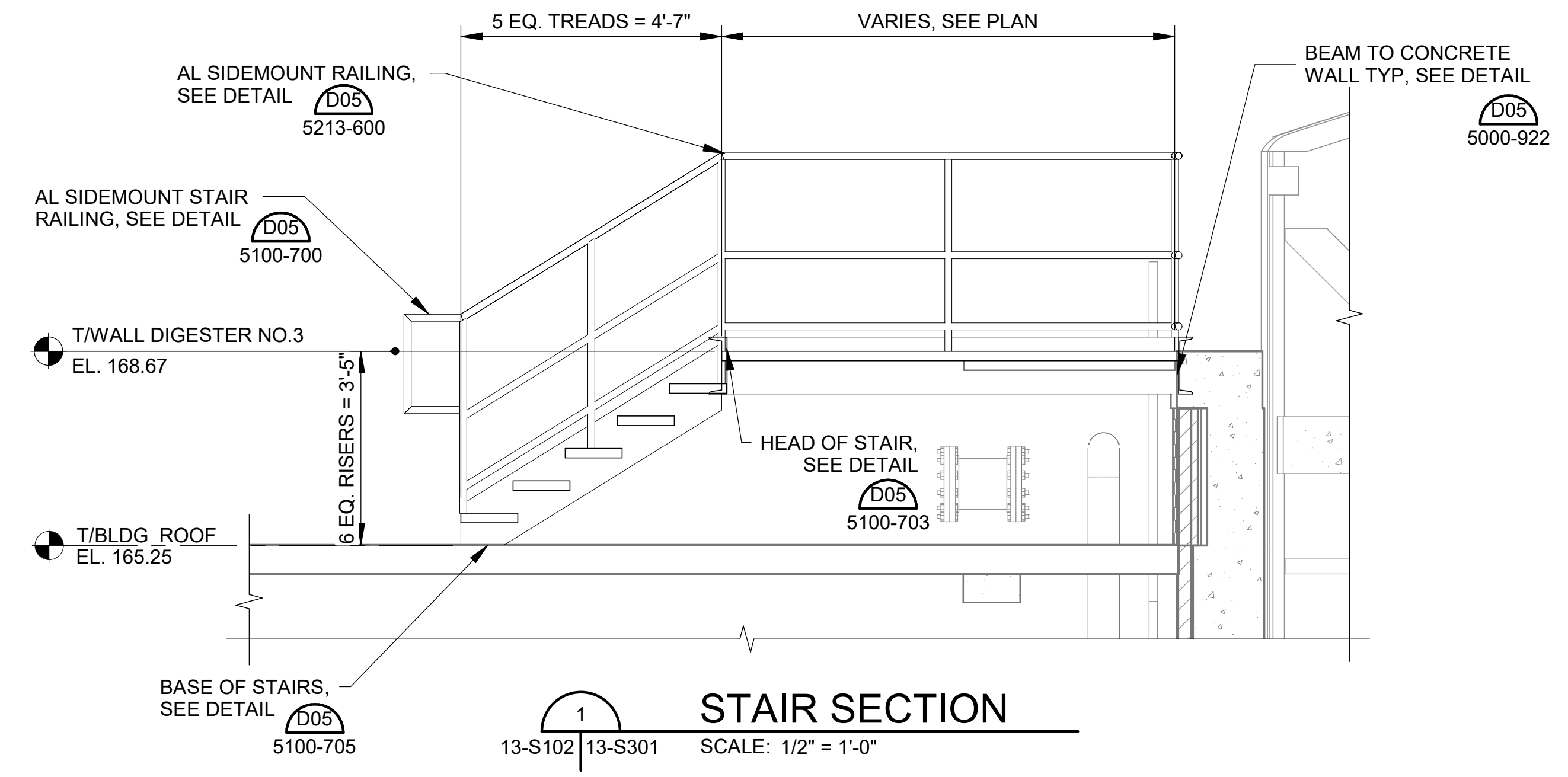
REV	DATE	DESCRIPTION	BY

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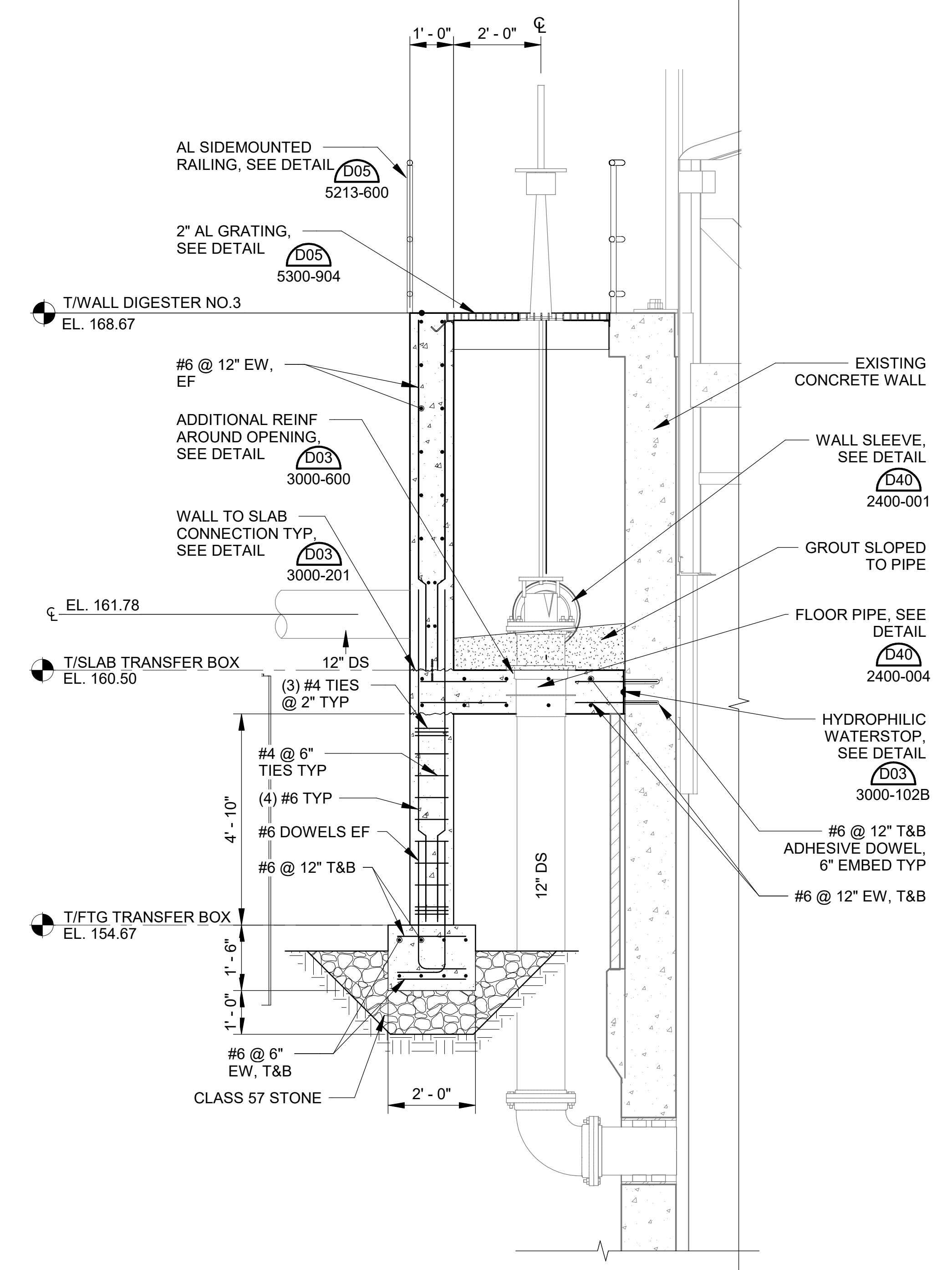
ANAEROBIC DIGESTER NO. 3 REHABILITATION SECTIONS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWf
 DRAWN BY: ADA
 CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
13-S301
 SHEET NUMBER
065



DIGESTED SLUDGE TRANSFER BOX SECTION



DIGESTED SLUDGE TRANSFER BOX SECTION

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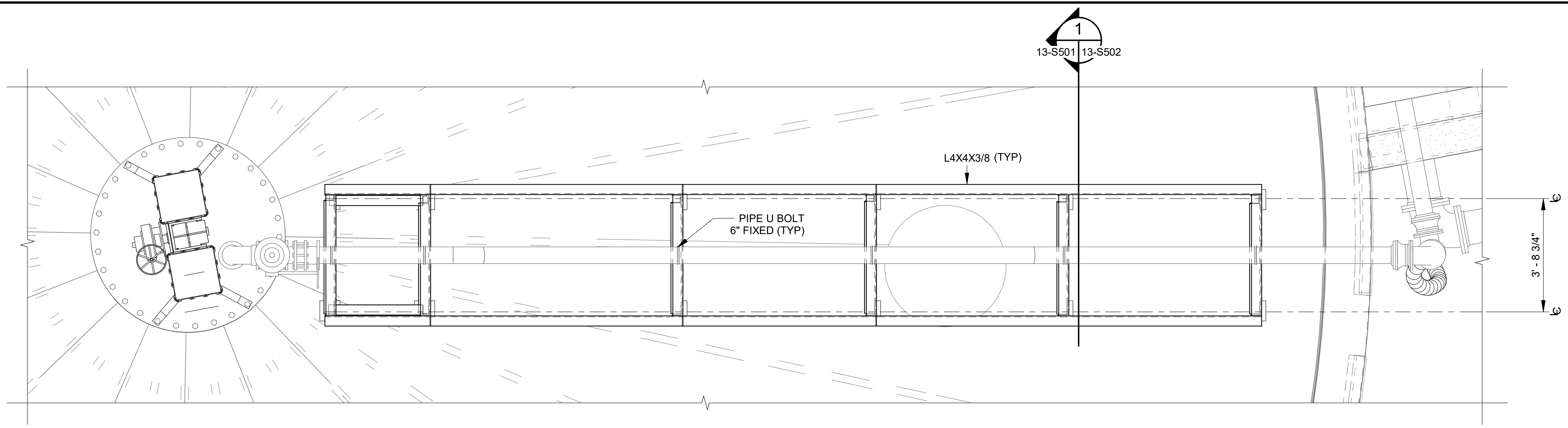
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 PHASE II IMPROVEMENTS

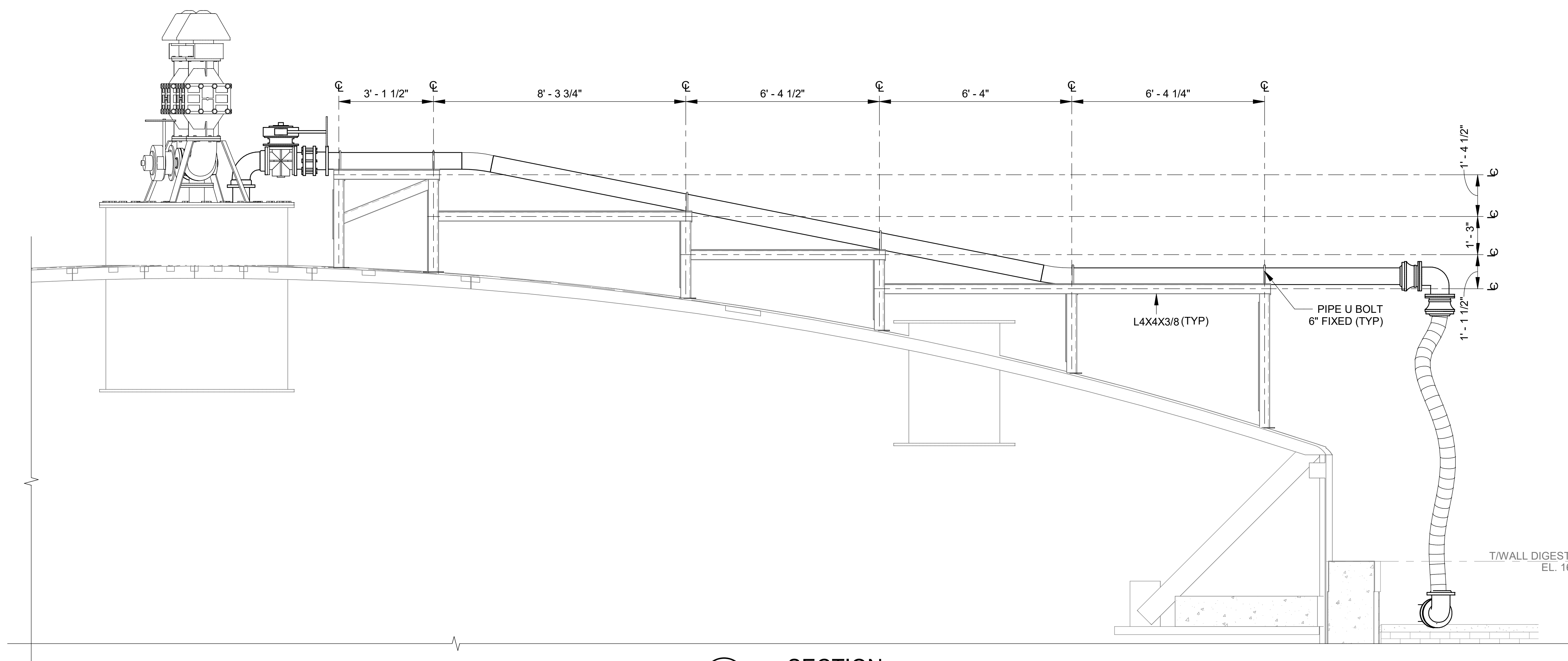
ANAEROBIC DIGESTER PIPE SUPPORT NO. 3 REHABILITATION
 DETAIL AND SECTION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWf
 DRAWN BY: GBA
 CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
13-S501
 SHEET NUMBER
066



CALLOUT
 SCALE: 1/2" = 1'-0"
 PROJECT NORTH
 13-S501



SECTION
 SCALE: 1/2" = 1'-0"
 13-P302 13-S501

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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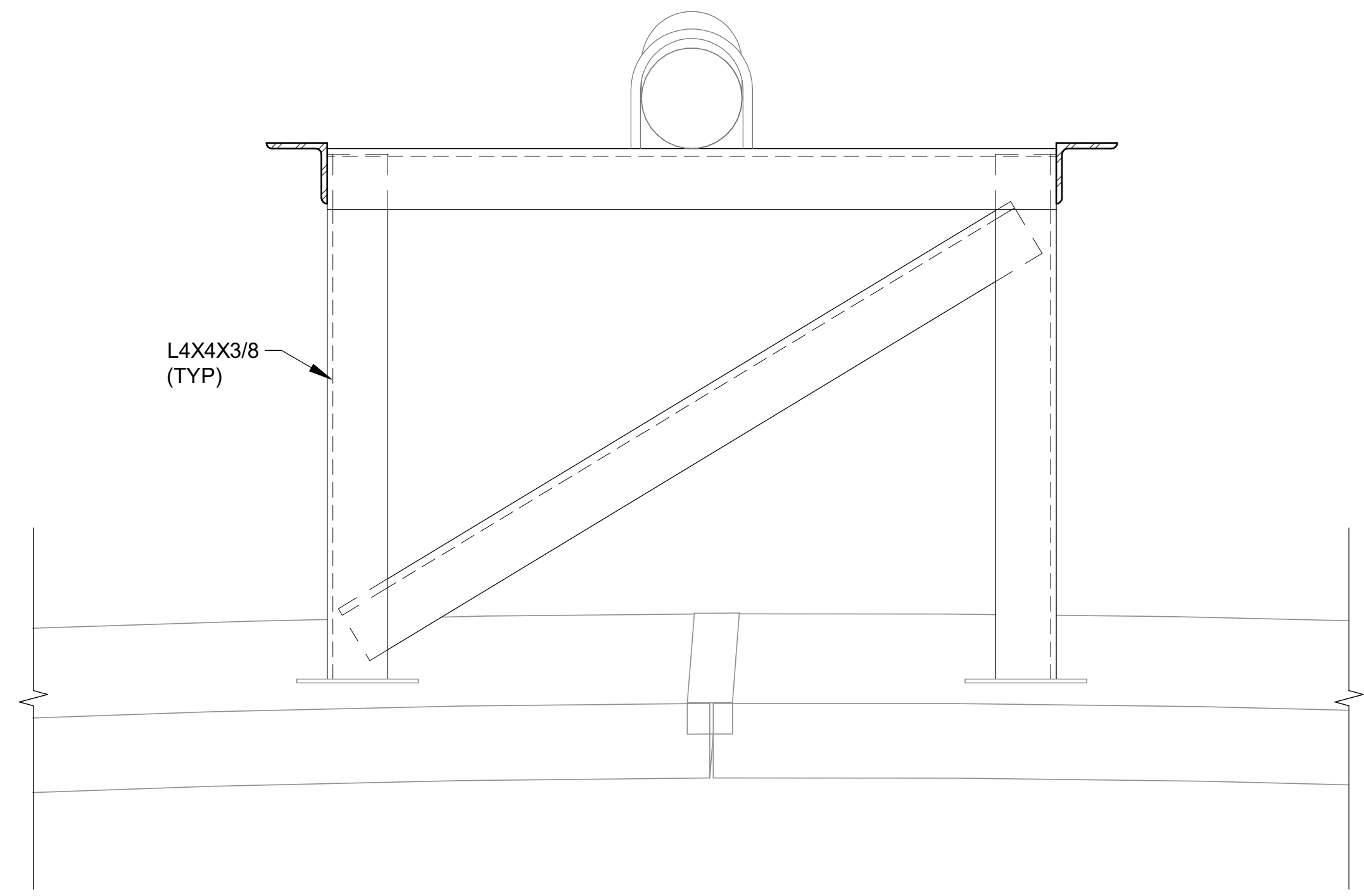
REV	DATE	DESCRIPTION	BY

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 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

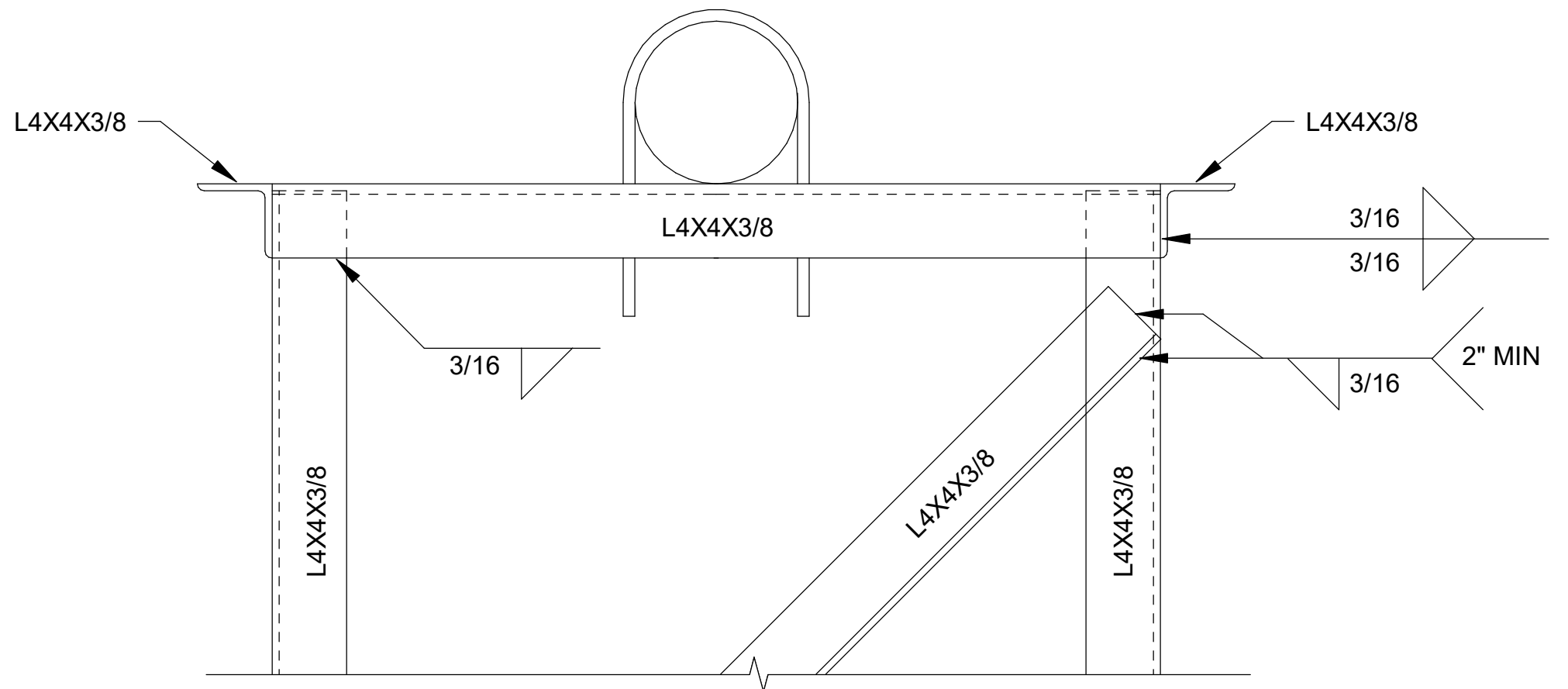
ANAEROBIC DIGESTER PIPE SUPPORT NO. 3 REHABILITATION
 DETAIL

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: GBA
 CHECKED BY: KAM

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 DRAWING NUMBER
13-S502
 SHEET NUMBER
067

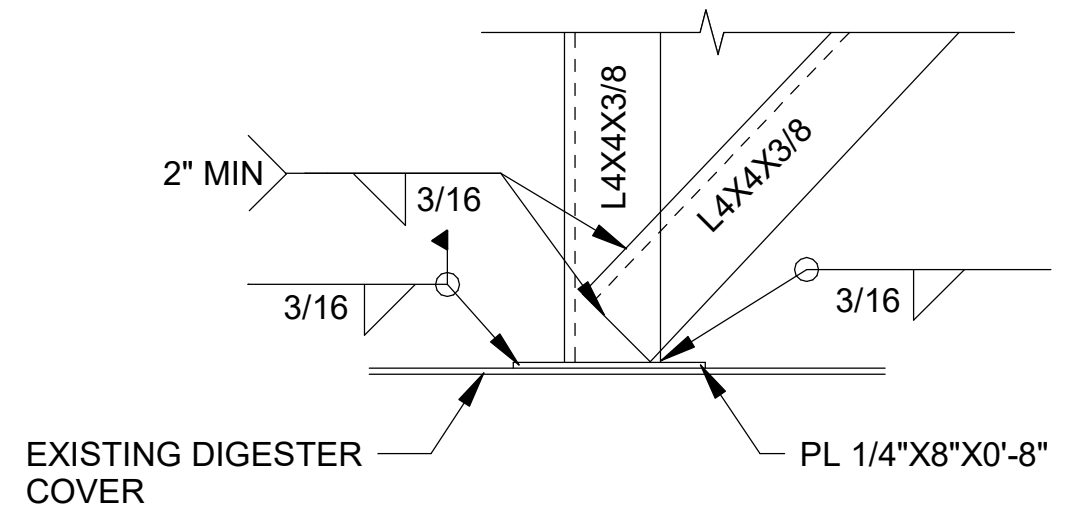


SECTION 1
 13-S501 | 13-S502 SCALE: 1 1/2" = 1'-0"



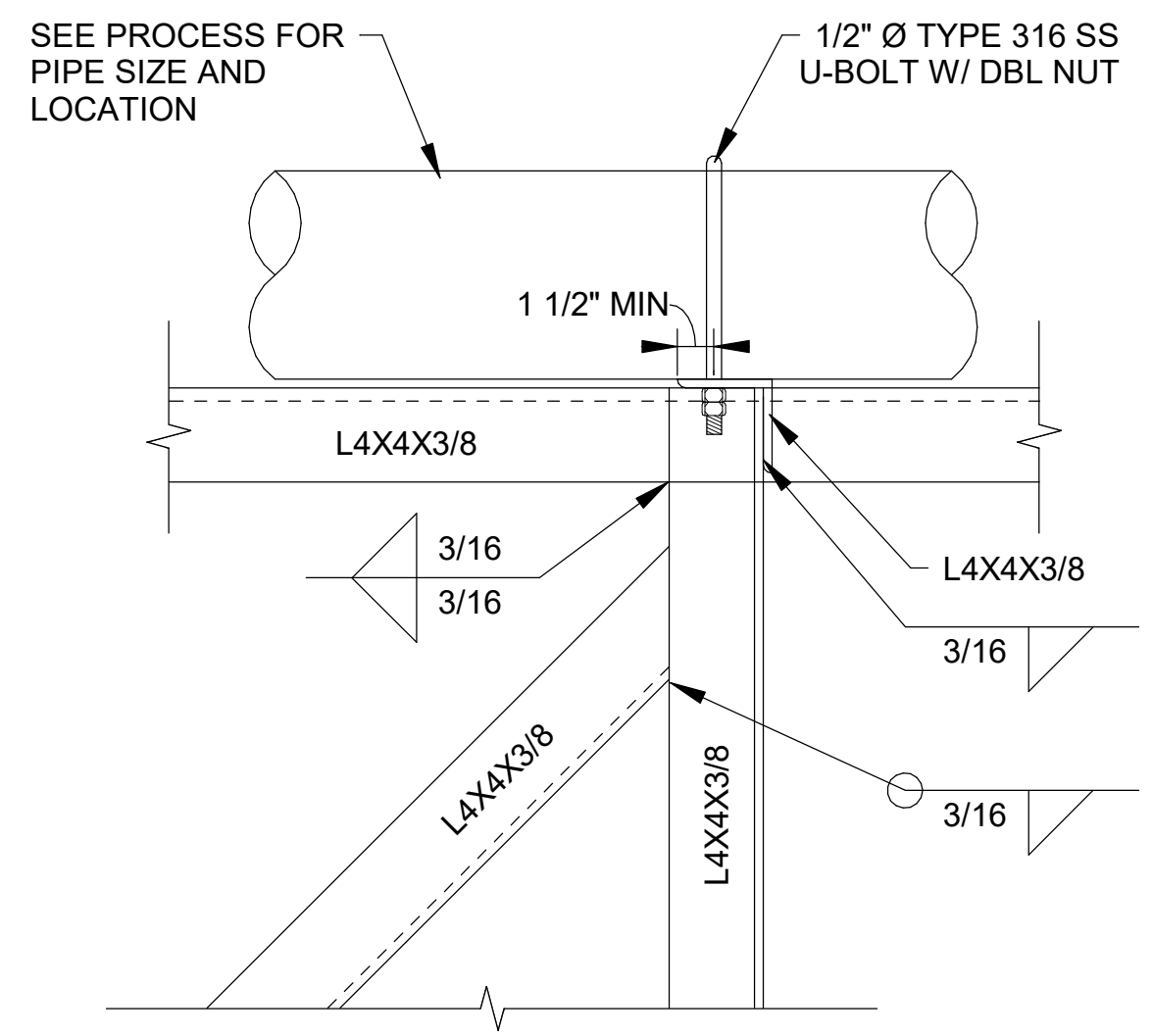
NOTES:
 1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

DETAIL 2
 13-S502 SCALE: 1 1/2" = 1'-0"



NOTES:
 1. THOROUGHLY CLEAN EXISTING DIGESTER COVER PRIOR TO WELDING
 2. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

DETAIL 3
 13-S502 SCALE: 1 1/2" = 1'-0"

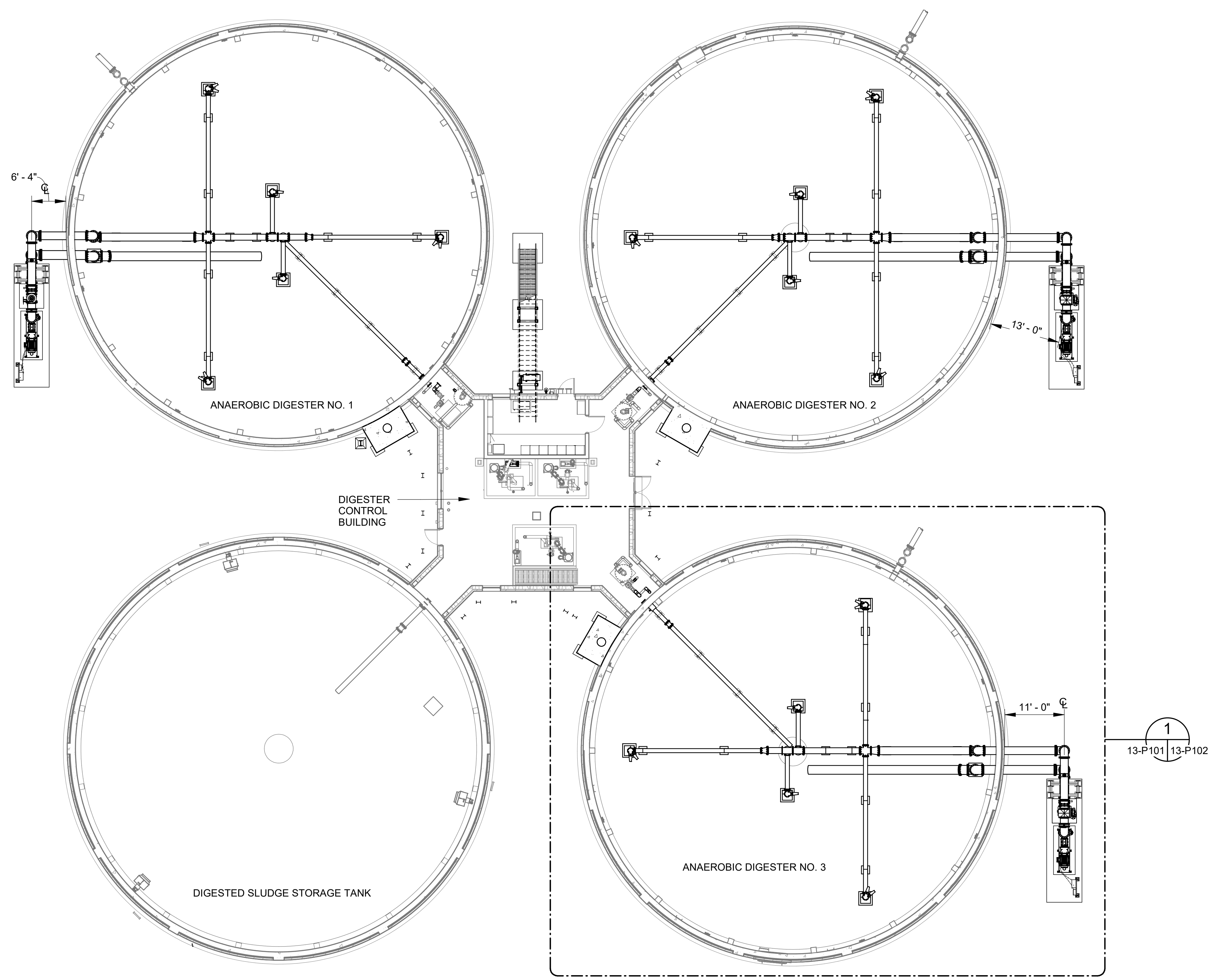


NOTES:
 1. AFTER INSTALLATION, APPLY COLD GALVANIZING COMPOUND TO ANY WELDS OR DAMAGED AREAS

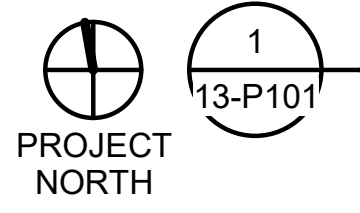
DETAIL 4
 13-S502 SCALE: 1 1/2" = 1'-0"

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:25:41 PM

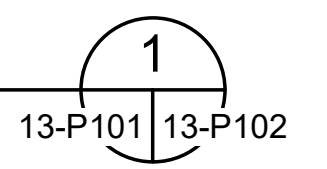
Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:24:36 PM



**ANAEROBIC DIGESTION
 REHABILITATION OVERALL
 FACILITY LOWER PLAN**



SCALE: 3/32" = 1'-0"



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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

OVERALL ANAEROBIC
 DIGESTION
 REHABILITATION PLAN

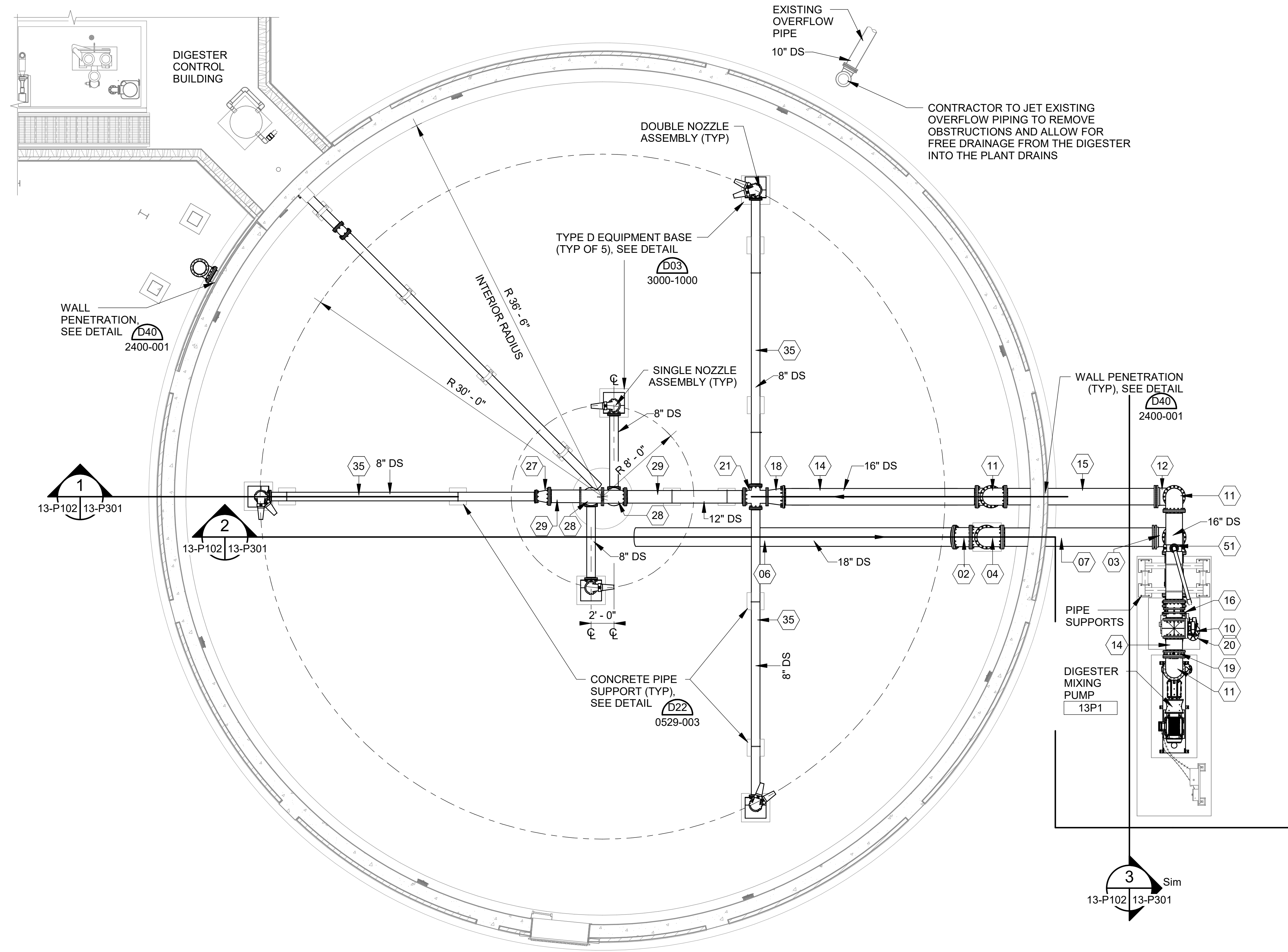
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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13-P101
 SHEET
 NUMBER **068**

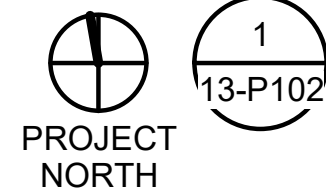
ISSUED FOR CONSTRUCTION

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Plot Date: 11/29/2024 5:24:40 PM




ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS LOWER PLAN

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



KEYNOTES:	DENOTED BY SYMBOL
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" x 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" x 10" REDUCER (FLG x FLG)
18	16" x 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" x 12" x 8" x 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" x 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" x 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

- NOTES:
- CONTRACTOR SHALL COORDINATE NOZZLE LOCATION, CONFIGURATION, AND QUANTITY, AS REQUIRED, WITH DIGESTER MIXING SYSTEM MANUFACTURER.
 - DIMENSIONS AND OVERALL MIXING SYSTEM LAYOUT IS BASED ON VAUGHAN ROTAMIX SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF PIPE AND NOZZLE SUPPORTS AT NO ADDITIONAL COST TO OWNER.
 - PIPING SUPPORTS SHOWN FOR ALL INTERIOR PIPING SHOULD BE CONSIDERED TO BE REPRESENTATIVE. CONTRACTOR SHALL LOCATE AND INSTALL THE NECESSARY NUMBER OF SUPPORTS BASED ON THE FINAL PIPING CONFIGURATION AND SUPPORT REQUIREMENTS DETAILED IN THE SPECIFICATIONS.
 - ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL




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CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS LOWER PLAN

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT

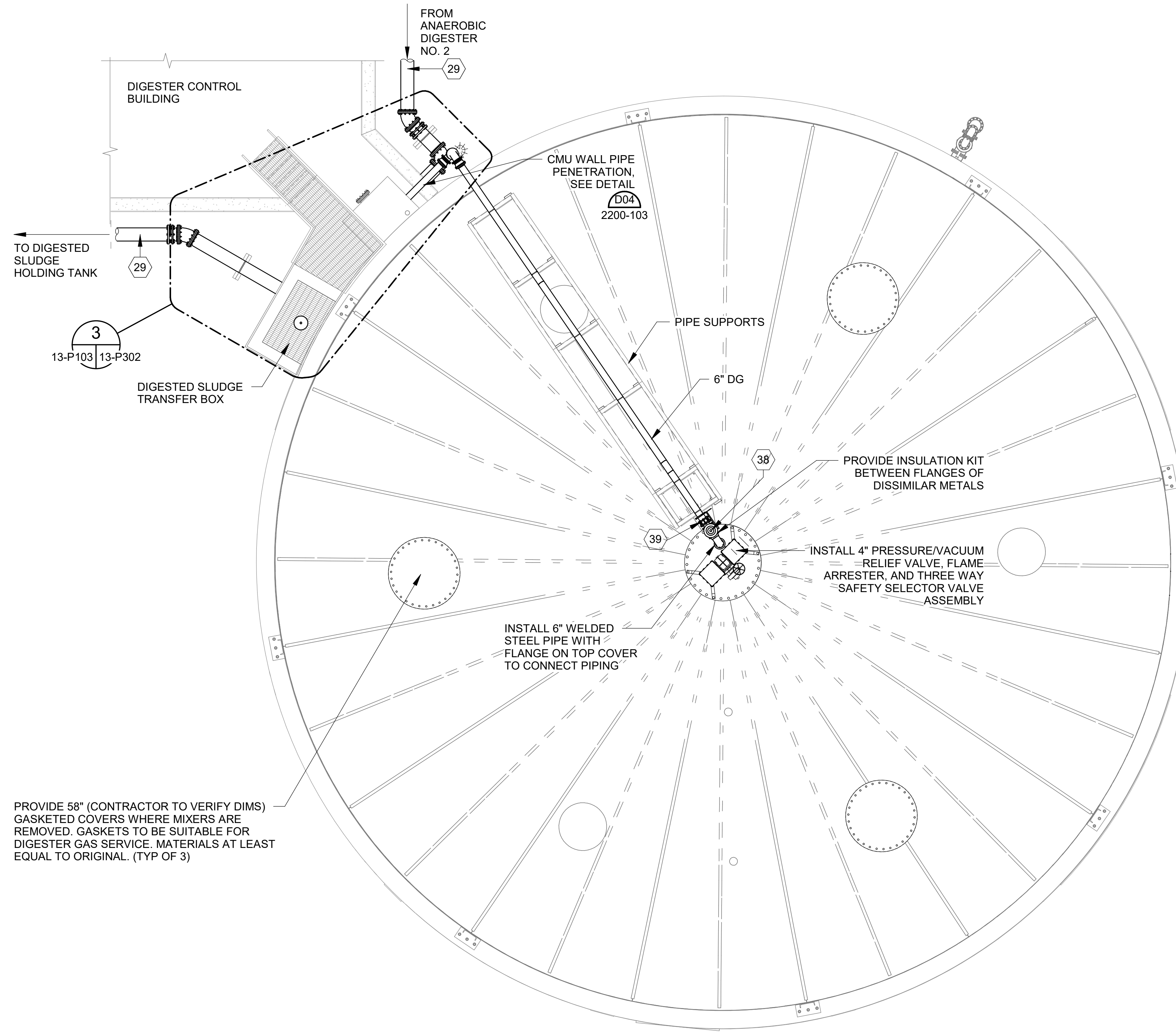
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13-P102

SHEET NUMBER **069**

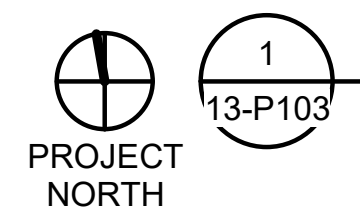
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 Plot Date: 11/09/2024 5:24:45 PM



PROVIDE 58" (CONTRACTOR TO VERIFY DIMS) GASKETED COVERS WHERE MIXERS ARE REMOVED. GASKETS TO BE SUITABLE FOR DIGESTER GAS SERVICE. MATERIALS AT LEAST EQUAL TO ORIGINAL. (TYP OF 3)

ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS UPPER PLAN



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

KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE COVER MANUFACTURER (OVIVO/EIMCO) BEFORE ANY MODIFICATIONS OR WORK IS PERFORMED (INCLUDING ADDITIONAL PIPE SUPPORTS) BASED ON CONDITION OF THE COVER ONCE TAKEN OUT OF SERVICE. ANY DEVIATIONS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
- AS PART OF FILLING THE DIGESTER WITH WATER TO COMPLETE FUNCTIONAL TESTING, CONTRACTOR SHALL TEST THE DIGESTER FOR GAS TIGHTNESS WITH A COMPRESSED AIR PRESSURE OF 14-INCHES OF WATER COLUMN. ANY REPAIRS TO RESOLVE LEAKS ASSOCIATED WITH WORK NOT INCLUDED IN THIS PROJECT WILL BE PAID FROM THE CONTINGENCY ALLOWANCE. REPAIRS TO ADDRESS LEAKS ASSOCIATED WITH WORK ON THIS PROJECT INCLUDING, BUT NOT LIMITED TO, DIGESTER COVER SEAL, NEW COVER PENETRATION(S), DIGESTER MIXING PIPING, AND SLUDGE TRANSFER PIPING SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
- THE PRESSURE/VACUUM RELIEF VALVES SHALL BE PRESSURE TESTED USING THE PRESSURE TAP ON THE THREE-WAY SELECTOR VALVE. DO NOT PRESSURIZE THE ENTIRE DIGESTER FOR PURPOSES OF TESTING THE PRESSURE/VACUUM RELIEF VALVES.

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2	12/5/23	ADDENDUM NO. 2	RWC

CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 IMPROVEMENTS UPPER PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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13-P103

SHEET NUMBER
070

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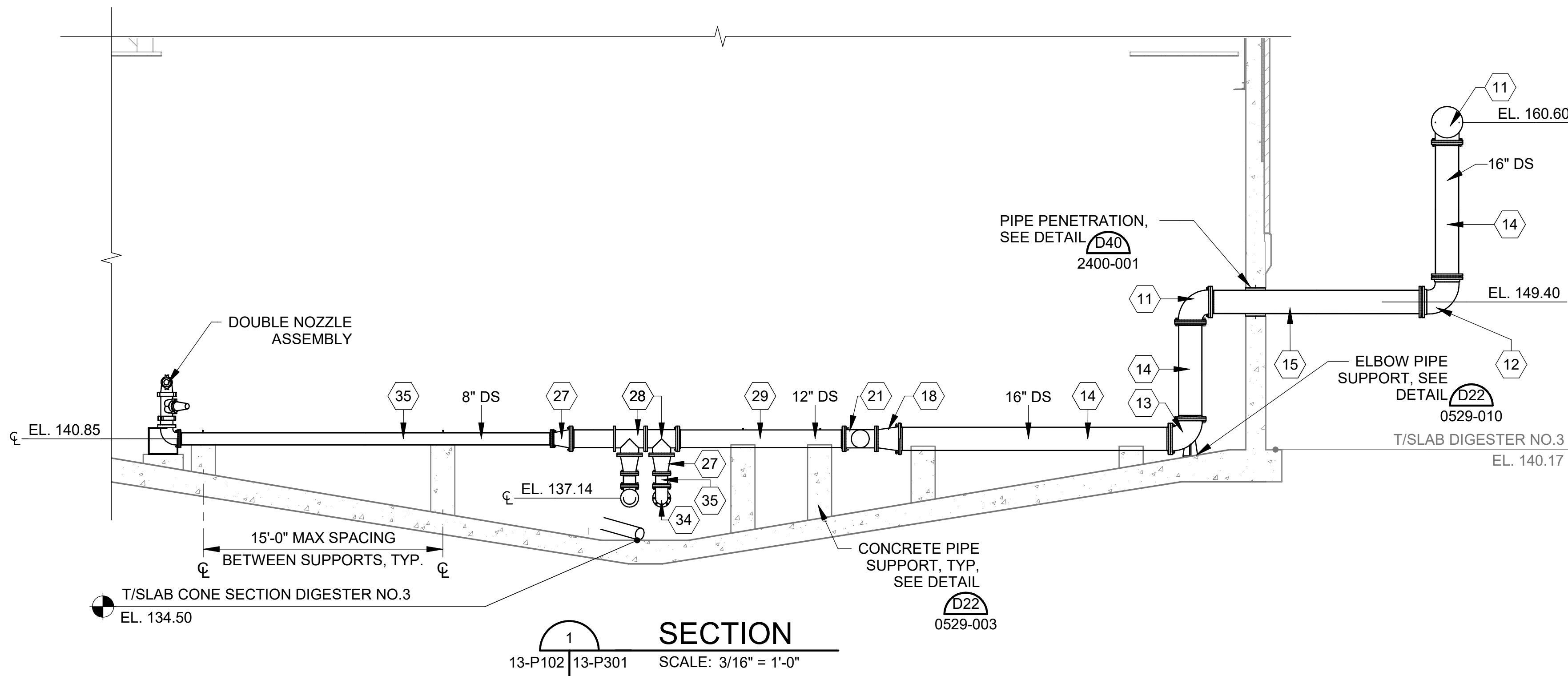
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NOTES:

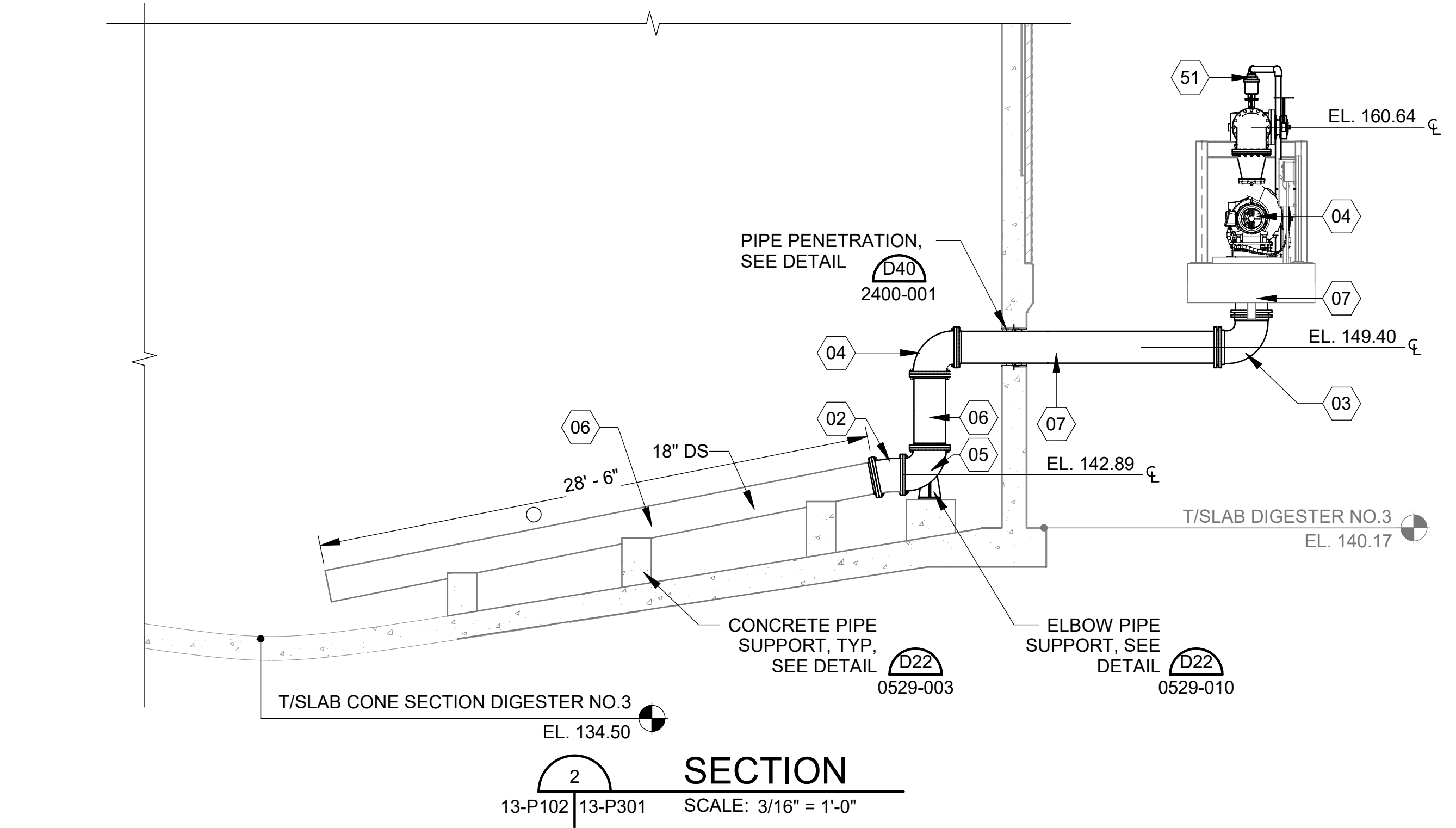
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- DIGESTER GEOMETRY HAS BEEN TAKEN FROM AVAILABLE RECORD DRAWINGS AND HAS NOT BEEN FIELD VERIFIED. CONTRACTOR SHALL CONFIRM ALL ELEVATIONS AND DIMENSIONS OF EXISTING DIGESTERS PRIOR TO ORDERING ANY PIPE MATERIAL. OWNER WILL NOT BE RESPONSIBLE FOR COSTS ASSOCIATED WITH PIPING MODIFICATIONS BASED ON DIFFERING FIELD CONDITIONS IF THIS IS NOT PERFORMED.
- ALL PIPE SUPPORTS AND FASTENERS WITHIN THE DIGESTER TO BE 316 STAINLESS STEEL

KEYNOTES: DENOTED BY SYMBOL (X)

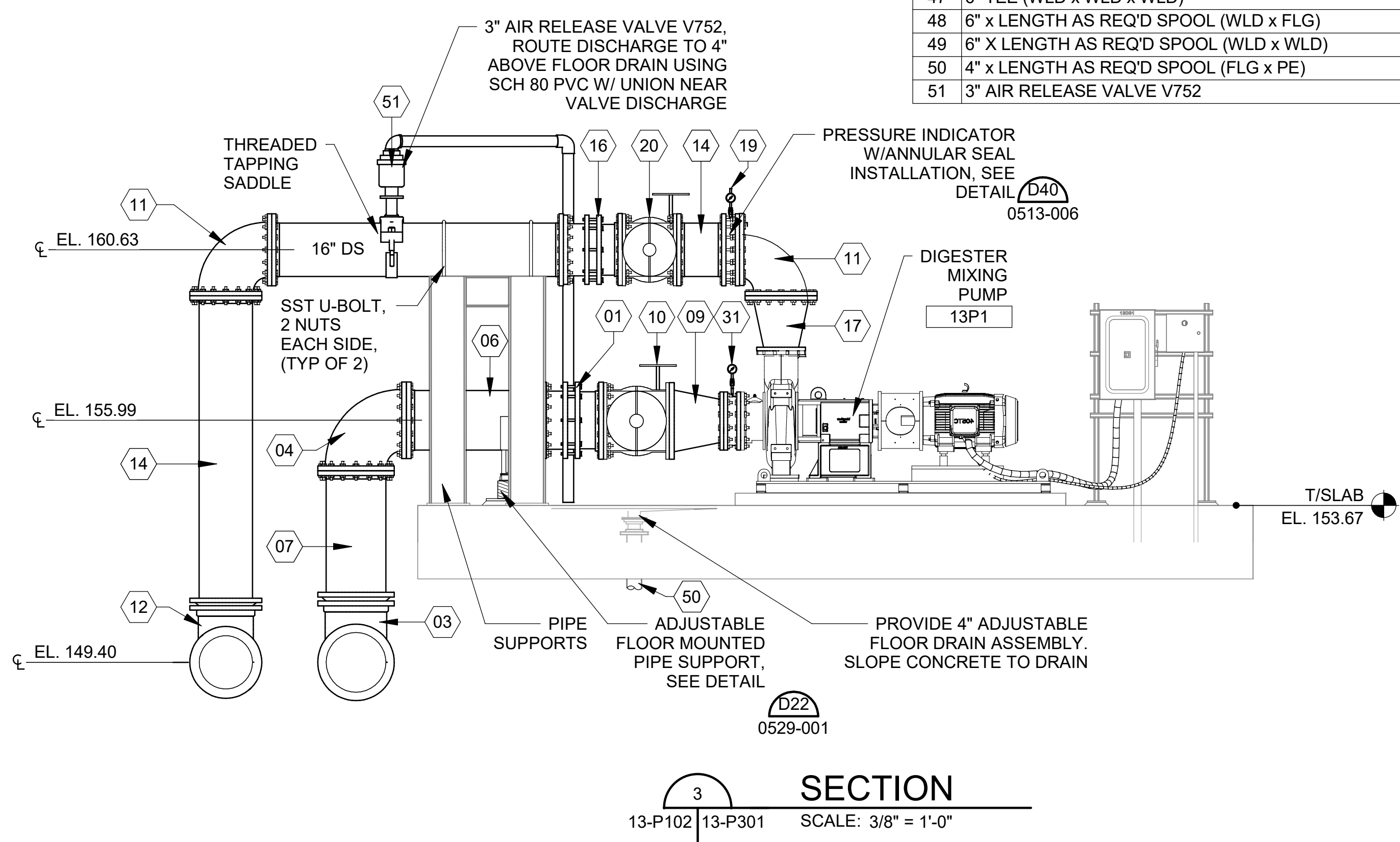
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" x 12" REDUCER (FLG x FLG)
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21	12" x 12" x 8" x 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
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25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" x 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
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49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752



SECTION 1
SCALE: 3/16" = 1'-0"
13-P102 | 13-P301



SECTION 2
SCALE: 3/16" = 1'-0"
13-P102 | 13-P301



SECTION 3
SCALE: 3/8" = 1'-0"
13-P102 | 13-P301

Revit File: BM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HWRFR_11 - ANAEROBIC DIGESTER NO. 1.rvt
Plot Date: 11/19/2024 5:24:49 PM

REV	DATE	DESCRIPTION

CITY OF TUSCALOOSA
TUSCALOOSA, AL

HILLIARD N. FLETCHER WATER
RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 DIGESTER MIXING SECTIONS AND DETAILS

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT

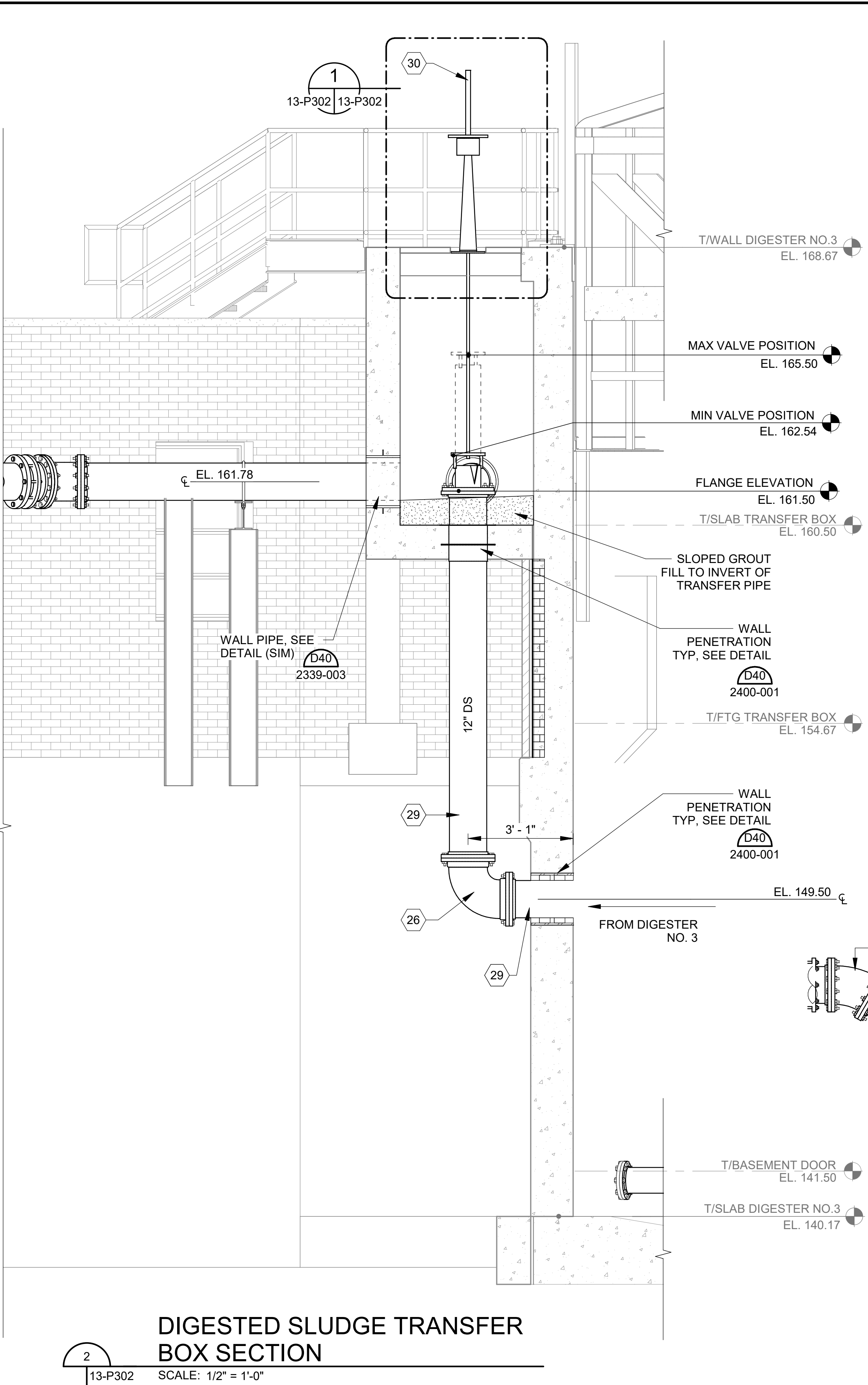
BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
13-P301

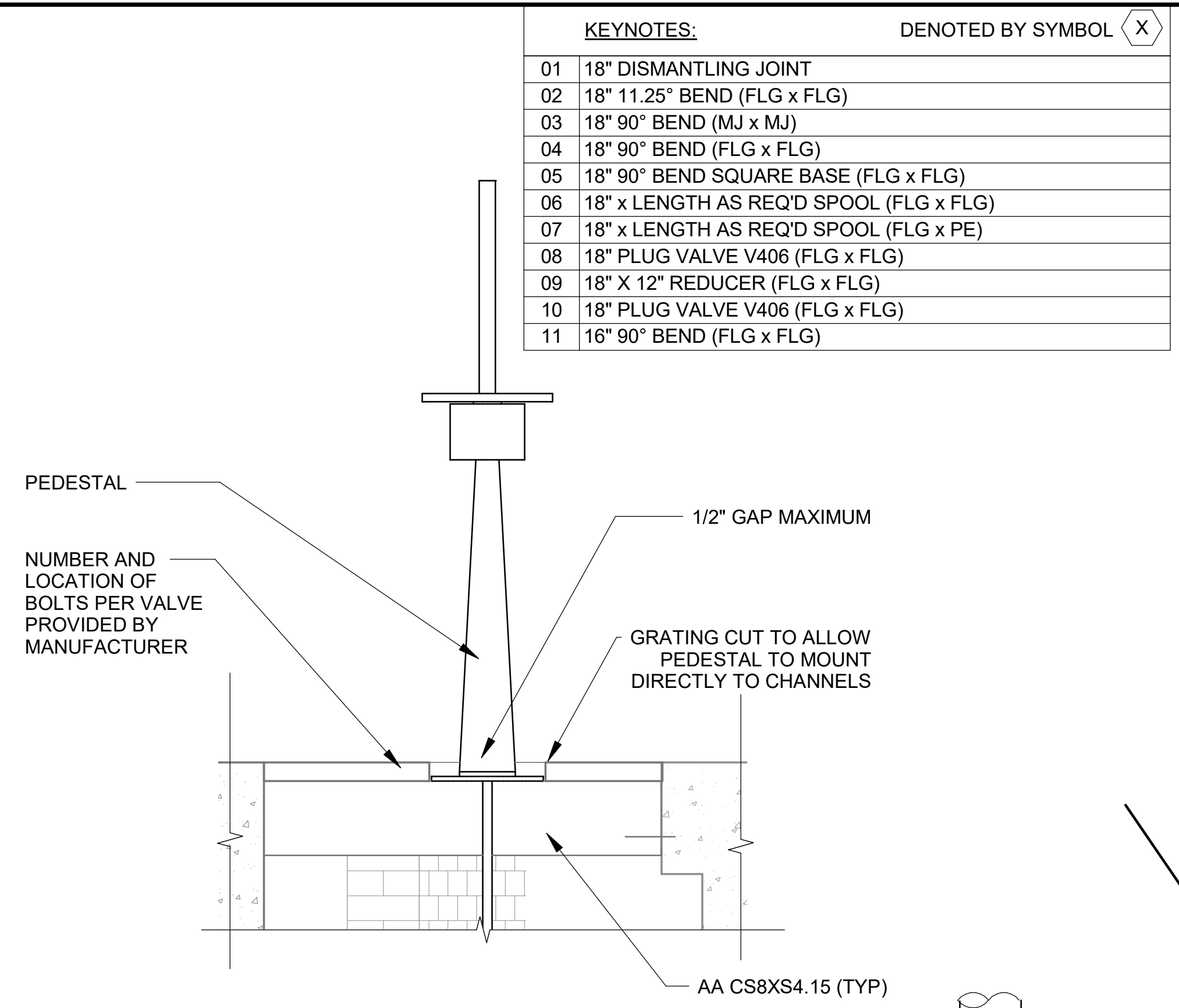
SHEET NUMBER
071

ISSUED FOR CONSTRUCTION

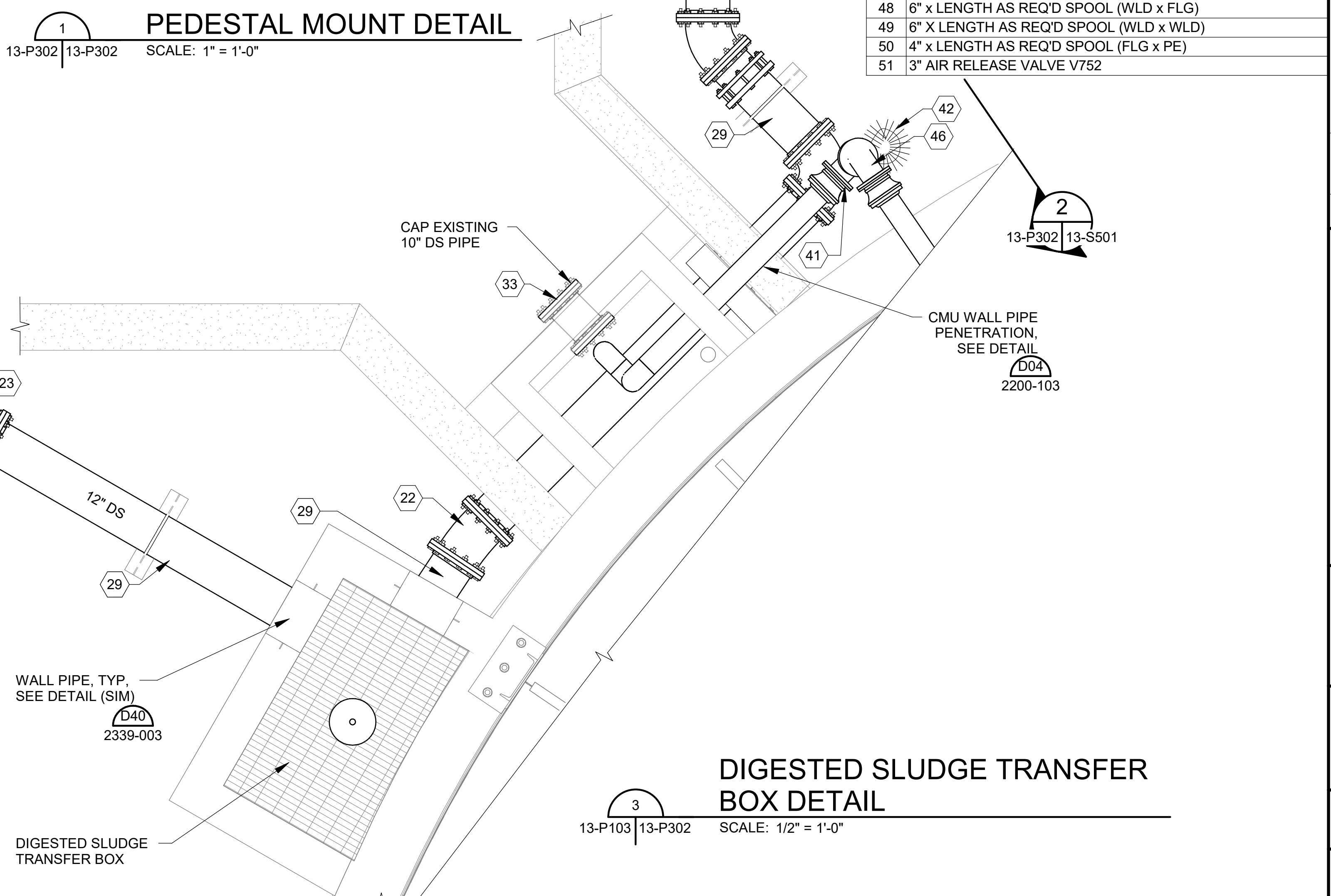
Revit File: BIM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
Plot Date: 11/19/2024 5:24:53 PM



DIGESTED SLUDGE TRANSFER BOX SECTION
 13-P302 SCALE: 1/2" = 1'-0"




PEDESTAL MOUNT DETAIL
 13-P302 SCALE: 1" = 1'-0"



DIGESTED SLUDGE TRANSFER BOX DETAIL
 13-P103 13-P302 SCALE: 1/2" = 1'-0"


KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" x 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)

KEYNOTES:	DENOTED BY SYMBOL (X)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" x 10" REDUCER (FLG x FLG)
18	16" x 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" x 12" x 8" x 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" x 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" x 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752



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BY	DESCRIPTION
REV	DATE



CITY OF TUSCALOOSA
 TUSCALOOSA, AL
**HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS**

ANAEROBIC DIGESTER NO. 3 DIGESTED SLUDGE TRANSFER BOX SECTION AND DETAILS

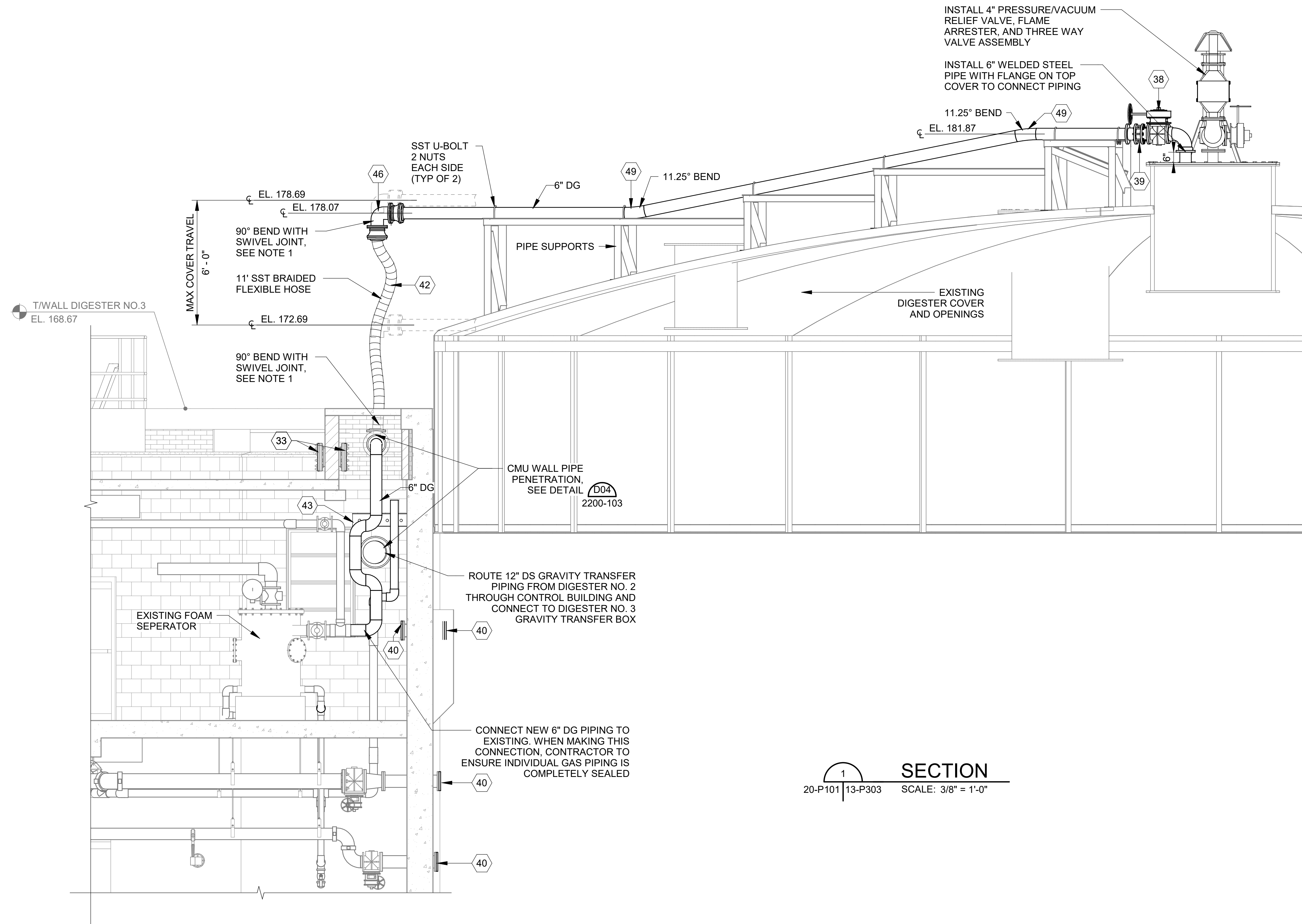
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER	13-P302
SHEET NUMBER	072

ISSUED FOR CONSTRUCTION


Revit File: BM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:24:56 PM



1 SECTION
 20-P101 | 13-P303 SCALE: 3/8" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° BEND (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" X LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752


NOTE:
 1. SWIVEL JOINTS SHALL BE 150# FLANGED V-RING STYLE SWIVEL MADE OF STAINLESS STEEL WITH TEFLON PRESSURE SEAL, AS MANUFACTURED BY DIXON VALVE AND COUPLING (RING STYLE 30 & 60), OR EQUAL



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CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 3 DIGESTER
 BIOGAS HANDLING
 SECTION

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT
<small>BAR IS ONE INCH ON ORIGINAL DRAWING</small> <small>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.</small>
DRAWING NUMBER 13-P303
SHEET NUMBER 073

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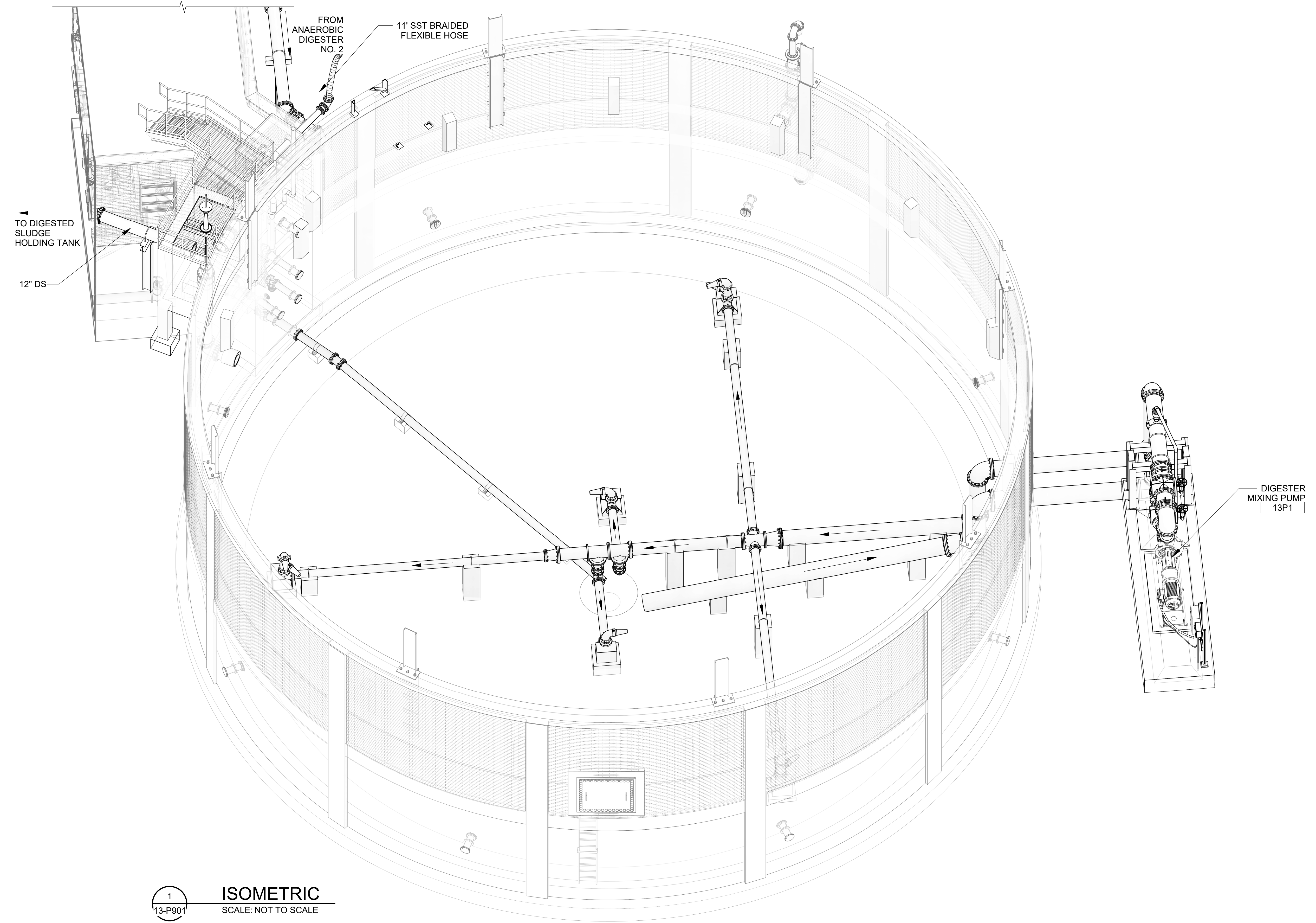
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER NO. 3 DIGESTER MIXING ISOMETRICS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
13-P901
 SHEET NUMBER **074**

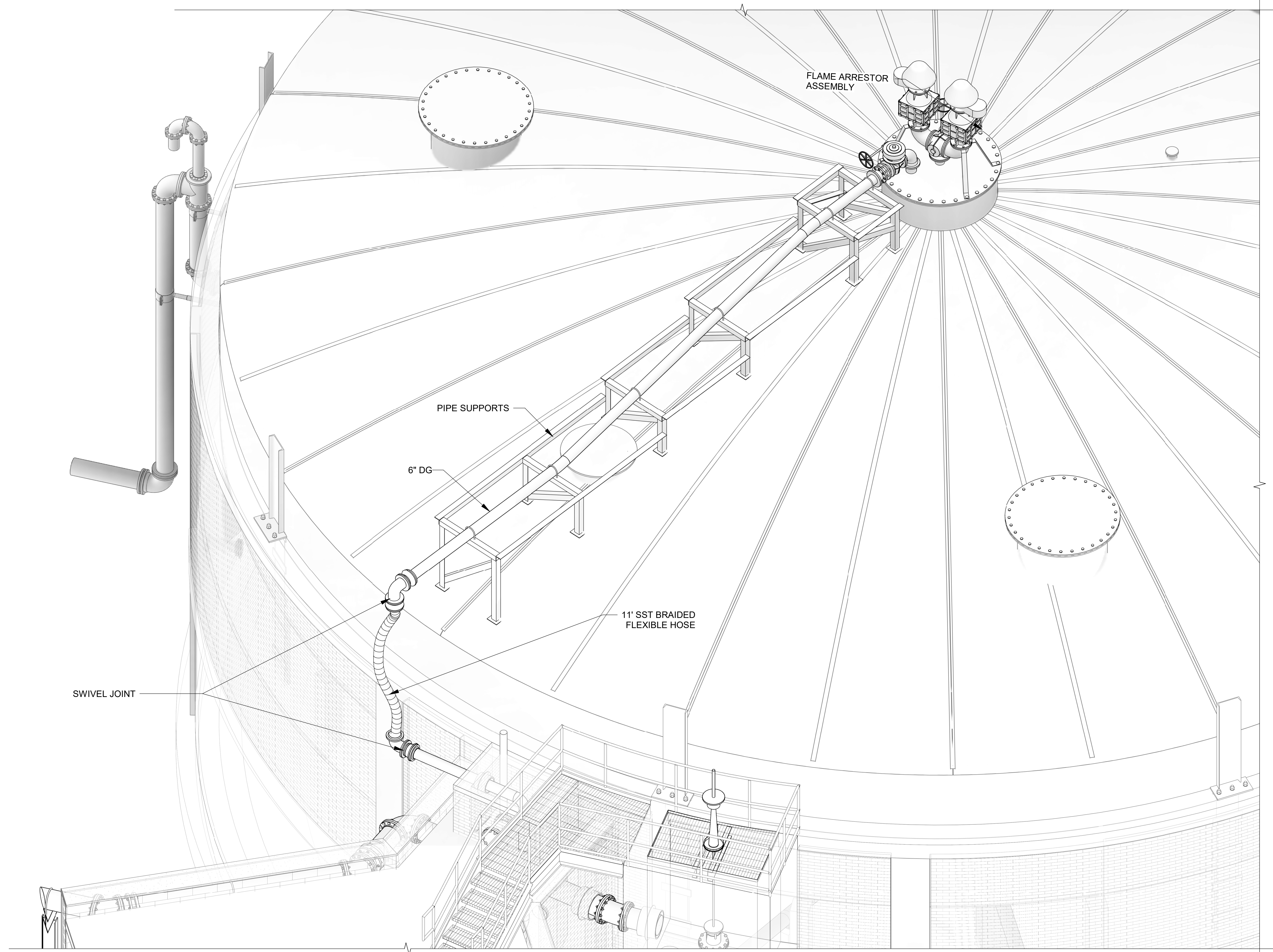


1
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ISOMETRIC
 SCALE: NOT TO SCALE

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:25:17 PM

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Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:25:29 PM



1
13-P902

ISOMETRIC
SCALE: NOT TO SCALE



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CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTER
 NO. 3 DIGESTER
 COVER BIOGAS PIPING
 ISOMETRIC

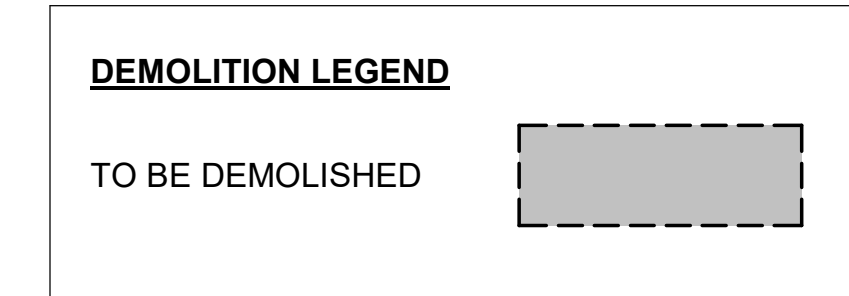
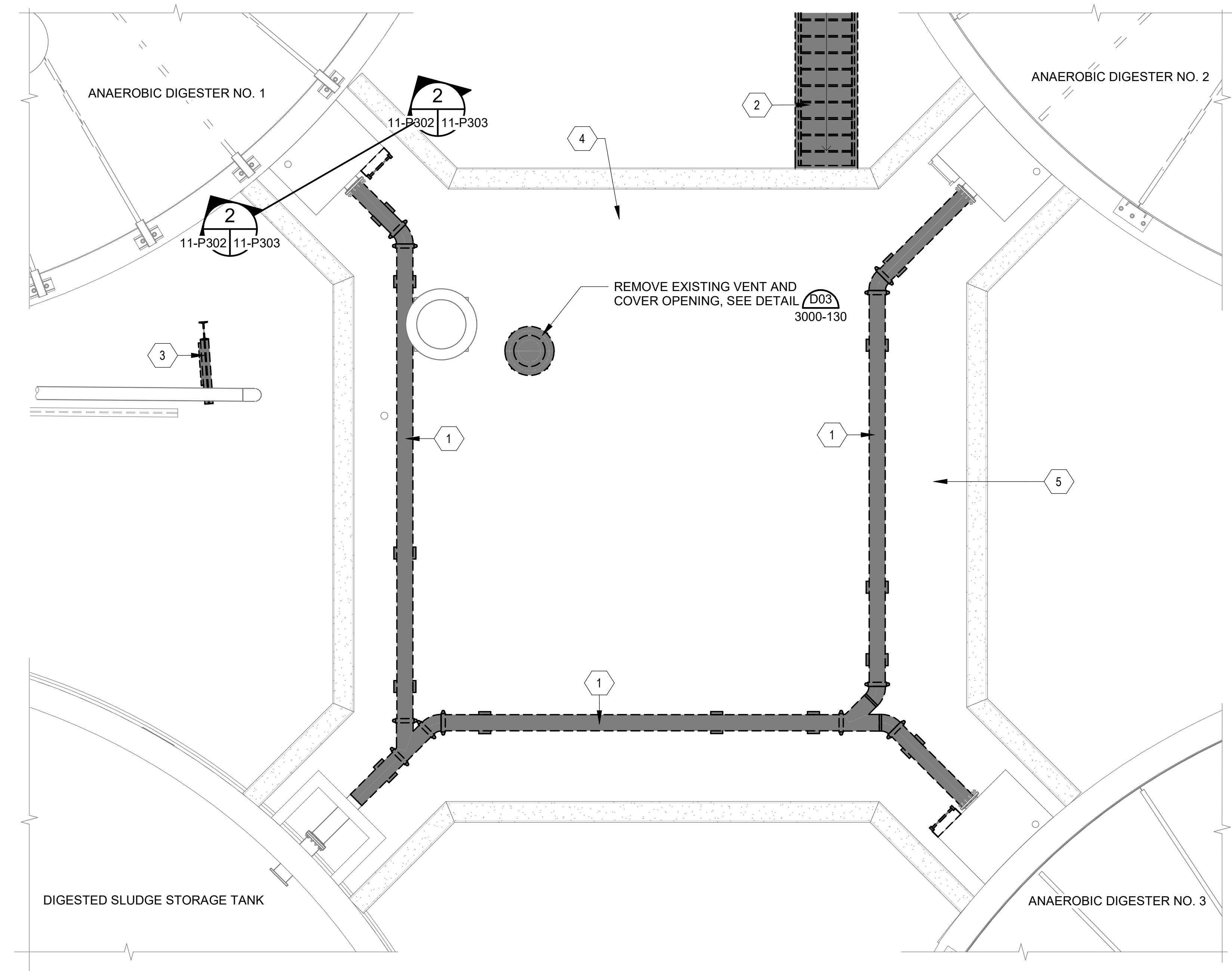
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
13-P902
 SHEET NUMBER
075

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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

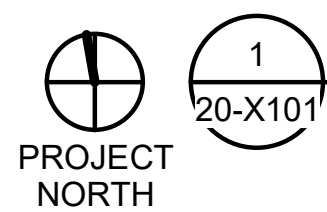
DIGESTER CONTROL BUILDING SELECTIVE DEMOLITION ROOF PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

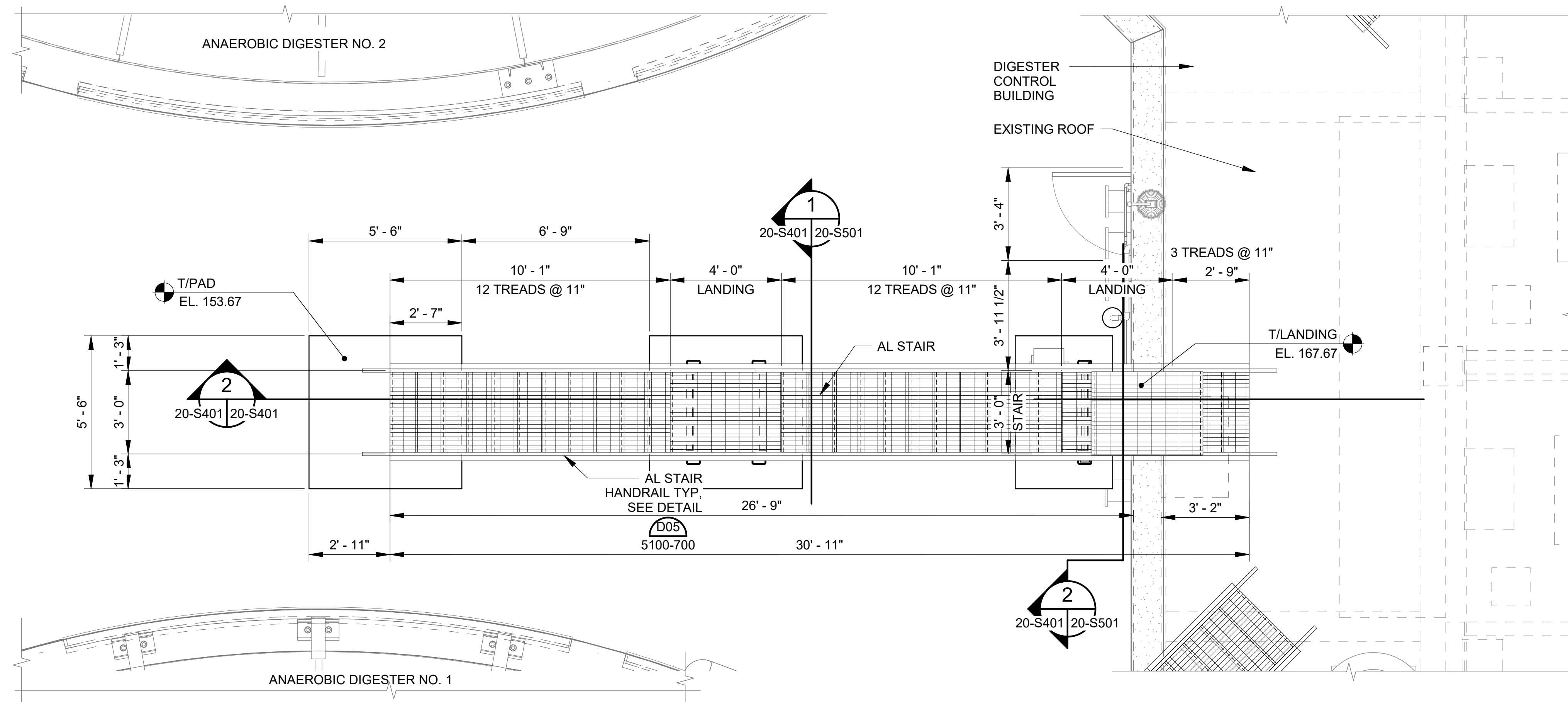
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DRAWING NUMBER
20-X101
 SHEET NUMBER **076**

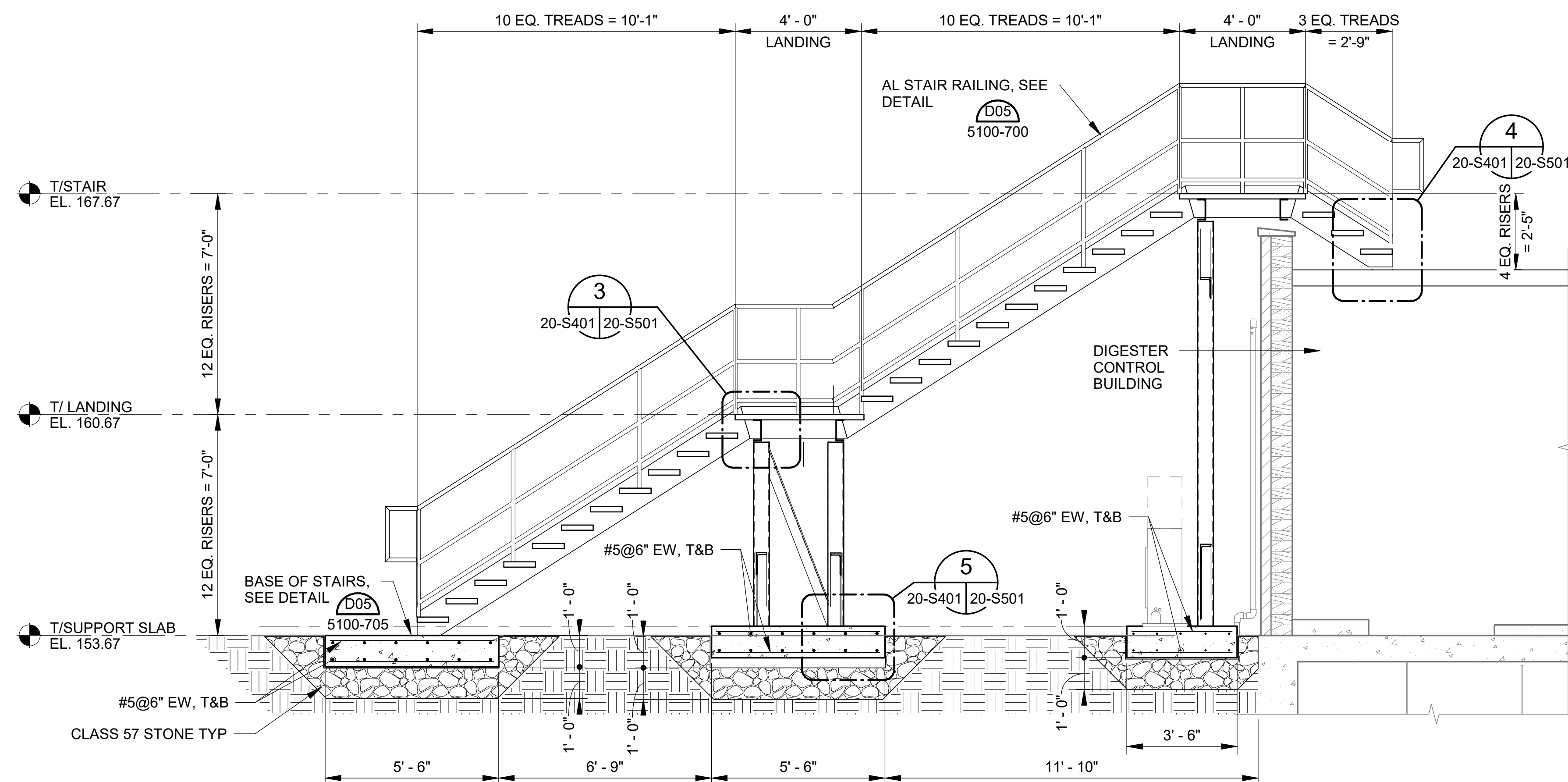
**DIGESTER CONTROL BUILDING
 DEMOLITION ROOF PLAN**



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



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



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

Revit File: BM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic Digester NO. 1.rvt
Plot Date: 11/09/2024 5:28:53 PM



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TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

DIGESTER CONTROL BUILDING SECTION AND DETAIL

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: TWf
DRAWN BY: WTL
CHECKED BY: KAM

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DRAWING NUMBER
20-S401
SHEET NUMBER
077

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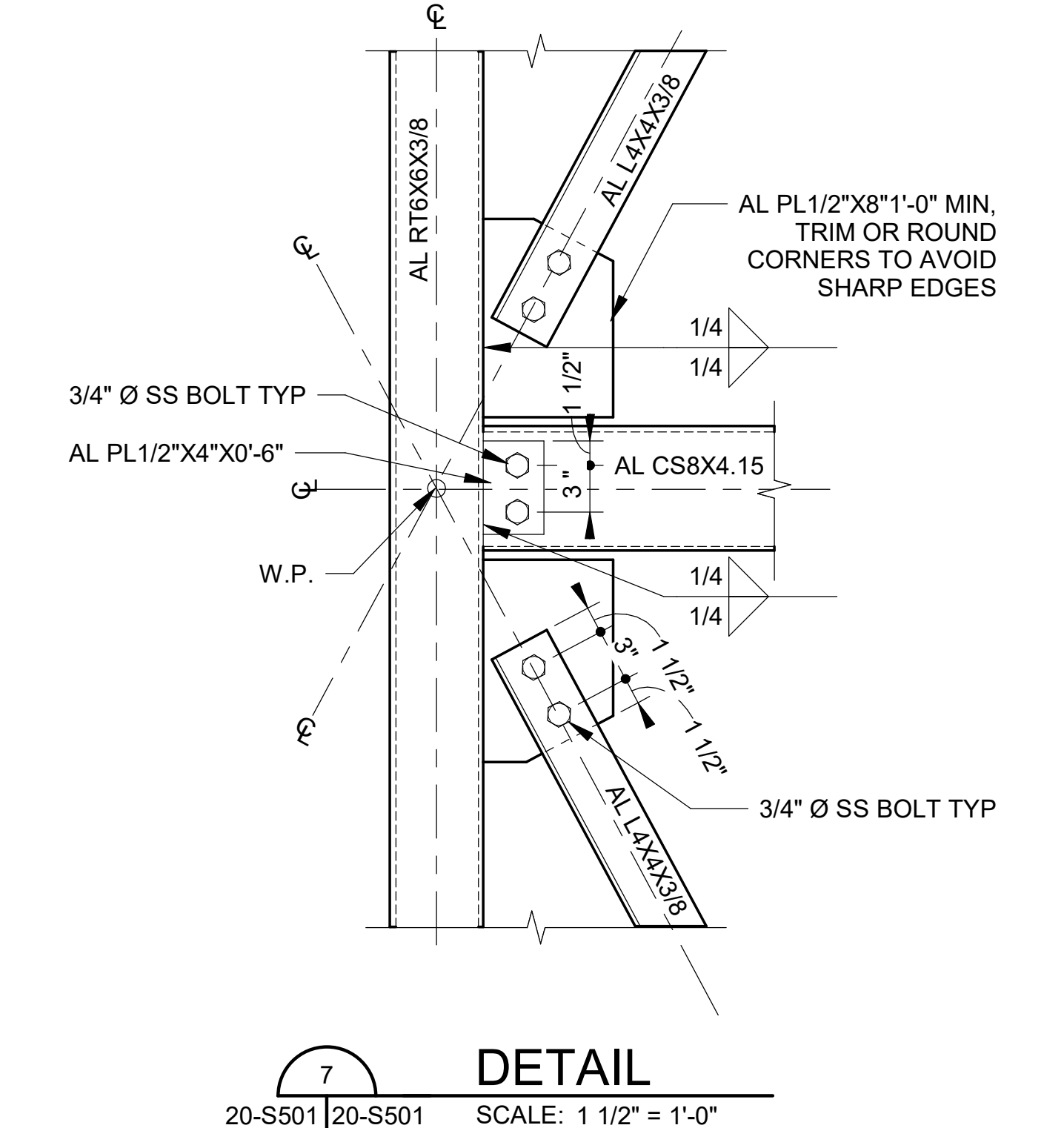
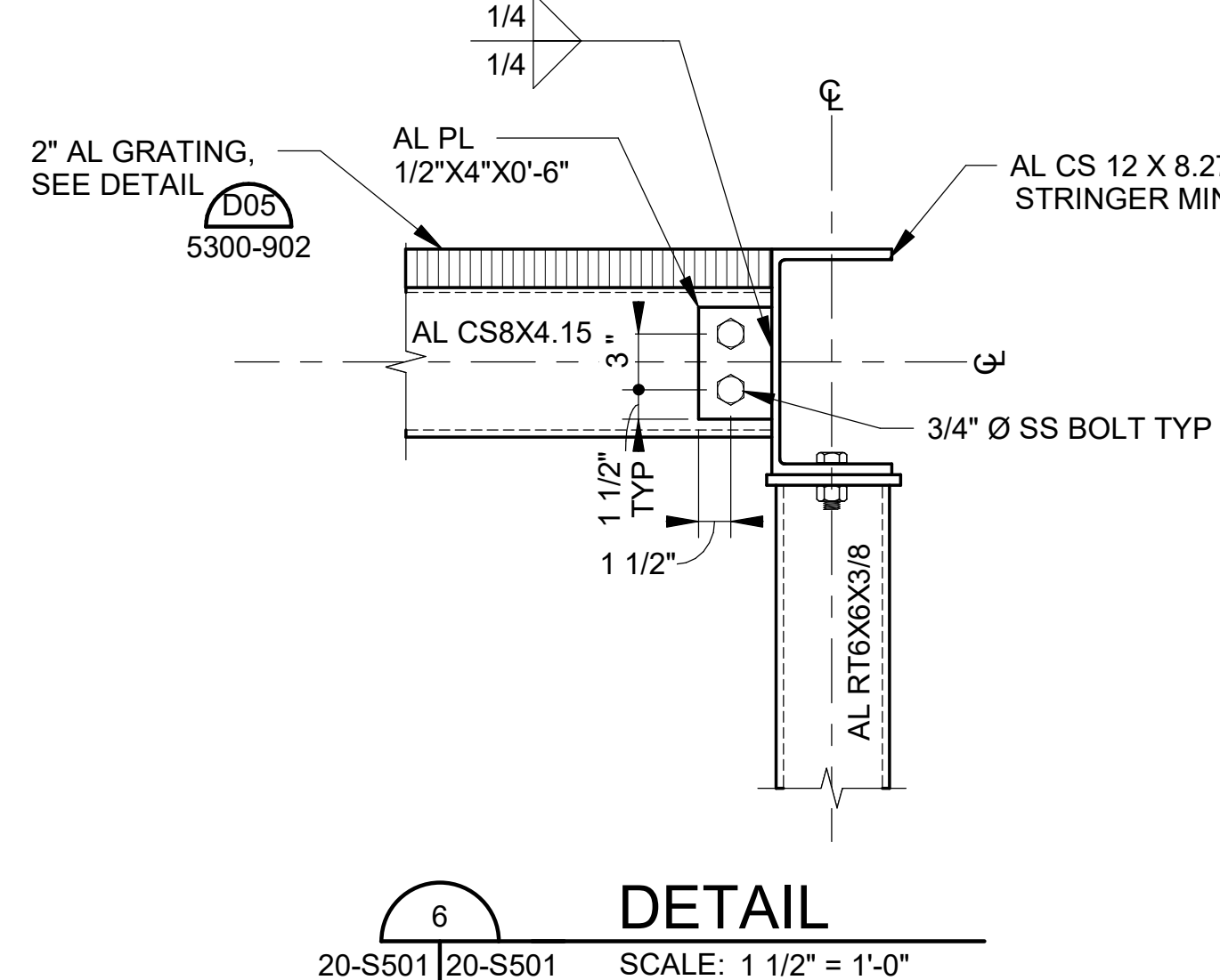
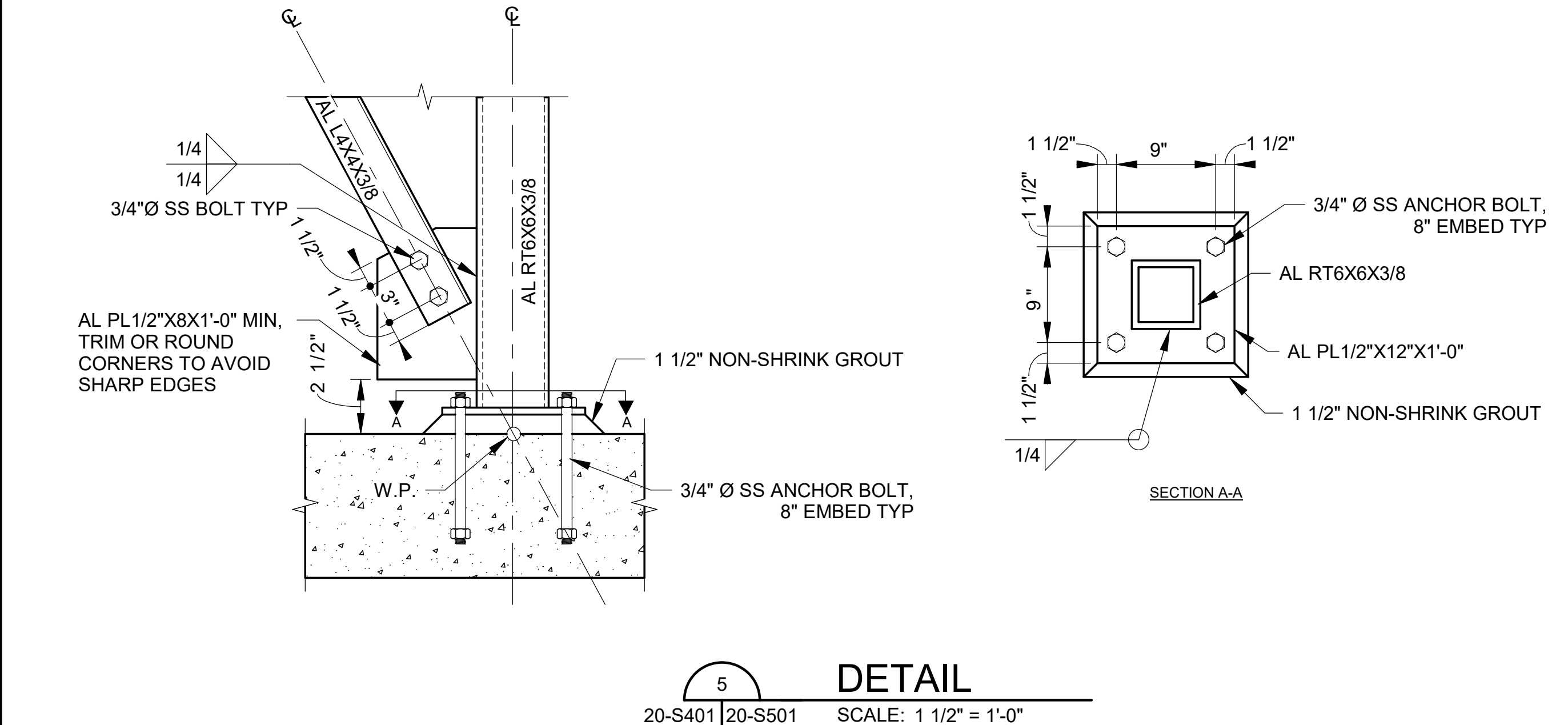
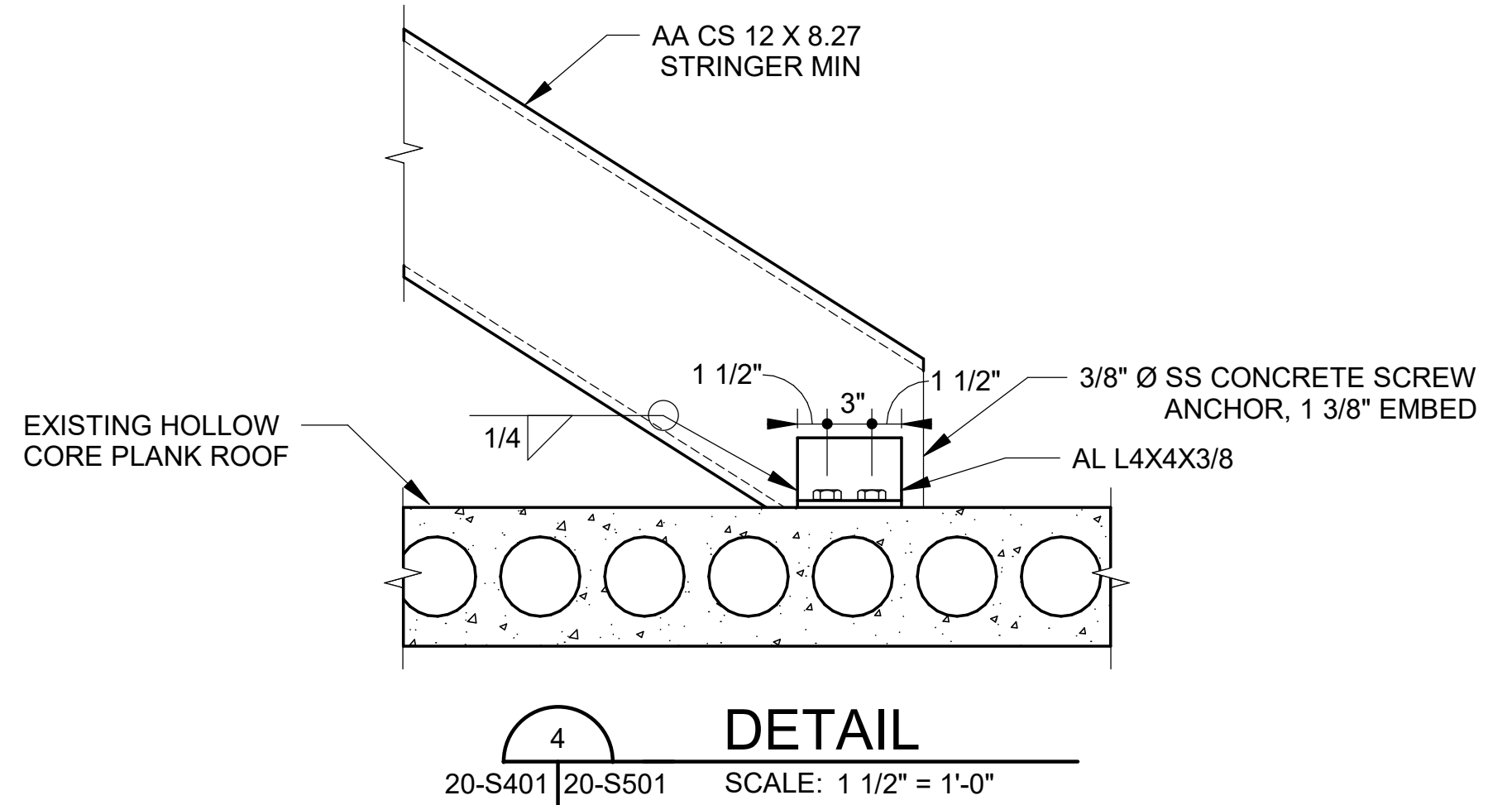
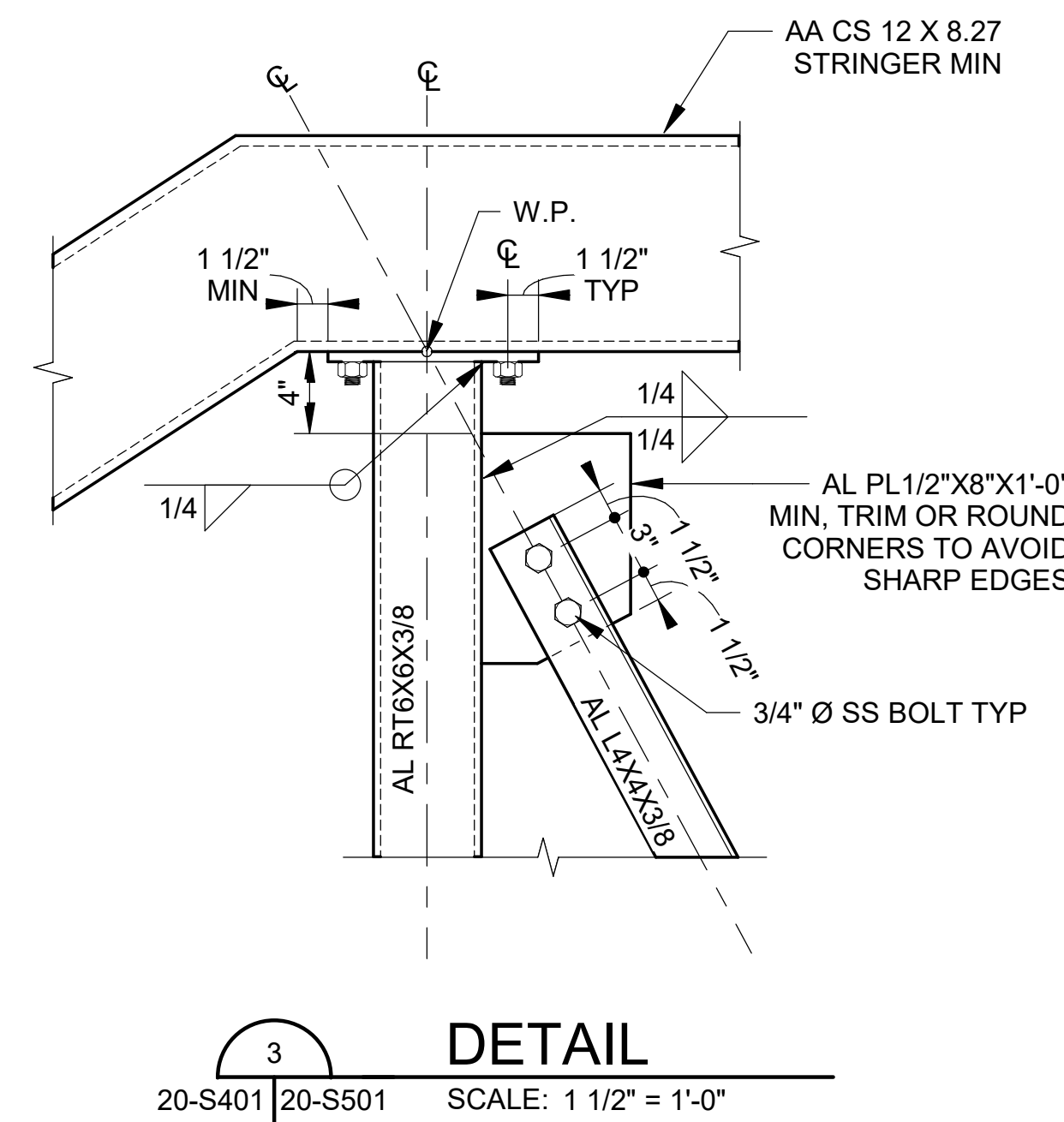
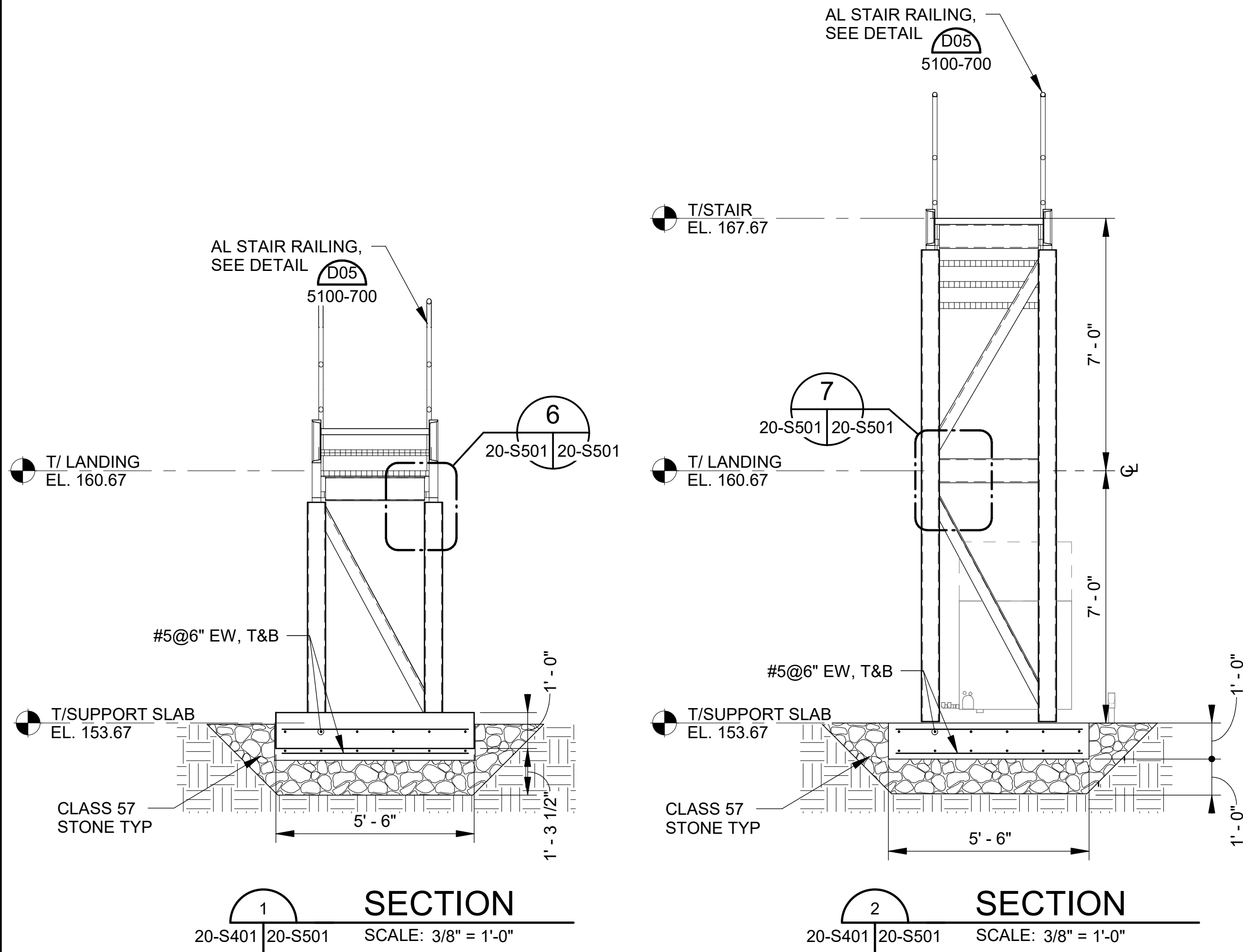
CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

DIGESTER CONTROL BUILDING DETAILS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: INO
 CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
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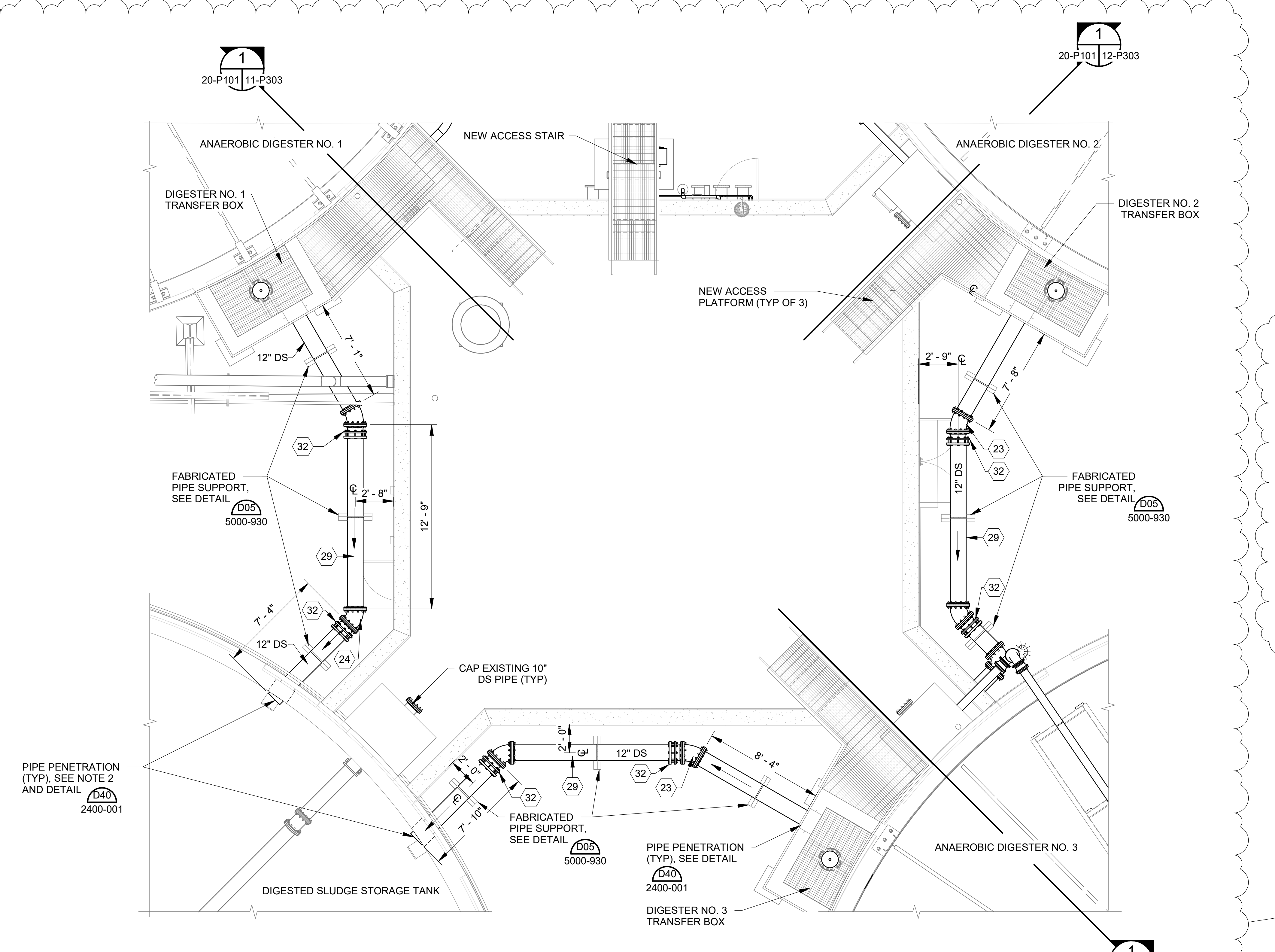
DRAWING NUMBER
20-S501
 SHEET NUMBER
078



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 Plot Date: 11/09/2024 5:28:54 PM

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Revit File: BIM 360/19W10160 - Hilliard N Fletcher WPRF Anaerobic/HWRPF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:28:09 PM




DIGESTER CONTROL BUILDING ROOF PLAN MODIFICATIONS

PROJECT NORTH
 20-P101
 SCALE: 1/4" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
14	16" x LENGTH AS REQ'D SPOOL (FLG x FLG)
15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
16	16" DISMANTLING JOINT
17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
19	16" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
20	16" PLUG VALVE V406 (FLG x FLG)
21	12" X 12" X 8" X 8" REDUCING CROSS (FLG x FLG x FLG x FLG)
22	12" 11.25° REDUCER (FLG x FLG)
23	12" 30° BEND (FLG x FLG)
24	12" 45° BEND (FLG x FLG)
25	12" 90° BEND (FLG x FLG)
26	12" 90° BEND (MJ x MJ)
27	12" X 8" REDUCER (FLG x FLG)
28	12" TEE (FLG x FLG)
29	12" x LENGTH AS REQ'D SPOOL (FLG x FLG)
30	12" V910 TELESCOPING VALVES (FLG x FLG)
31	12" PRESSURE SWITCH WITH ANNULAR SEAL (FLG x FLG)
32	12" FLANGED COUPLING ADAPTER
33	10" BLIND FLANGE
34	8" 90° BEND (FLG x FLG)
35	8" x LENGTH AS REQ'D SPOOL (FLG x FLG)
36	8" X 6" REDUCER (SOC x SOC)
37	8" 11.25° BEND (FLG x FLG)
38	6" PLUG VALVE V405 (FLG x FLG)
39	6" DISMANTLING JOINT
40	6" BLIND FLANGE
41	6" 316SS SWIVEL 90, 150# FLG'S, SWIVEL HORIZONTAL
42	6" BRAIDED HOSE, 150# SS FLOATING FLG'S
43	6" 90° BEND (WLD x WLD)
44	6" 22.5° BEND (WLD x WLD)
45	6" 11.25° BEND (WLD x WLD)
46	6" 316SS DOUBLE SWIVEL 90, 150# FLG'S
47	6" TEE (WLD x WLD x WLD)
48	6" x LENGTH AS REQ'D SPOOL (WLD x FLG)
49	6" x LENGTH AS REQ'D SPOOL (WLD x WLD)
50	4" x LENGTH AS REQ'D SPOOL (FLG x PE)
51	3" AIR RELEASE VALVE V752

- NOTES:
- PIPE LENGTHS FOR DIGESTED SLUDGE TRANSFER PIPING SHOWN ARE BASED ON AVAILABLE RECORD DRAWINGS OF THE DIGESTER CONTROL BUILDING AND MAY VARY BASED ON FIELD CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL NECESSARY DIMENSIONS AND ADJUST REQUIRED PIPE LENGTHS ACCORDINGLY.
 - EXTEND PIPING INTO TANK SUCH THAT PIPING SITS AS FLUSH AS POSSIBLE TO SIDE WALL AFTER GROUTING PENETRATION



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REV	DATE	DESCRIPTION	BY
2	12/5/23	ADDENDUM NO. 2	RWC

CITY OF TUSCALOOSA



TUSCALOOSA, AL

HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

DIGESTER CONTROL BUILDING ROOF PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

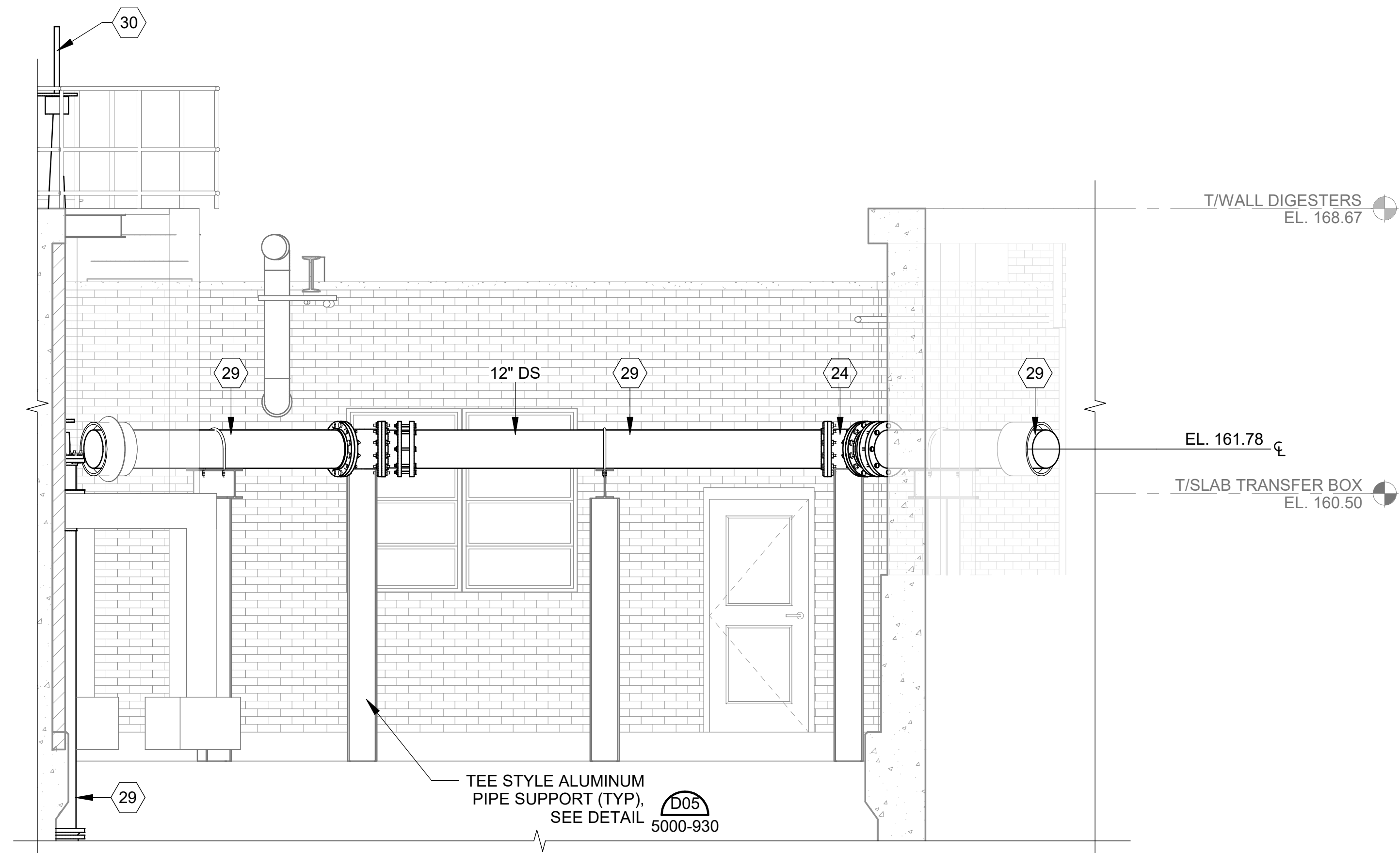
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20-P101

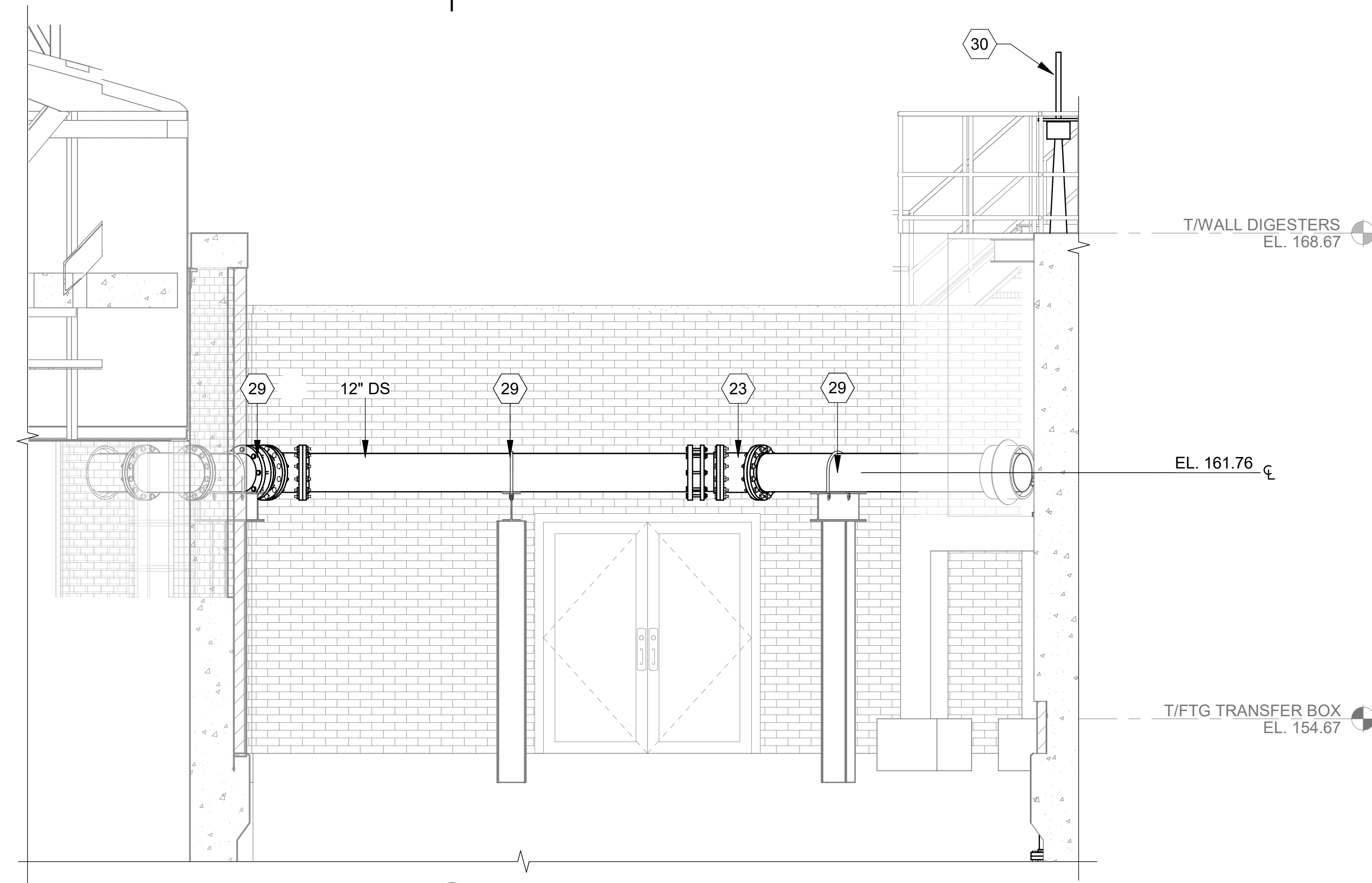
SHEET NUMBER
079

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Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/09/2024 5:28:12 PM



SECTION 1
 20-P301 SCALE: 3/8" = 1'-0"



SECTION 2
 20-P301 SCALE: 3/8" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL (X)
01	18" DISMANTLING JOINT
02	18" 11.25° BEND (FLG x FLG)
03	18" 90° BEND (MJ x MJ)
04	18" 90° BEND (FLG x FLG)
05	18" 90° BEND SQUARE BASE (FLG x FLG)
06	18" x LENGTH AS REQ'D SPOOL (FLG x FLG)
07	18" x LENGTH AS REQ'D SPOOL (FLG x PE)
08	18" PLUG VALVE V406 (FLG x FLG)
09	18" X 12" REDUCER (FLG x FLG)
10	18" PLUG VALVE V406 (FLG x FLG)
11	16" 90° BEND (FLG x FLG)
12	16" 90° BEND (MJ x MJ)
13	16" 90° BEND SQUARE BASE (FLG x FLG)
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15	16" x LENGTH AS REQ'D SPOOL (FLG x PE)
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17	16" X 10" REDUCER (FLG x FLG)
18	16" X 12" REDUCER (FLG x FLG)
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51	3" AIR RELEASE VALVE V752

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CITY OF TUSCALOOSA
 TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

DIGESTER CONTROL BUILDING SECTIONS AND DETAILS 1

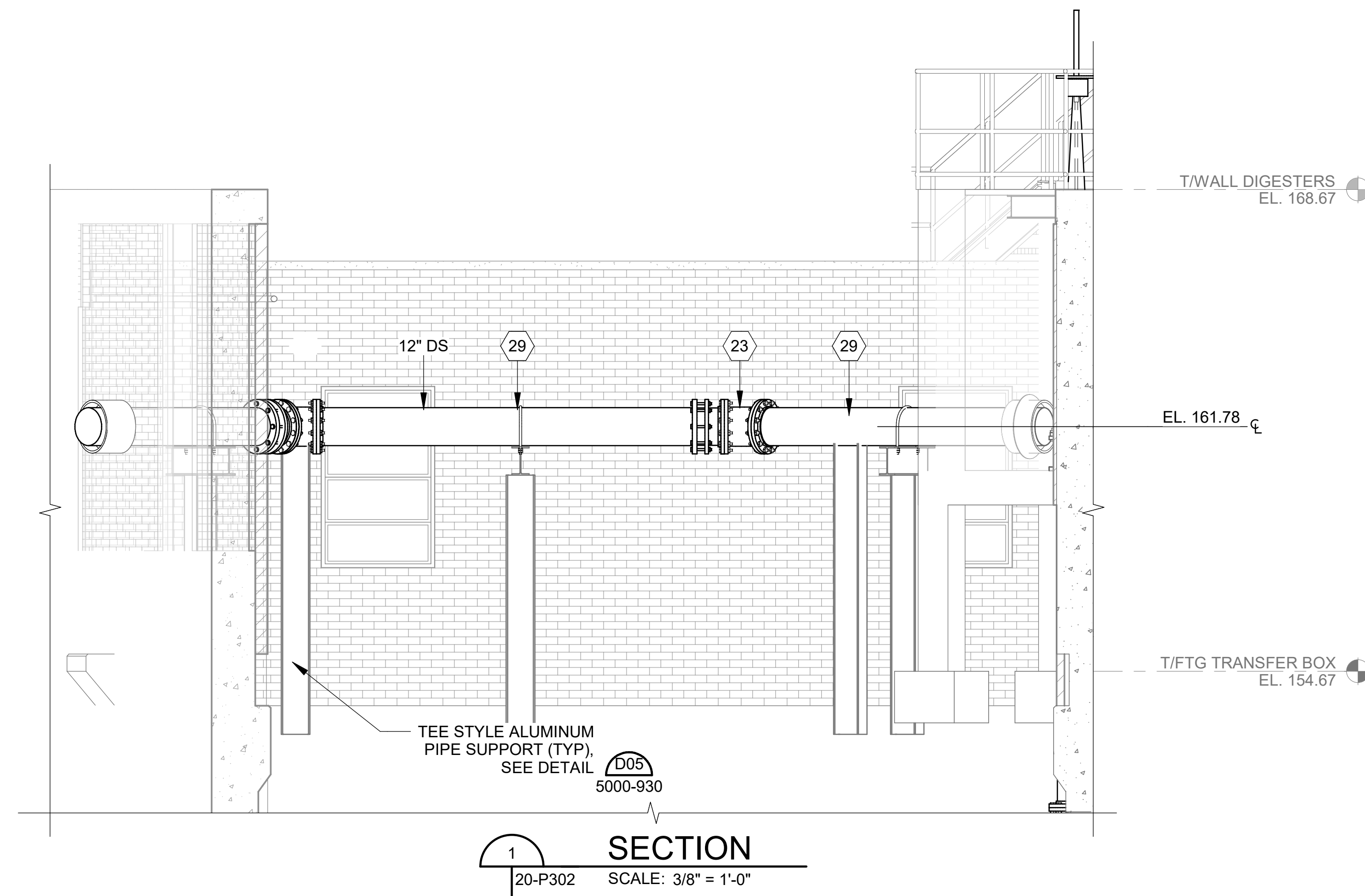
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
20-P301

SHEET NUMBER
080

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Plot Date: 11/09/2024 5:28:16 PM



KEYNOTES: DENOTED BY SYMBOL (X)

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DIGESTER CONTROL BUILDING SECTIONS AND DETAILS 2

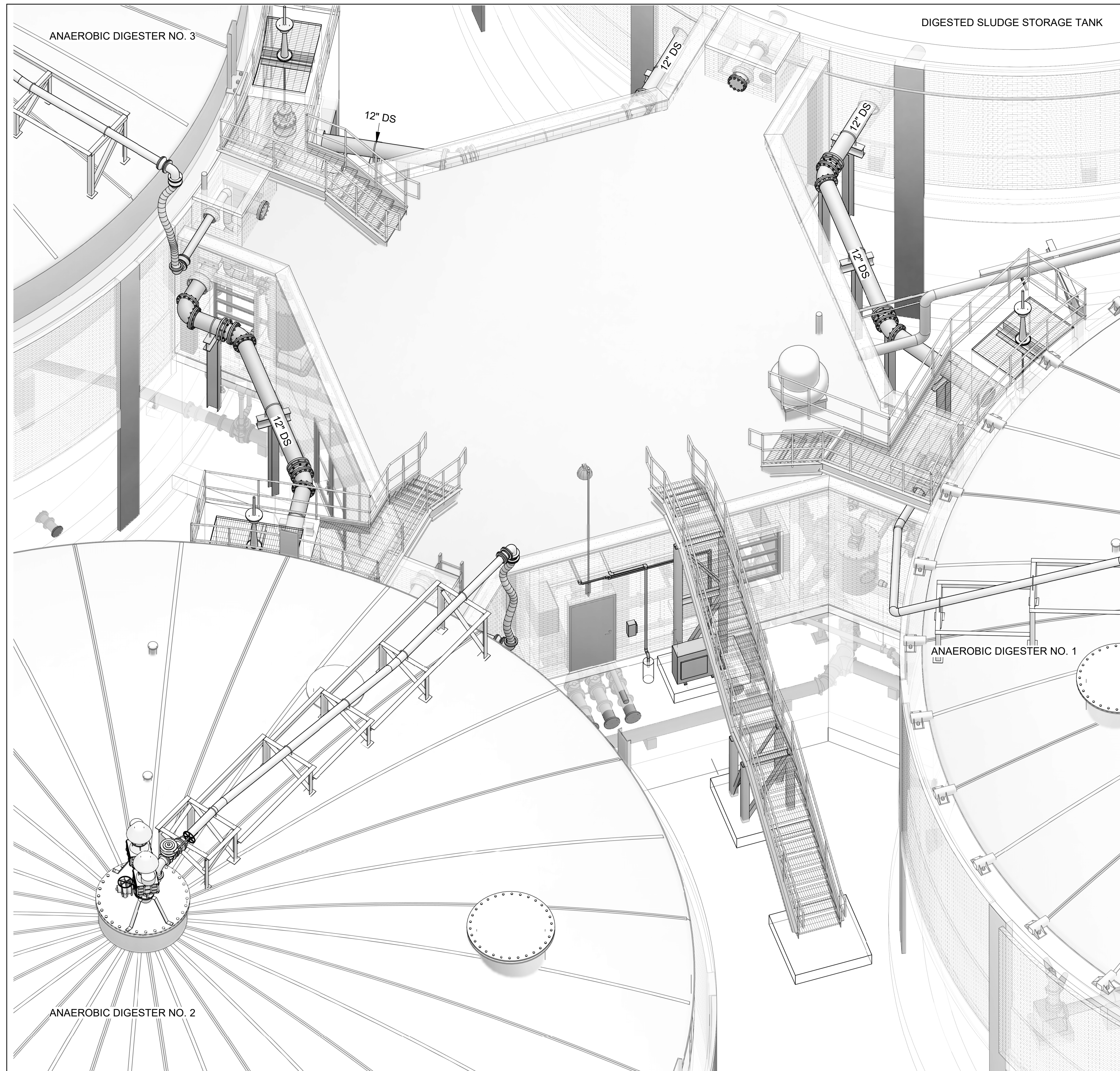
JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: RWC
DRAWN BY: WTL
CHECKED BY: RDT

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DRAWING NUMBER
20-P302
SHEET NUMBER **081**

ISSUED FOR CONSTRUCTION

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
 Plot Date: 11/19/2024 5:28:50 PM



DIGESTER CONTROL BUILDING ISOMETRIC

SCALE: NOT TO SCALE

1
20-P901



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

DIGESTER CONTROL
 BUILDING ISOMETRIC

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
20-P901
 SHEET
 NUMBER **082**

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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ELECTRICAL ROOM
 HVAC PLAN

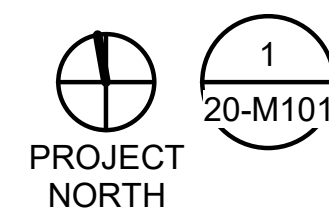
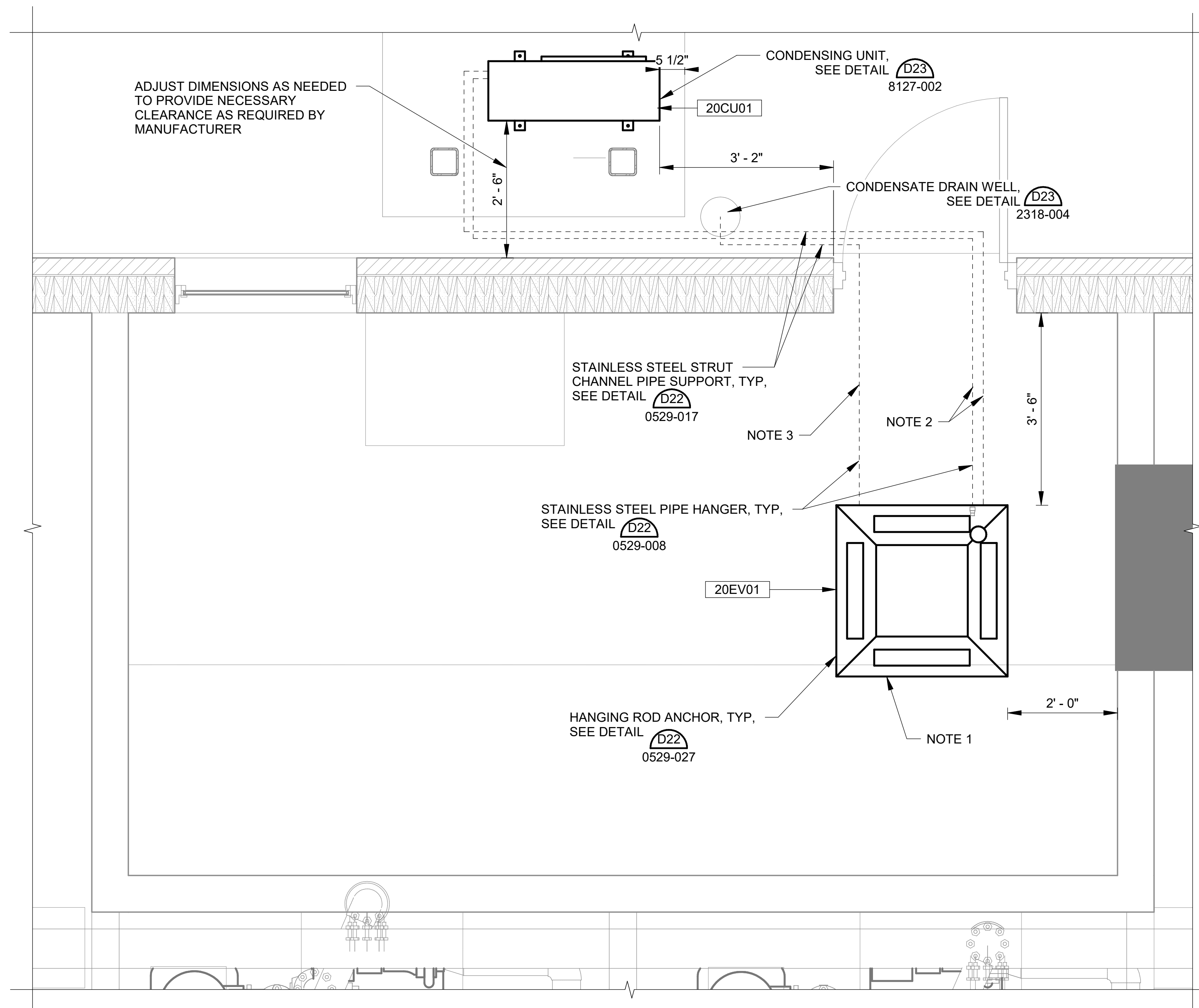
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: BCR
 DRAWN BY: ADA
 CHECKED BY: BCR

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DRAWING NUMBER
20-M101
 SHEET NUMBER
083

NOTES:

- CEILING SUSPEND 20EV01 PER MANUFACTURER'S CLEARANCE REQUIREMENTS. INSTALL SO BOTTOM OF 20EV01 IS AT LEAST 9' ABOVE FLOOR. DO NOT INSTALL OVER ANY ELECTRICAL EQUIPMENT. INSTALLATION DIMENSIONS ARE ESTIMATES. COORDINATE WITH CONTRACTOR ON ACCEPTABLE LOCATION BASED ON FIELD CONDITIONS.
- FIELD ROUTE REFRIGERANT LINES FROM 20CU01 TO 20EV01. DO NOT RUN REFRIGERANT LINES OVER ELECTRICAL GEAR. CORE DRILL THROUGH WALL ABOVE DOOR AND PROVIDE WEATHER-TIGHT SEAL.
- FIELD ROUTE CONDENSATE LINE FROM 20EV01 TO NEW GRAVEL DRAIN WELL. DO NOT RUN CONDENSATE LINE OVER ELECTRICAL GEAR. CORE DRILL THROUGH WALL ABOVE DOOR AND PROVIDE WEATHER-TIGHT SEAL.



ELECTRICAL ROOM HVAC PLAN

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

MINI-SPLIT EVAPORATING UNIT SCHEDULE																
MARK	AREA SERVED	MANUFACTURER	MODEL	AIRFLOW (SCFM)	OUTSIDE AIR (SCFM)	COOLING CAPACITY (MBH)		SEER	VOLTAGE	PHASE	MCA	FLA	WEIGHT (LB)	ACCESSORIES	NOTES	
						TOTAL	SENSIBLE									
20EV01	DIGESTER ELECTRICAL ROOM	MITSUBISHI	PLA-A42EA7R1.TH	1200	0	41.1	32.8	21	208	1	2	1	56	ALL	ALL	
ACCESSORIES		NOTES														
1. WIRED REMOTE CONTROL		1. INDOOR UNIT IS POWERED BY OUTDOOR UNIT														

MINI-SPLIT CONDENSING UNIT SCHEDULE														
MARK	AREA SERVED	MANUFACTURER	MODEL	AMBIENT TEMP (°F)	COOLING CAPACITY (MBH)		COIL/CONDENSOR COMBINATION RATING (SEER)	VOLTAGE	PHASE	MCA	FLA	WEIGHT (LB)	ACCESSORIES	
					TOTAL	SENSIBLE								
20CU01	DIGESTER ELECTRICAL ROOM	MITSUBISHI	PUY-A42NKA7-BS	105	41.1	32.8	21	208	1	25	1	211	ALL	
ACCESSORIES		NOTES												
1. WIND BAFFLE FOR LOW AMBIENT COOLING TO 0 DEGREES FAHRENHEIT.		2. CORROSION RESISTANT COATING ON COILS												

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 PHASE II IMPROVEMENTS

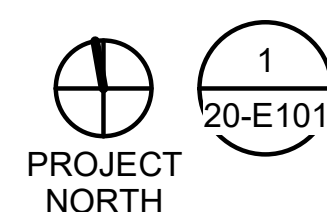
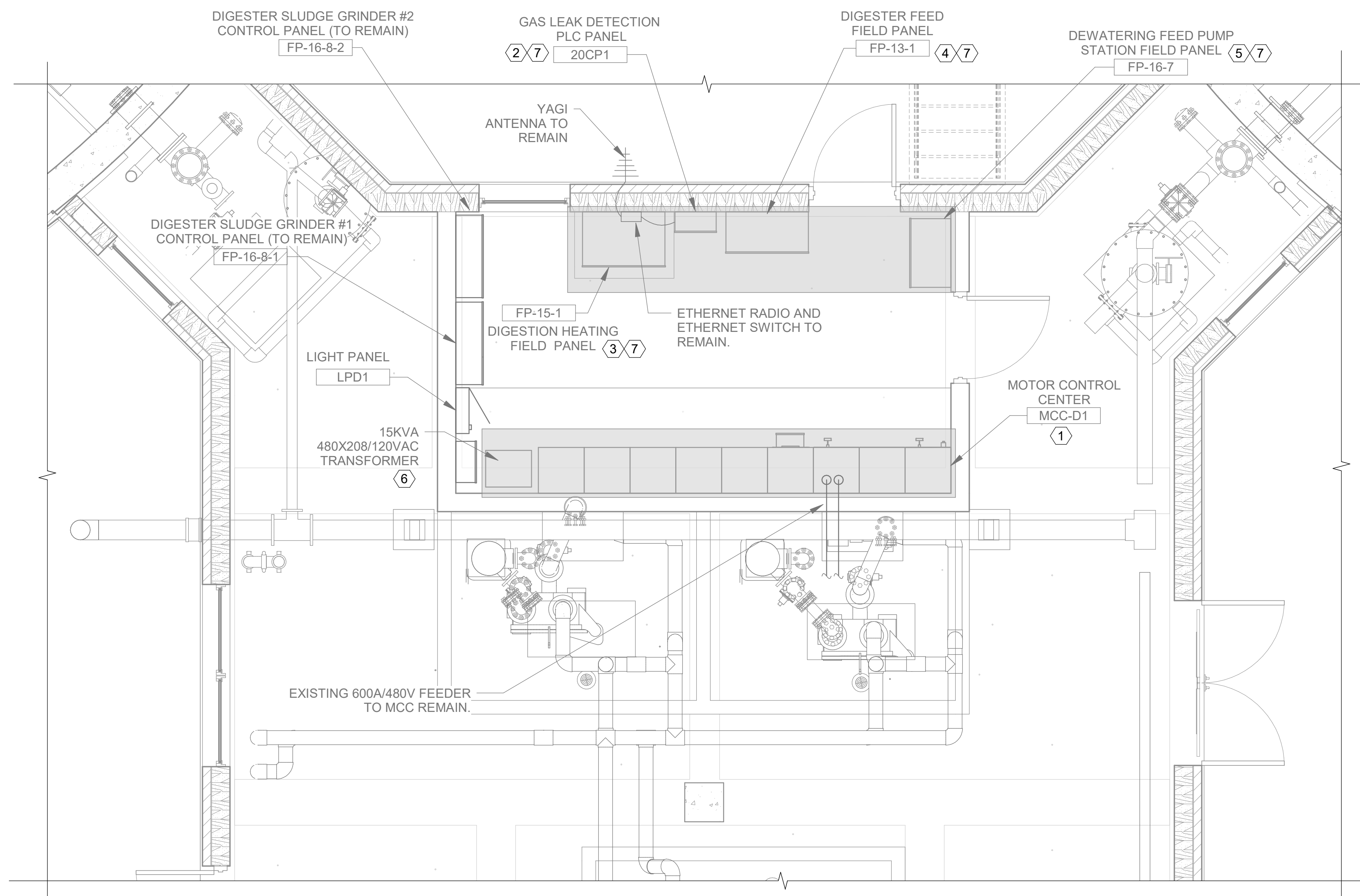
DIGESTER CONTROL BUILDING ELECTRICAL ROOM DEMOLITION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

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 DRAWING NUMBER
20-E101
 SHEET NUMBER
084

KEYNOTES:

- ① EXISTING MCC TO BE REMOVED AND REPLACED WITH NEW. COORDINATE SALVAGE WITH OWNER. MAKE ALL REQUIRED CONNECTIONS TO NEW AND REMAINING LOADS. FURNISH AND INSTALL NEW CONDUIT AND CONDUCTORS FROM MCC TO PUMP MIXERS. CONDUIT AND CONDUCTORS TO EXISTING LOADS TO BE REUSED.
- ② GAS LEAK DETECTION PLC PANEL TO BE REMOVED AND REPLACED WITH NEW PLC CONTROL PANEL. COORDINATE SALVAGE WITH OWNER.
- ③ DIGESTION HEATING FIELD PANEL FP-15-1 TO BE REMOVED. COORDINATE SALVAGE WITH OWNER.
- ④ DIGESTER FEED PANEL FP-13-1 TO BE REMOVED. COORDINATE SALVAGE WITH OWNER.
- ⑤ DEWATERING FEED PUMP STATION FIELD PANEL FP-16-7 CONTROLS TO BE REMOVED. ENCLOSURE TO REMAIN. EXTEND FIELD WIRING FROM EXISTING ENCLOSURE TO NEW PLC CONTROL PANEL AND MAKE ALL REQUIRED CONNECTIONS. REMOVE ALL PANEL MOUNTED CONTROLS AND INDICATORS. FILL ALL HOLES WITH APPROPRIATE PLUGS OR COVERS.
- ⑥ EXISTING 15KVA TRANSFORMER TO BE REMOVED AND REPLACED WITH NEW 30KVA 208/120VAC TRANSFORMER. MAKE ALL REQUIRED CONNECTIONS.
- ⑦ FIELD PANELS FP-13-1, FP-15-1, FP-16-7, AND GAS LEAK DETECTION PANEL ARE TO BE REPLACED WITH NEW PLC CONTROL PANEL 20CP1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONTROL PANELS FUNCTIONALITY AND I/O REQUIREMENTS. EXTEND FIELD WIRING FROM EXISTING PANEL LOCATIONS TO NEW PLC CONTROL PANEL AND MAKE ALL REQUIRED CONNECTIONS. **SEE 1991 EXPANSION AND 2020 DIGESTER HEATING UPGRADES RECORD DRAWINGS FOR ADDITIONAL DETAILS.**



DIGESTER CONTROL BUILDING ELECTRICAL ROOM DEMOLITION

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

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
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KEYNOTES:

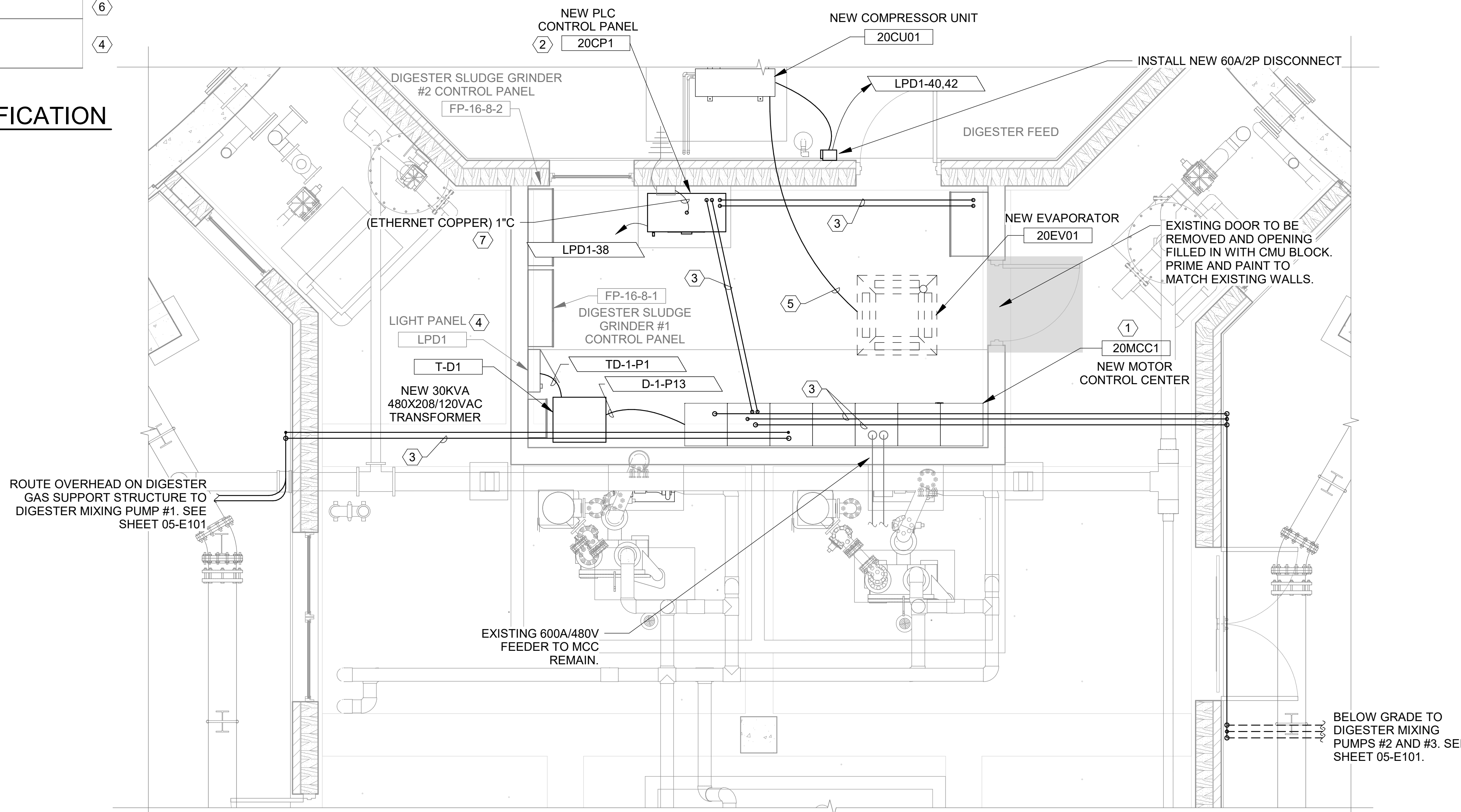
- ① EXISTING MCC TO BE REMOVED AND REPLACED WITH NEW. COORDINATE SALVAGE WITH OWNER. MAKE ALL REQUIRED CONNECTIONS TO NEW AND REMAINING LOADS. FURNISH AND INSTALL NEW CONDUIT AND CONDUCTORS FROM MCC TO PUMP MIXERS. CONDUIT AND CONDUCTORS TO EXISTING LOADS TO BE REUSED.
- ② MAKE ALL REQUIRED PLC CONTROL PANEL MODIFICATIONS FOR NEW MIXER I/O.
- ③ SEE INTERCONNECT DIAGRAM FOR CONDUIT AND CONDUCTORS ON SHEET 11-E101.
- ④ FURNISH AND INSTALL NEW 35A/2P CIRCUIT IN EXISTING LIGHT PANEL LPD1 FOR NEW HVAC LOAD. MAKE ALL REQUIRED PANEL MODIFICATIONS AND CONNECTIONS.
- ⑤ EVAPORATOR POWERED AND CONTROLLED FROM COMPRESSOR UNIT. MANUFACTURER SUPPLIED CONDUCTORS. FURNISH AND INSTALL CONDUITS FOR SUPPLIED CONDUCTORS.
- ⑥ FURNISH AND INSTALL NEW 20A/1P CIRCUIT IN EXISTING LIGHT PANEL LPD1 FOR NEW PLC CONTROL PANEL. MAKE ALL REQUIRED PANEL MODIFICATIONS AND CONNECTIONS.
- ⑦ EXISTING YAGI ANTENNA, RADIO AND ETHERNET SWITCH TO REMAIN. FURNISH AND INSTALL NEW ETHERNET COPPER CONNECTION FROM 20CP1 TO EXISTING ETHERNET SWITCH.

GENERAL NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, WIRING, TERMINATIONS, DISCONNECTS, CONTROL RELAYS, CONTROL ENCLOSURES AND OTHER ITEMS AS NECESSARY FOR A COMPLETE AND FUNCTIONAL MOTOR CONTROL AND PUMP MIXING SYSTEM. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED.
2. CONTRACTOR SHALL COORDINATE CONDUIT, WIRE AND INTERCONNECTIONS AS REQUIRED BY MIXER PUMP EQUIPMENT SUPPLIER. MAKE ALL REQUIRED CONNECTIONS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. NOT ALL CONNECTIONS SHOWN.
3. SOME CONDUIT RUNS OMITTED FOR CLARITY. COORDINATE ALL CONDUIT ROUTING WITH SUPPLIED EQUIPMENT MANUFACTURER AND ENGINEER PRIOR TO INSTALLATION.
4. CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING NUMBER OF REQUIRED CONDUITS AND PLACEMENT OF THESE CONDUITS. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A CONDUIT ROUTING PLAN FOR REVIEW PRIOR TO INSTALLATION.
5. SIGNAL AND CONTROL CONDUCTORS OF LIKE VOLTAGES MAY BE COMBINED IN A SINGLE CONDUIT. MULTI-CONDUCTOR CONTROL AND SIGNAL CABLE MAY BE SUBSTITUTED FOR INDIVIDUAL CONDUCTORS.
6. ALL AREAS WITHIN THE DIGESTER CONTROL BUILDING, EXCEPT THE ELECTRICAL ROOM, SHALL BE CONSIDERED A CLASS 1, DIVISION 2 LOCATION ACCORDING TO NFPA 820. ELECTRICAL ROOM TO BE PHYSICALLY SEPARATED FROM THE REST OF THE CONTROL BUILDING BY SEALING OF ACCESS DOOR.
7. ALL AREAS 15' OVER DIGESTER TANK COVERS AND 5' BEYOND TANK WALLS SHALL BE CONSIDERED A CLASS1, DIVISION 2 LOCATION ACCORDING TO NFPA 820.
8. CONTRACTOR SHALL STRICTLY ADHERE TO THE REQUIREMENTS IN NFPA 70, ARTICLE 500, HAZARDOUS (CLASSIFIED) LOCATIONS FOR ALL AREAS REFERENCED IN THE NOTES ABOVE. THIS INCLUDES PROVIDING APPROPRIATE SEAL FITTINGS ON CONDUITS CABLES, ALONG WITH PROVIDING EXPLOSION PROOF EQUIPMENT, RATED FOR THE CLASSIFICATION REFERENCED ABOVE, WITHIN THE HAZARDOUS AREA IF LOCATED IN THE HAZARDOUS AREA.

	32					SPARE
	34					SPARE
	36					SPARE
20A	38	12	3/4			20CP1
35A	40				2600	
2P	42	8	3/4			20CU01

2 LIGHT PANEL LPD1 MODIFICATION
20-E102 SCALE: 12" = 1'-0"



DIGESTER CONTROL BUILDING
ELECTRICAL ROOM IMPROVEMENTS

1 20-E102 SCALE: 3/8" = 1'-0"

Revit File: B:\360\19W10160 - Hilliard N Fletcher WPRF Anaerobic\HWRRF_11 - ANAEROBIC DIGESTER NO. 1.rvt
Plot Date: 11/19/2024 5:28:00 PM

REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER
RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

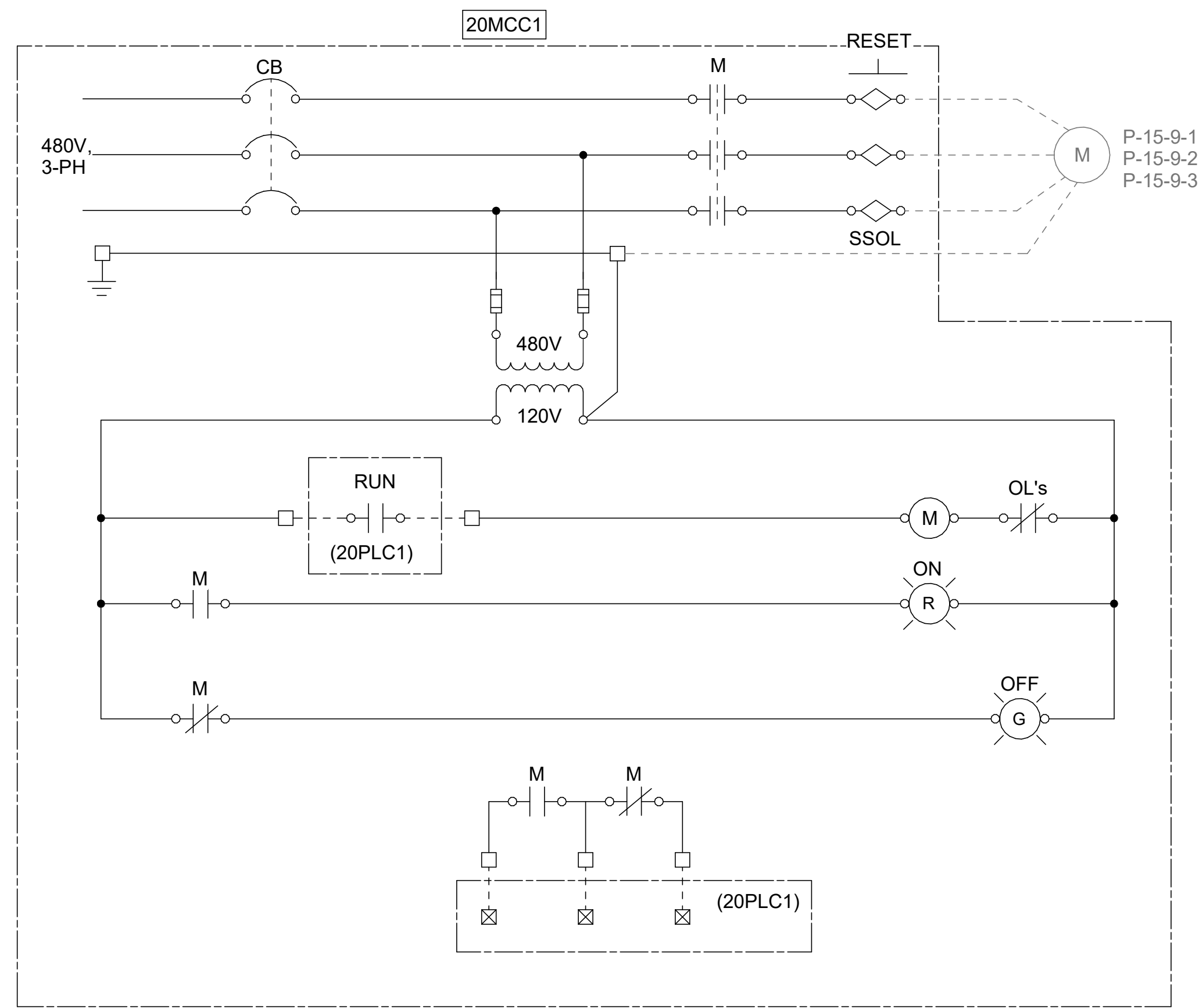
DIGESTER CONTROL
BUILDING LOWER
LEVEL ELECTRICAL
IMPROVEMENTS

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: Designer
DRAWN BY: Author
CHECKED BY: Checker

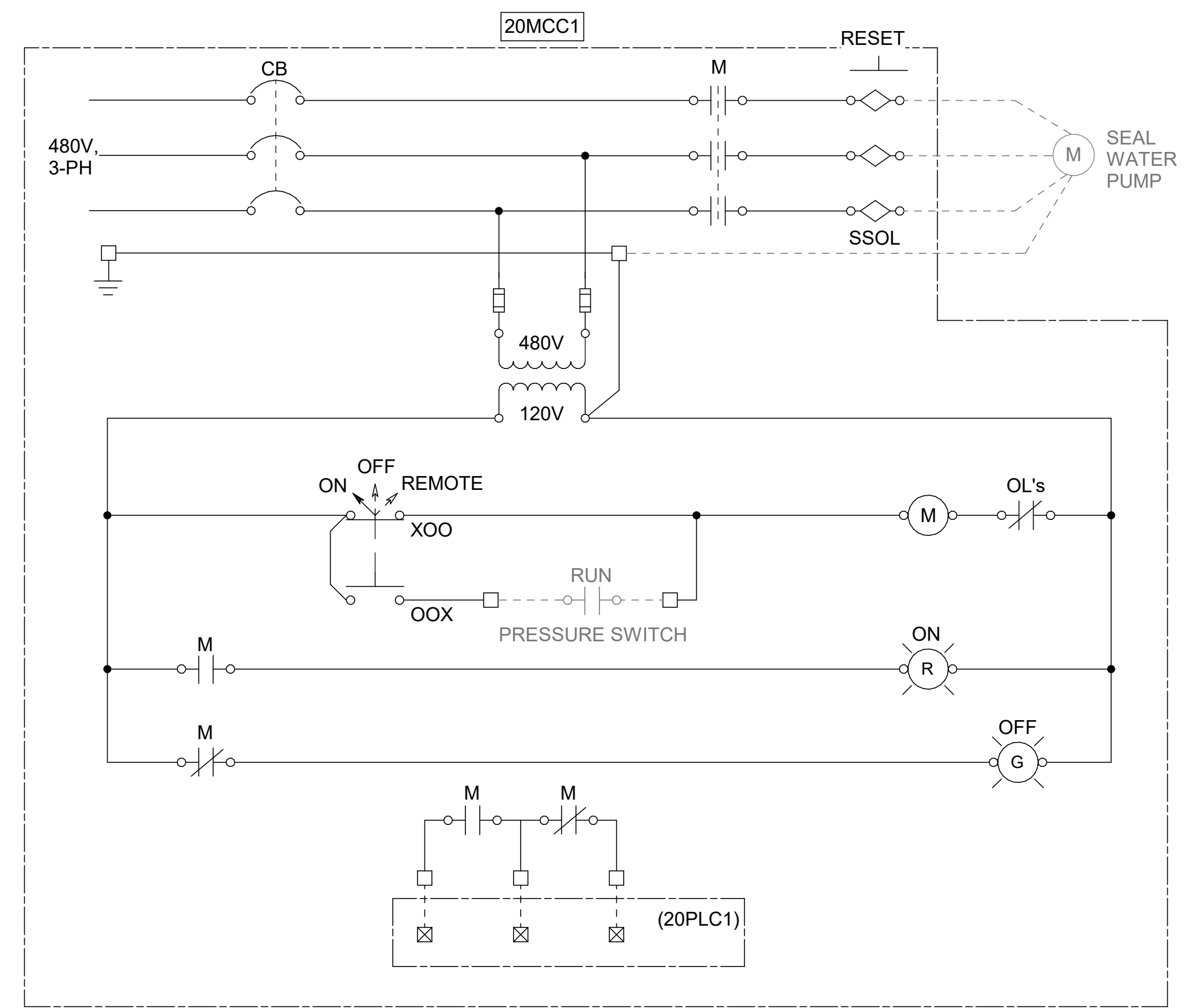
BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
20-E102
SHEET NUMBER
085

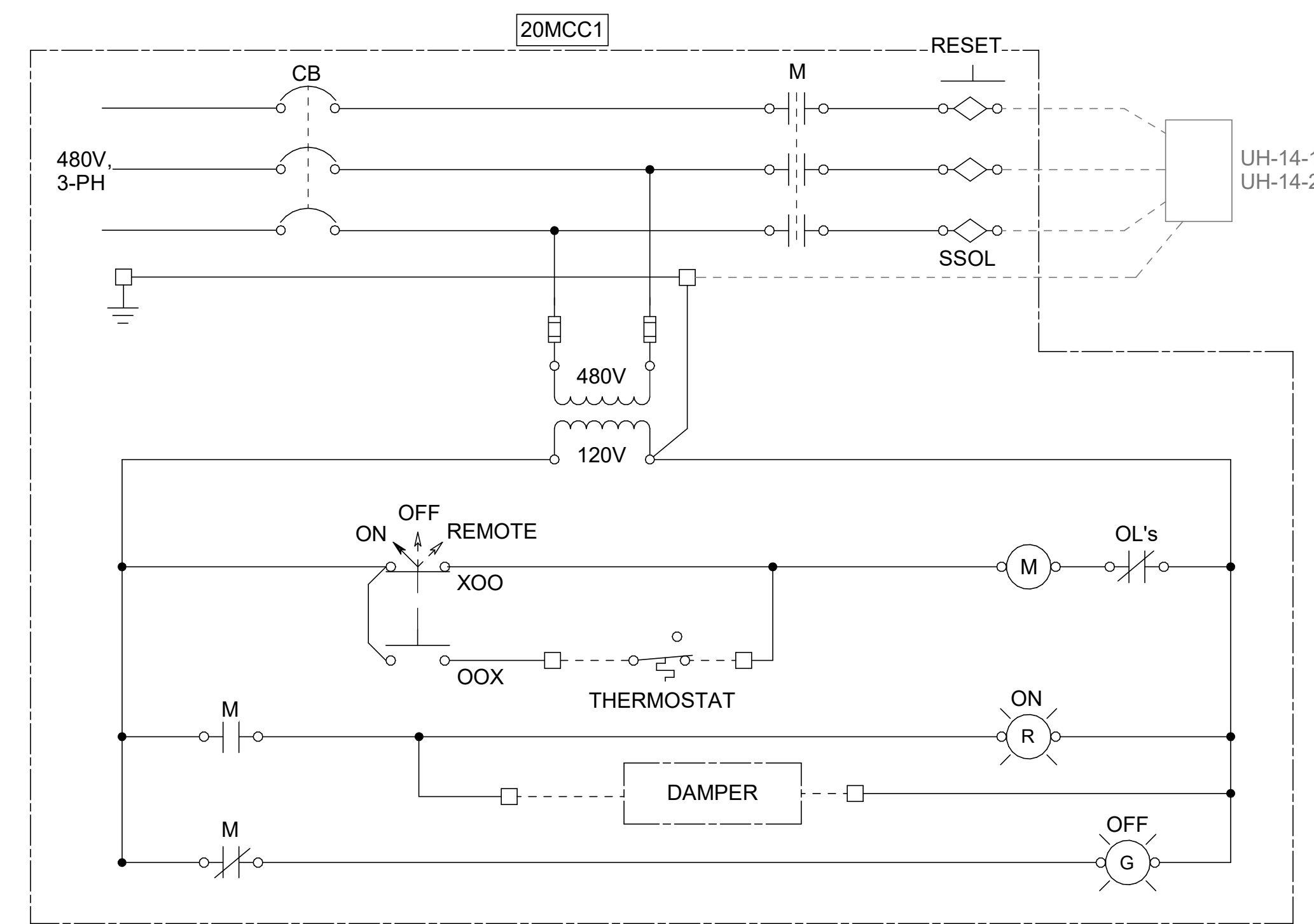
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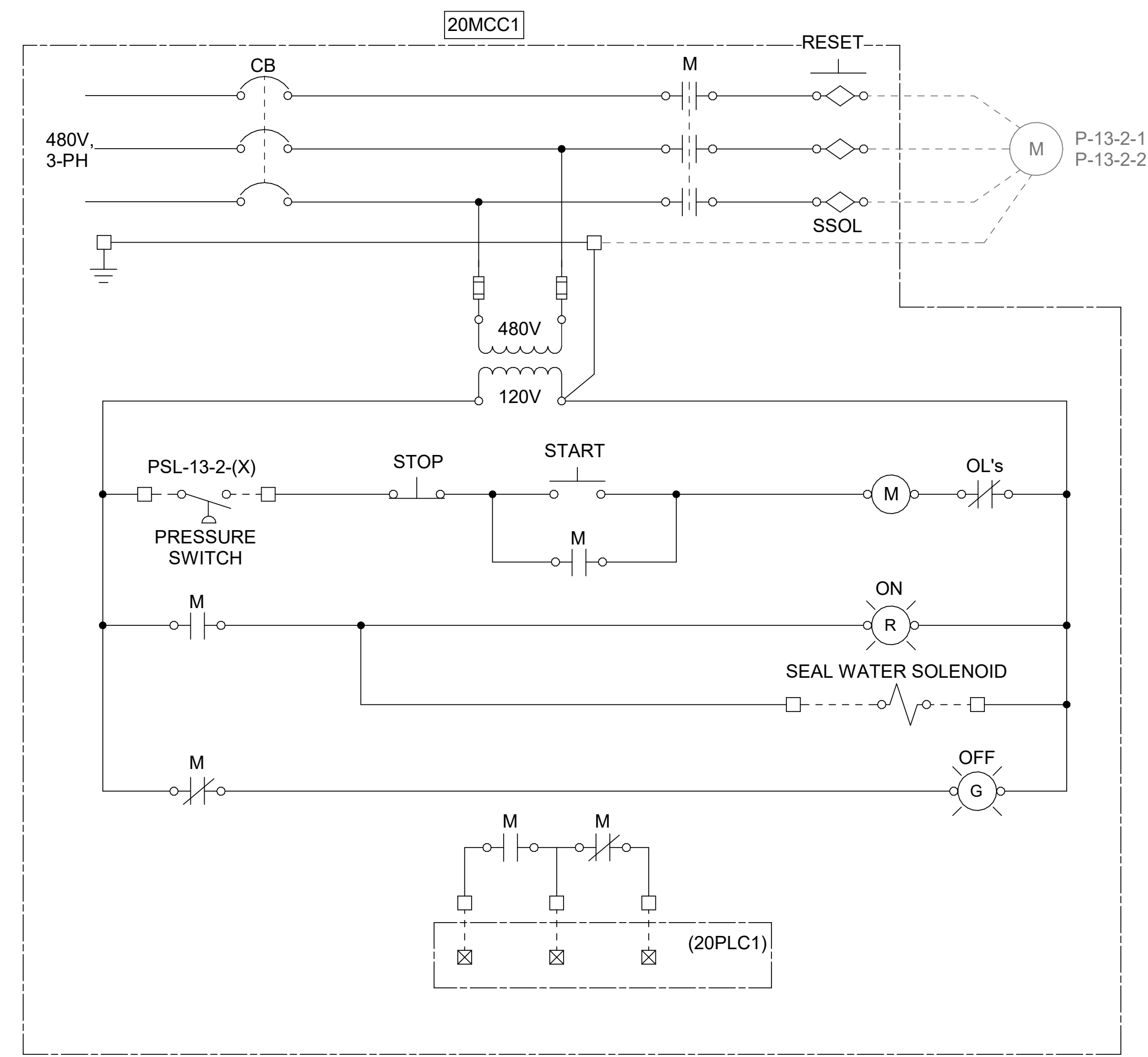
3
20-E601
RECIRCULATION SLUDGE PUMP (TYP OF 3)
SCALE: NOT TO SCALE



4
20-E601
SEAL WATER PUMP
SCALE: NOT TO SCALE



1
20-E601
UNIT HEATER (TYP OF 2)
SCALE: NOT TO SCALE



2
20-E601
DISASTER TRANSFER PUMP (TYP OF 2)
SCALE: NOT TO SCALE



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CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

DIGESTER CONTROL
BUILDING - MCC
CONTROL
SCHEMATIC 1

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SAH
DRAWN BY: SAH
CHECKED BY: JCW

BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
20-E601
SHEET NUMBER
086

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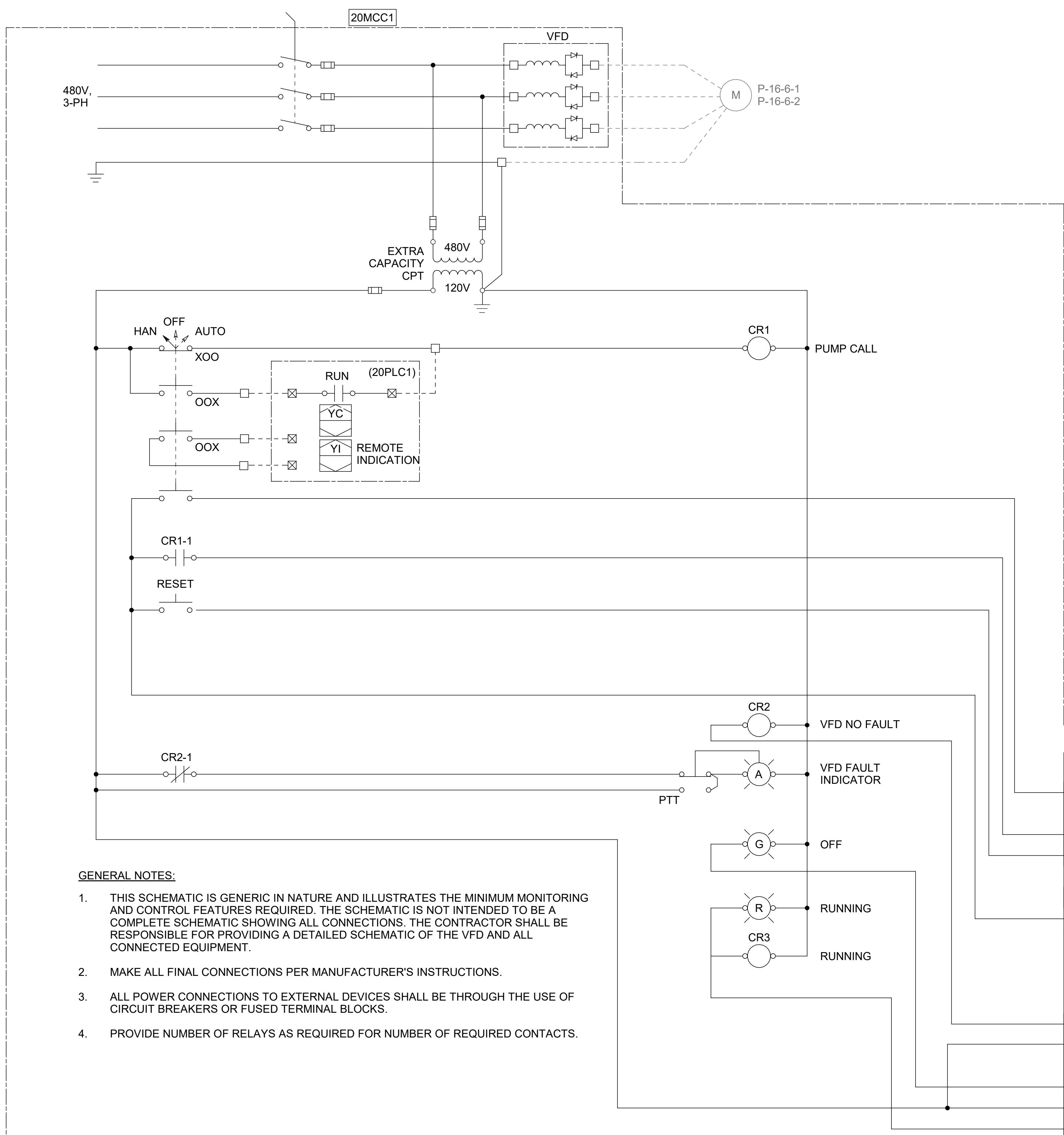
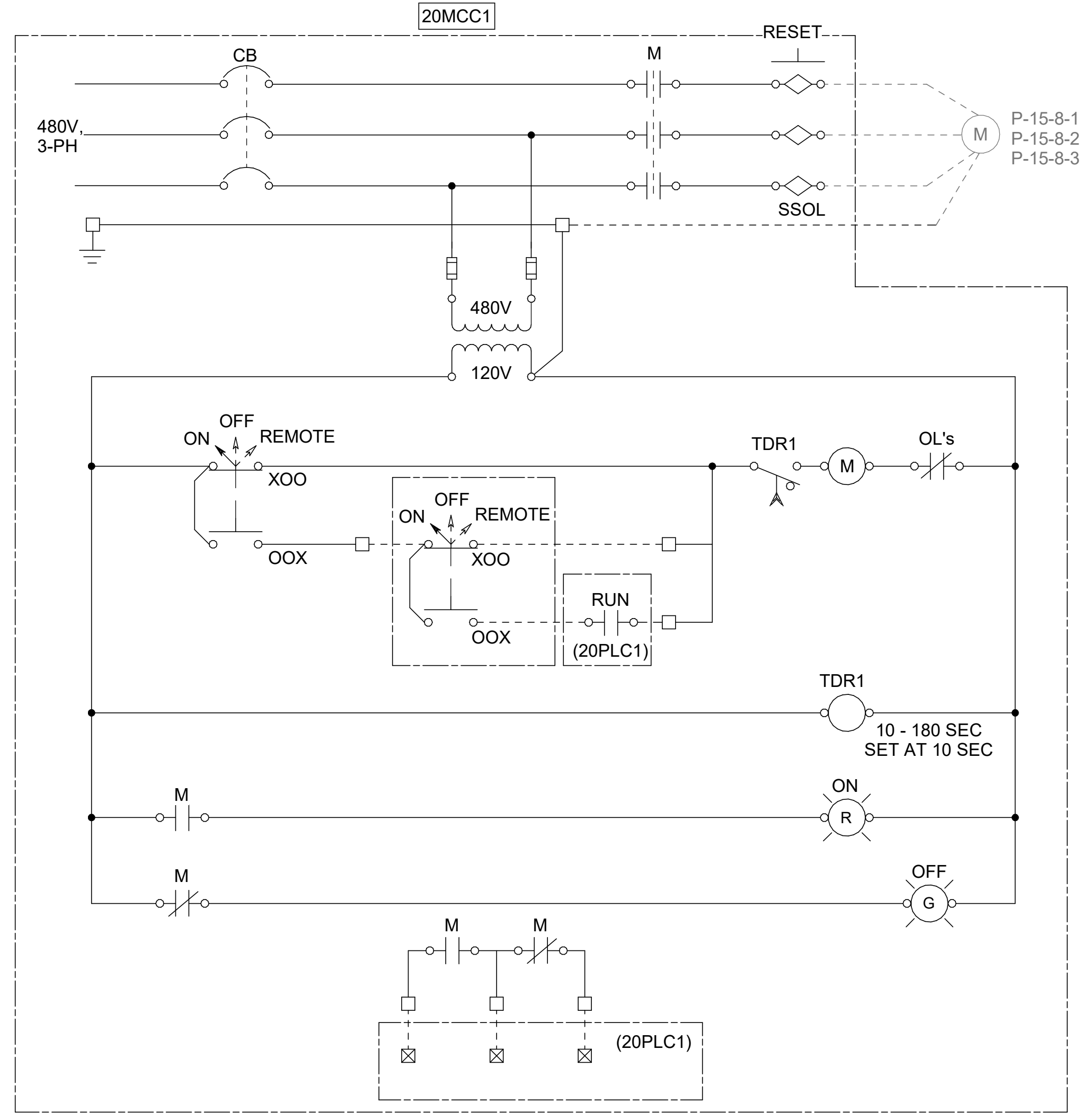
CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

DIGESTER CONTROL BUILDING - MCC CONTROL SCHEMATIC 2

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
20-E602
 SHEET NUMBER
087




GENERAL NOTES:

- THIS SCHEMATIC IS GENERIC IN NATURE AND ILLUSTRATES THE MINIMUM MONITORING AND CONTROL FEATURES REQUIRED. THE SCHEMATIC IS NOT INTENDED TO BE A COMPLETE SCHEMATIC SHOWING ALL CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A DETAILED SCHEMATIC OF THE VFD AND ALL CONNECTED EQUIPMENT.
- MAKE ALL FINAL CONNECTIONS PER MANUFACTURER'S INSTRUCTIONS.
- ALL POWER CONNECTIONS TO EXTERNAL DEVICES SHALL BE THROUGH THE USE OF CIRCUIT BREAKERS OR FUSED TERMINAL BLOCKS.
- PROVIDE NUMBER OF RELAYS AS REQUIRED FOR NUMBER OF REQUIRED CONTACTS.

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic Digester NO.1.rvt
 Plot Date: 11/09/2024 5:28:02 PM

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic H2S Scrubber Improvements.rvt
 Plot Date: 11/09/2024 5:30:09 PM

DEMOLITION LEGEND

TO BE DEMOLISHED 




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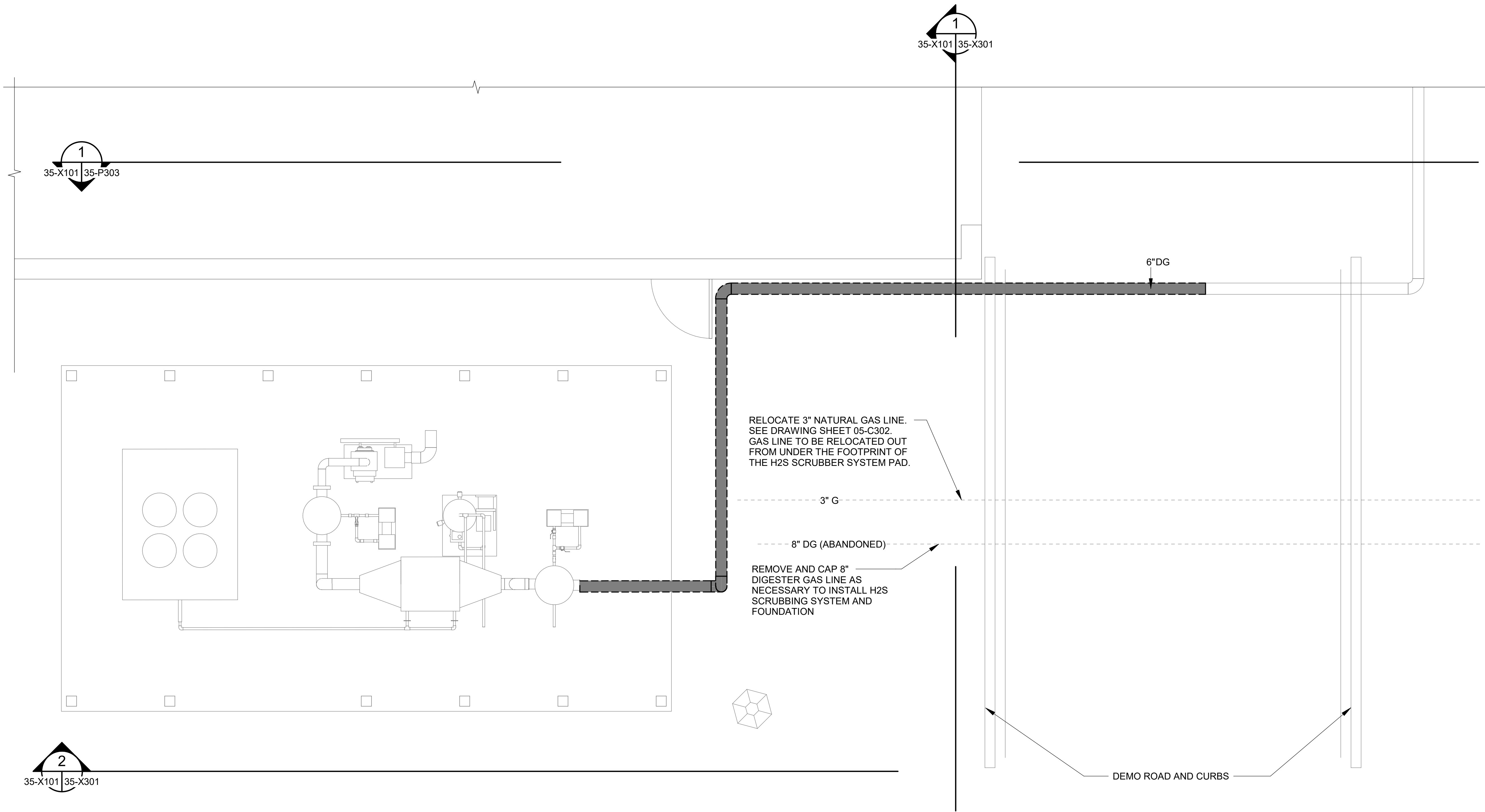
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 PHAS II IMPROVEMENTS

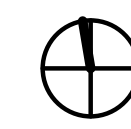
DIGESTER GAS SCRUBBER
 DEMOLITION PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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DRAWING NUMBER
35-X101
 SHEET NUMBER **088**

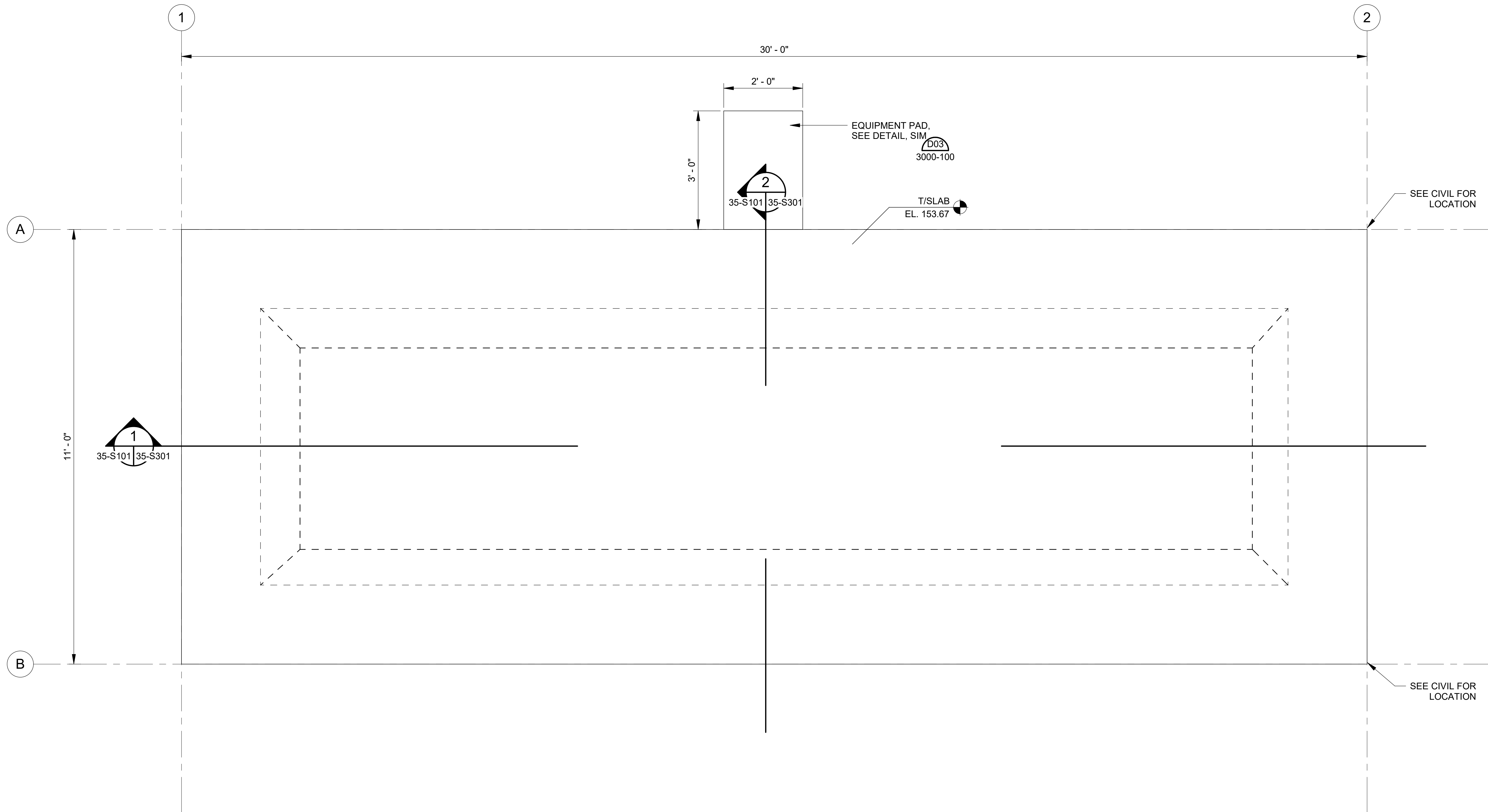



 PROJECT NORTH

HYDROGEN SULFIDE REMOVAL DEMO PLAN
 SCALE: 3/8" = 1'-0"

ISSUED FOR CONSTRUCTION

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_35 - DIGESTER GAS SCRUBBER IMPROVEMENTS.rvt
 Plot Date: 11/19/2024 5:30:08 PM



1
35-S101

DIGESTER GAS SCRUBBER SLAB PLAN

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



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 PHAS II IMPROVEMENTS

DIGESTER GAS SCRUBBER SLAB PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: ADA
 CHECKED BY: KAM

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DRAWING NUMBER
35-S101
 SHEET NUMBER **089**

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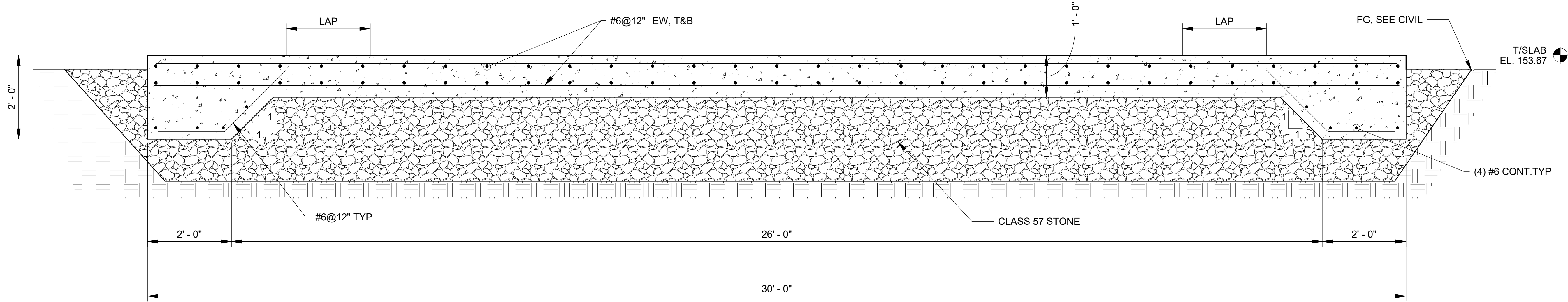
DIGESTER GAS SCRUBBER SLAB SECTIONS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: TWF
 DRAWN BY: ADA
 CHECKED BY: KAM

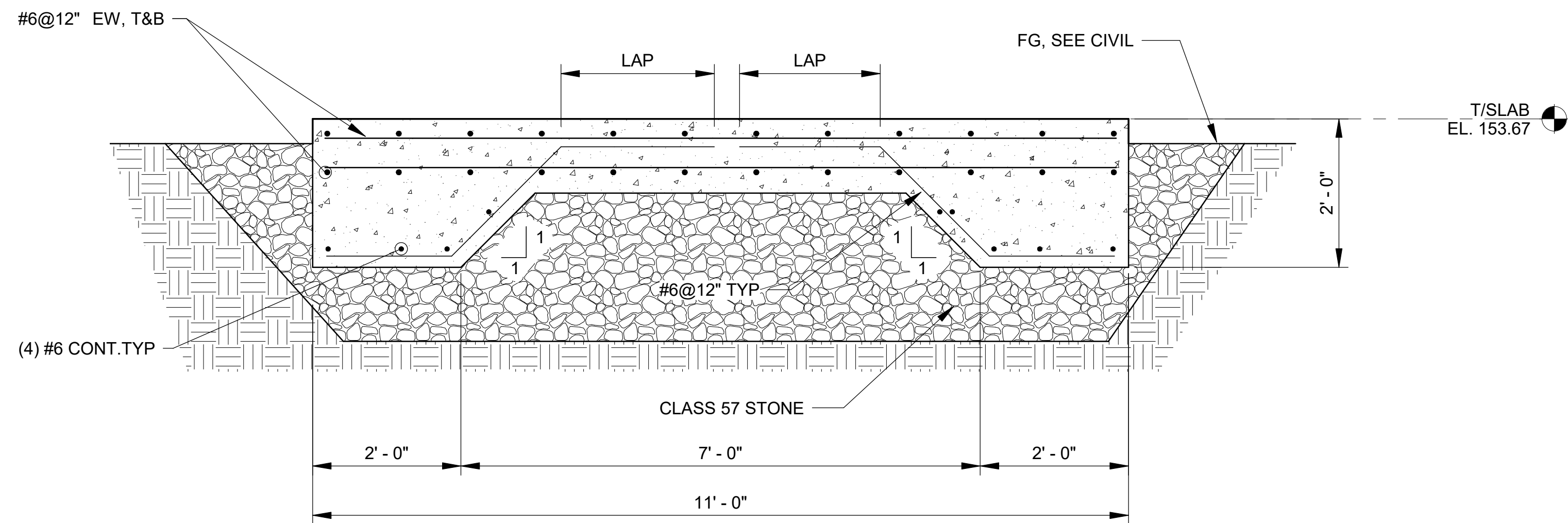
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DRAWING NUMBER
35-S301

SHEET NUMBER
090



DIGESTER GAS SCRUBBER SLAB SECTION 1
 35-S101 | 35-S301 SCALE: 3/4" = 1'-0"



DIGESTER GAS SCRUBBER SLAB SECTION 2
 35-S101 | 35-S301 SCALE: 3/4" = 1'-0"

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic HWRPF_35 - DIGESTER GAS SCRUBBER IMPROVEMENTS.rvt
 Plot Date: 11/19/2024 5:30:09 PM

KEYNOTES:		DENOTED BY SYMBOL
01	6" X LENGTH AS REQ'D BY SPOOL (WLD X WLD)	(X)
02	6" 90 BEND (WLD X WLD)	(X)
03	6" SST BELLOWS (FLG X FLG)	(X)
04	6" BUTTERFLY VALVE V513 (FLG X FLG)	(X)
05	6" BLIND FLANGE	(X)
06	6" X 6" X 6" TEE (WLD X WLD X WLD)	(X)

- NOTES:
- ASTERISK (*) INDICATES EQUIPMENT TO BE PROVIDED BY MANUFACTURER.
 - DIMENSIONS AND OVERALL LAYOUT OF THE DIGESTER GAS SCRUBBER SYSTEM IS BASED ON THE HYDROGEN SULFIDE REMOVAL SYSTEM MANUFACTURED BY UNISON SOLUTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF INTERCONNECTING PIPING, EQUIPMENT PAD SIZE, ANCILLARY CONNECTIONS (ELECTRICAL, WATER, ETC.) AND ANY OTHER DIFFERENCES BETWEEN SYSTEMS AT NO ADDITIONAL COST TO OWNER.



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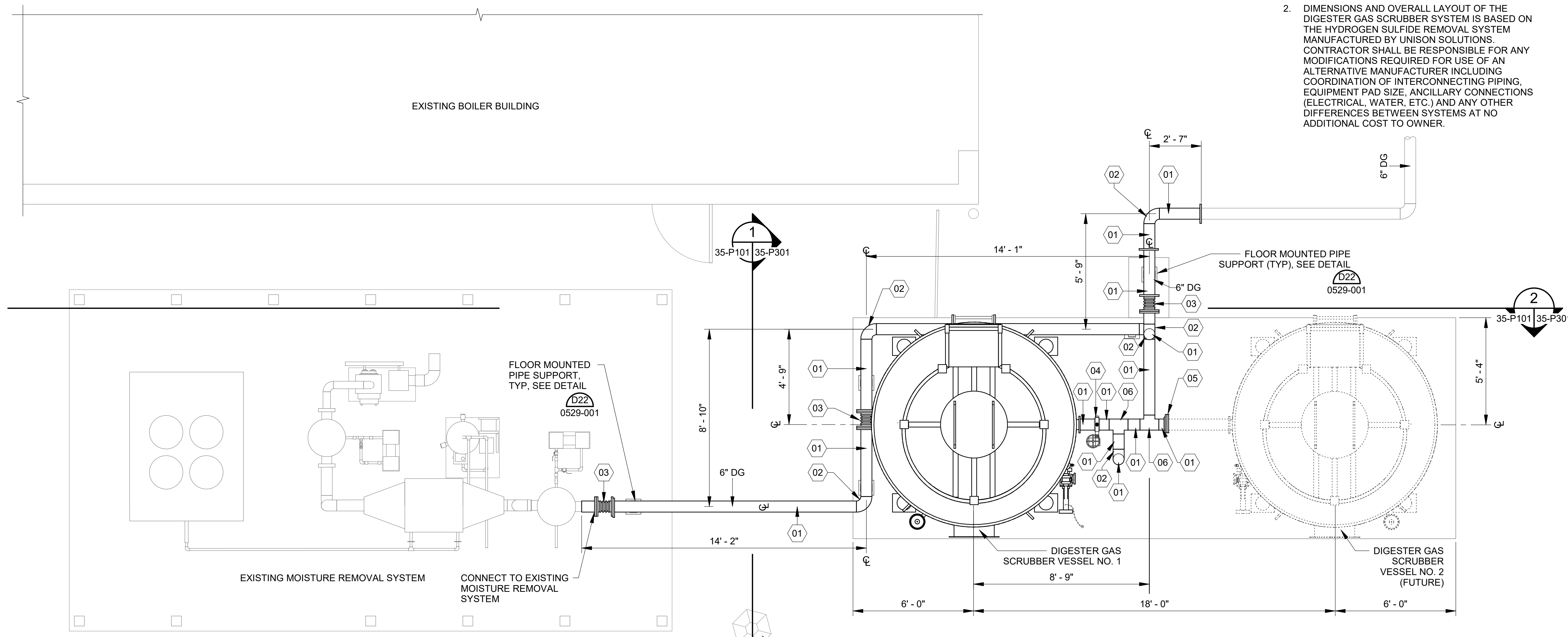
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 PHAS II IMPROVEMENTS

DIGESTER GAS SCRUBBER OVERALL PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: KG
 CHECKED BY: RDT

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DRAWING NUMBER
35-P101
 SHEET NUMBER
091



PROJECT NORTH

 35-P101

DIGESTER GAS SCRUBBER PLAN
 SCALE: 3/8" = 1'-0"

CONTRACTOR TO EXERCISE EXTREME CARE WORKING AROUND EXISTING HIGH MAST LIGHT

YARD HYDRANT. REFERENCE CIVIL DRAWINGS.

Revit File: BIM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic WRRF_35 - DIGESTER GAS SCRUBBER IMPROVEMENTS.rvt
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DIGESTER GAS SCRUBBER SECTIONS

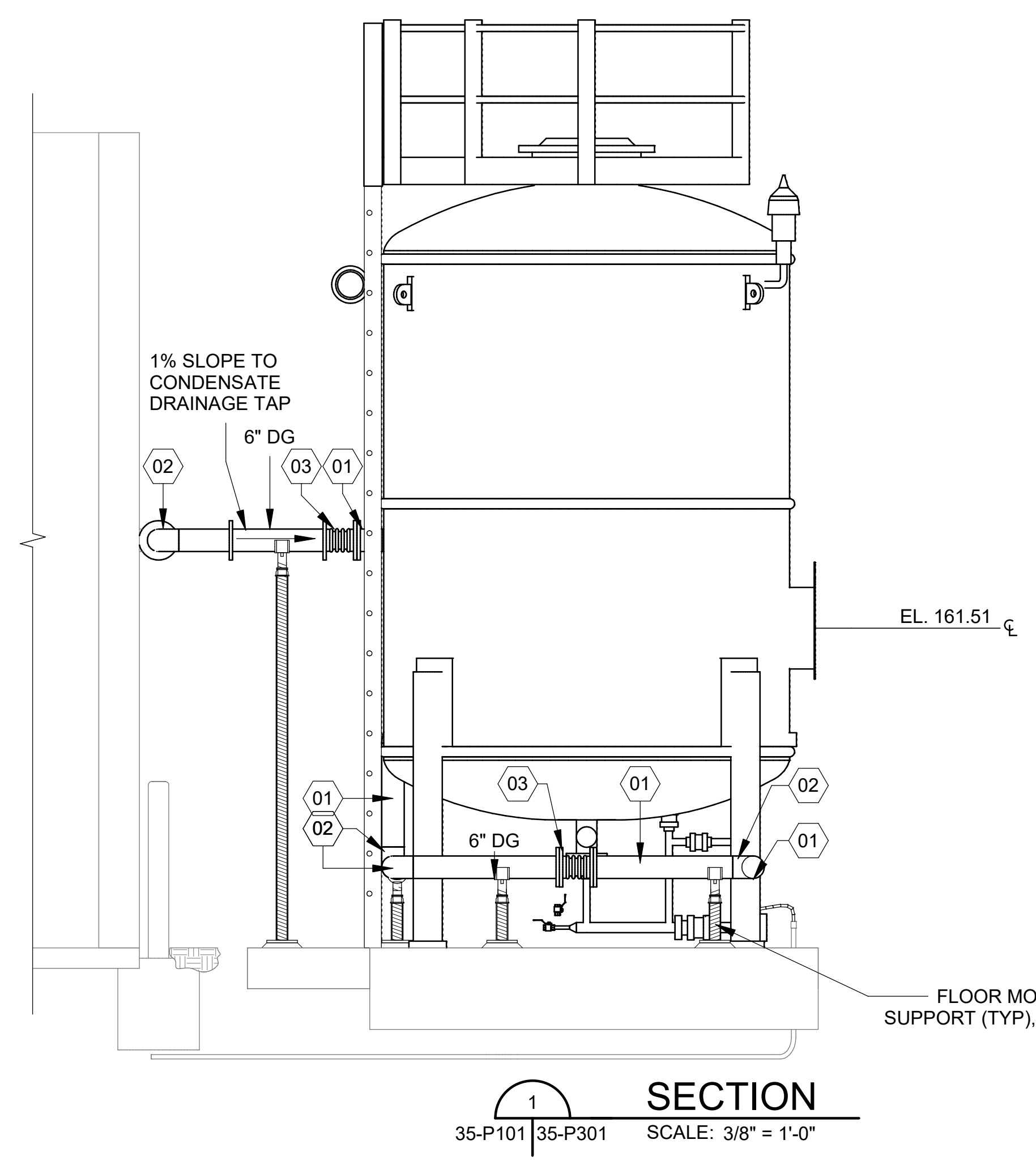
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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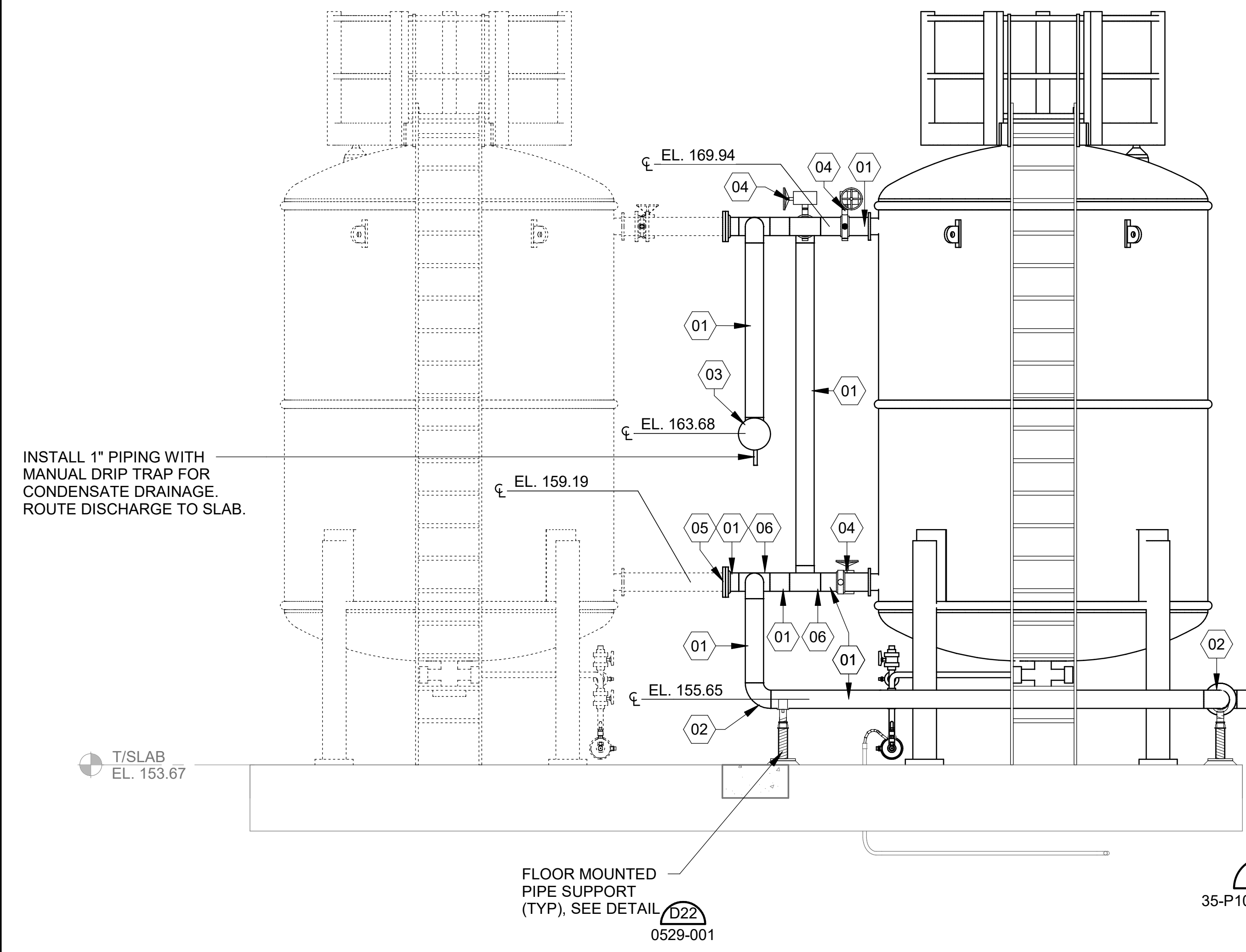
DRAWING NUMBER
35-P301
 SHEET NUMBER
092

KEYNOTES:	DENOTED BY SYMBOL
01	6" X LENGTH AS REQ'D BY SPOOL (WLD X WLD)
02	6" 90 BEND (WLD X WLD)
03	6" SST BELLOWS (FLG X FLG)
04	6" BUTTERFLY VALVE V513 (FLG X FLG)
05	6" BLIND FLANGE
06	6" X 6" X 6" TEE (WLD X WLD X WLD)

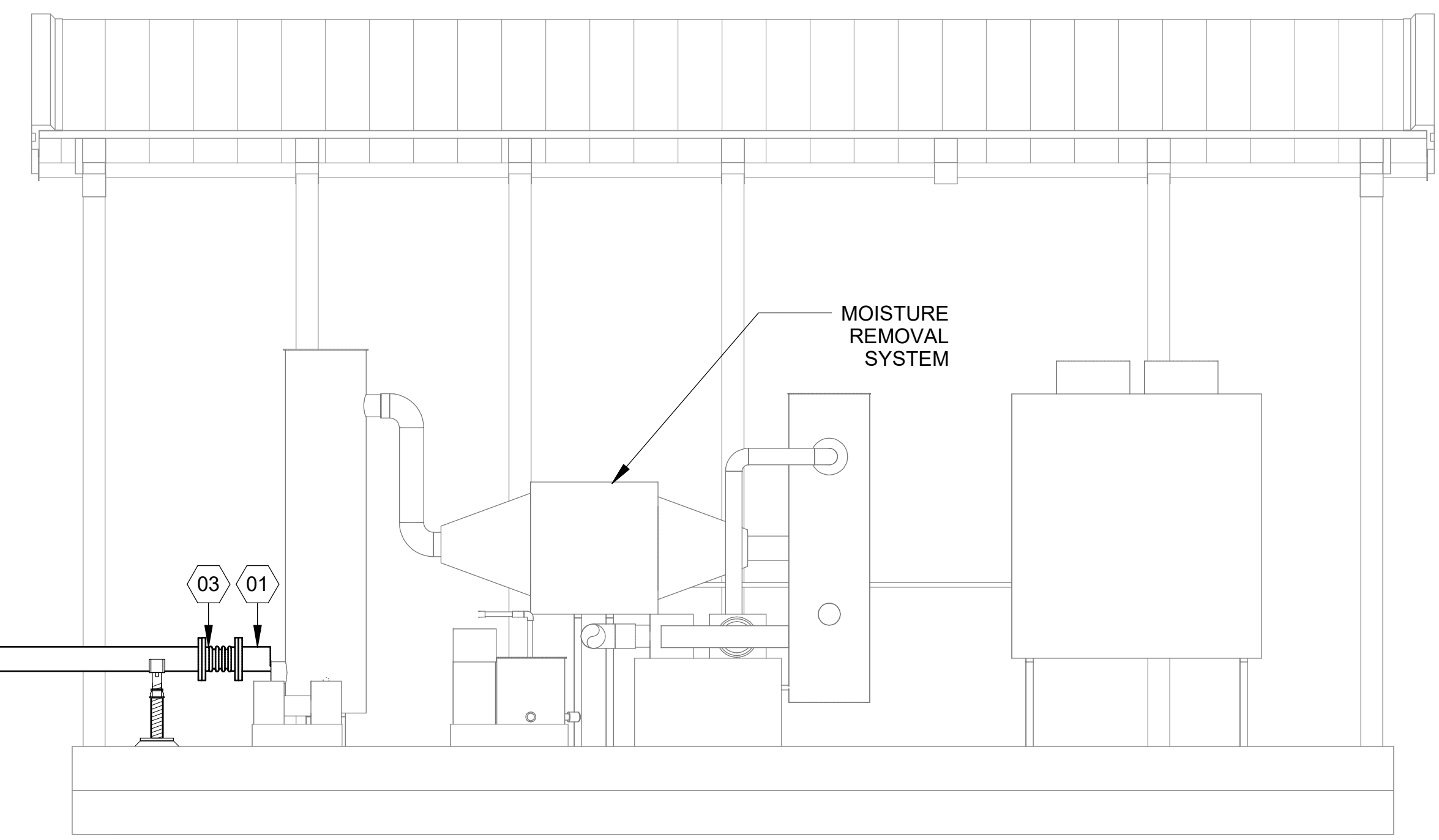
- NOTES:
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 2. DIMENSIONS AND OVERALL LAYOUT OF THE DIGESTER GAS SCRUBBER SYSTEM IS BASED ON THE HYDROGEN SULFIDE REMOVAL SYSTEM MANUFACTURED BY UNISON SOLUTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS REQUIRED FOR USE OF AN ALTERNATIVE MANUFACTURER INCLUDING COORDINATION OF INTERCONNECTING PIPING, EQUIPMENT PAD SIZE, ANCILLARY CONNECTIONS (ELECTRICAL, WATER, ETC.) AND ANY OTHER DIFFERENCES BETWEEN SYSTEMS AT NO ADDITIONAL COST TO OWNER.



SECTION 1
 35-P101 | 35-P301 SCALE: 3/8" = 1'-0"



SECTION 2
 35-P101 | 35-P301 SCALE: 3/8" = 1'-0"



Revit File: BIM 360//19W10160 - Hilliard N Fletcher WRRF Anaerobic H2S Scrubber Improvements.rvt
 Plot Date: 11/09/2024 5:30:02 PM

INSTALL 1" PIPING WITH MANUAL DRIP TRAP FOR CONDENSATE DRAINAGE. ROUTE DISCHARGE TO SLAB.

T/SLAB
 EL. 153.67

FLOOR MOUNTED PIPE SUPPORT (TYP), SEE DETAIL **D22**
 0529-001

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 TUSCALOOSA, AL

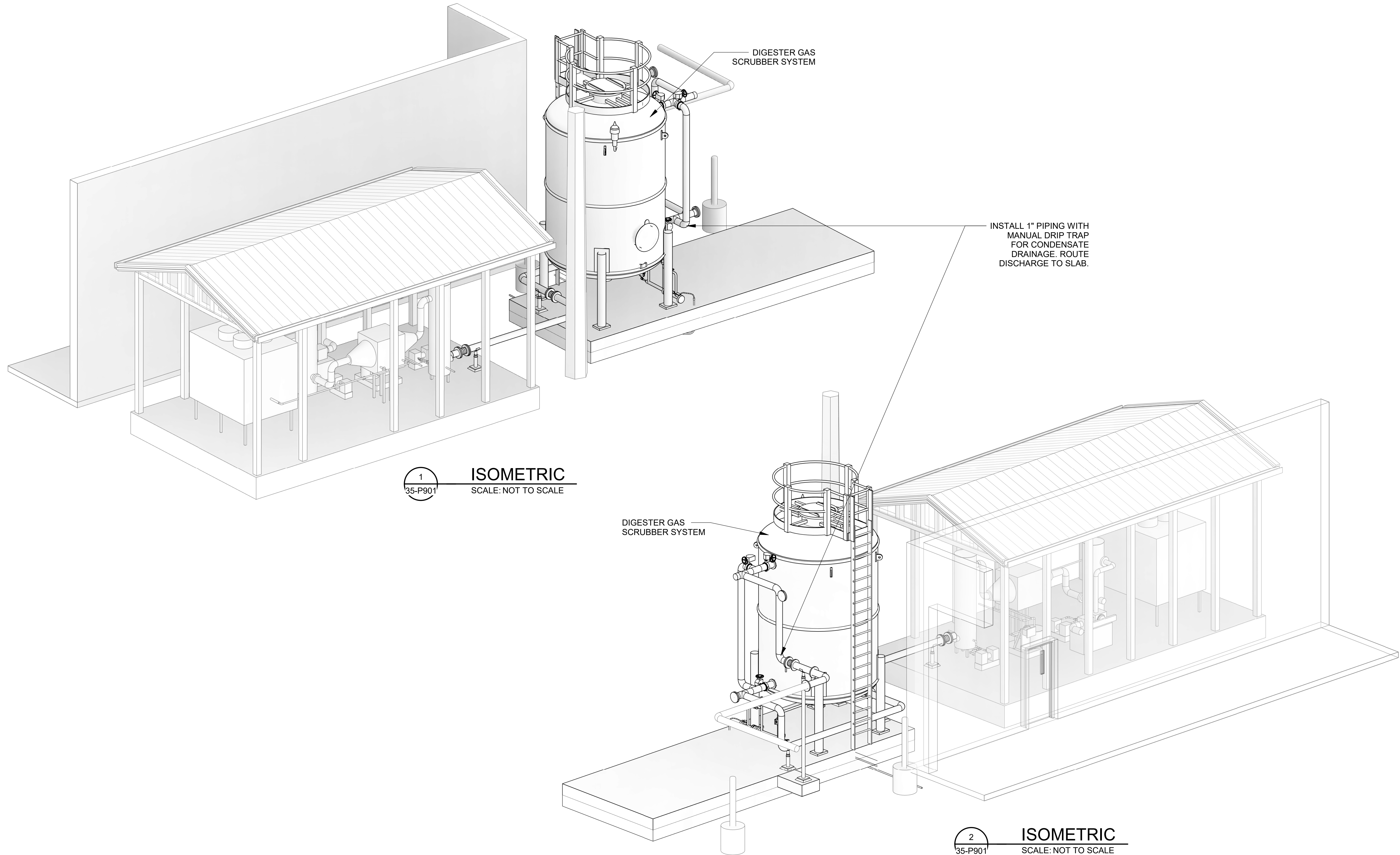
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHAS II IMPROVEMENTS

DIGESTER GAS SCRUBBER ISOMETRIC

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: WTL
 CHECKED BY: RDT

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35-P901
 SHEET NUMBER
093



1
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ISOMETRIC
 SCALE: NOT TO SCALE

2
 35-P901
ISOMETRIC
 SCALE: NOT TO SCALE

Revit File: BM 360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HVRRF_35 - DIGESTER GAS SCRUBBER IMPROVEMENTS.rvt
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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHAS II IMPROVEMENTS

DIGESTER GAS SCRUBBER ELECTRICAL PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

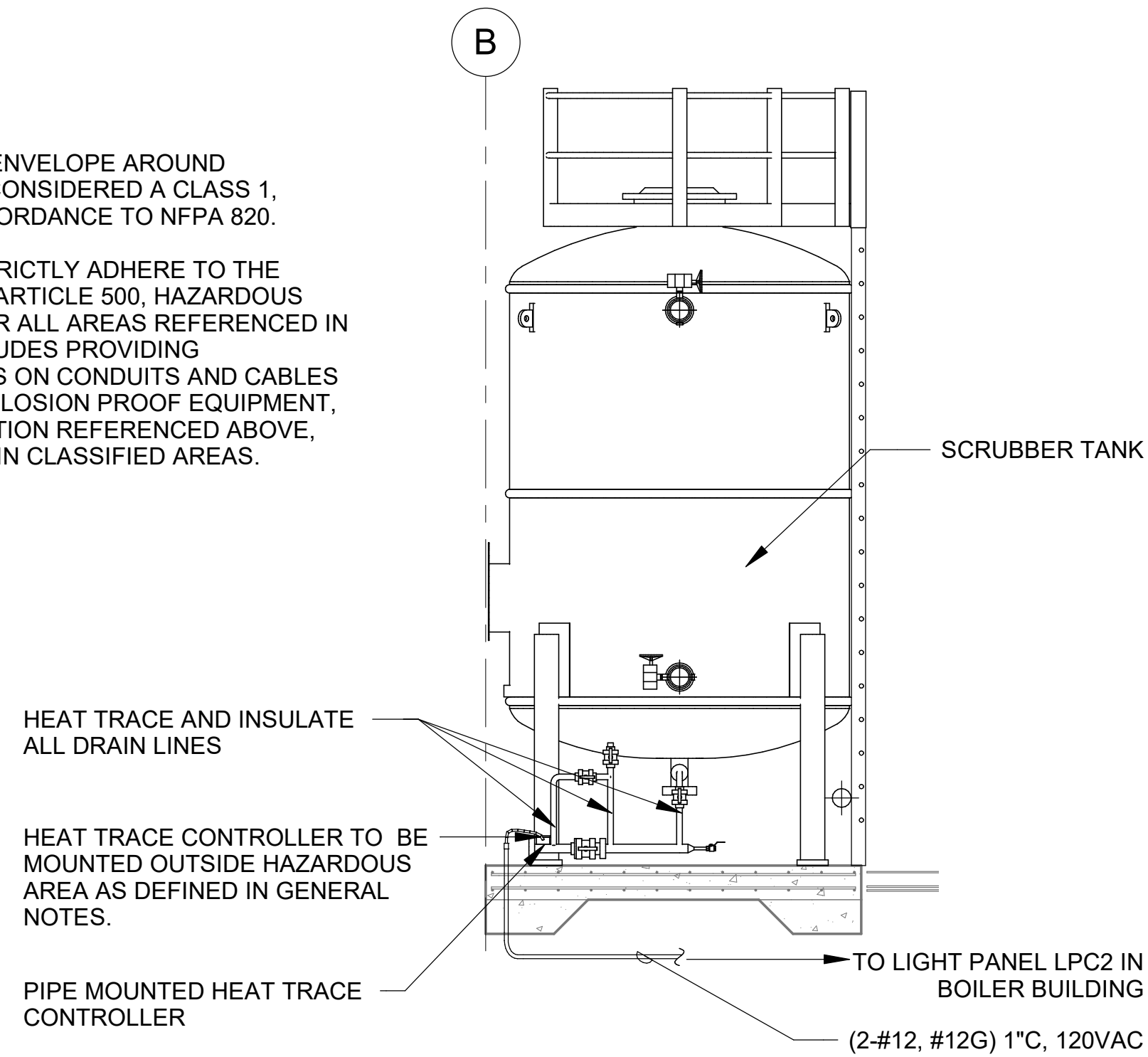
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DRAWING NUMBER
35-E101
 SHEET NUMBER **094**

GENERAL NOTES:

- ALL LOCATIONS WITHIN A 3' ENVELOPE AROUND SCRUBBER TANK SHALL BE CONSIDERED A CLASS 1, DIVISION 2 LOCATION IN ACCORDANCE TO NFPA 820.
- THE CONTRACTOR SHALL STRICTLY ADHERE TO THE REQUIREMENTS IN NFPA 70, ARTICLE 500, HAZARDOUS (CLASSIFIED) LOCATIONS FOR ALL AREAS REFERENCED IN THE NOTE ABOVE. THIS INCLUDES PROVIDING APPROPRIATE SEAL FITTINGS ON CONDUITS AND CABLES ALONG WITH PROVIDING EXPLOSION PROOF EQUIPMENT, RATED FOR THE CLASSIFICATION REFERENCED ABOVE, FOR EQUIPMENT INSTALLED IN CLASSIFIED AREAS.



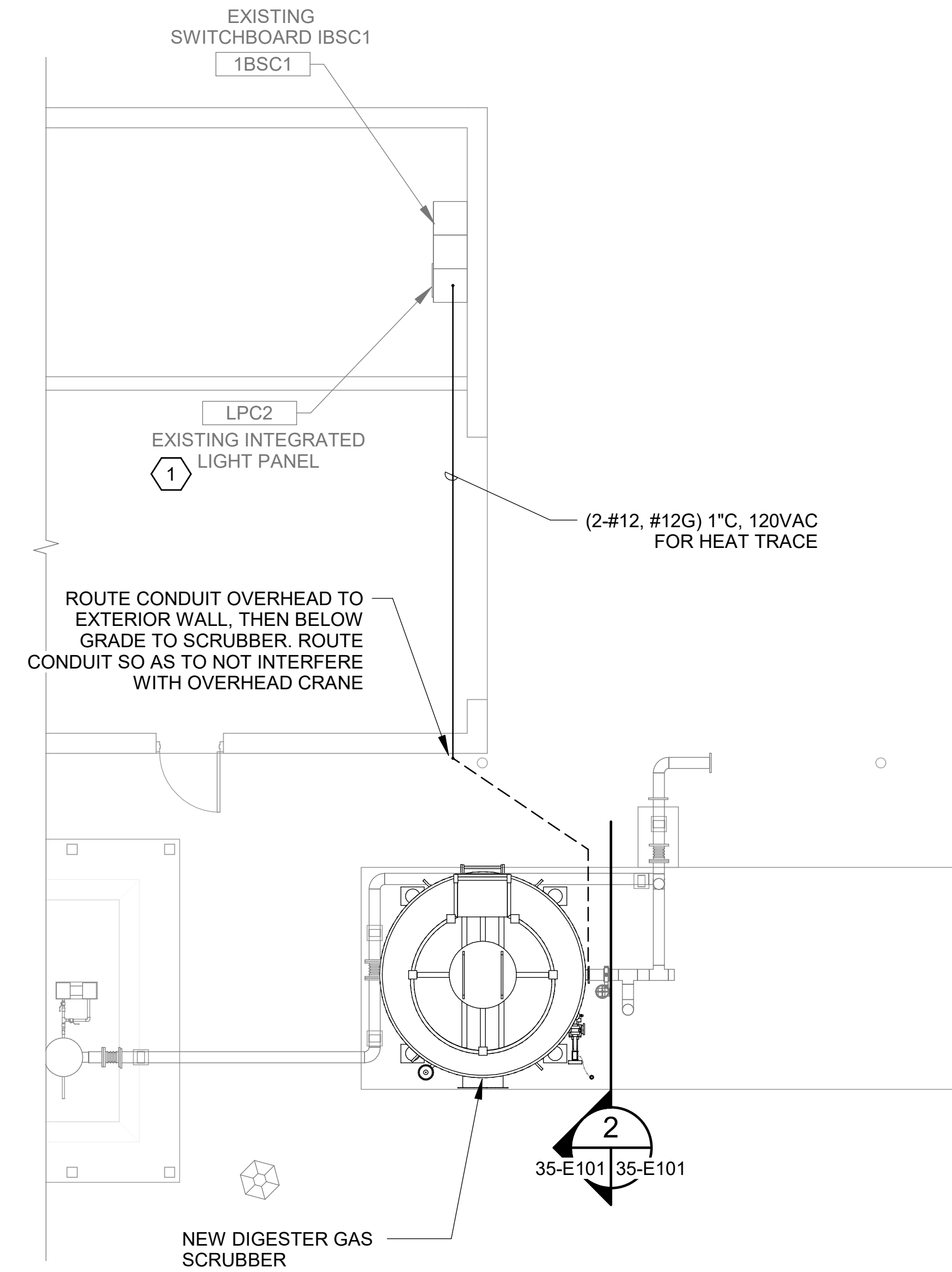
2 DRAIN PIPING DETAIL
 35-E101 | 35-E101 SCALE: 1/4" = 1'-0"

20	32	12	1	150	SCRUBBER HT	1
20	34				SPARE	
20	36				SPARE	
30	38			100	SPD-PPC1	
	40	10	3/4	100		
3P	42			100		

KEYNOTES:

- 1 USE SPARE 20A/1P CIRCUIT IN EXISTING LIGHT PANEL LPC2 FOR HEAT TRACE 120VAC POWER. MAKE ALL REQUIRED PANEL MODIFICATIONS AND CONNECTIONS.

3 LIGHT PANEL LPC2 MODIFICATION
 35-E101 SCALE: NOT TO SCALE



1 DIGESTER GAS SCRUBBER ELECTRICAL PLAN
 35-E101 SCALE: 3/16" = 1'-0"





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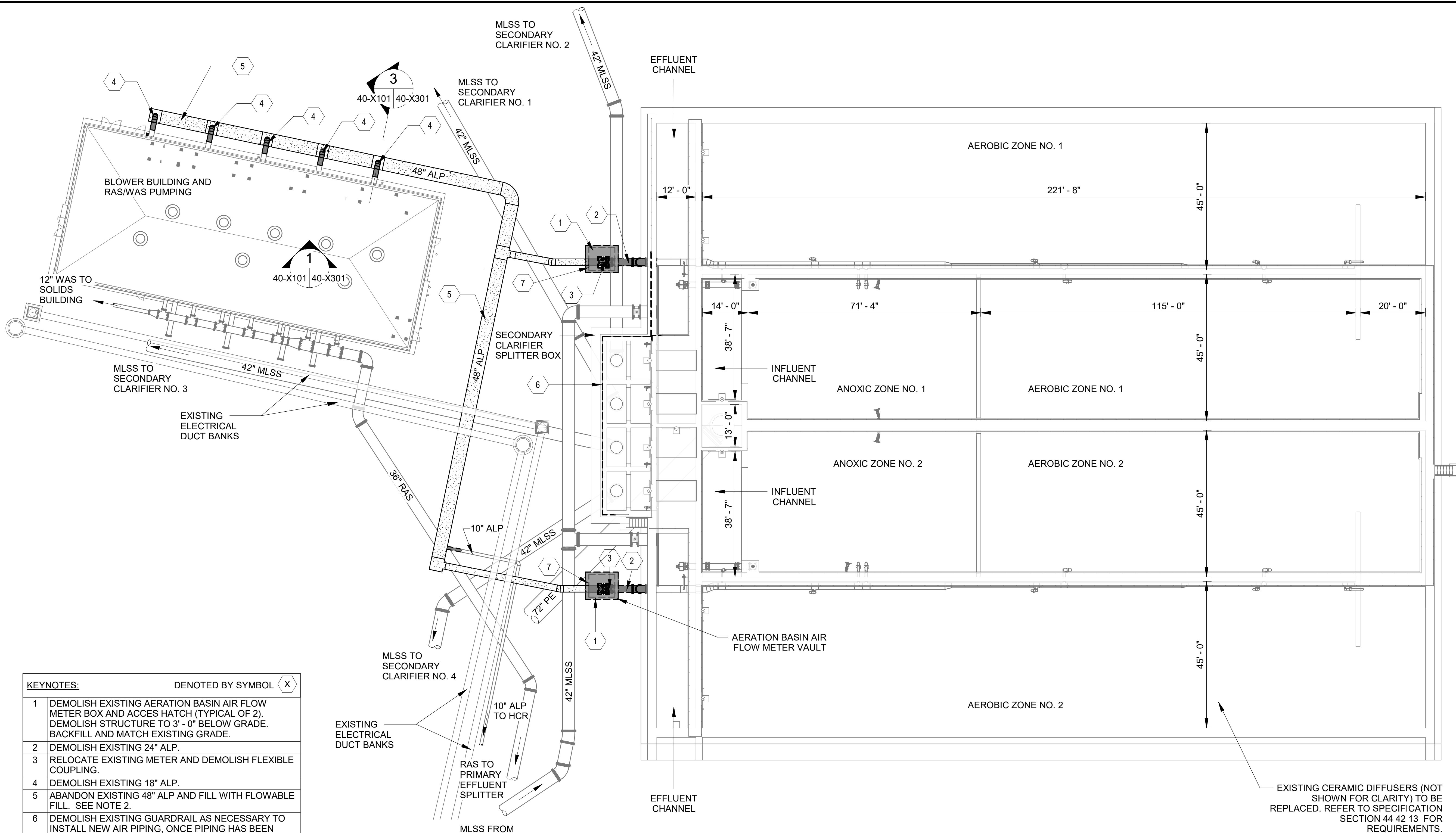
NORTH AERATION BASINS - DEMOLITION PLAN 1

JOB NO.: 19W10160
 DATE: JAN. 2024

DESIGNED BY: RWC
 DRAWN BY: EGB
 CHECKED BY: RDT

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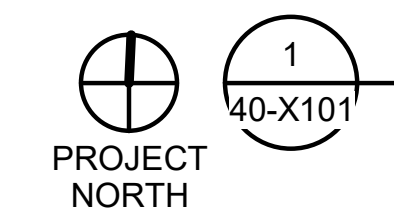
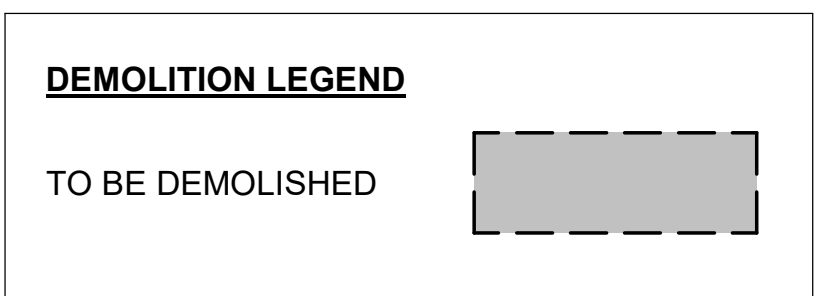
DRAWING NUMBER
40-X101
 SHEET NUMBER
095



KEYNOTES: DENOTED BY SYMBOL (X)

1	DEMOLISH EXISTING AERATION BASIN AIR FLOW METER BOX AND ACCESS HATCH (TYPICAL OF 2). DEMOLISH STRUCTURE TO 3' - 0" BELOW GRADE. BACKFILL AND MATCH EXISTING GRADE.
2	DEMOLISH EXISTING 24" ALP.
3	RELOCATE EXISTING METER AND DEMOLISH FLEXIBLE COUPLING.
4	DEMOLISH EXISTING 18" ALP.
5	ABANDON EXISTING 48" ALP AND FILL WITH FLOWABLE FILL. SEE NOTE 2.
6	DEMOLISH EXISTING GUARDRAIL AS NECESSARY TO INSTALL NEW AIR PIPING. ONCE PIPING HAS BEEN INSTALLED, REINSTALL GUARDRAIL TO PROVIDE COMPLETE SYSTEM.
7	PROTECT AIR FLOW METER AND AIR FLOW METER ELECTRICAL CONDUIT TO BE REUSED. PROVIDE STUB UP AND NEW ELECTRICAL HAND-HOLE. EXTEND CONDUIT FROM HAND-HOLE TO NEW FLOW METER LOCATION. SEE SHEET 20-E101.

- GENERAL NOTES:**
- LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE, BASED ON PAST PROJECT DRAWINGS, AND MAY NOT REFLECT FIELD CONDITIONS. CONTRACTOR SHALL VERIFY LOCATIONS AND DEPTHS OF EXISTING UNDERGROUND UTILITIES AND STRUCTURES PRIOR TO BEGINNING CONSTRUCTION OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION AND ELEVATION OF UTILITIES IN VICINITY OF PROPOSED IMPROVEMENTS UTILIZING GROUND PENETRATING RADAR EQUIPMENT. ANY AND ALL CONFLICTS OR DEVIATIONS BETWEEN PROJECT DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE SUBMITTED TO ENGINEER IMMEDIATELY FOR REVIEW.
 - EXISTING BELOW GRADE ALP PIPING TO BE ABANDONED IN PLACE AND FILL WITH FLOWABLE FILL. REFER TO SPECIFICATION SECTION 01 73 80 SELECTIVE DEMOLITION FOR ADDITIONAL DEMOLITION REQUIREMENTS.



**NORTH AERATION BASINS
 DEMOLITION PLAN**

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

Revit File: BIM_360/19W10160 - Hilliard N Fletcher WRRF - Anaerobic/HFWRRF_40 - NORTH AERATION BASINS.rvt
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NORTH AERATION BASINS - DEMOLITION PLAN 2

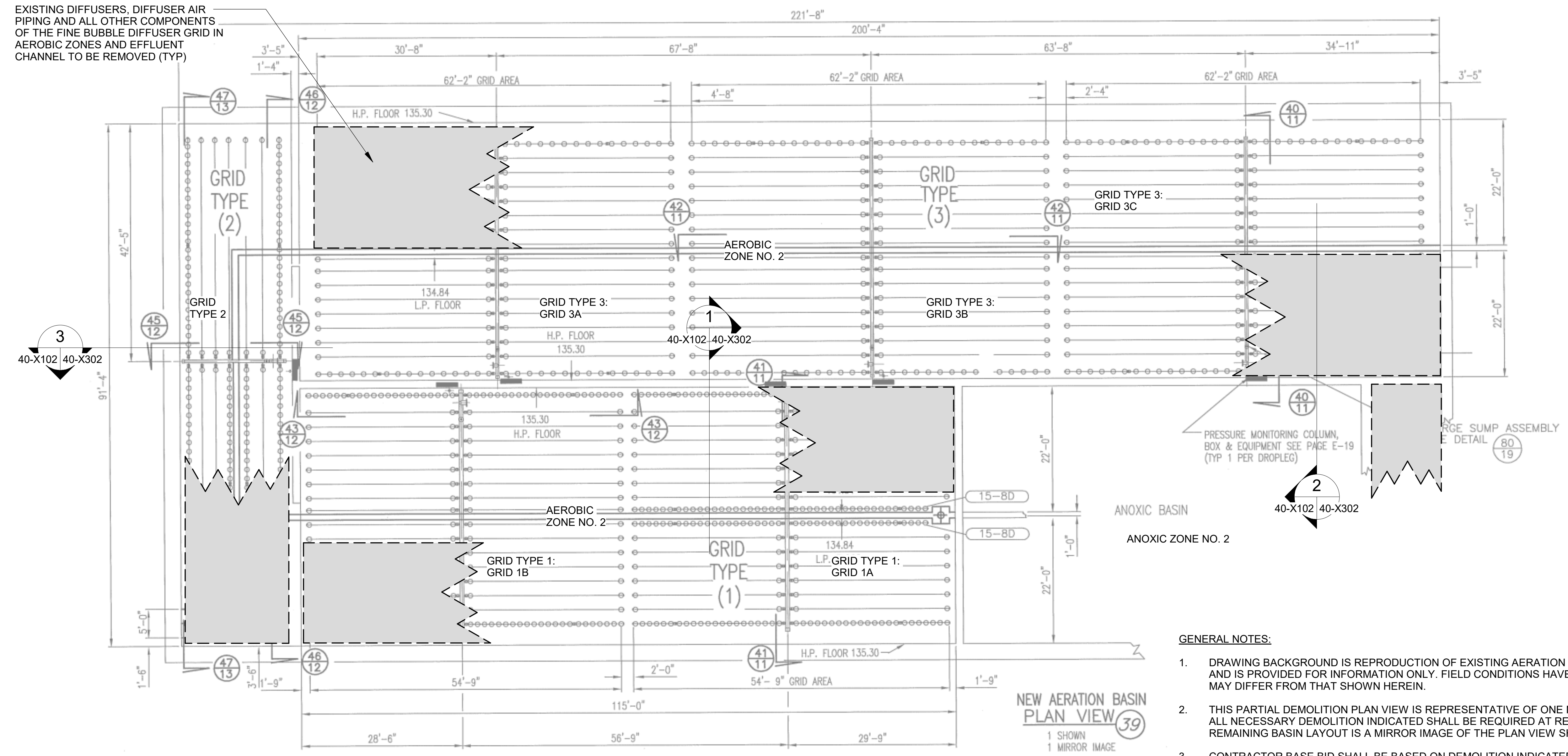
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 DRAWN BY: JAS
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40-X102
 SHEET NUMBER
096

DEMOLITION LEGEND

TO BE DEMOLISHED

- | | | |
|--|--|---|
| <p>GRID TYPE 1</p> <ul style="list-style-type: none"> 2 TANKS 2 GRID PER TANK 17 AIR DISTRIBUTORS PER GRID 43 DIFFUSER ELEMENT PER AIR DISTRIBUTOR 731 DIFFUSER ELEMENTS PER GRID 2924 DIFFUSERS TOTAL THIS GRID TYPE | <p>GRID TYPE 2</p> <ul style="list-style-type: none"> 2 TANKS 1 GRIDS PER TANK 7 AIR DISTRIBUTOR PER GRID 3 AIR DISTRIBUTOR W/53 DIFFUSER ELEMENTS 4 AIR DISTRIBUTOR W/56 DIFFUSER ELEMENTS 383 DIFFUSER ELEMENTS PER GRID 766 DIFFUSER TOTAL THIS GRID TYPE | <p>GRID TYPE 3</p> <ul style="list-style-type: none"> 2 TANKS 3 GRIDS PER TANK 17 AIR DISTRIBUTOR PER GRID 31 DIFFUSER ELEMENTS PER AIR DISTRIBUTOR 527 DIFFUSER ELEMENTS PER GRID 3162 DIFFUSERS TOTAL THIS GRID TYPE |
|--|--|---|



- GENERAL NOTES:**
- DRAWING BACKGROUND IS REPRODUCTION OF EXISTING AERATION SYSTEM SHOP DRAWINGS AND IS PROVIDED FOR INFORMATION ONLY. FIELD CONDITIONS HAVE NOT BEEN VERIFIED AND MAY DIFFER FROM THAT SHOWN HEREIN.
 - THIS PARTIAL DEMOLITION PLAN VIEW IS REPRESENTATIVE OF ONE NORTH AERATION BASIN. ALL NECESSARY DEMOLITION INDICATED SHALL BE REQUIRED AT REMAINING BASIN. THE REMAINING BASIN LAYOUT IS A MIRROR IMAGE OF THE PLAN VIEW SHOWN.
 - CONTRACTOR BASE BID SHALL BE BASED ON DEMOLITION INDICATED HEREIN AND SPECIFIED IN SPECIFICATION SECTION 44 42 13. FOR DEDUCTIVE ALTERNATE A, SCOPE OF DEMOLITION SHALL BE IN SPECIFICATION SECTION 01 11 20.
 - EXISTING COARSE BUBBLE AERATION SYSTEMS IN ANOXIC ZONES SHALL REMAIN.

PROJECT NORTH

NORTH AERATION BASINS - PARTIAL DEMOLITION PLAN VIEW

SCALE: 1" = 1'-0"

1 40-X102

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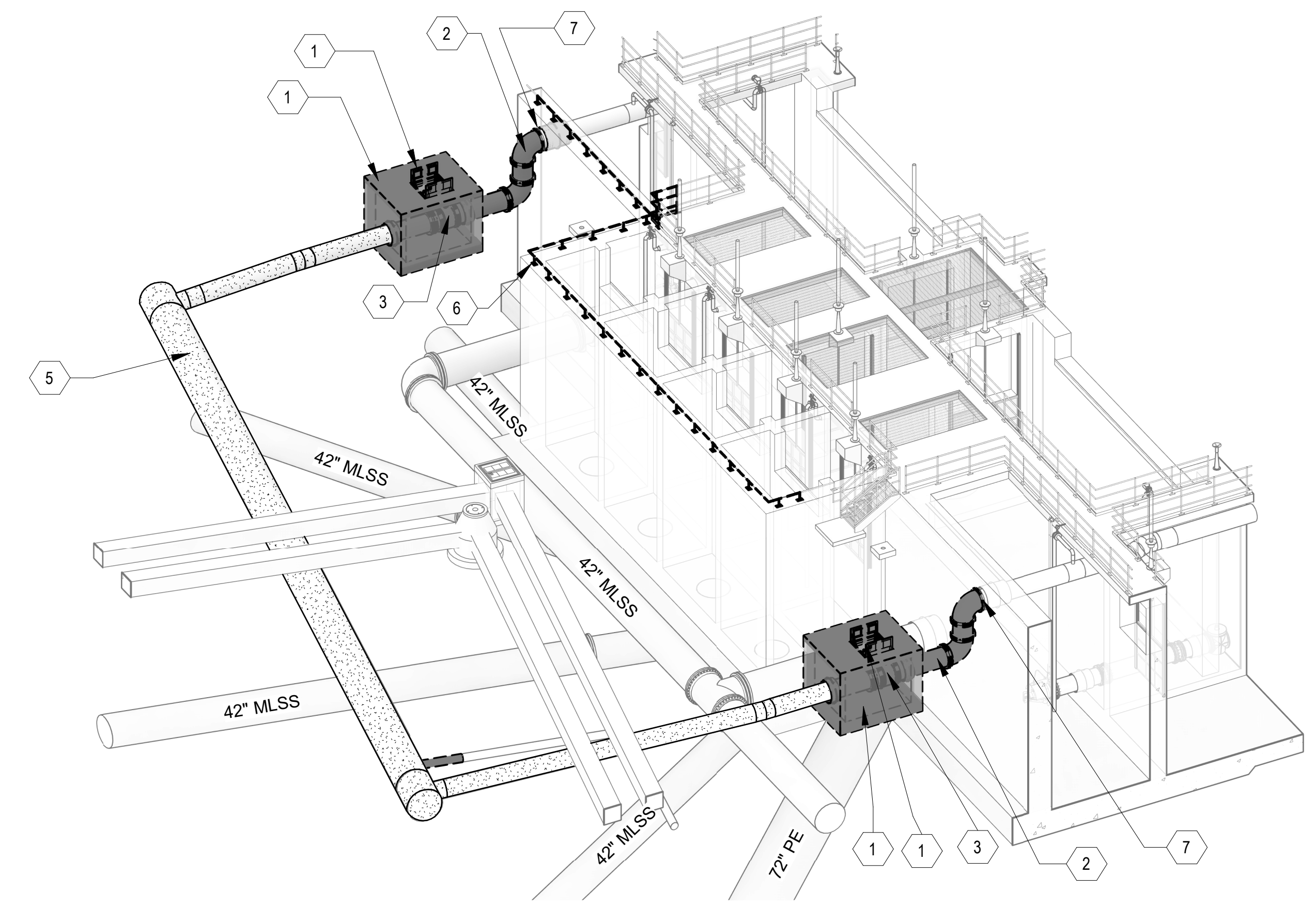
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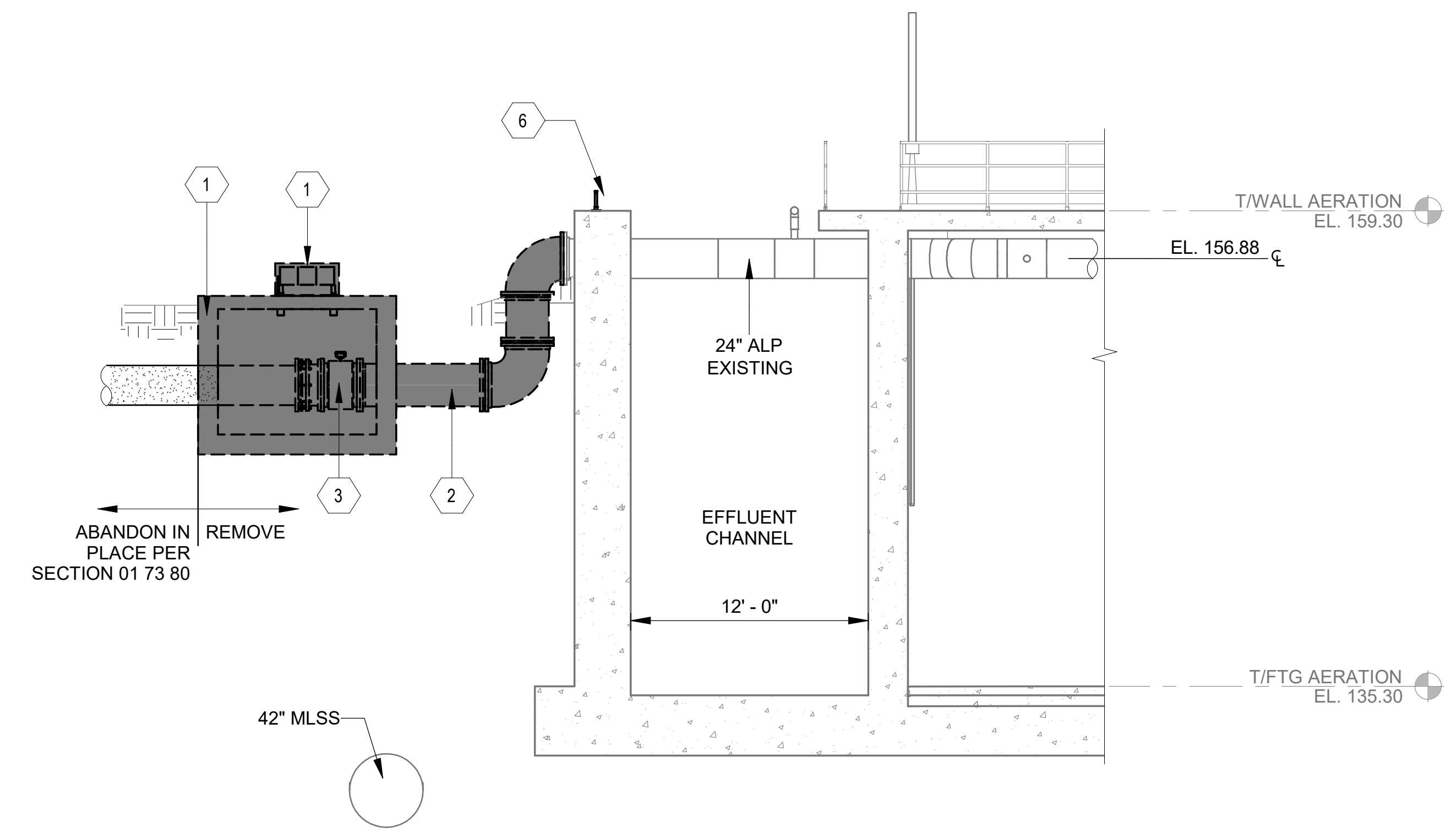
NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 1

JOB NO.: 19W10160
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 SHEET NUMBER
097



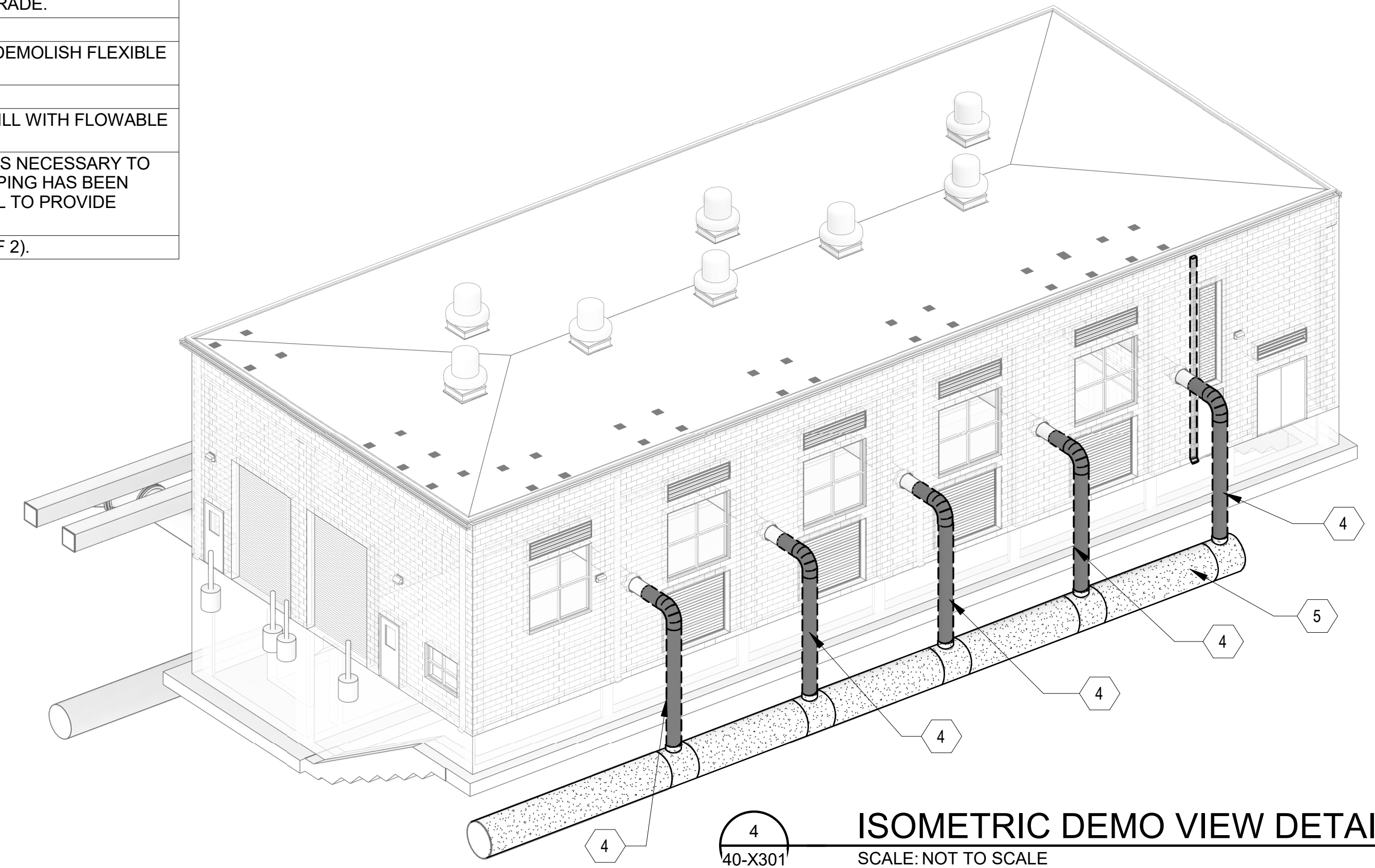
2
 40-X301
ISOMETRIC DEMO VIEW DETAIL
 SCALE: NOT TO SCALE



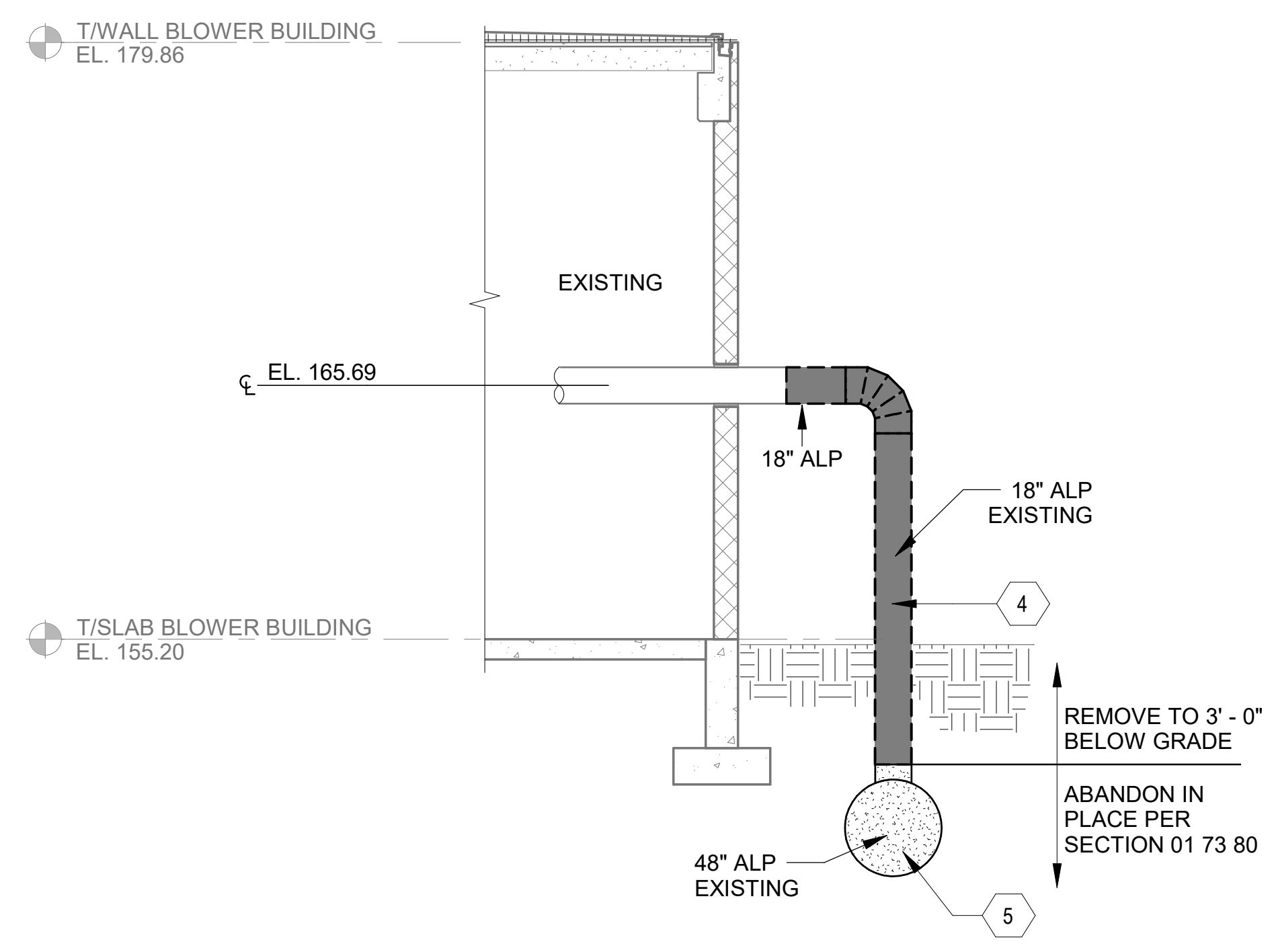
1
 40-X101 | 40-X301
DEMO SECTION - AIR FLOW METER VAULT, TYP.
 SCALE: 3/16" = 1'-0"

KEYNOTES:	DENOTED BY SYMBOL
1	DEMOLISH EXISTING AERATION BASIN AIR FLOW METER BOX AND ACCESS HATCH (TYPICAL OF 2). DEMOLISH STRUCTURE TO 3' - 0" BELOW GRADE. BACKFILL AND MATCH EXISTING GRADE.
2	DEMOLISH EXISTING 24" ALP.
3	RELOCATE EXISTING METER AND DEMOLISH FLEXIBLE COUPLING.
4	DEMOLISH EXISTING 18" ALP.
5	ABANDON EXISTING 48" ALP AND FILL WITH FLOWABLE FILL. SEE NOTE 2.
6	DEMOLISH EXISTING GUARDRAIL AS NECESSARY TO INSTALL NEW AIR PIPING, ONCE PIPING HAS BEEN INSTALLED, REINSTALL GUARDRAIL TO PROVIDE COMPLETE SYSTEM.
7	INSTALL 24" BLIND FLANGE (TYP OF 2).

LEGEND	
	TO BE DEMOLISHED
	FUTURE CONSTRUCTION
	EXISTING CONSTRUCTION
	NEW CONSTRUCTION



4
 40-X301
ISOMETRIC DEMO VIEW DETAIL
 SCALE: NOT TO SCALE



3
 40-X101 | 40-X301
DEMO SECTION - EXISTING BLOWER DISCHARGE PIPING
 SCALE: 3/16" = 1'-0"

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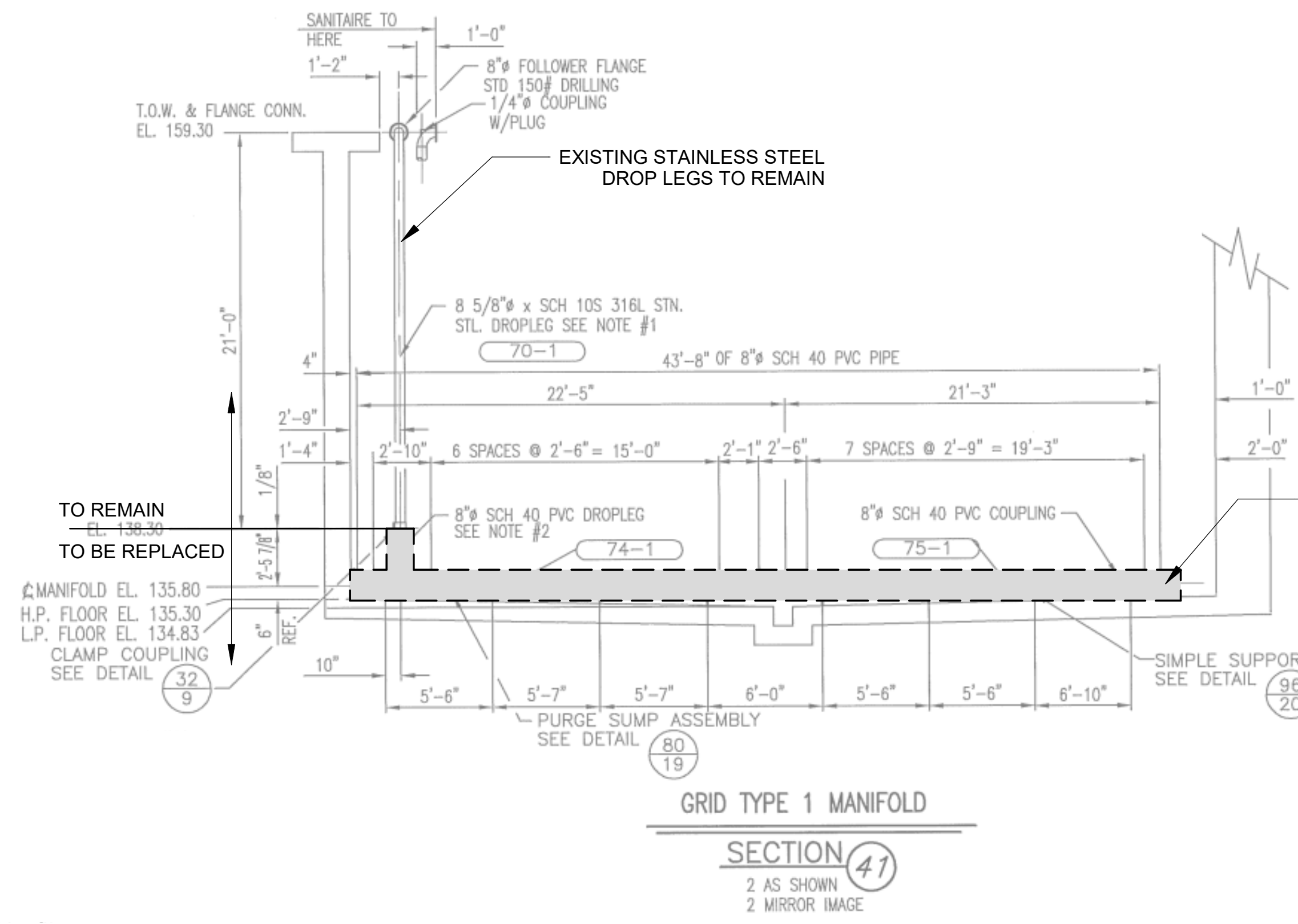
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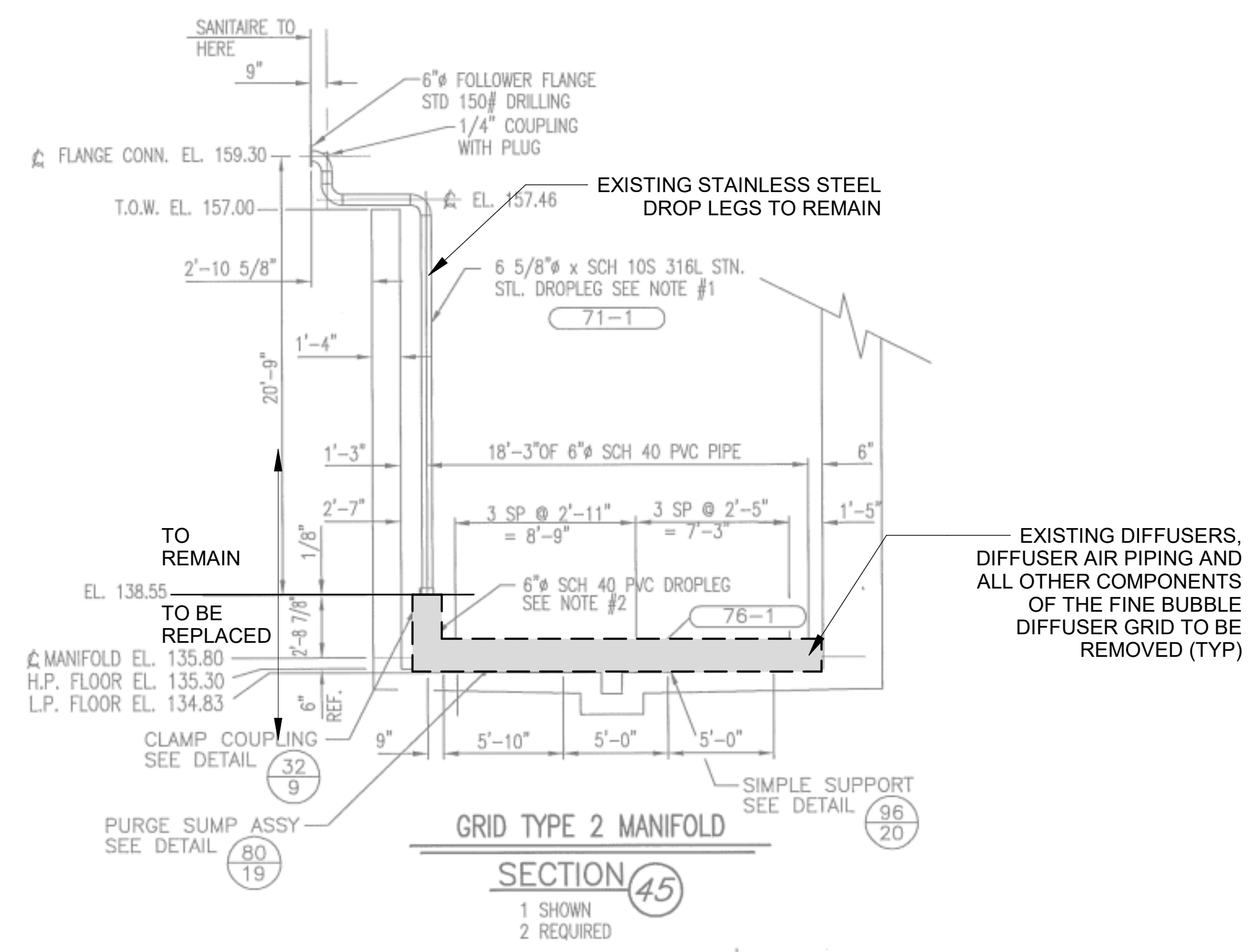
NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 2

JOB NO.: 19W10160
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 DESIGNED BY: RWC
 DRAWN BY: JAS
 CHECKED BY: RDT

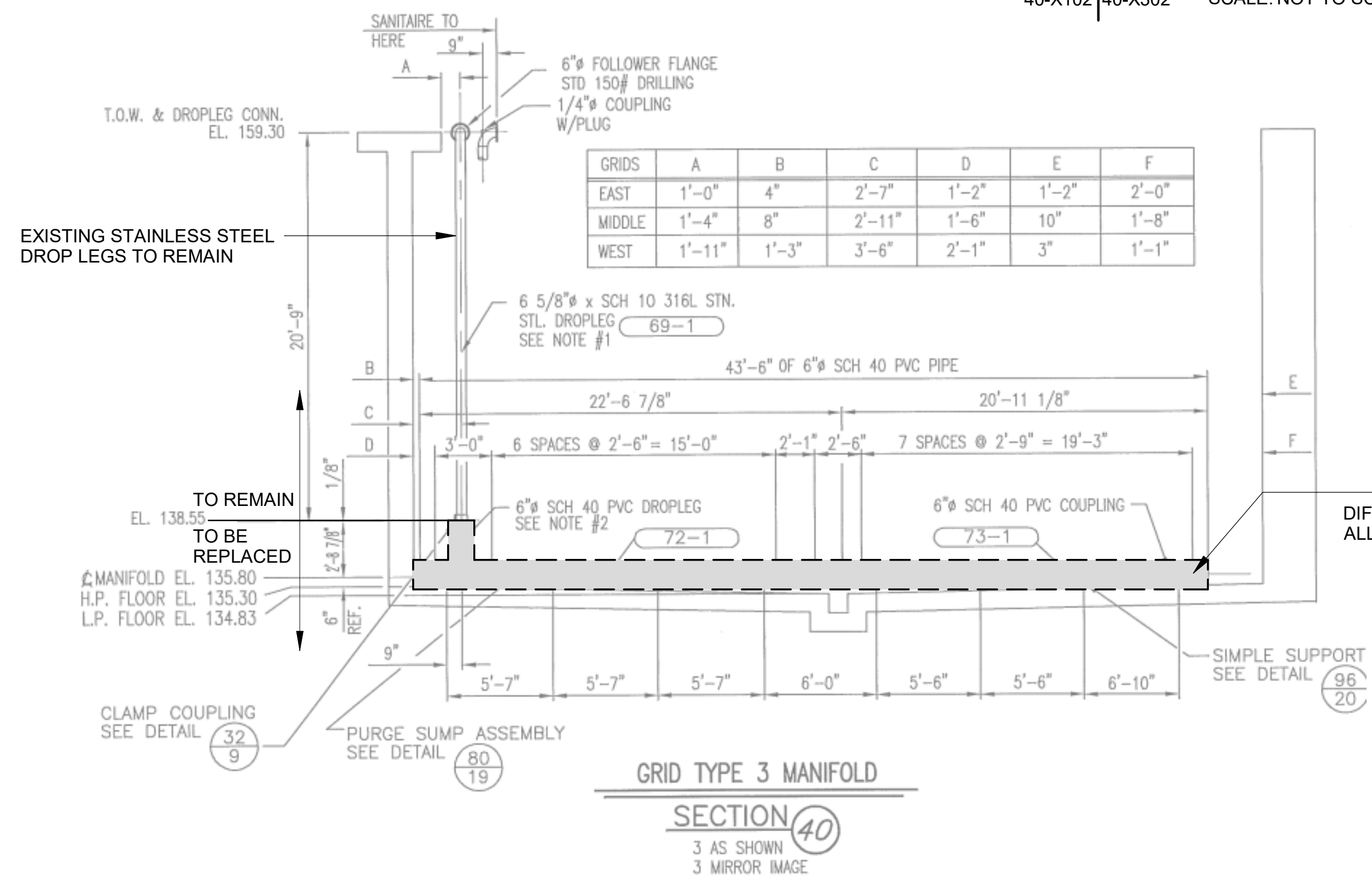
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40-X302
 SHEET NUMBER
098



SECTION 41
 2 AS SHOWN
 2 MIRROR IMAGE
GRID TYPE 1 - TYPICAL DEMOLITION SECTION
 40-X102 | 40-X302 SCALE: NOT TO SCALE



SECTION 45
 1 SHOWN
 2 REQUIRED
GRID TYPE 2 - TYPICAL DEMOLITION SECTION
 40-X102 | 40-X302 SCALE: NOT TO SCALE



GRIDS	A	B	C	D	E	F
EAST	1'-0"	4"	2'-7"	1'-2"	1'-2"	2'-0"
MIDDLE	1'-4"	8"	2'-11"	1'-6"	10"	1'-8"
WEST	1'-11"	1'-3"	3'-6"	2'-1"	3"	1'-1"

SECTION 40
 3 AS SHOWN
 3 MIRROR IMAGE
GRID TYPE 3 - TYPICAL DEMOLITION SECTION
 40-X102 | 40-X302 SCALE: NOT TO SCALE

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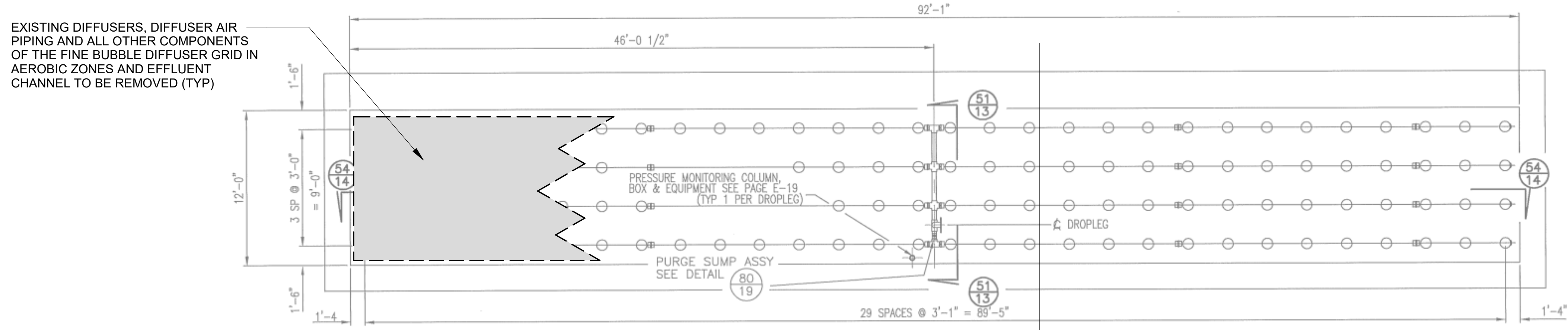
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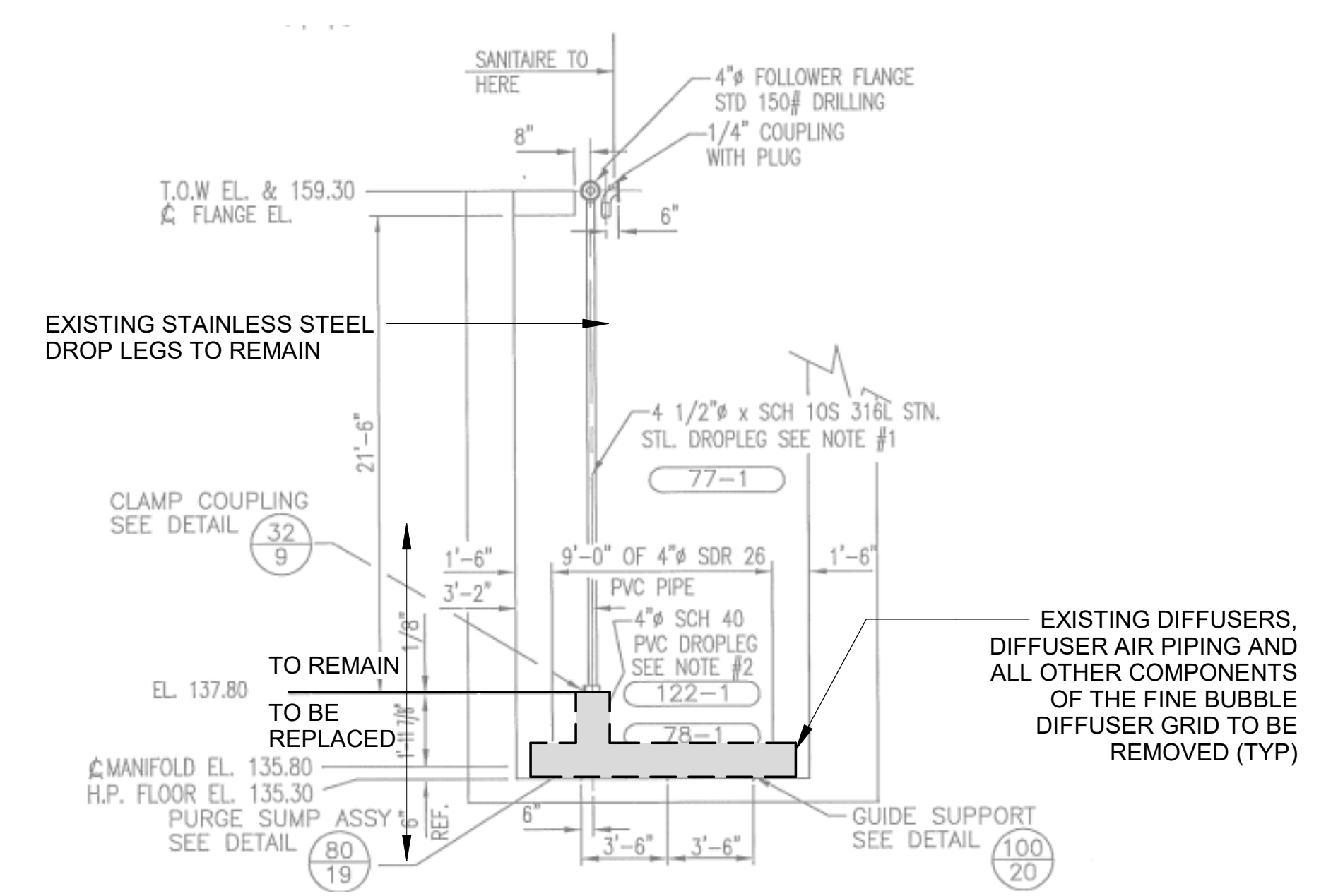
GRID TYPE 'A'

2 - TANK(S)
 1 - GRID(S) PER TANK
 4 - AIR DISTRIBUTORS PER GRID
 30 - DIFFUSERS PER AIR DISTRIBUTOR
 120 - DIFFUSERS PER GRID
 240 - TOTAL DIFFUSERS INSTALLED FOR THIS GRID TYPE

PLAN VIEW (50)

1 SHOWN
 1 MIRROR IMAGE

1 NORTH AERATION BASINS EFFLUENT CHANNEL - PARTIAL DEMOLITION PLAN VIEW
 40-X303 SCALE: NOT TO SCALE



2 EFFLUENT CHANNEL - TYPICAL DEMOLITION SECTION
 40-X303 SCALE: NOT TO SCALE

- GENERAL NOTES:
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NORTH AERATION BASINS - DEMOLITION SECTIONS AND DETAILS 3

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 CHECKED BY: RWC

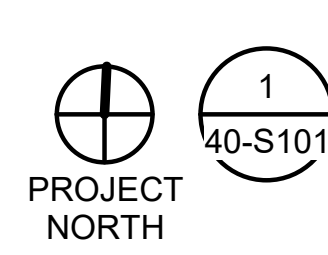
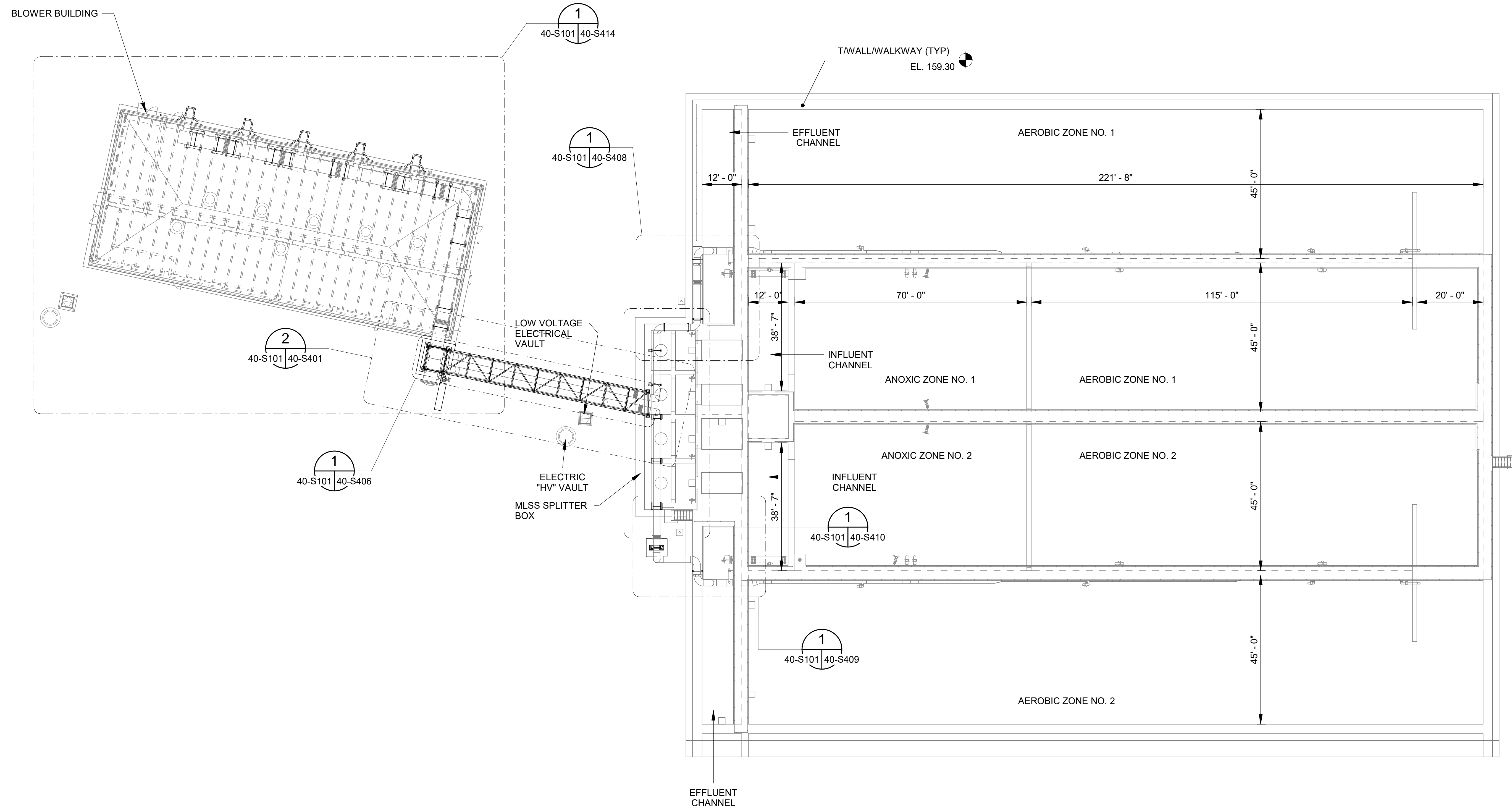
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NORTH AERATION BASIN BLOWER PIPING PLAN OVERALL

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



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NORTH AERATION
 BASINS - OVERALL
 STRUCTURAL PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
 DRAWN BY: EGB
 CHECKED BY: KAM

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 SHEET
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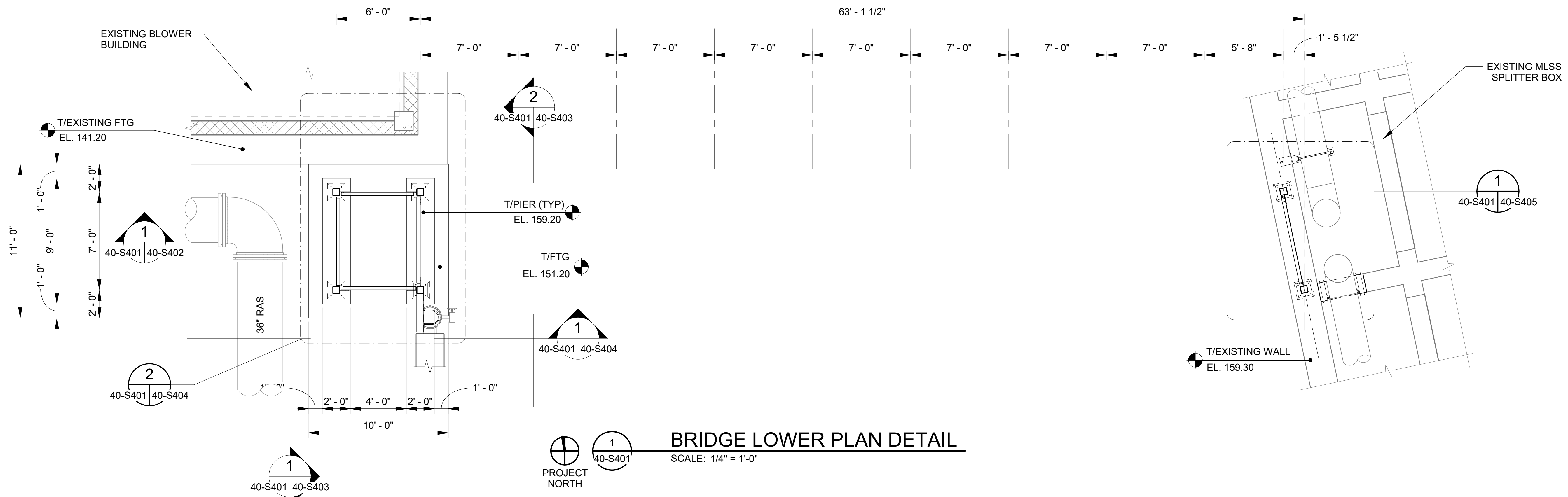
CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 1

JOB NO.: 19W10160
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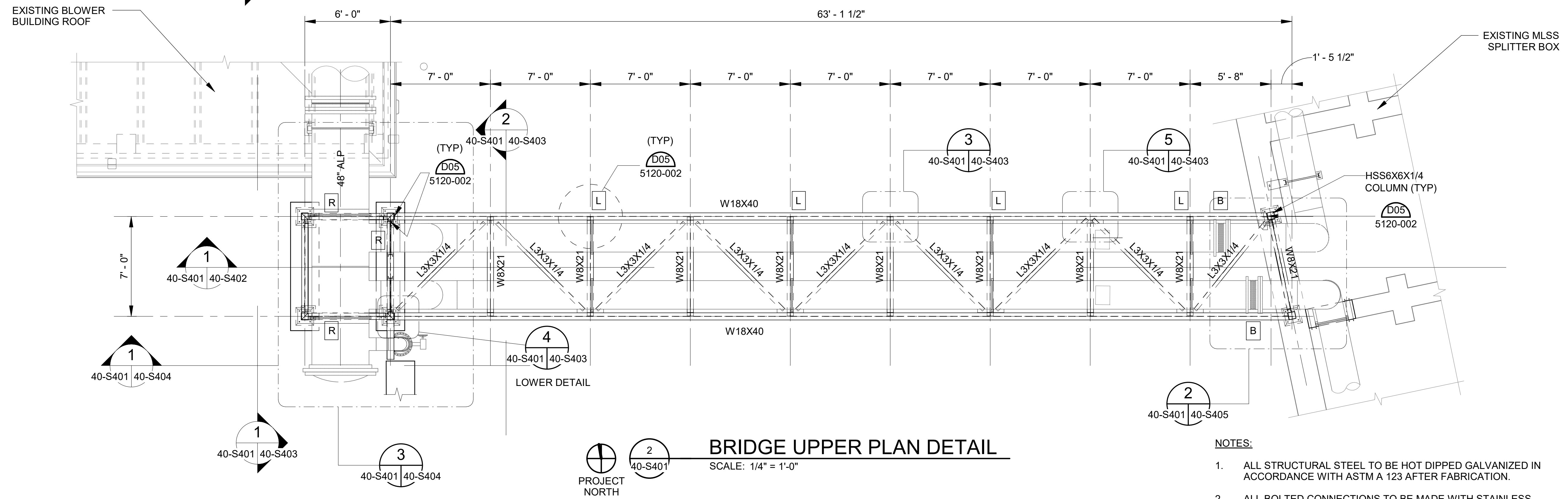
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DRAWING NUMBER
40-S401
 SHEET NUMBER
101



BRIDGE LOWER PLAN DETAIL

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



BRIDGE UPPER PLAN DETAIL

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

- TAG LEGEND**
- R** - PIPE SUPPORTS AXIALLY RESTRAINED TO RESTRICT AXIAL EXPANSION AND CONTRACTION.
 - L** - PIPE SUPPORTS NOT AXIALLY RESTRAINED TO ALLOW AXIAL EXPANSION AND CONTRACTION.
 - B** - BELLOW EXPANSION JOINT.

- NOTES:**
1. ALL STRUCTURAL STEEL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 AFTER FABRICATION.
 2. ALL BOLTED CONNECTIONS TO BE MADE WITH STAINLESS STEEL BOLTS THAT MEET ASTM A 193, GRADE B8.
 3. FIXED SUPPORTS **R** REQUIRE THAT THE U-BOLTS BE PRE-TENSIONED TO APPROXIMATELY 2000 LBS (EACH SIDE) TO RESTRAIN AXIAL MOVEMENT.
 4. AT SLIP SUPPORTS **L** LEAVE U-BOLTS ONLY HAND TIGHTENED AND PEEN THREADS SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.
 5. PIPE SUPPORT ARE I-ROD ANTI-CORROSION PIPE SUPPORTS. SIZE OF I-ROD PER MANUFACTURER'S RECOMMENDATIONS.

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 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 2

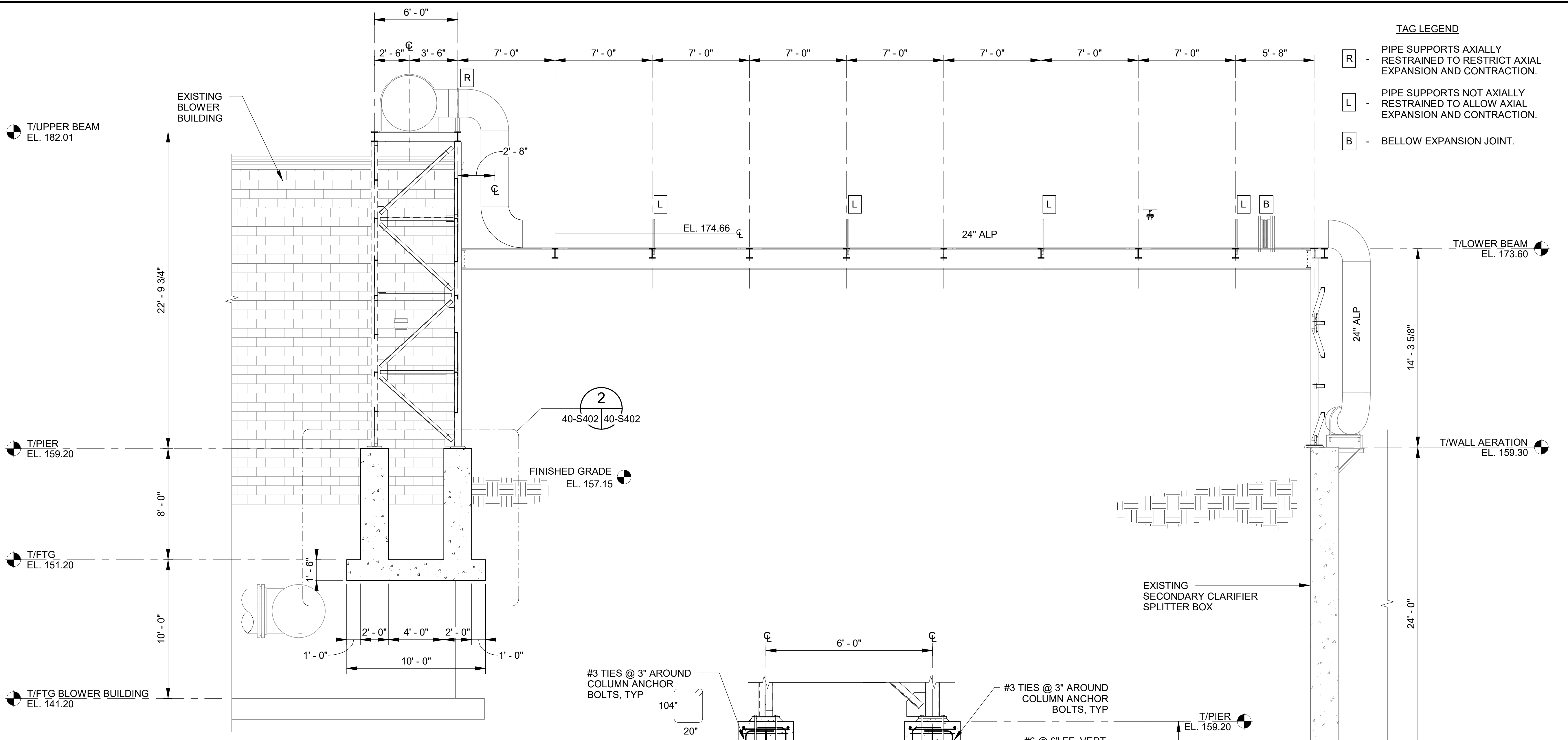
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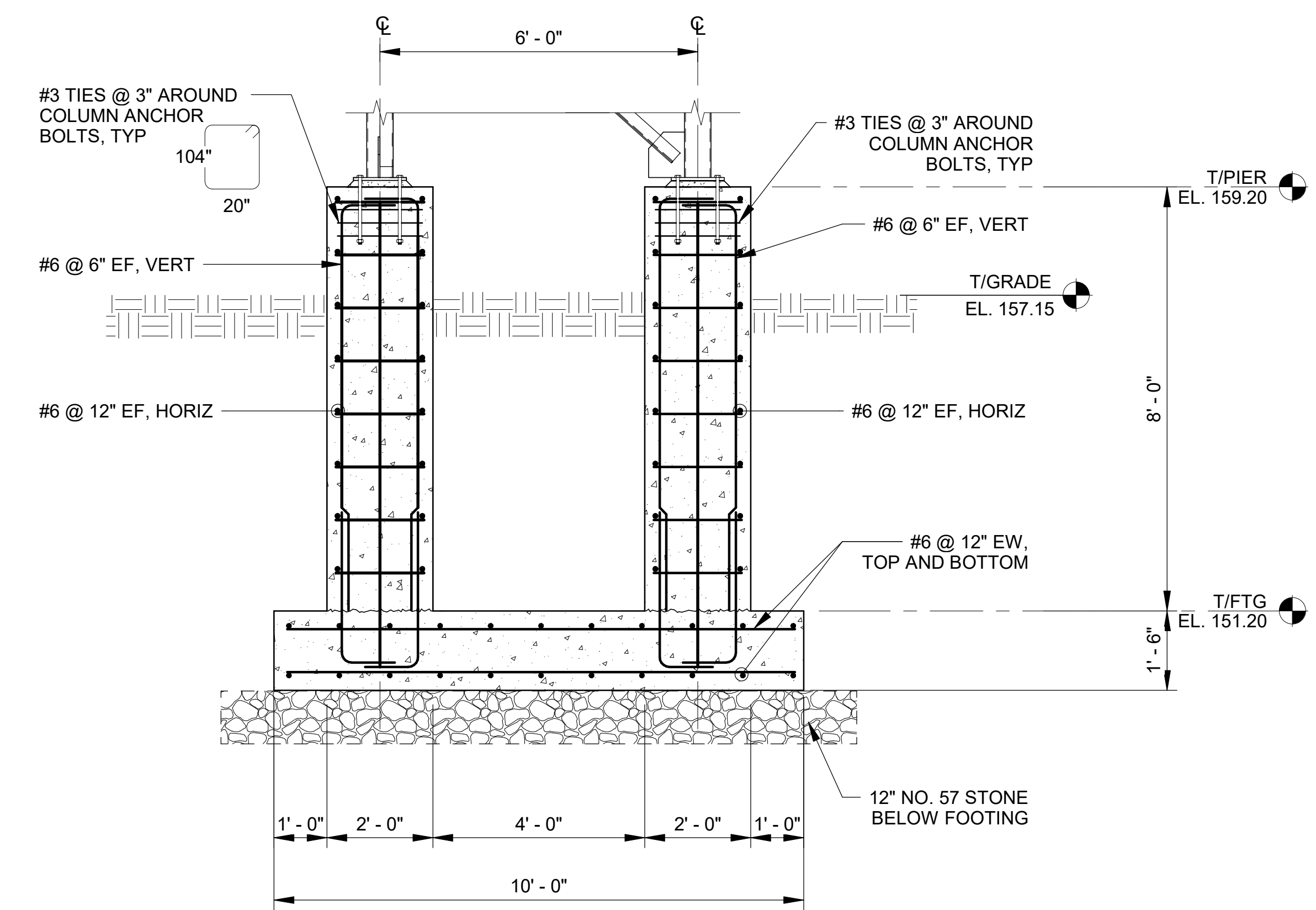
DRAWING NUMBER
40-S402
 SHEET NUMBER
102

TAG LEGEND

- R** - PIPE SUPPORTS AXIALLY RESTRAINED TO RESTRICT AXIAL EXPANSION AND CONTRACTION.
- L** - PIPE SUPPORTS NOT AXIALLY RESTRAINED TO ALLOW AXIAL EXPANSION AND CONTRACTION.
- B** - BELLOW EXPANSION JOINT.



SECTION @ BRIDGE SUPPORT
 40-S401 | 40-S402 SCALE: 1/4" = 1'-0"



PIER DETAIL
 40-S402 | 40-S402 SCALE: 1/2" = 1'-0"

NOTES:

1. ALL STRUCTURAL STEEL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 AFTER FABRICATION.
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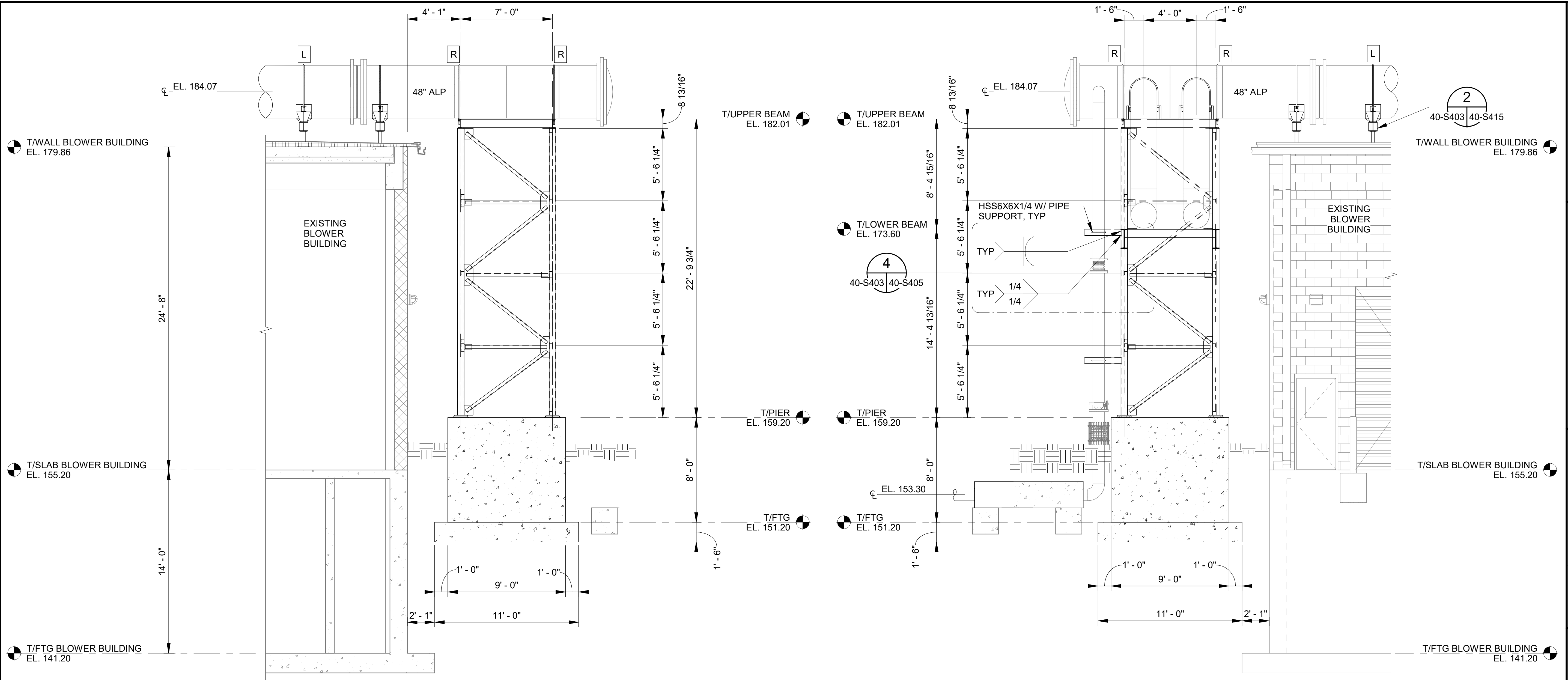
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NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 3

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40-S403
 SHEET NUMBER
103

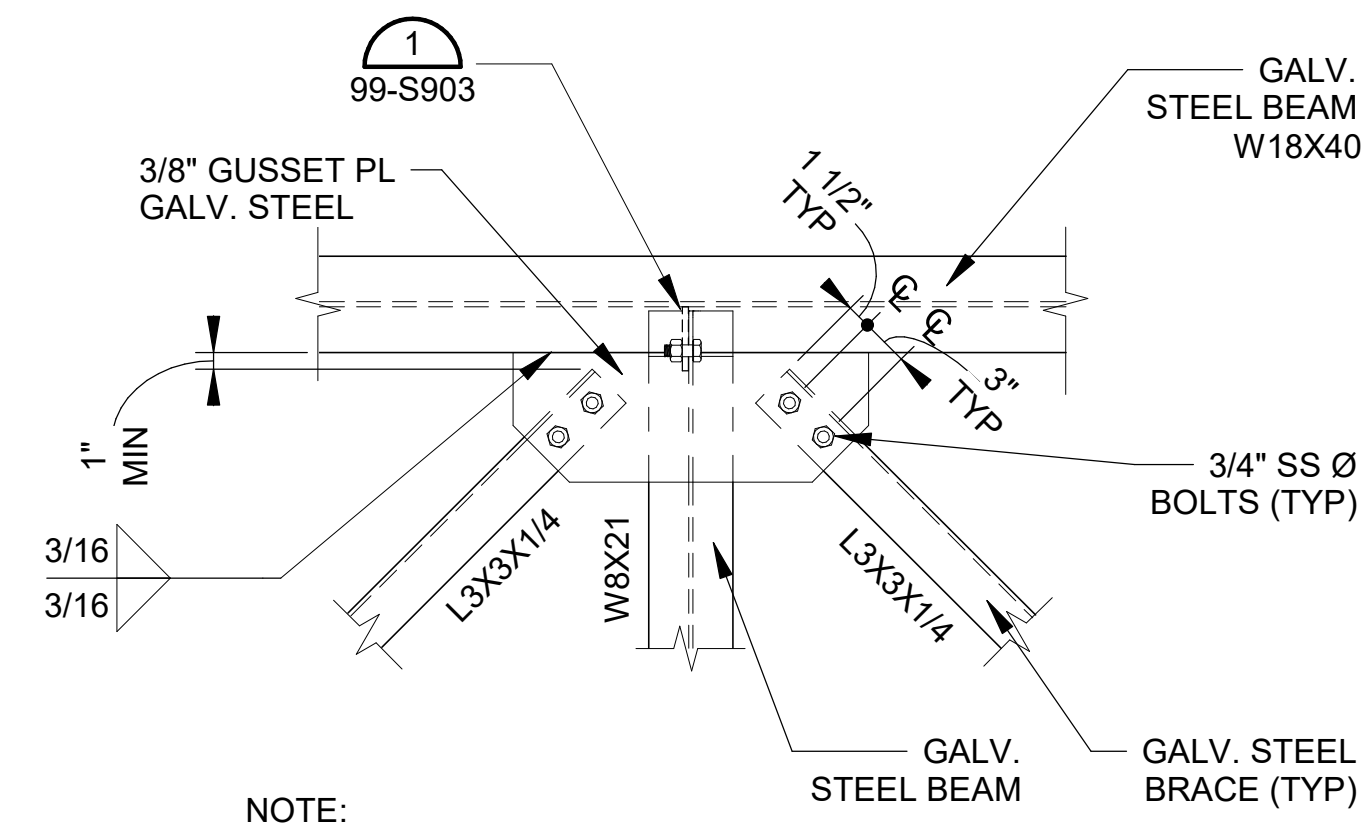


SECTION @ BRIDGE SUPPORT
 40-S401 | 40-S403 SCALE: 1/4" = 1'-0"

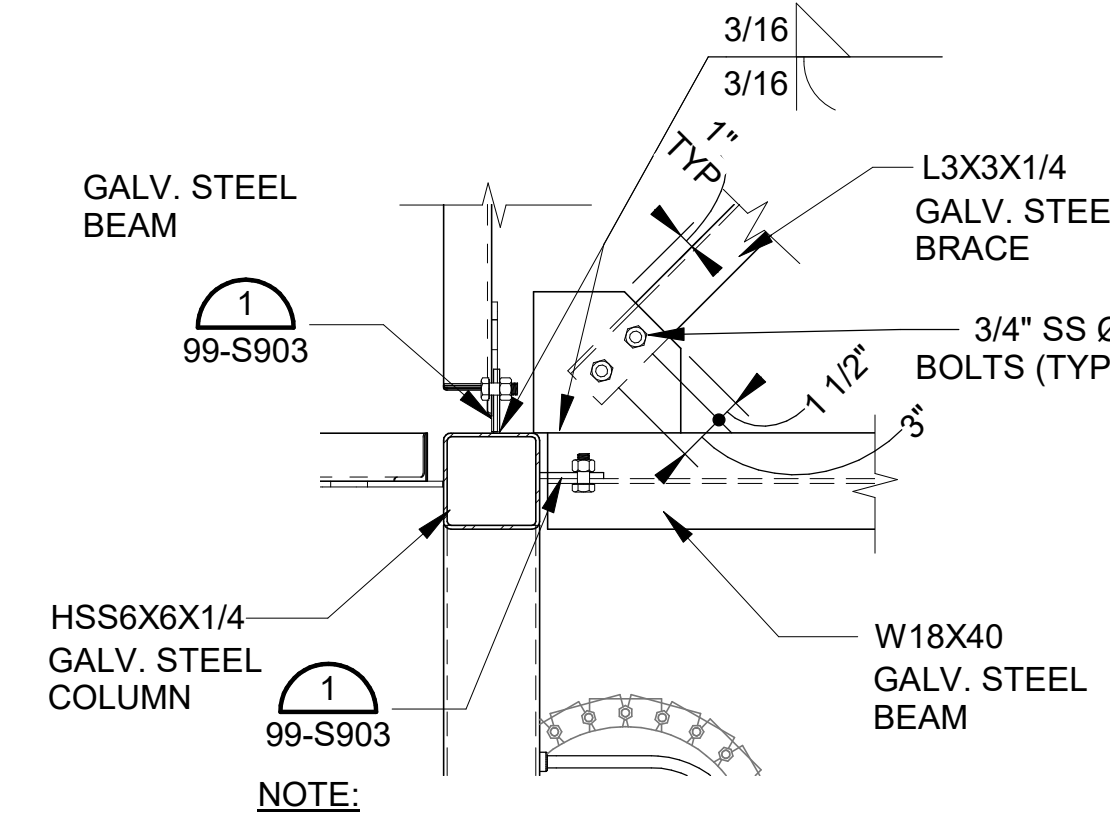
SECTION @ BRIDGE SUPPORT
 40-S401 | 40-S403 SCALE: 1/4" = 1'-0"

- TAG LEGEND**
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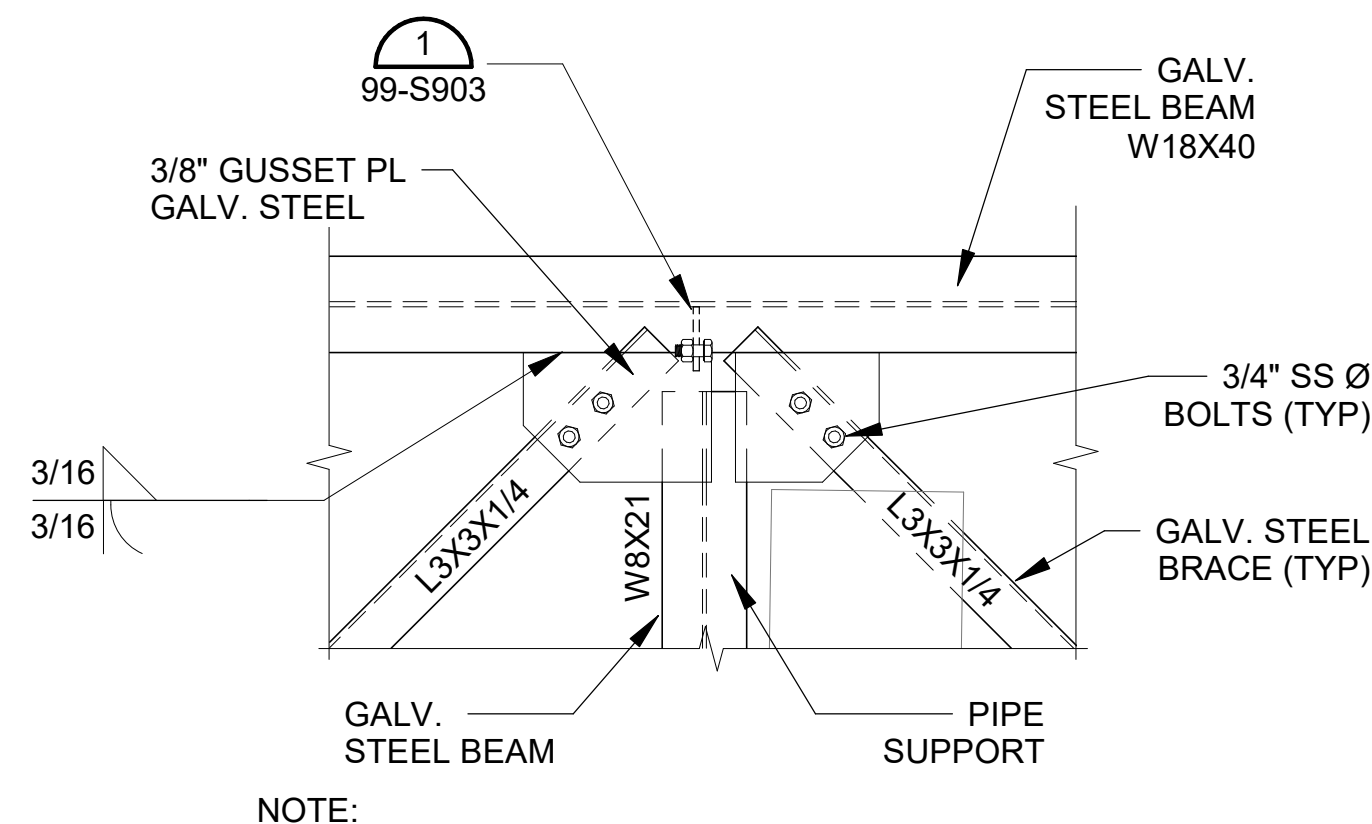
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PLAN DETAIL
 40-S401 | 40-S403 SCALE: 1" = 1'-0"



PLAN DETAIL
 40-S401 | 40-S403 SCALE: 1" = 1'-0"



PLAN DETAIL
 40-S401 | 40-S403 SCALE: 1" = 1'-0"

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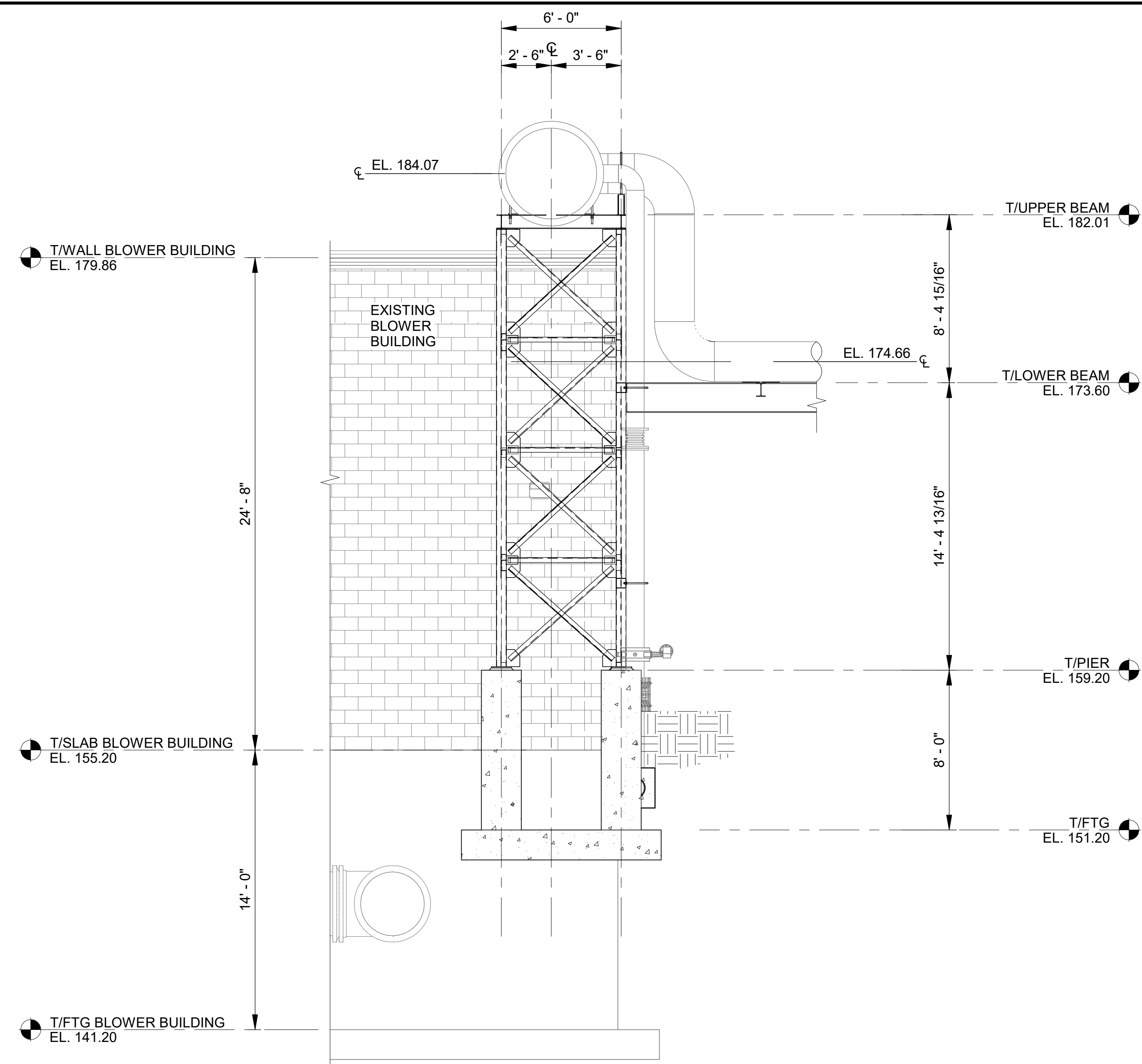
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NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 4

JOB NO.: 19W10160
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104



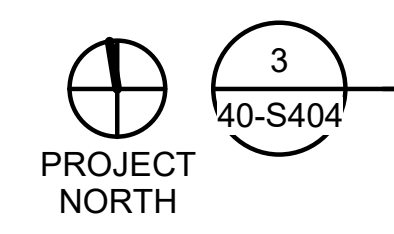
SECTION @ BRIDGE SUPPORT
 SCALE: 1/4" = 1'-0"

NOTES:

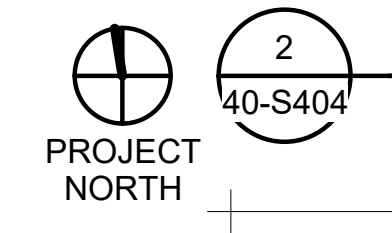
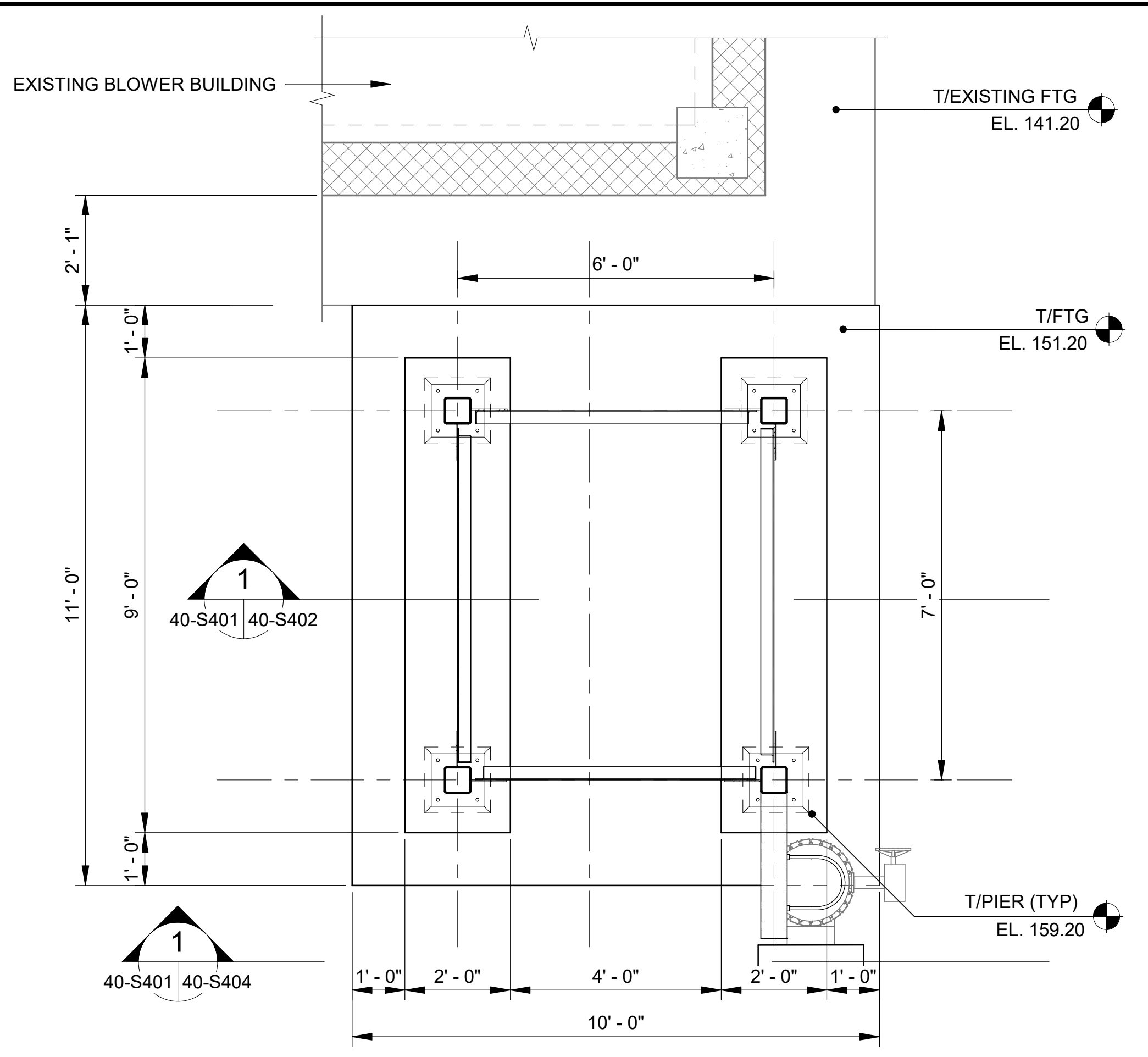
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TAG LEGEND

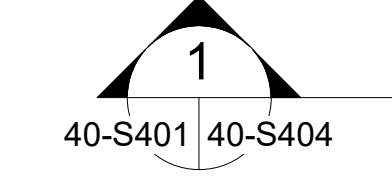
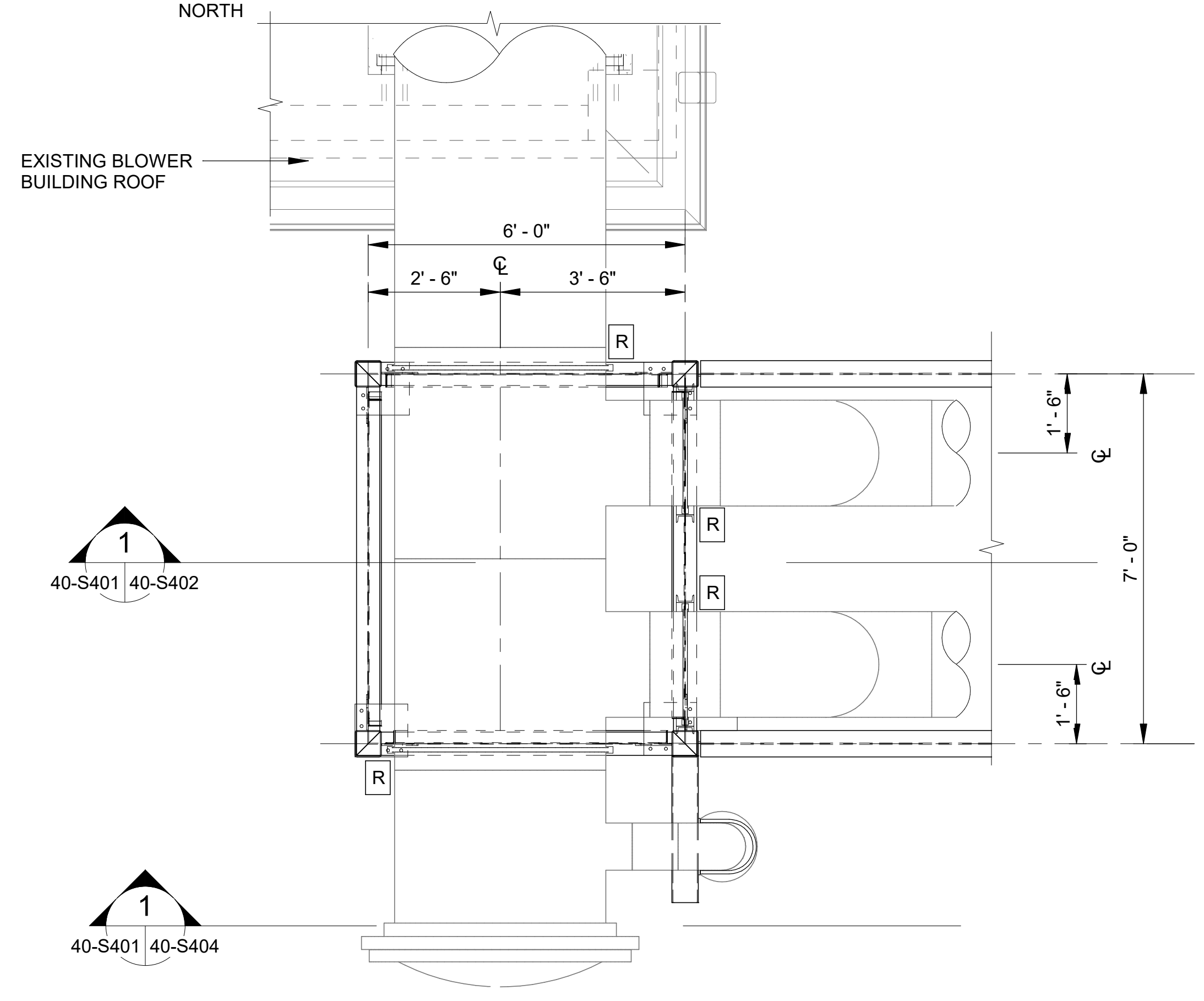
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UPPER PLAN DETAIL
 SCALE: 1/2" = 1'-0"



LOWER PLAN DETAIL
 SCALE: 1/2" = 1'-0"



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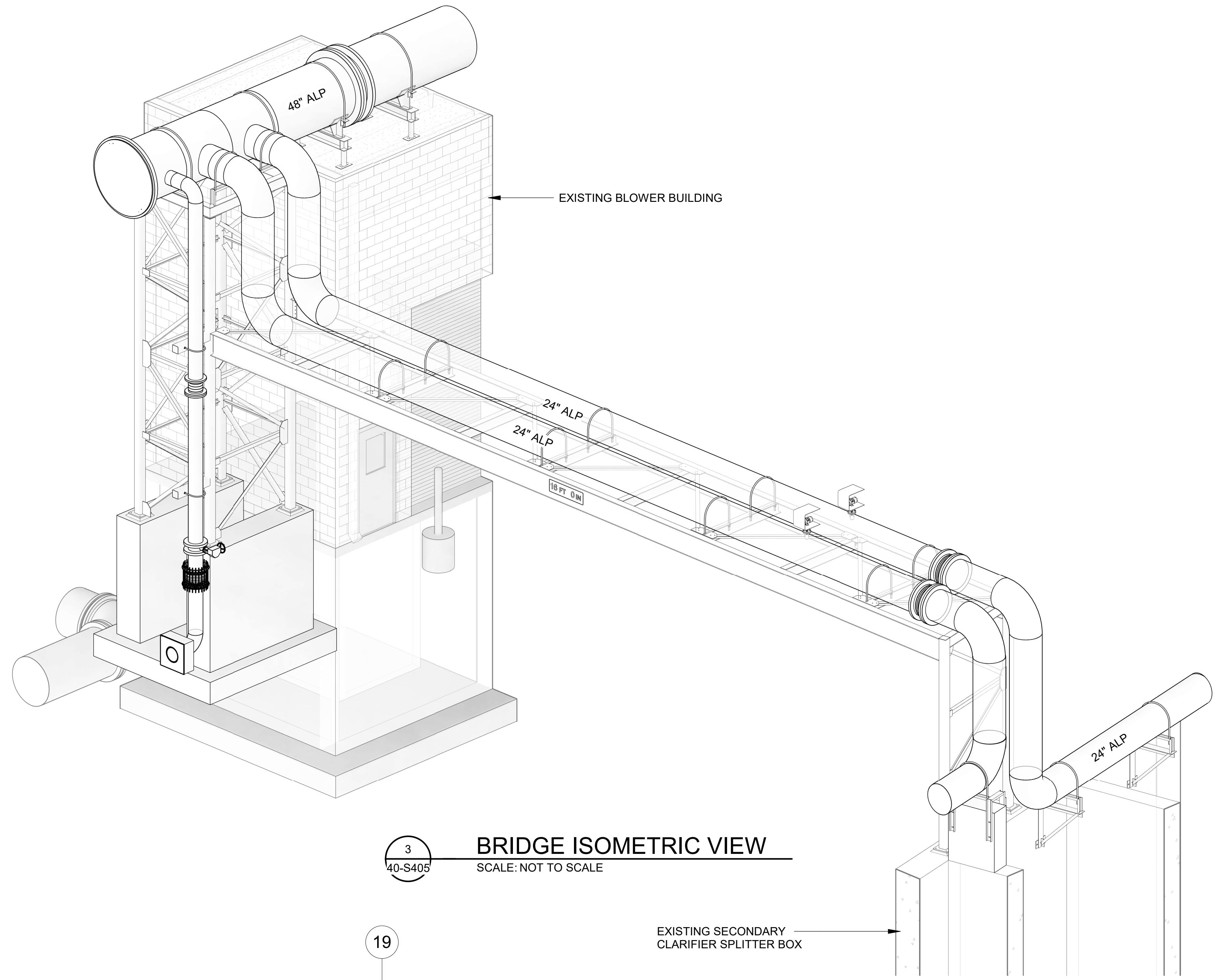
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NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 5

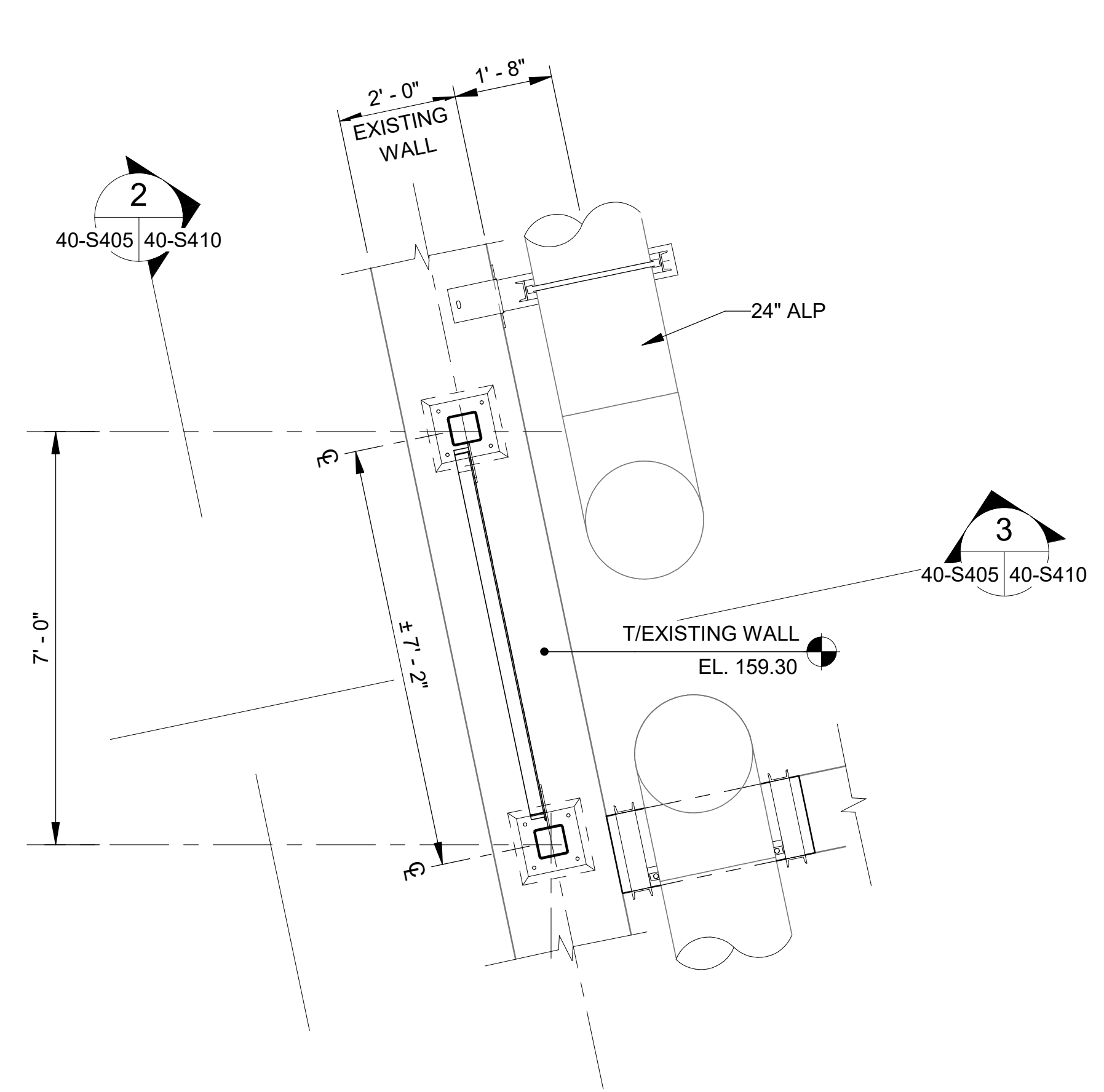
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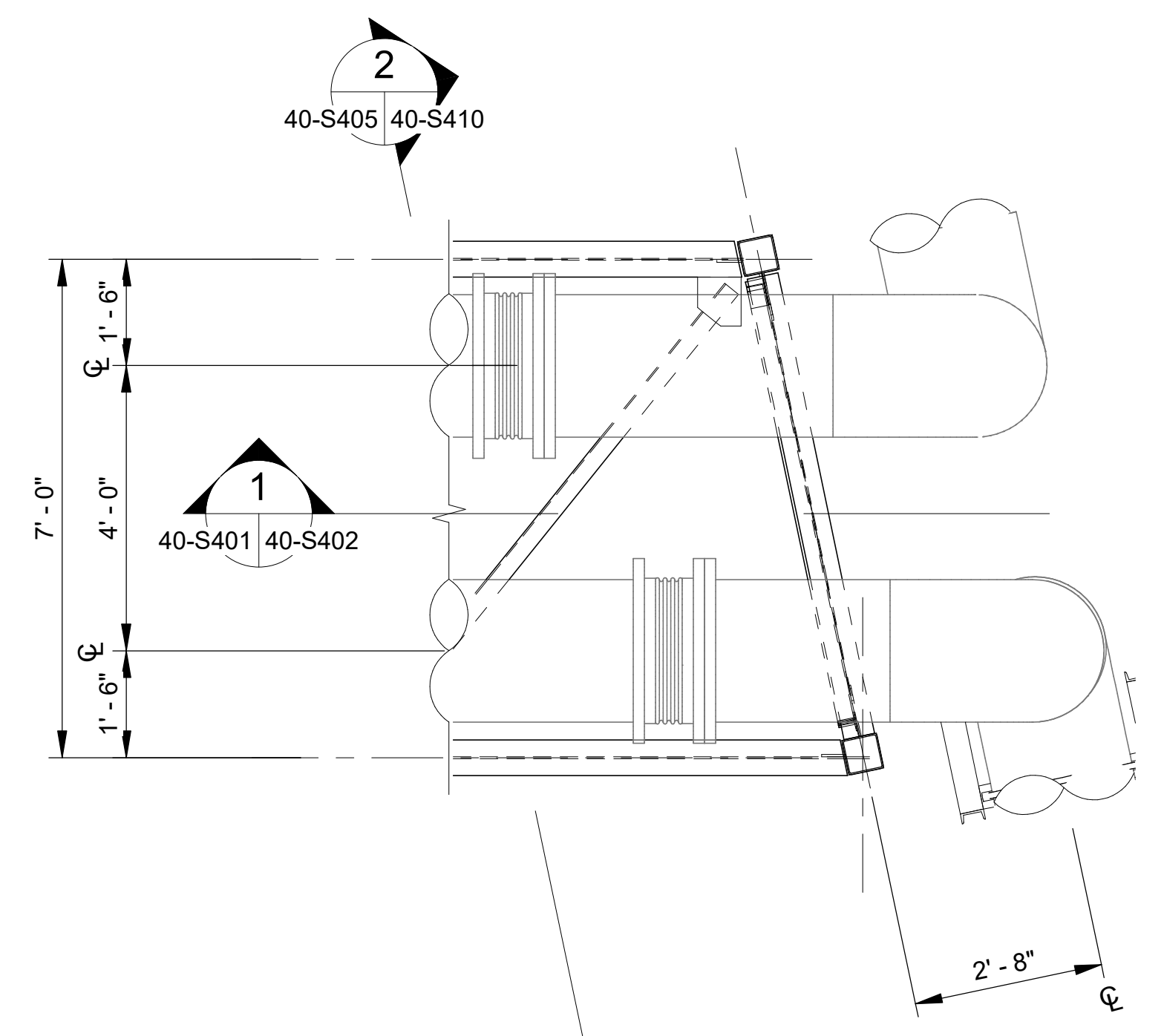
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 SHEET NUMBER
105



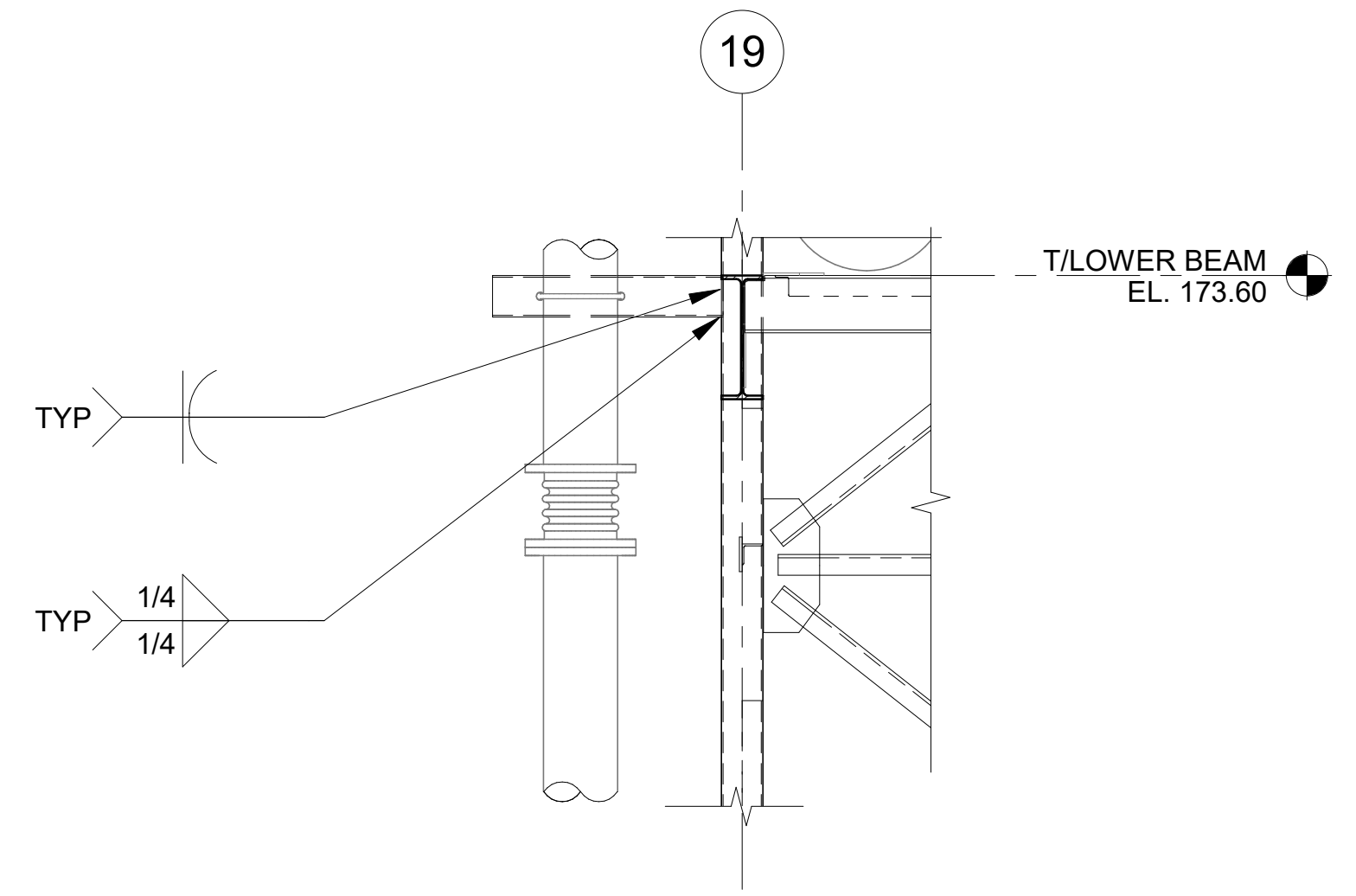
3
 40-S405
BRIDGE ISOMETRIC VIEW
 SCALE: NOT TO SCALE



1
 40-S405
LOWER PLAN DETAIL AT EXISTING WALL
 SCALE: 1/2" = 1'-0"



2
 40-S405
UPPER PLAN DETAIL AT EXISTING WALL
 SCALE: 1/2" = 1'-0"



4
 40-S405
JOINT DETAIL
 SCALE: 1/2" = 1'-0"

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NORTH AERATION BASINS - BLOWER PIPING BRIDGE SECTIONS AND DETAILS 6

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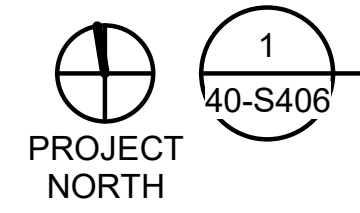
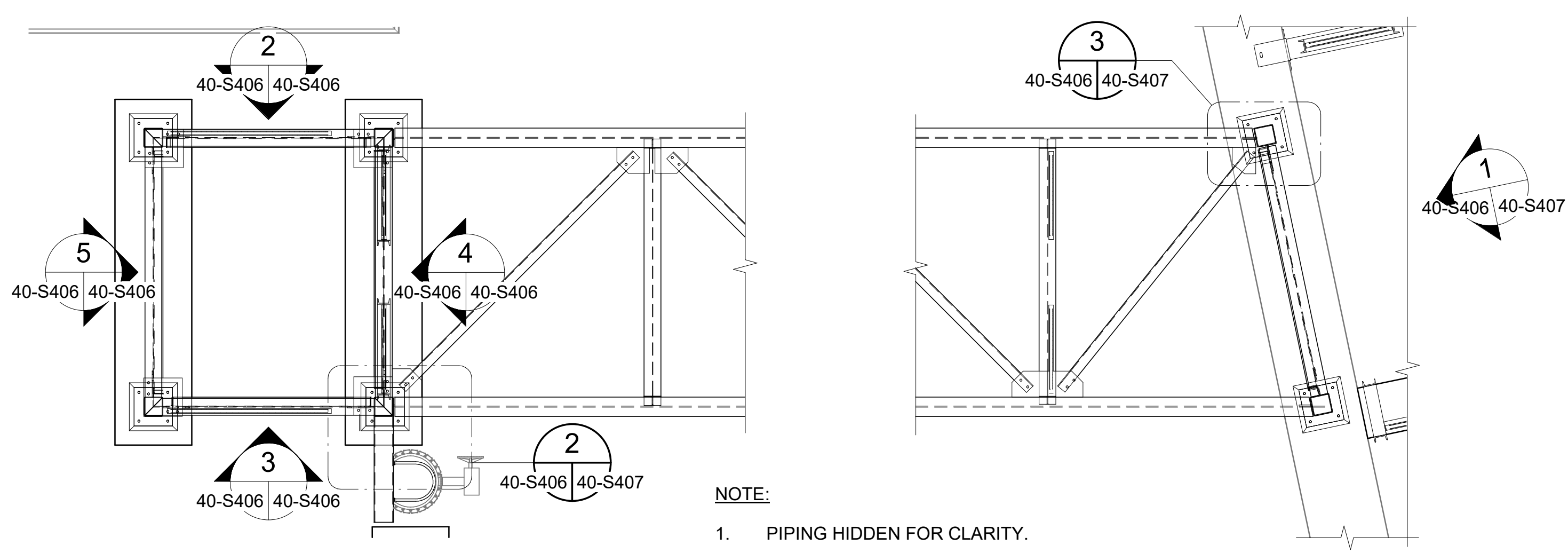
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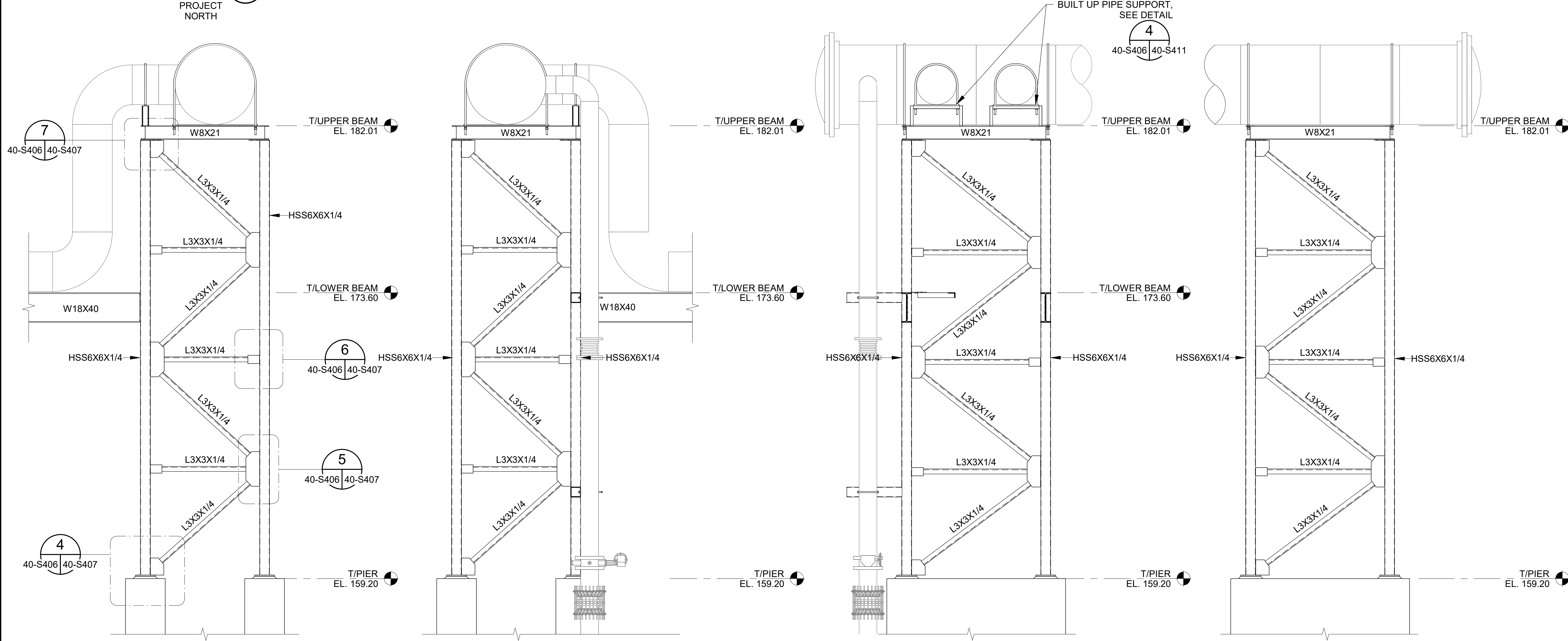
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BRIDGE SUPPORT TOWERS PLAN

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



NORTH ELEVATION AT BRIDGE SUPPORT TOWER

SOUTH ELEVATION AT BRIDGE SUPPORT TOWER

EAST ELEVATION AT BRIDGE SUPPORT TOWER

WEST ELEVATION AT BRIDGE SUPPORT TOWER

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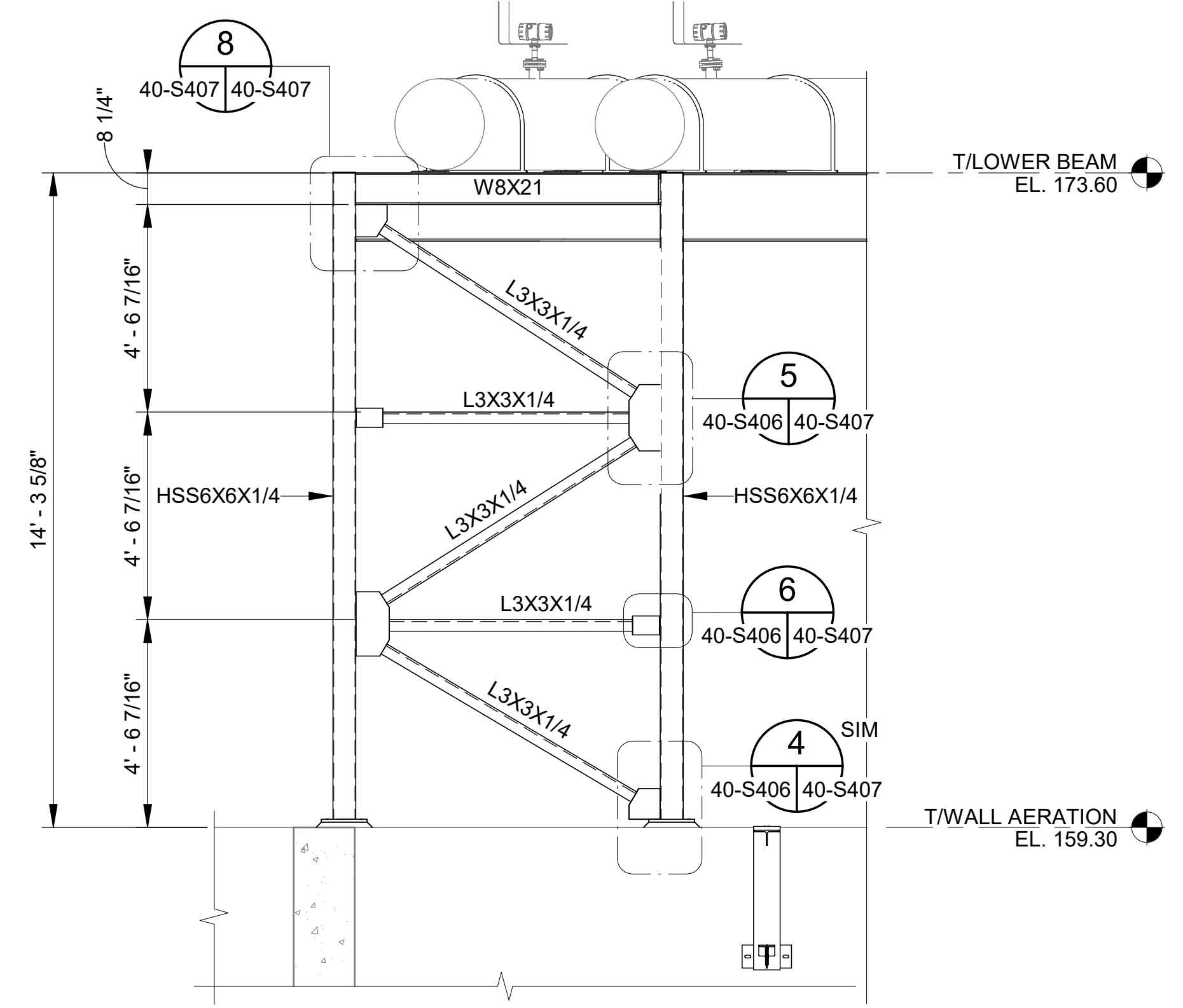
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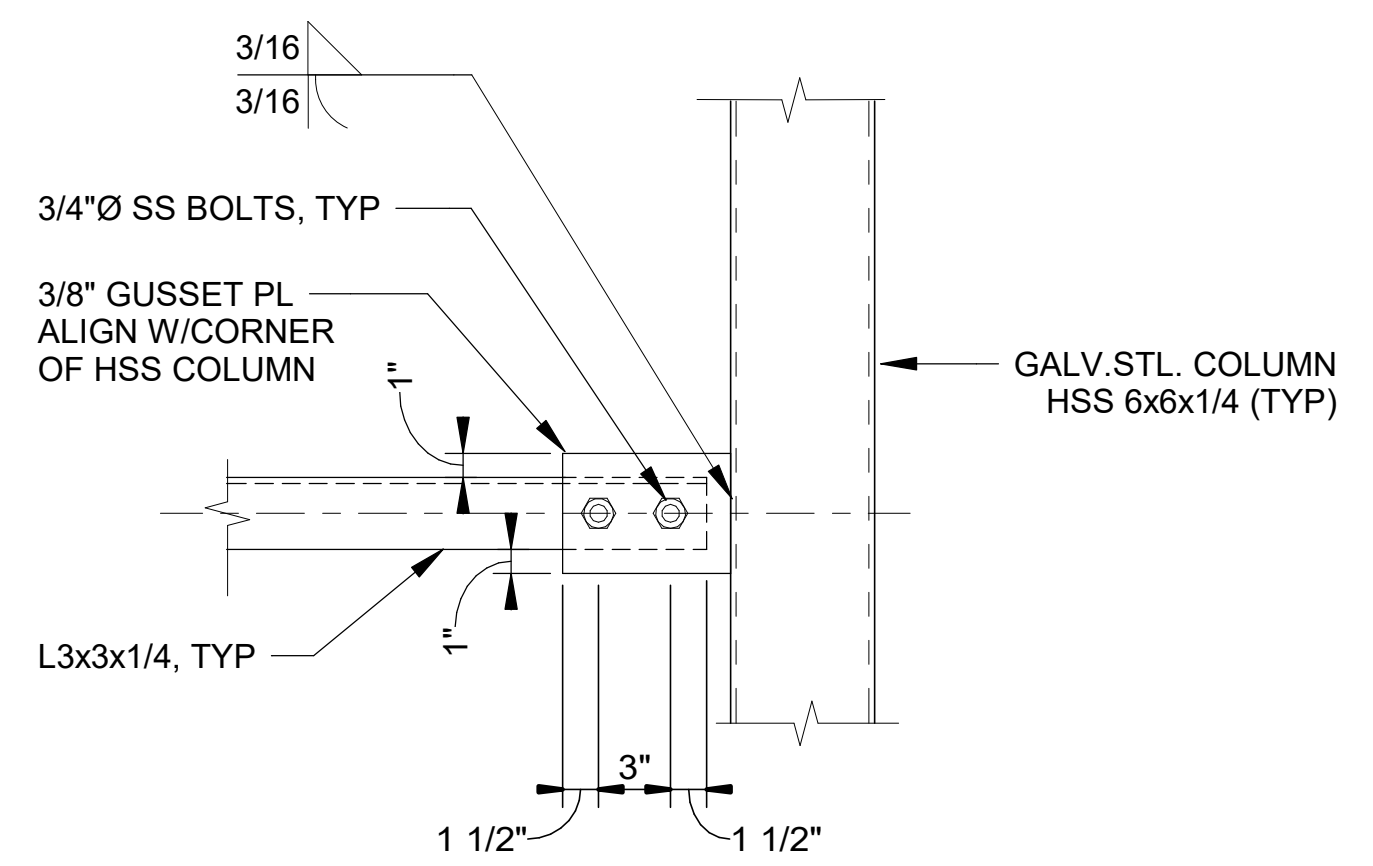
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40-S407
 SHEET NUMBER
107



ELEVATION VIEW BRIDGE SUPPORT TOWER AT AERATION BASIN
 SCALE: 3/8" = 1'-0"

40-S406 | 40-S407

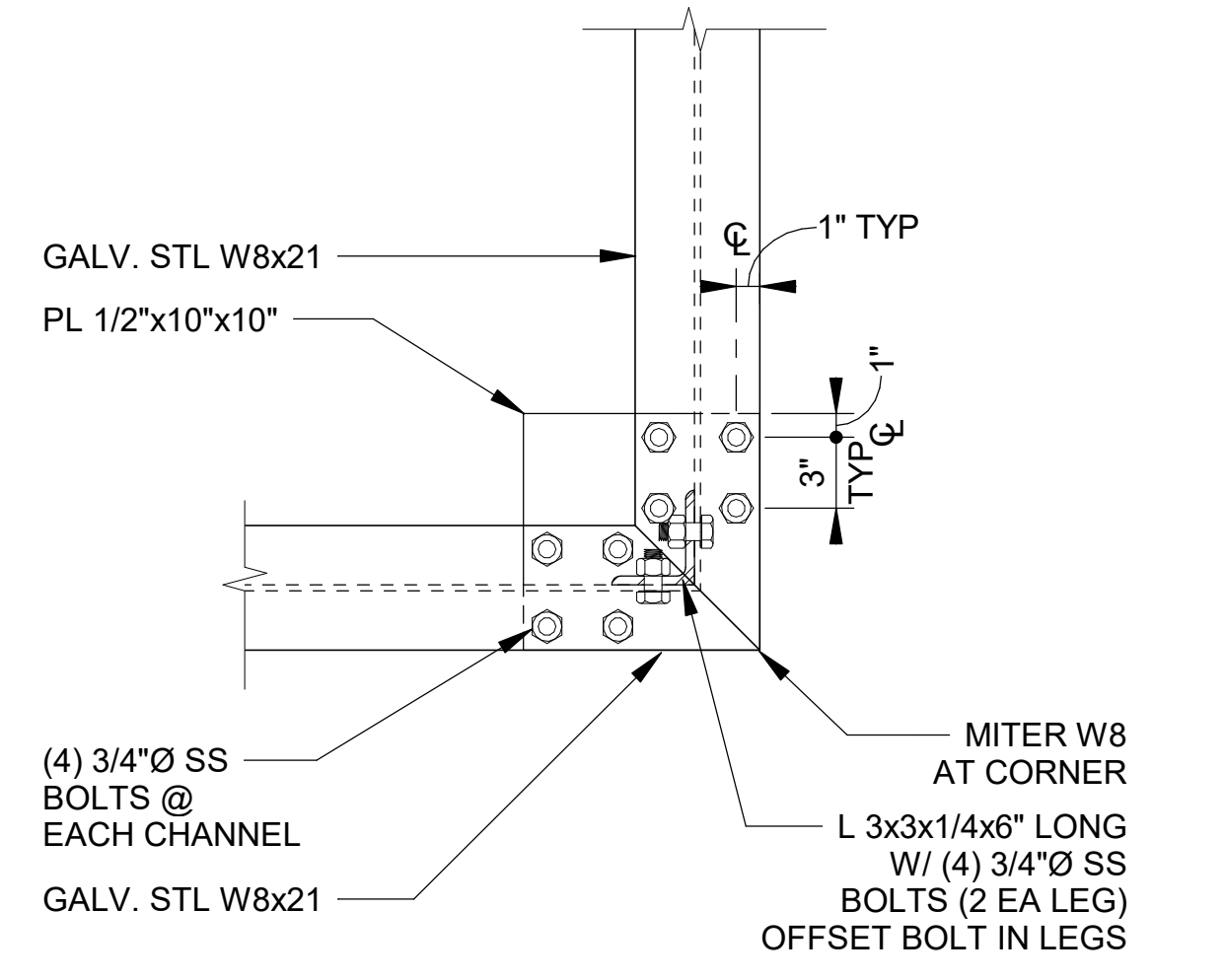


BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407

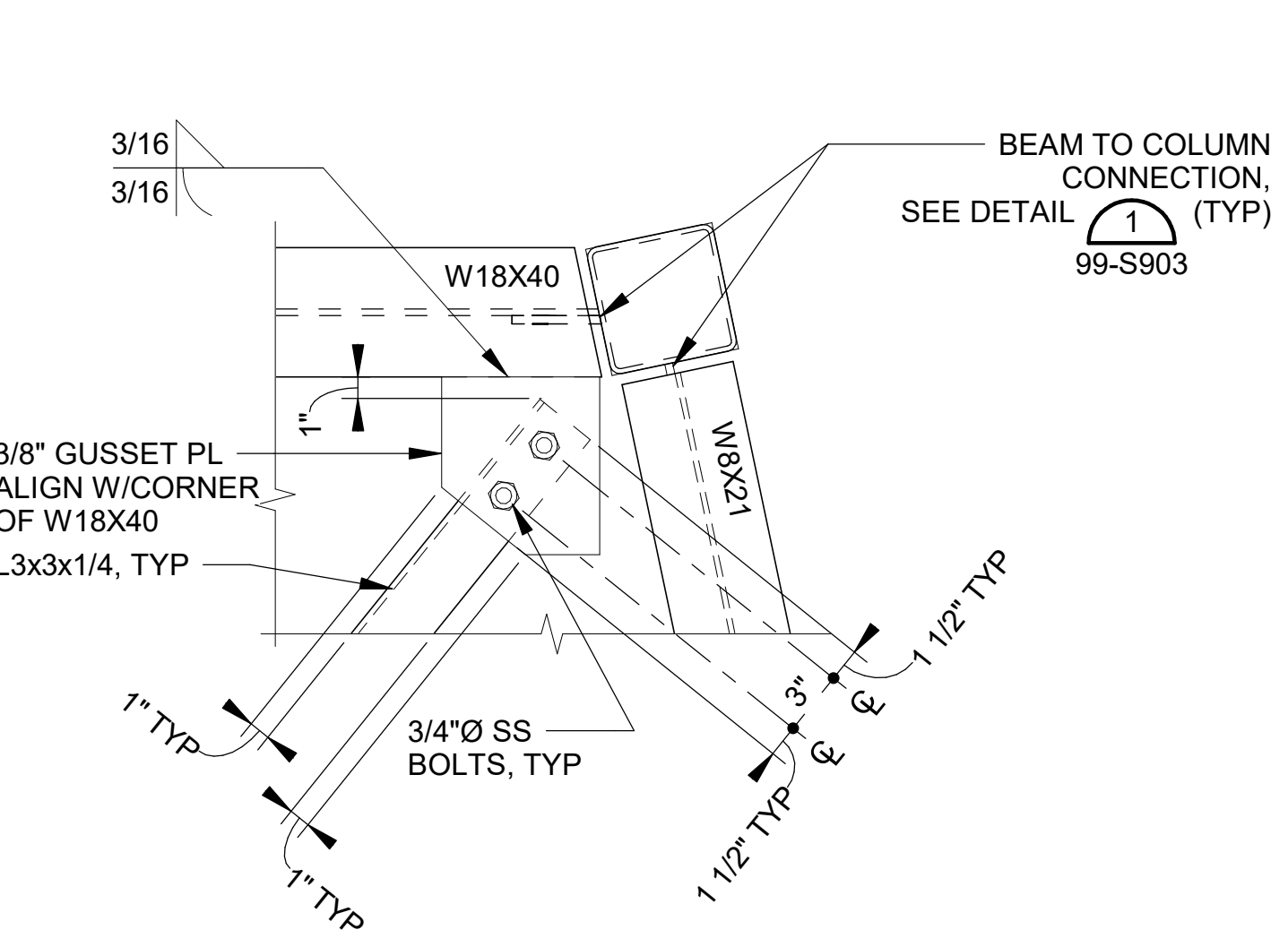
NOTES:

- ALL STRUCTURAL STEEL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 AFTER FABRICATION.
- ALL BOLTED CONNECTIONS TO BE MADE WITH STAINLESS STEEL BOLTS THAT MEET ASTM A 193, GRADE B8.
- FIXED SUPPORTS **R** REQUIRE THAT THE U-BOLTS BE PRE-TENSIONED TO APPROXIMATELY 2000 LBS (EACH SIDE) TO RESTRAIN AXIAL MOVEMENT.
- AT SLIP SUPPORTS **L** LEAVE U-BOLTS ONLY HAND TIGHTENED AND PEEN THREADS SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.
- PIPE SUPPORT ARE I-ROD ANTI-CORROSION PIPE SUPPORTS. SIZE OF I-ROD PER MANUFACTURER'S RECOMMENDATIONS.



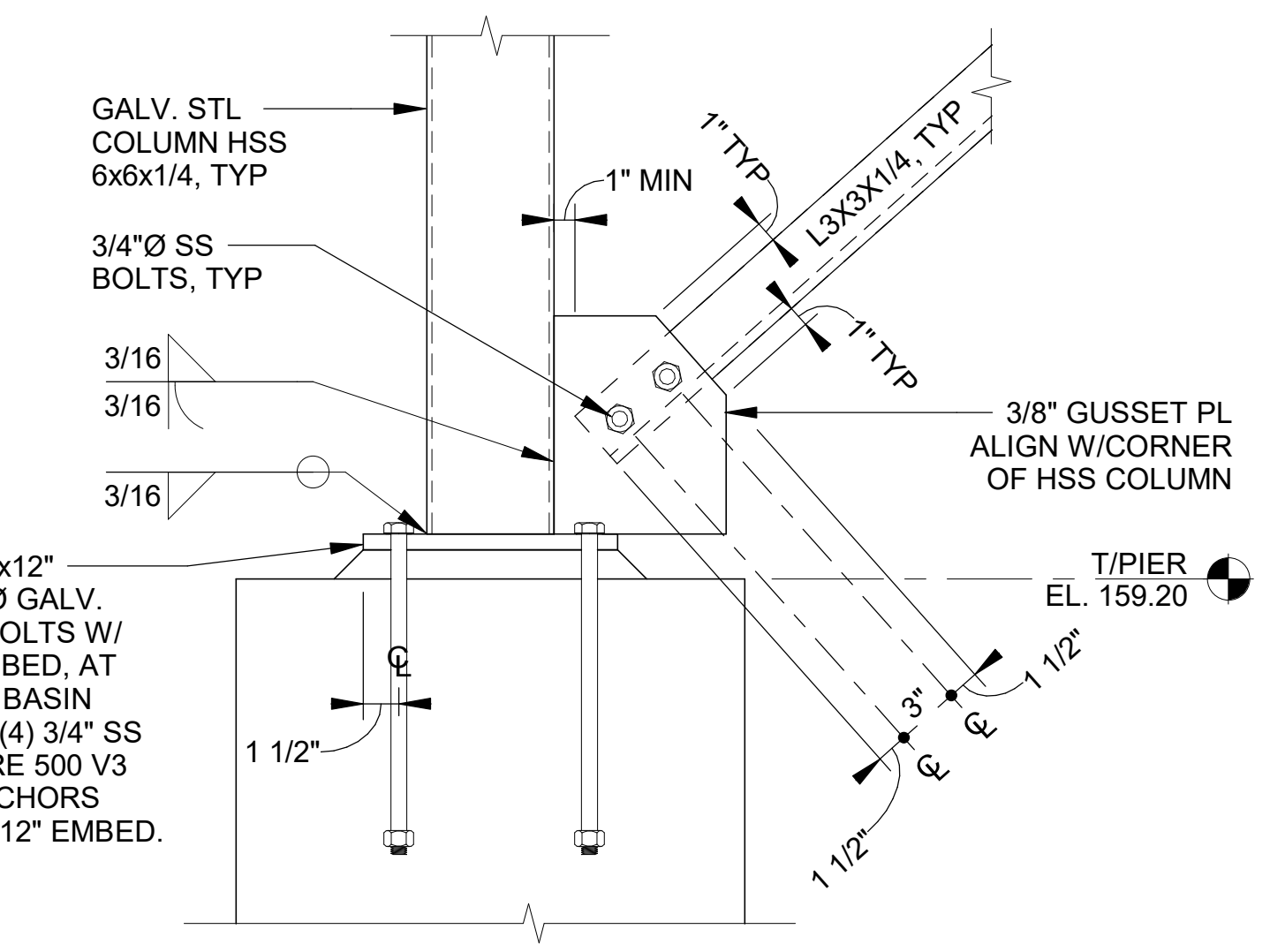
BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407



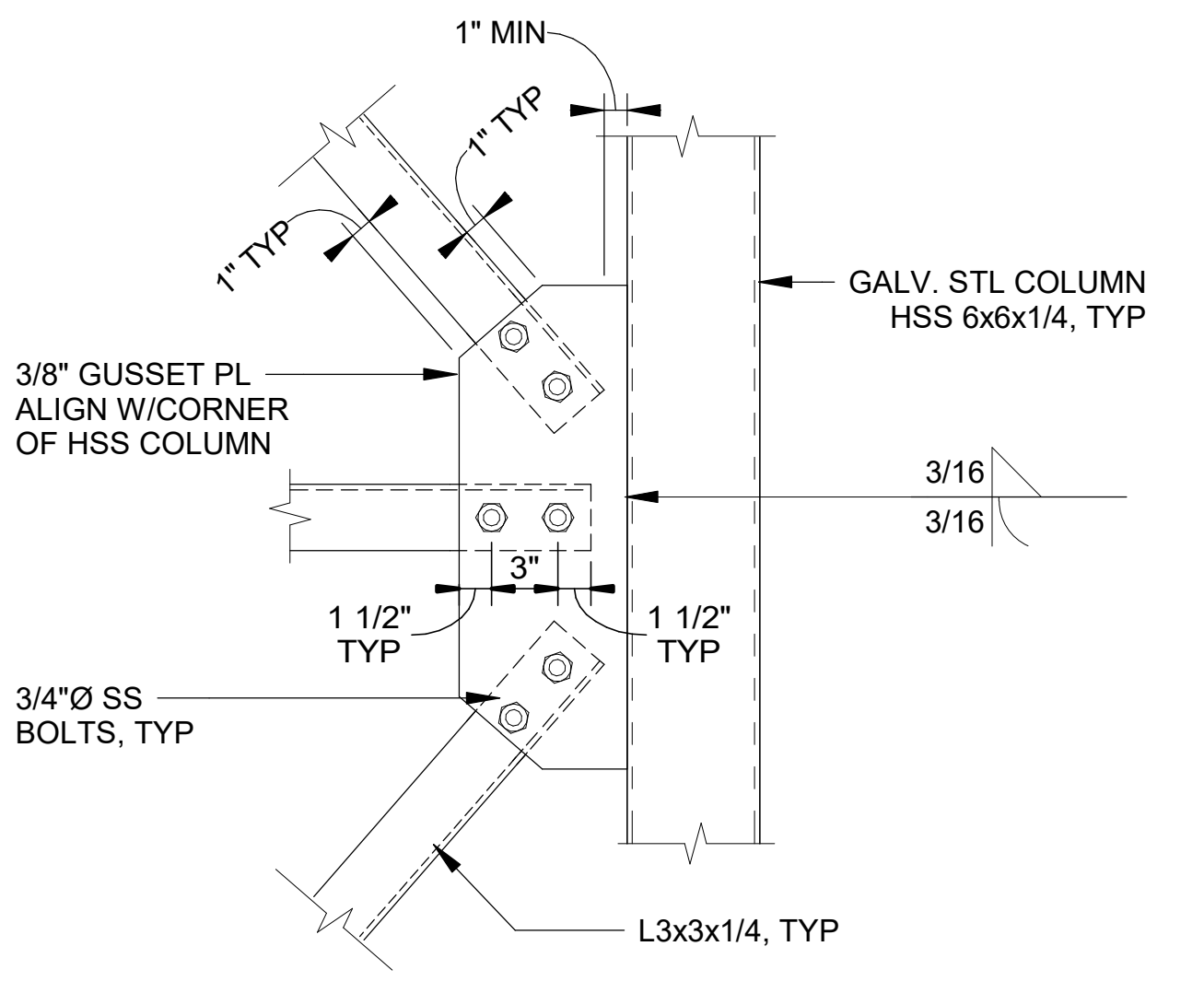
BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407



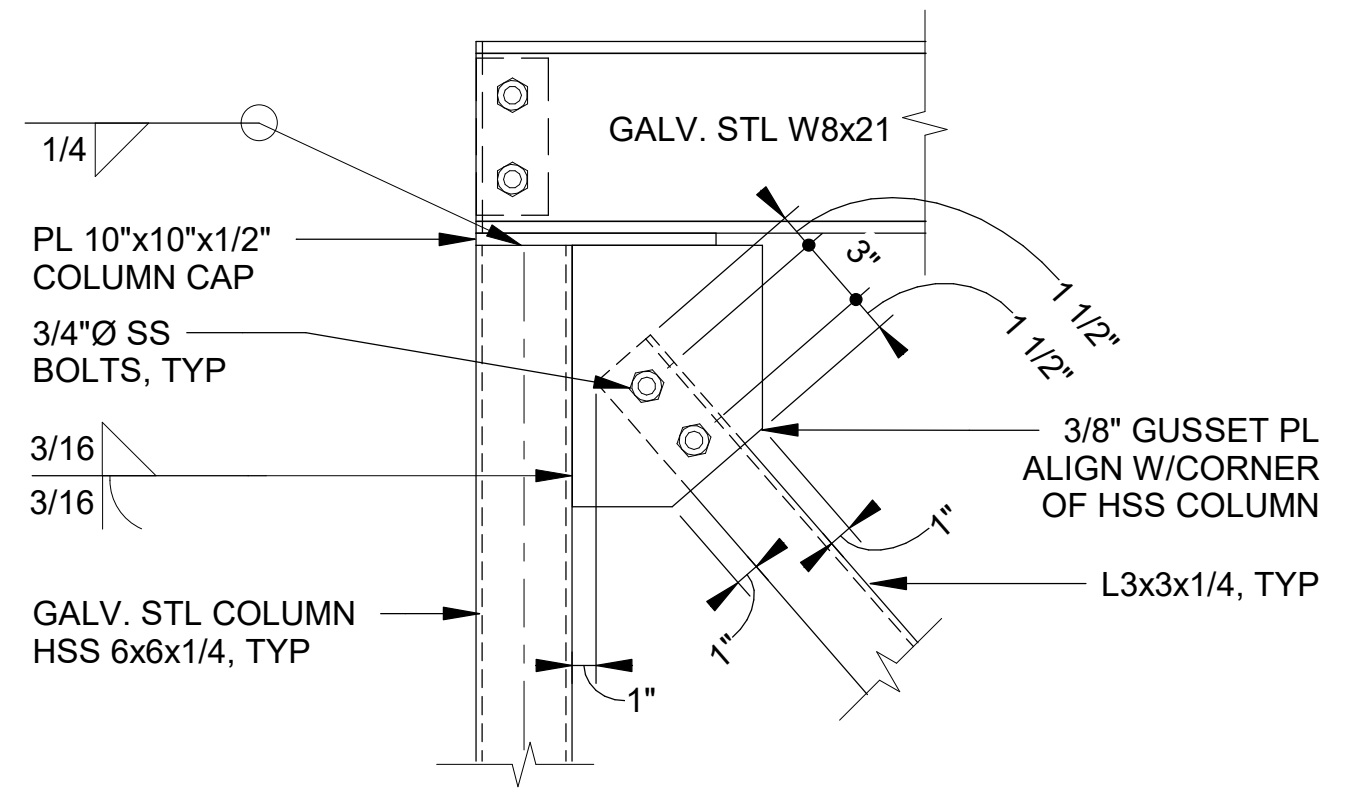
BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407



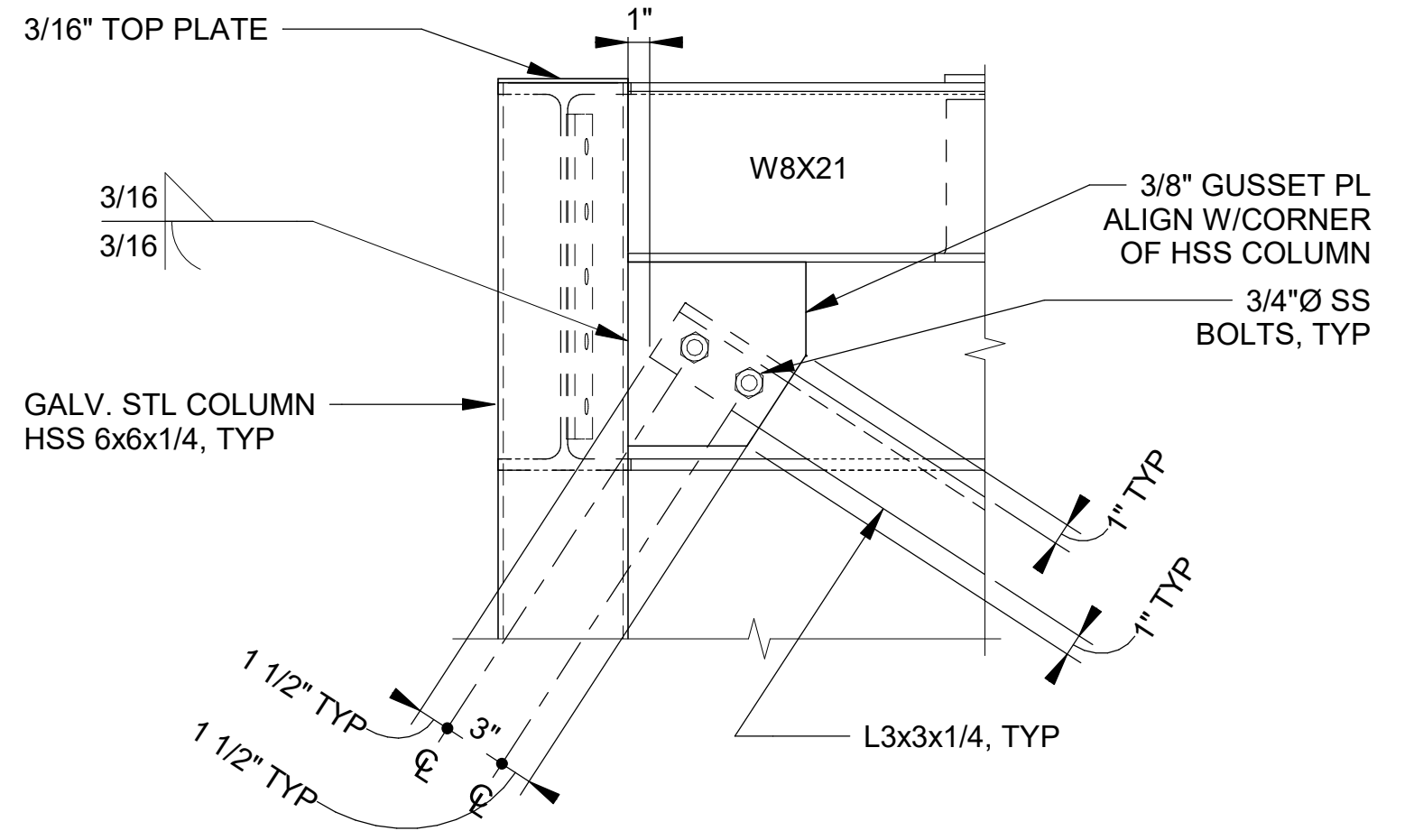
BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407



BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S406 | 40-S407

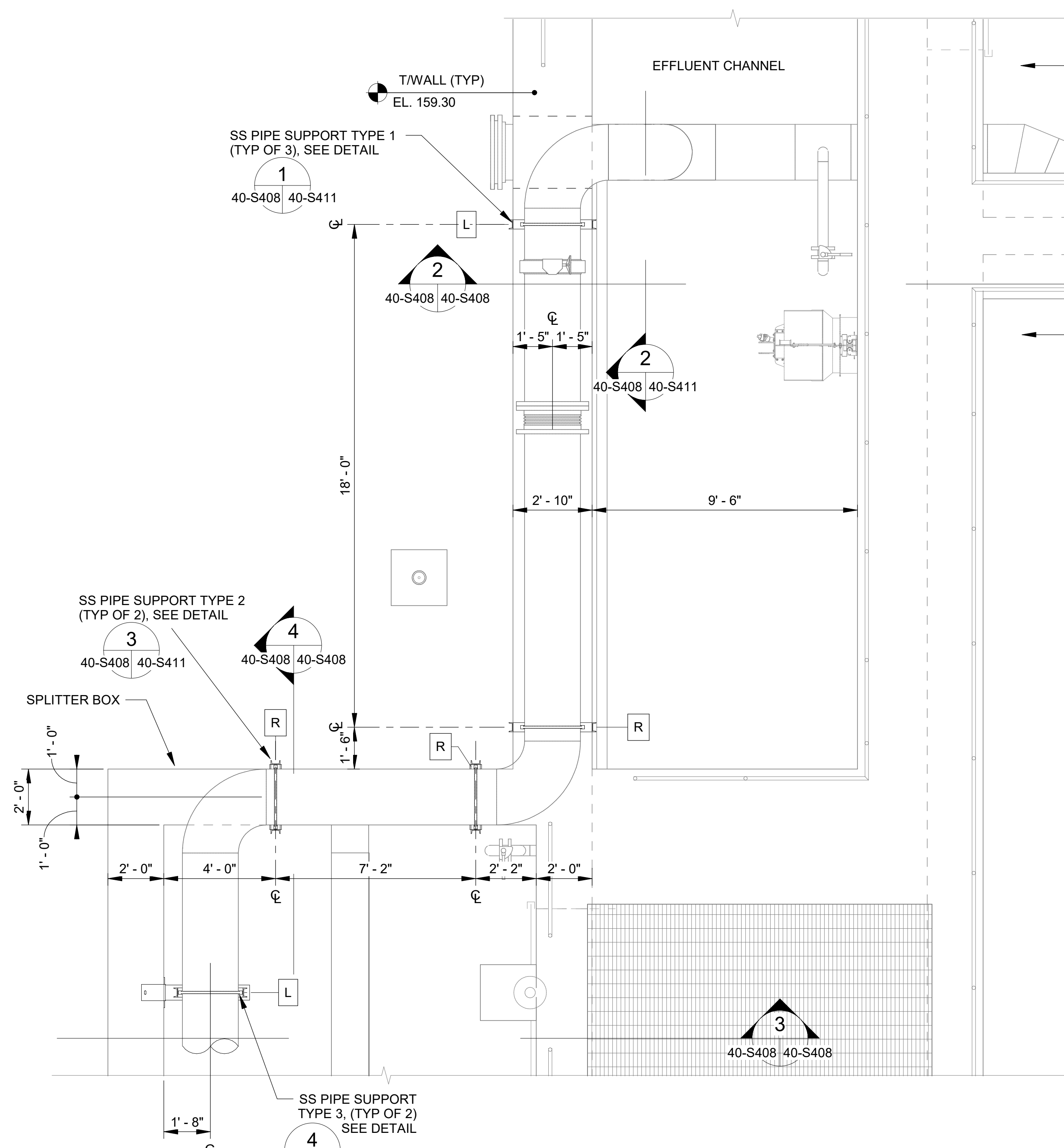


BRIDGE SUPPORT DETAIL
 SCALE: 1 1/2" = 1'-0"

40-S407 | 40-S407

Revit File: BIM_360/19W10160 - Hilliard N Fletcher WRRF - Anaerobic/HFWRFR_40 - NORTH AERATION BASINS.rvt
 PLOT Date: 1/19/2024 5:34:33 PM

Revit File: BIM_360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HWRFR_40 - NORTH AERATION BASINS.rvt
 PLOT Date: 11/19/2024 5:34:34 PM

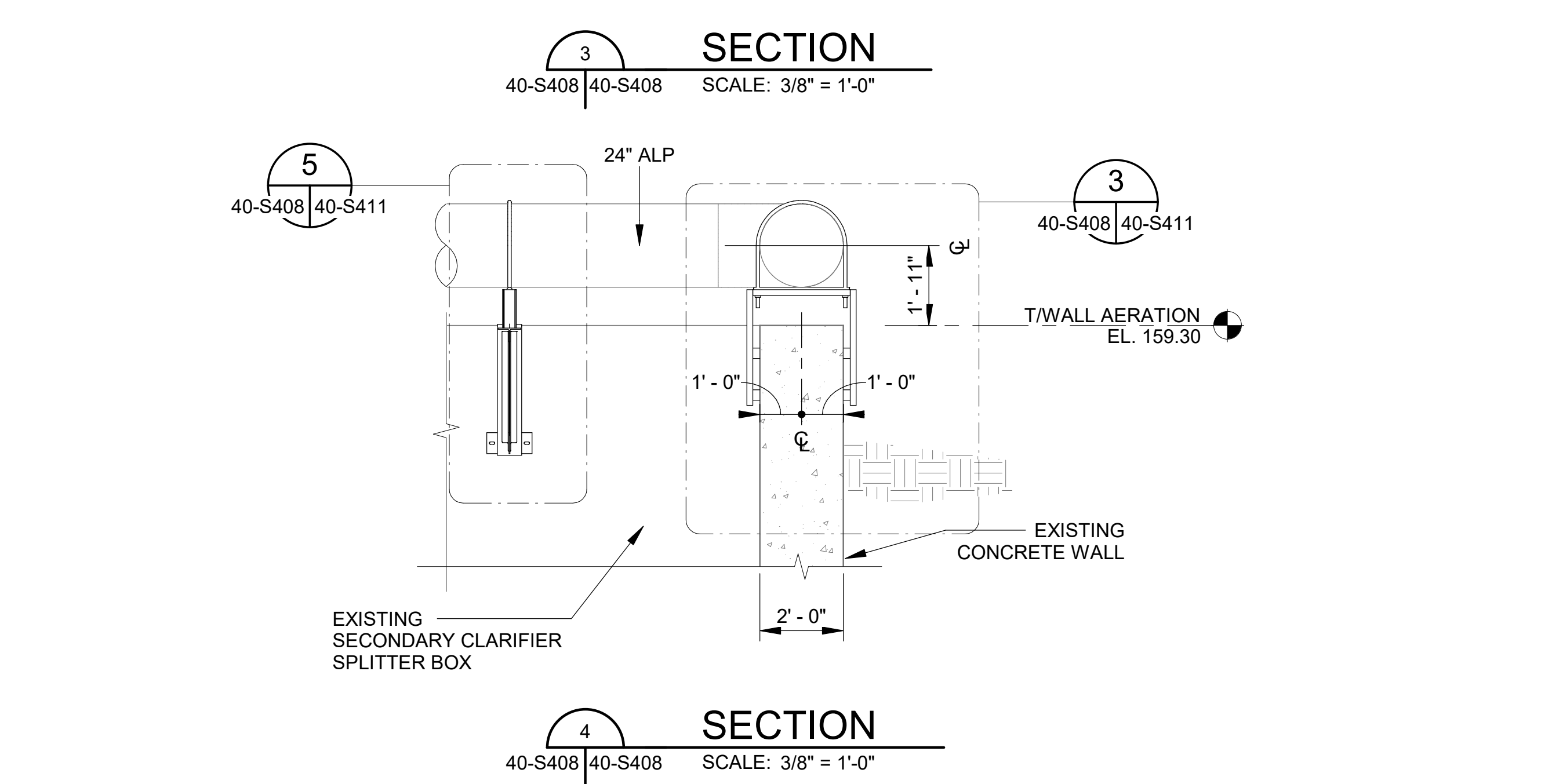
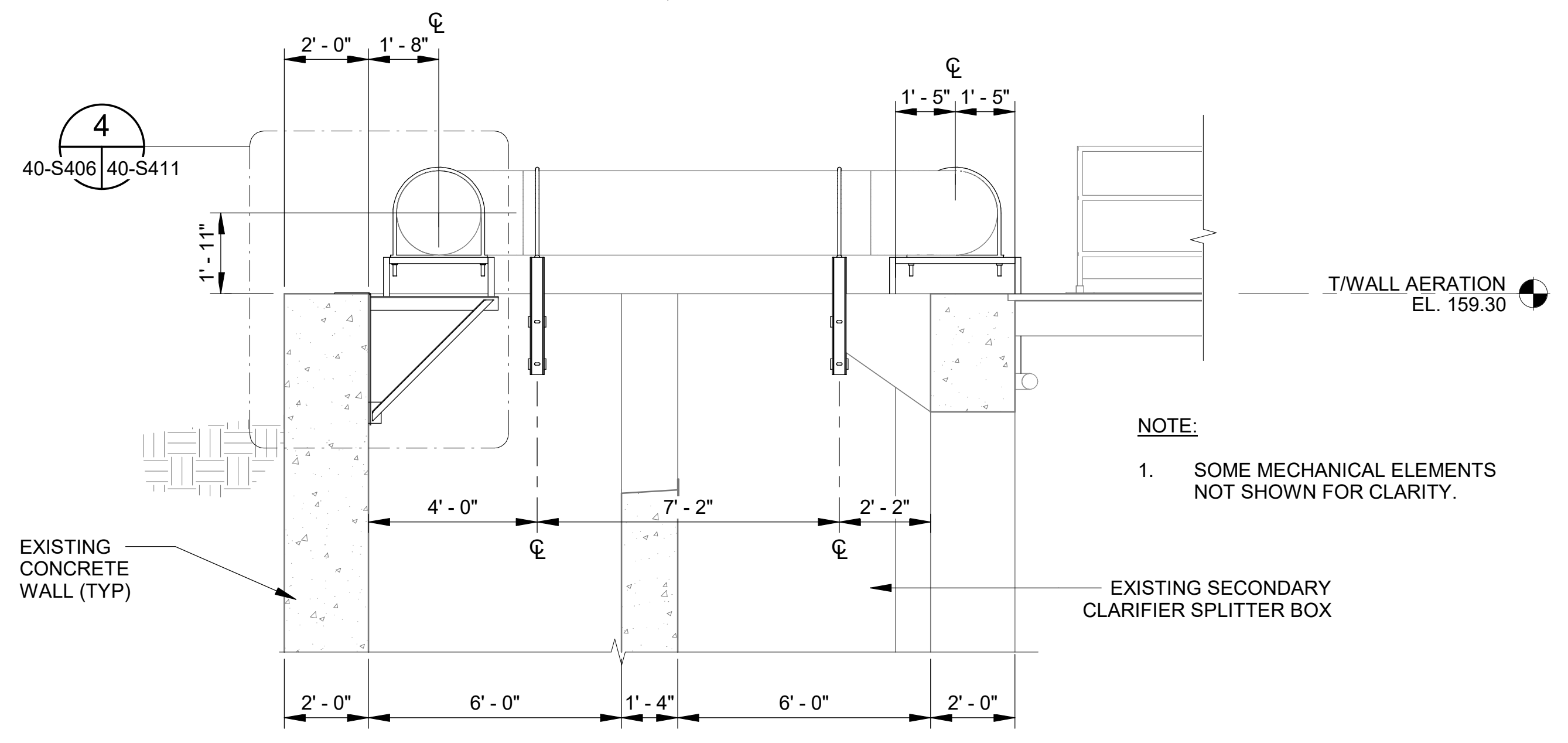
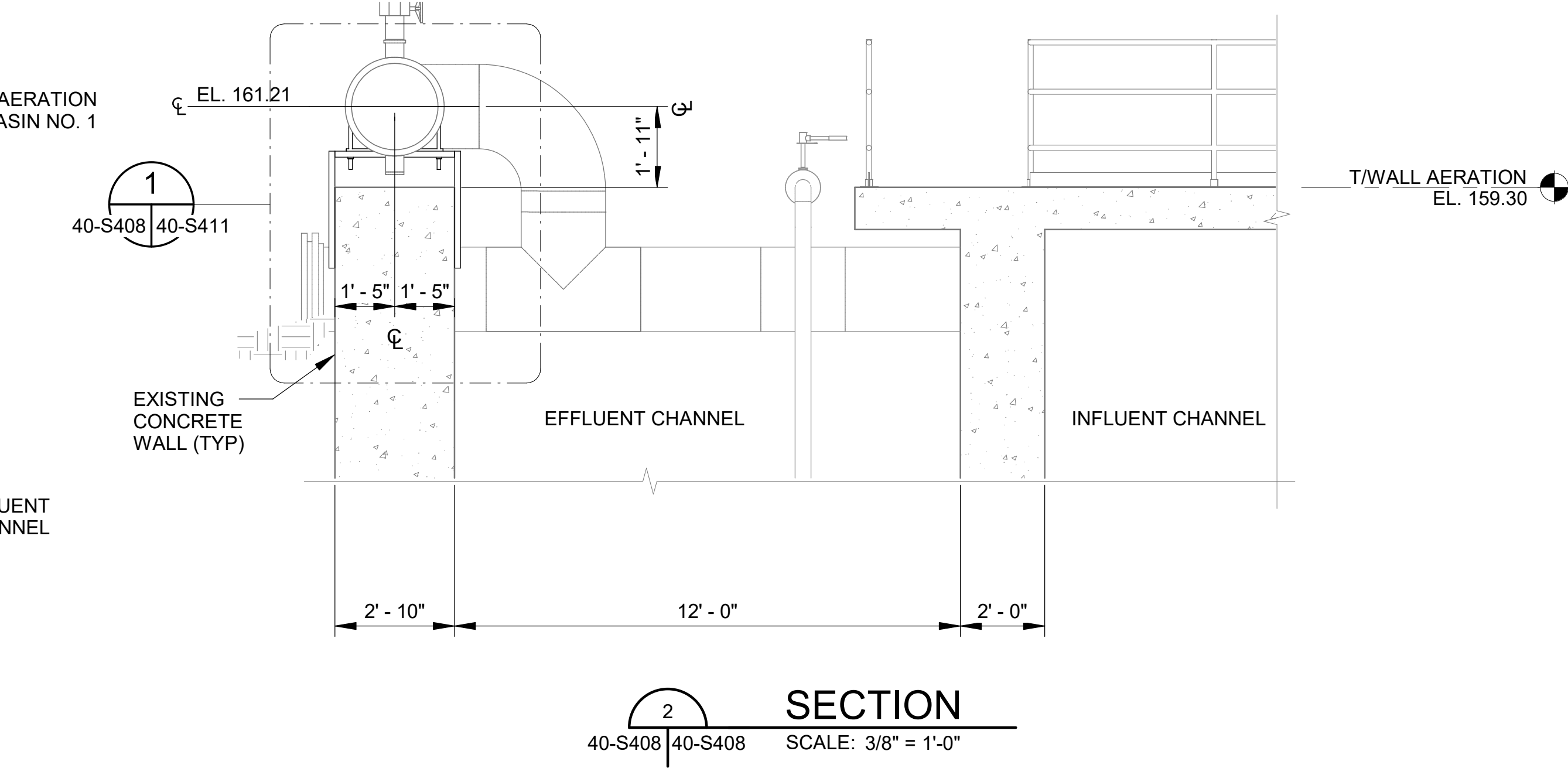


PROJECT NORTH
 40-S408
PLAN DETAIL
 SCALE: 3/8" = 1'-0"

- TAG LEGEND**
- PIPE SUPPORTS NOT AXIALLY RESTRAINED TO ALLOW AXIAL EXPANSION AND CONTRACTION.
 - PIPE SUPPORTS AXIALLY RESTRAINED TO RESTRICT AXIAL EXPANSION AND CONTRACTION.
 - BELLOW EXPANSION JOINT.

U-BOLT TENSIONING NOTE:

PIPE SUPPORTS ARE NOTED ON PLAN AS EITHER "R" OR "L". AT "R" SUPPORTS PRE-TENSION BOLTS TO APPROXIMATELY 2,000 LBS (EA SIDE) TO RESTRAIN AXIAL MOVEMENT. AT "L" SUPPORTS LEAVE U-BOLTS LOOSE SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.



40-S408 40-S411
SECTION 4
 SCALE: 3/8" = 1'-0"

NOTE:
 1. SOME MECHANICAL ELEMENTS NOT SHOWN FOR CLARITY.



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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 1

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SJC
 DRAWN BY: EGB
 CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
40-S408
 SHEET NUMBER
108

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TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 2

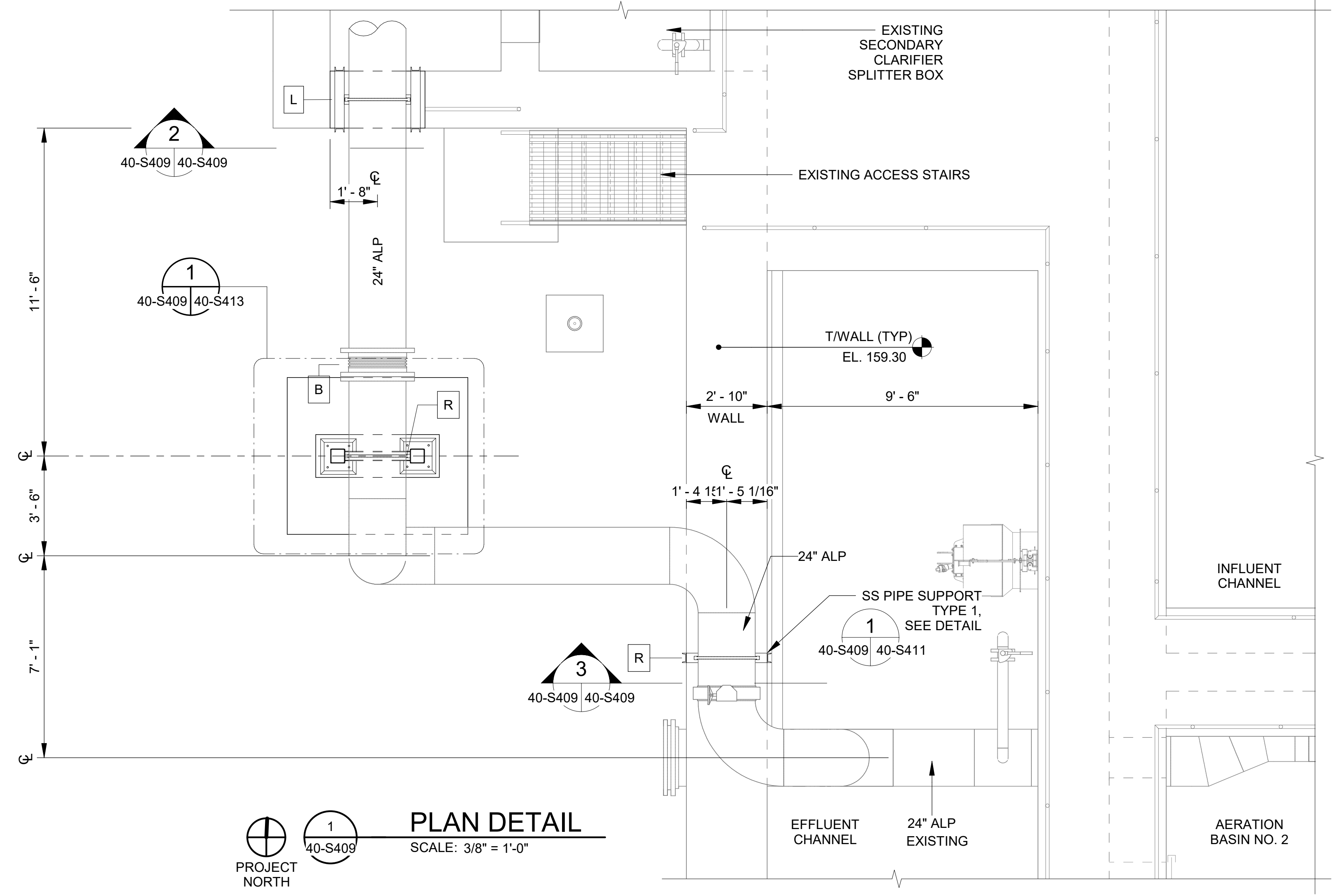
JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SJC
DRAWN BY: EGB
CHECKED BY: KAM

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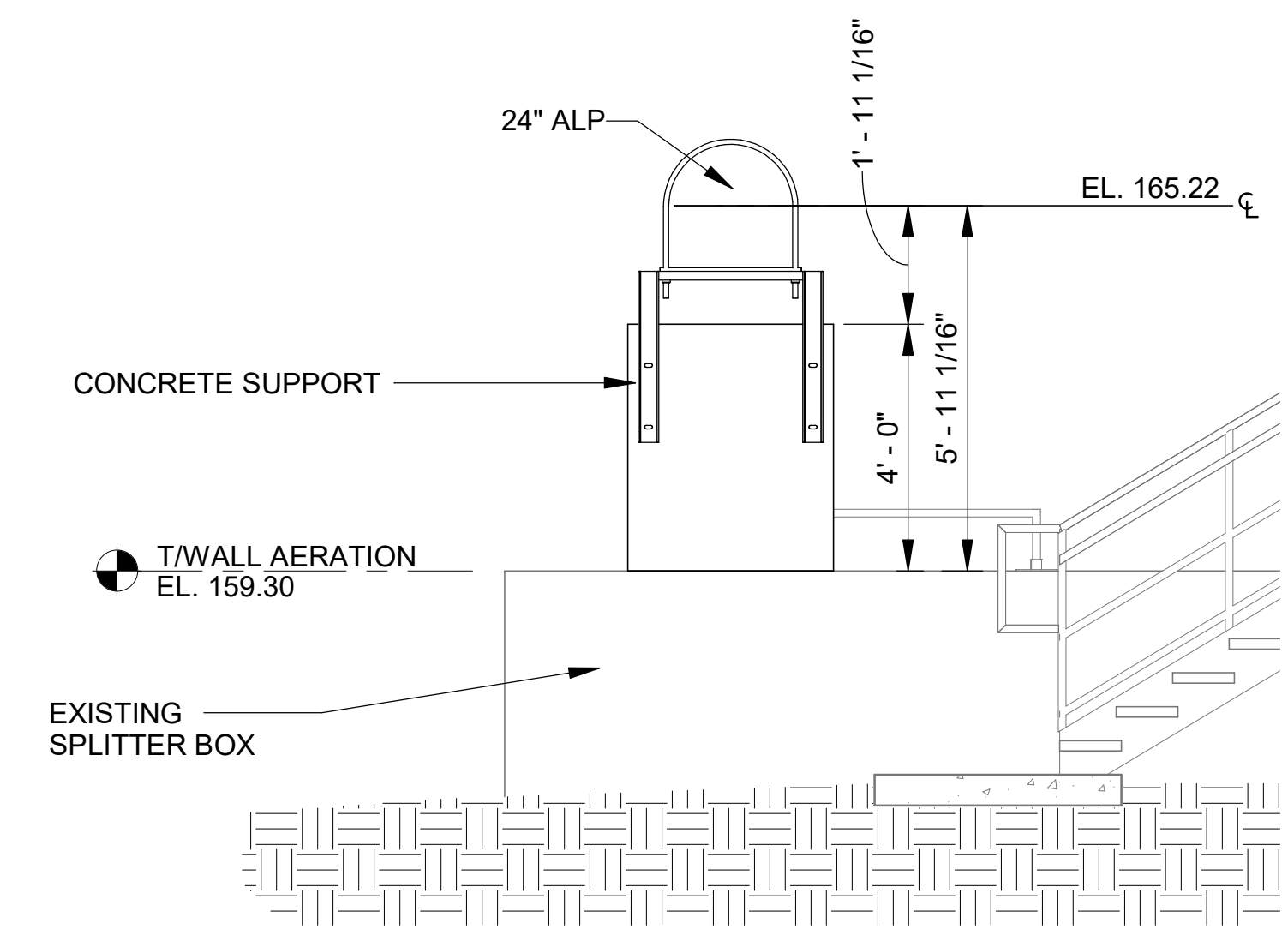
DRAWING NUMBER
40-S409
SHEET NUMBER **109**

- TAG LEGEND**
- L** PIPE SUPPORTS NOT AXIALLY RESTRAINED TO ALLOW AXIAL EXPANSION AND CONTRACTION.
 - R** PIPE SUPPORTS AXIALLY RESTRAINED TO RESTRICT AXIAL EXPANSION AND CONTRACTION.
 - B** BELLOW EXPANSION JOINT.

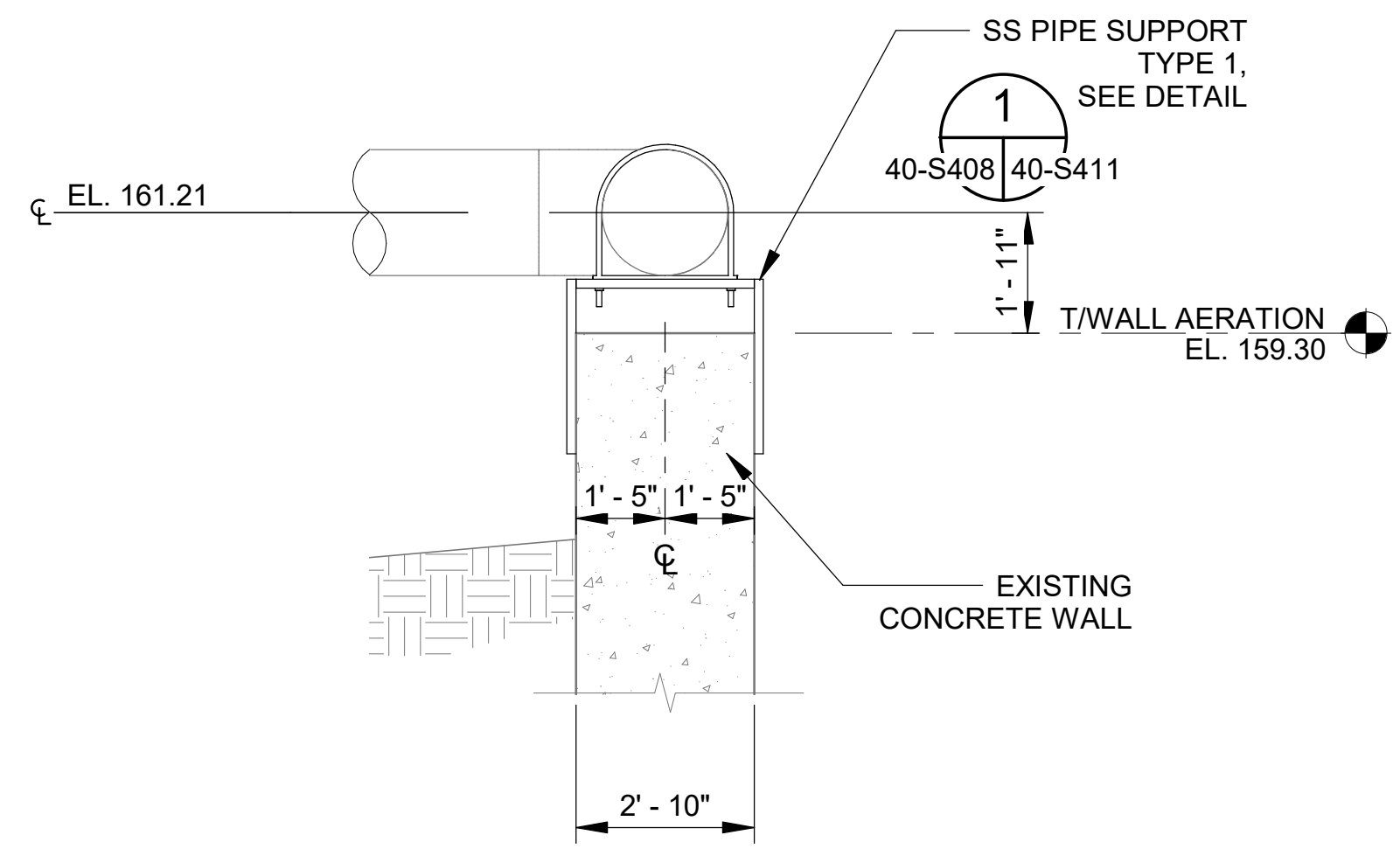
U-BOLT TENSIONING NOTE:
PIPE SUPPORTS ARE NOTED ON PLAN AS EITHER "R", OR "L". AT "R" SUPPORTS PRE-TENSION BOLTS TO APPROXIMATELY 2,000 LBS (EA SIDE) TO RESTRAIN AXIAL MOVEMENT. AT "L" SUPPORTS LEAVE U-BOLTS LOOSE SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.



PLAN DETAIL
SCALE: 3/8" = 1'-0"
PROJECT NORTH



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



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

Revit File: BIM_360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRFF_40 - NORTH AERATION BASINS.rvt
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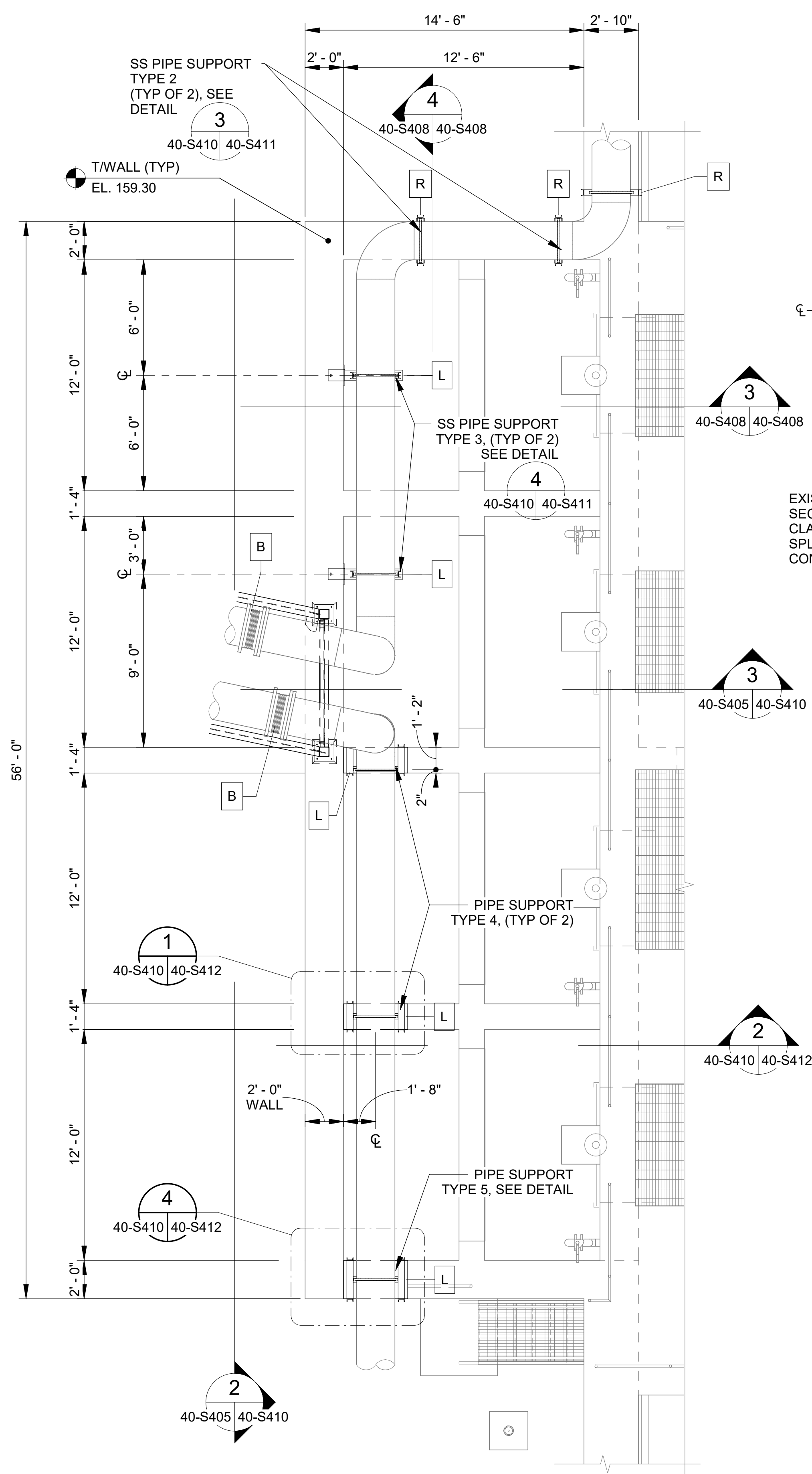
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 PHASE II IMPROVEMENTS

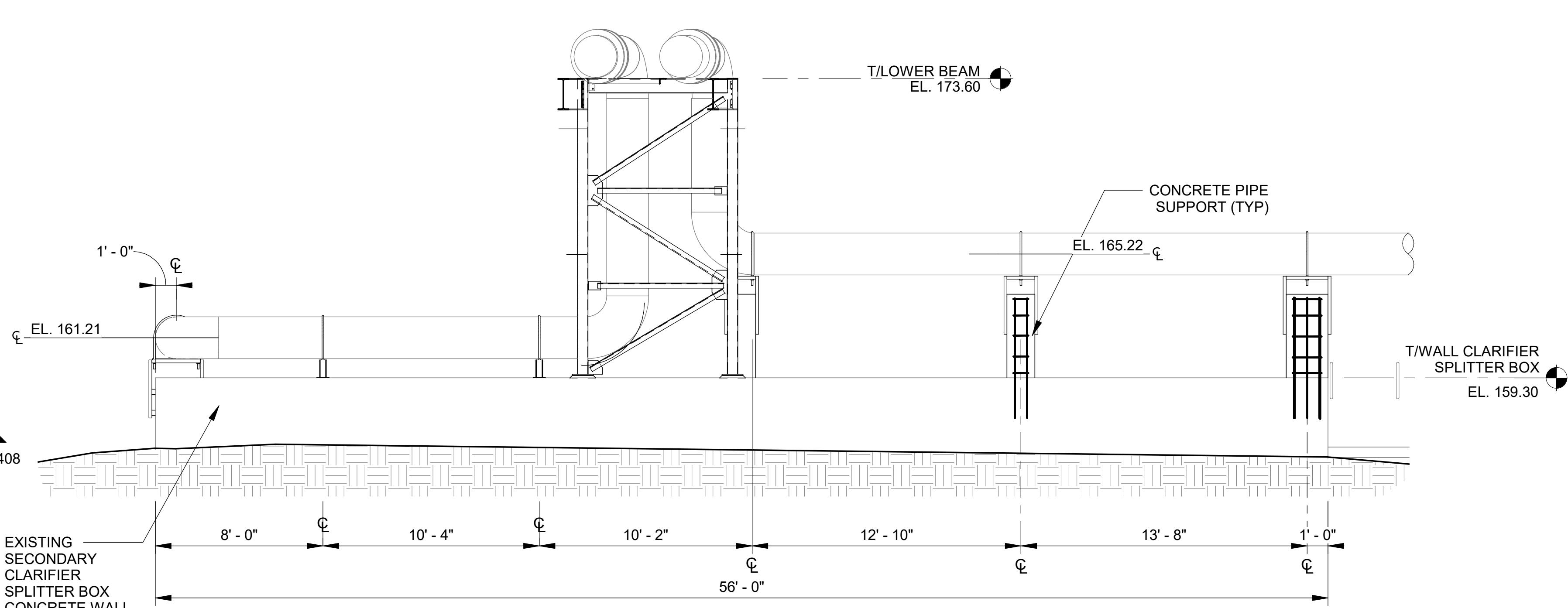
NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 3

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SJC
 DRAWN BY: EGB
 CHECKED BY: KAM

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 DRAWING NUMBER
40-S410
 SHEET NUMBER
110



PLAN DETAIL @ SPLITTER BOX
 SCALE: 1/4" = 1'-0"
 PROJECT NORTH



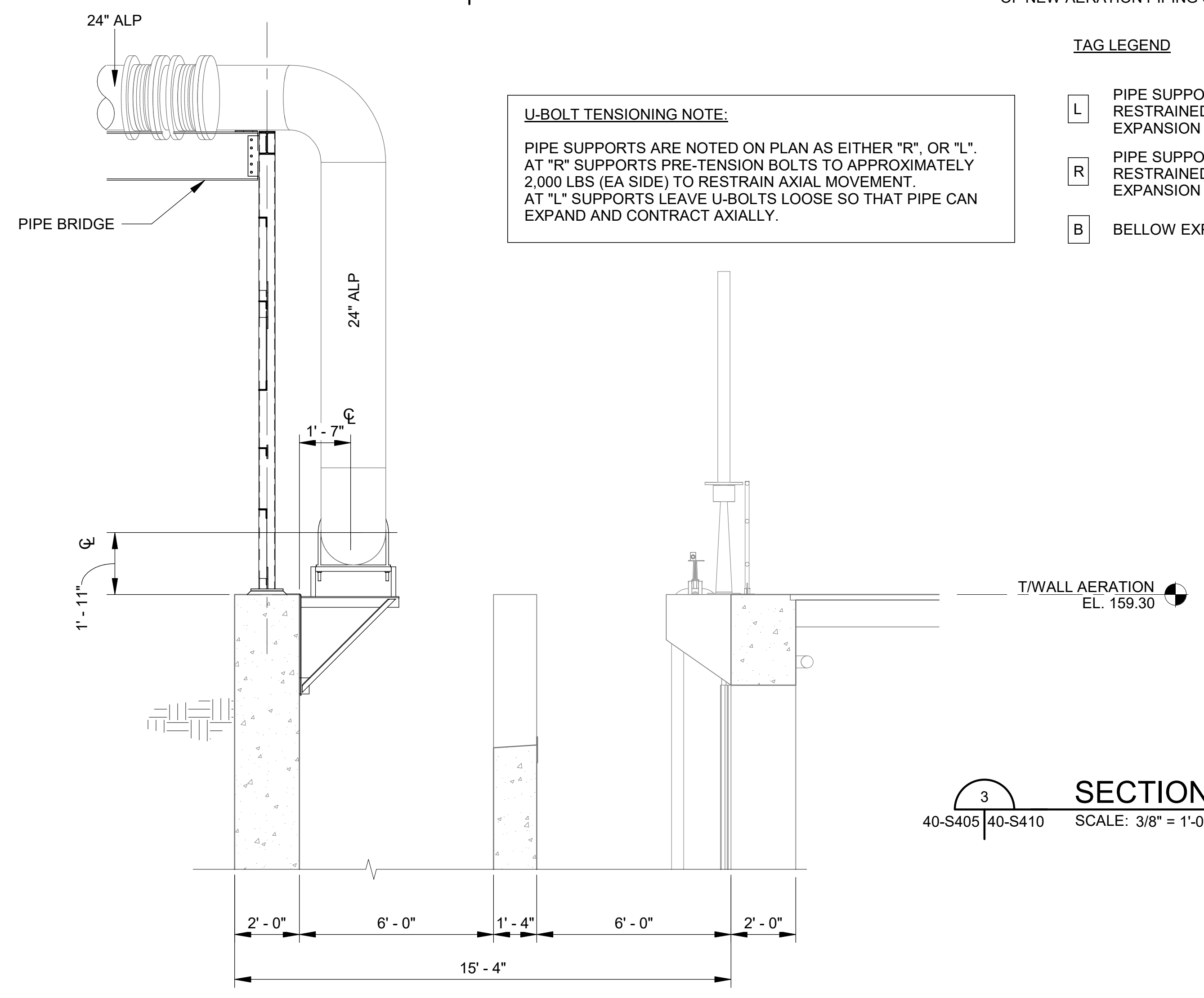
SECTION 2
 40-S405 | 40-S410 SCALE: 1/4" = 1'-0"

NOTES:
 1. GUARDRAIL NOT SHOWN FOR CLARITY. CONTRACTOR TO REINSTALL ALL GUARDRAIL SECTIONS REMOVED TO FACILITATE CONSTRUCTION OF NEW AERATION PIPING SYSTEM.

TAG LEGEND

- L PIPE SUPPORTS NOT AXIALLY RESTRAINED TO ALLOW AXIAL EXPANSION AND CONTRACTION.
- R PIPE SUPPORTS AXIALLY RESTRAINED TO RESTRICT AXIAL EXPANSION AND CONTRACTION.
- B BELLOW EXPANSION JOINT.

U-BOLT TENSIONING NOTE:
 PIPE SUPPORTS ARE NOTED ON PLAN AS EITHER "R", OR "L". AT "R" SUPPORTS PRE-TENSION BOLTS TO APPROXIMATELY 2,000 LBS (EA SIDE) TO RESTRAIN AXIAL MOVEMENT. AT "L" SUPPORTS LEAVE U-BOLTS LOOSE SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.



SECTION 3
 40-S405 | 40-S410 SCALE: 3/8" = 1'-0"

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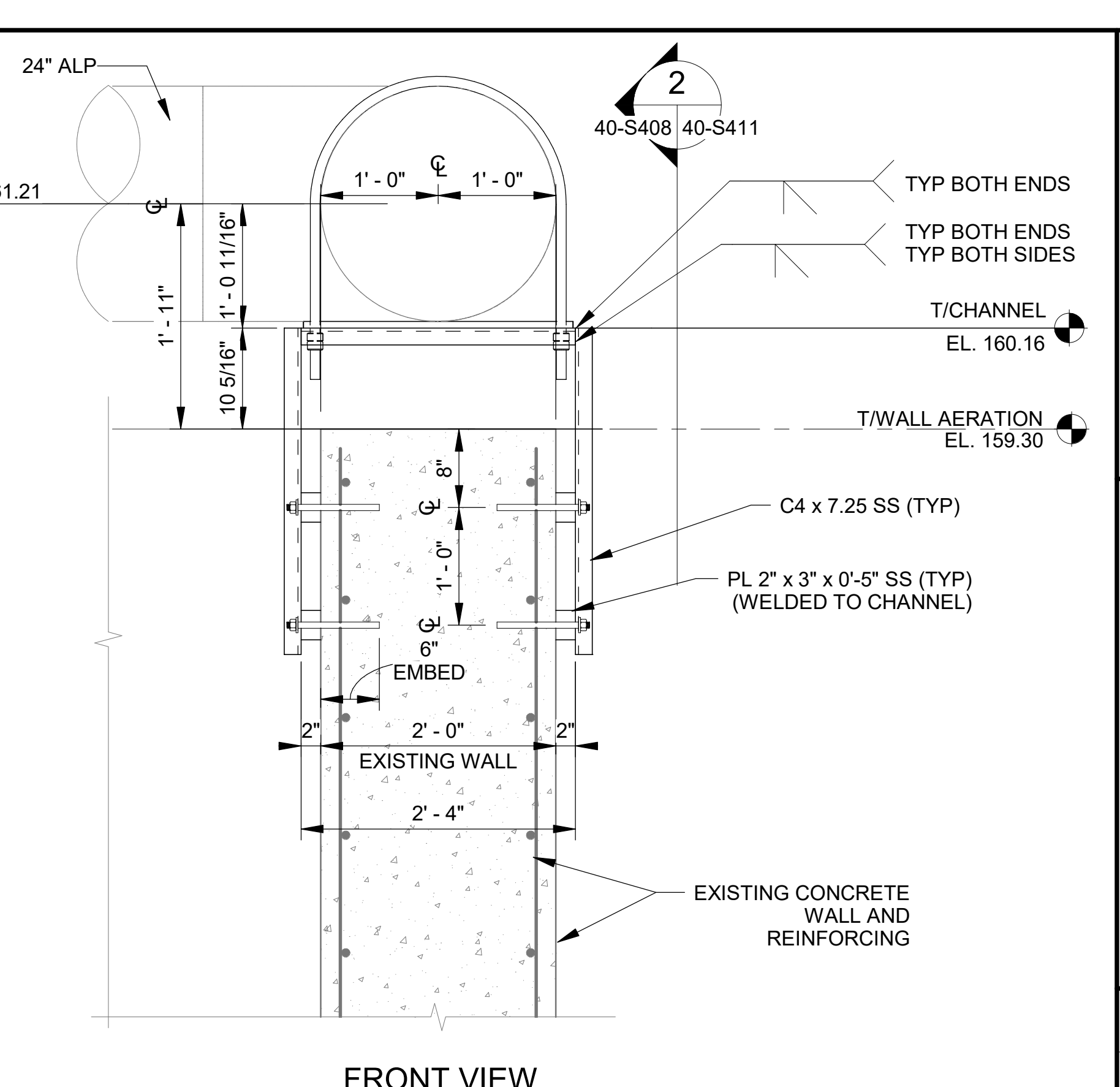
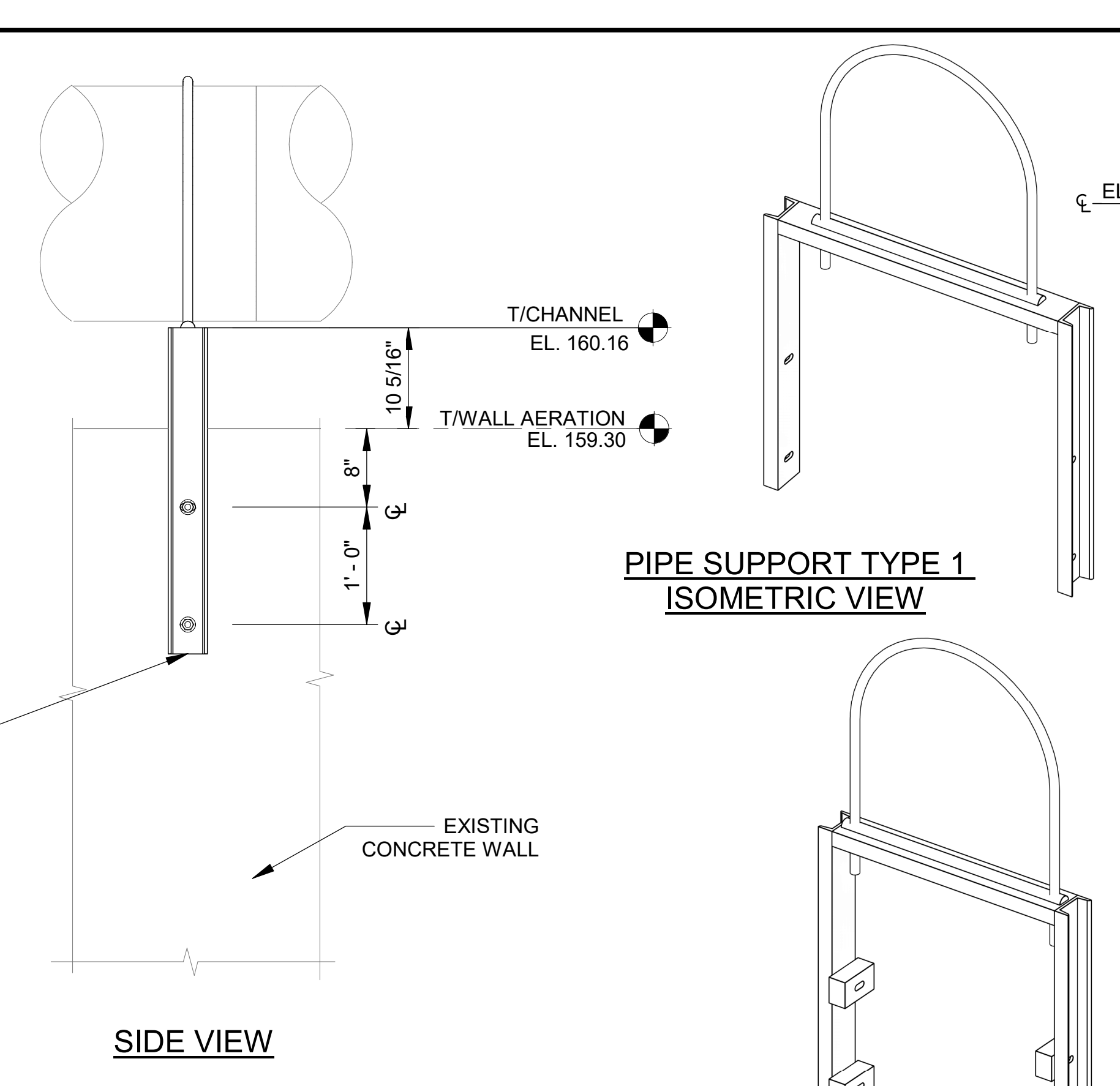
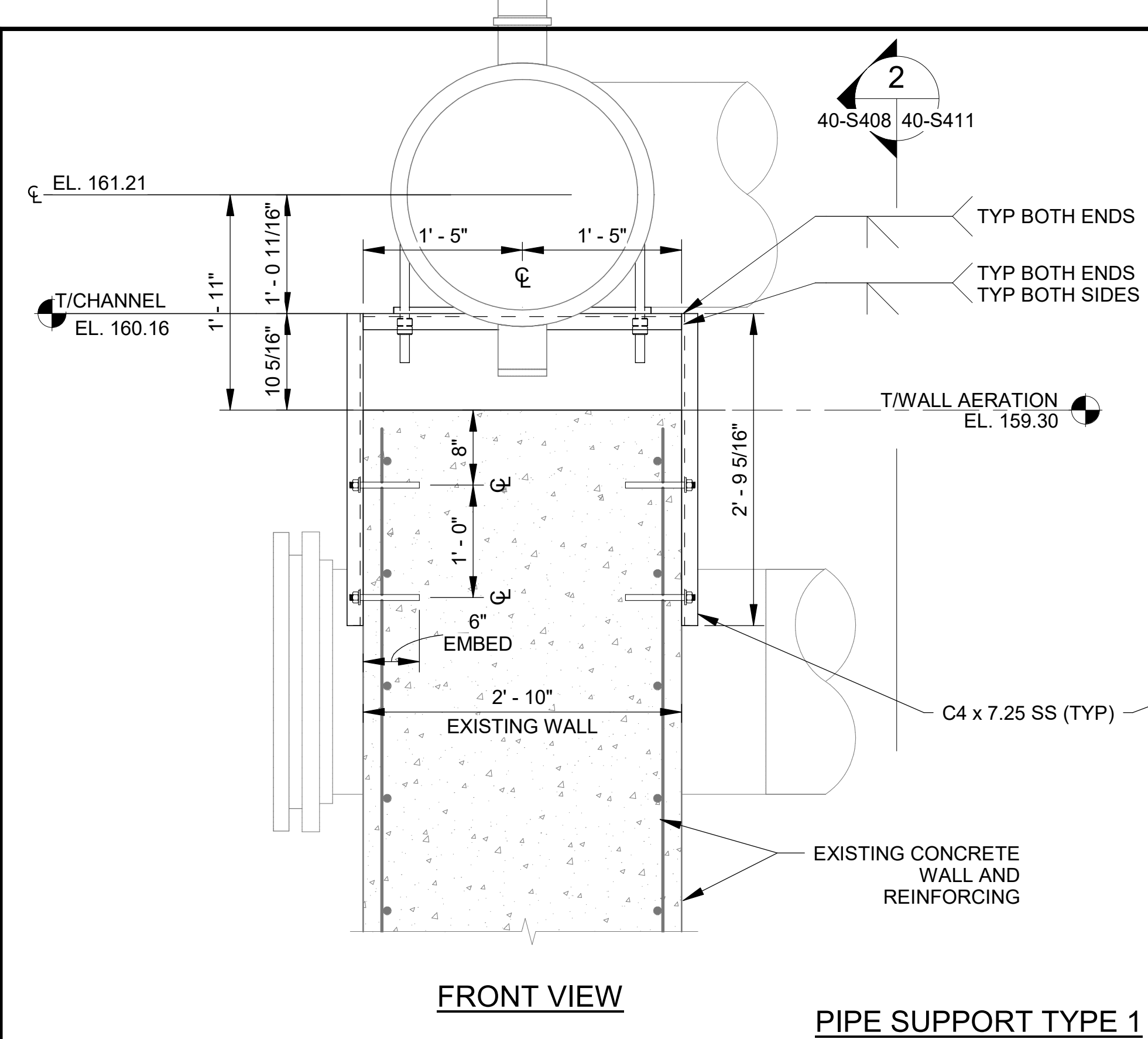
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RESOURCE RECOVERY FACILITY
PHASE II IMPROVEMENTS

NORTH AERATION
BASINS - BLOWER
PIPING SUPPORT
DETAILS 4

JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SJC
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40-S411
SHEET NUMBER
111



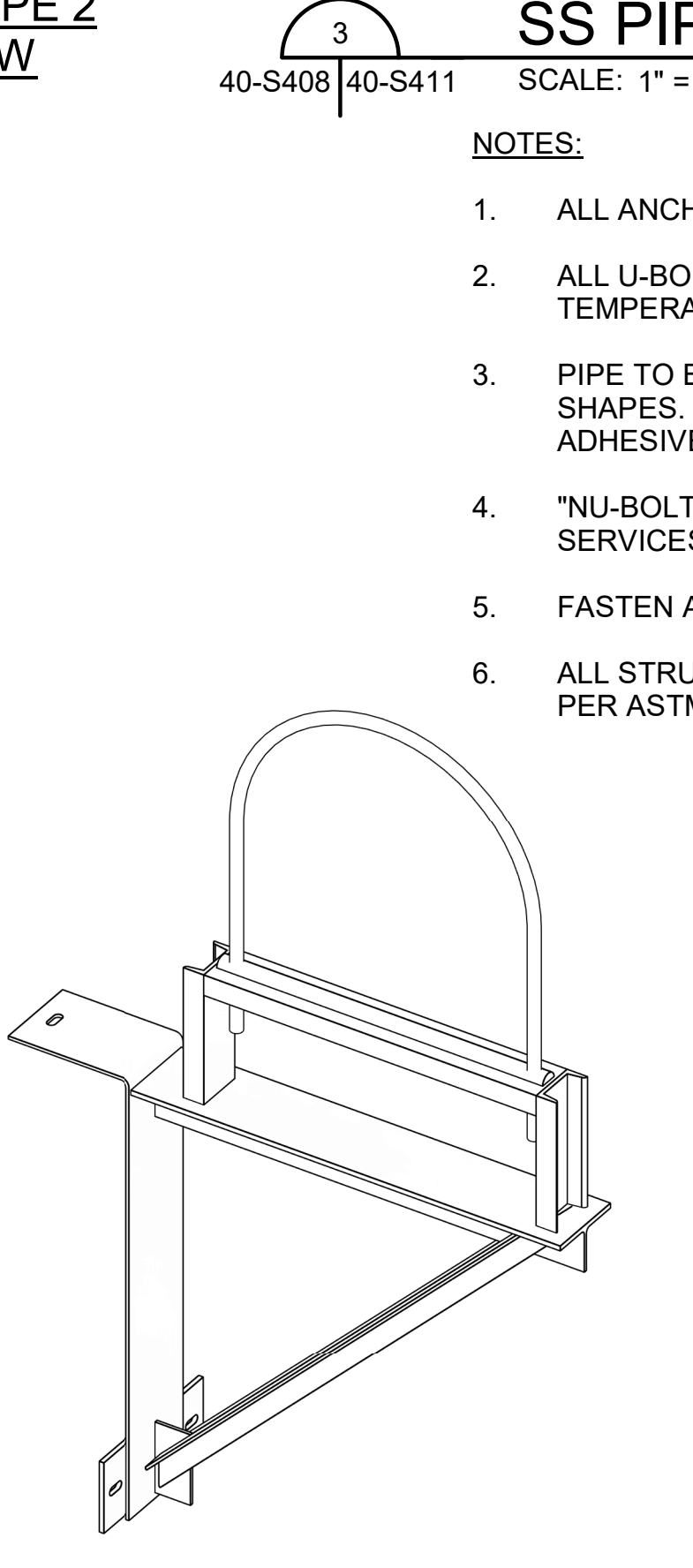
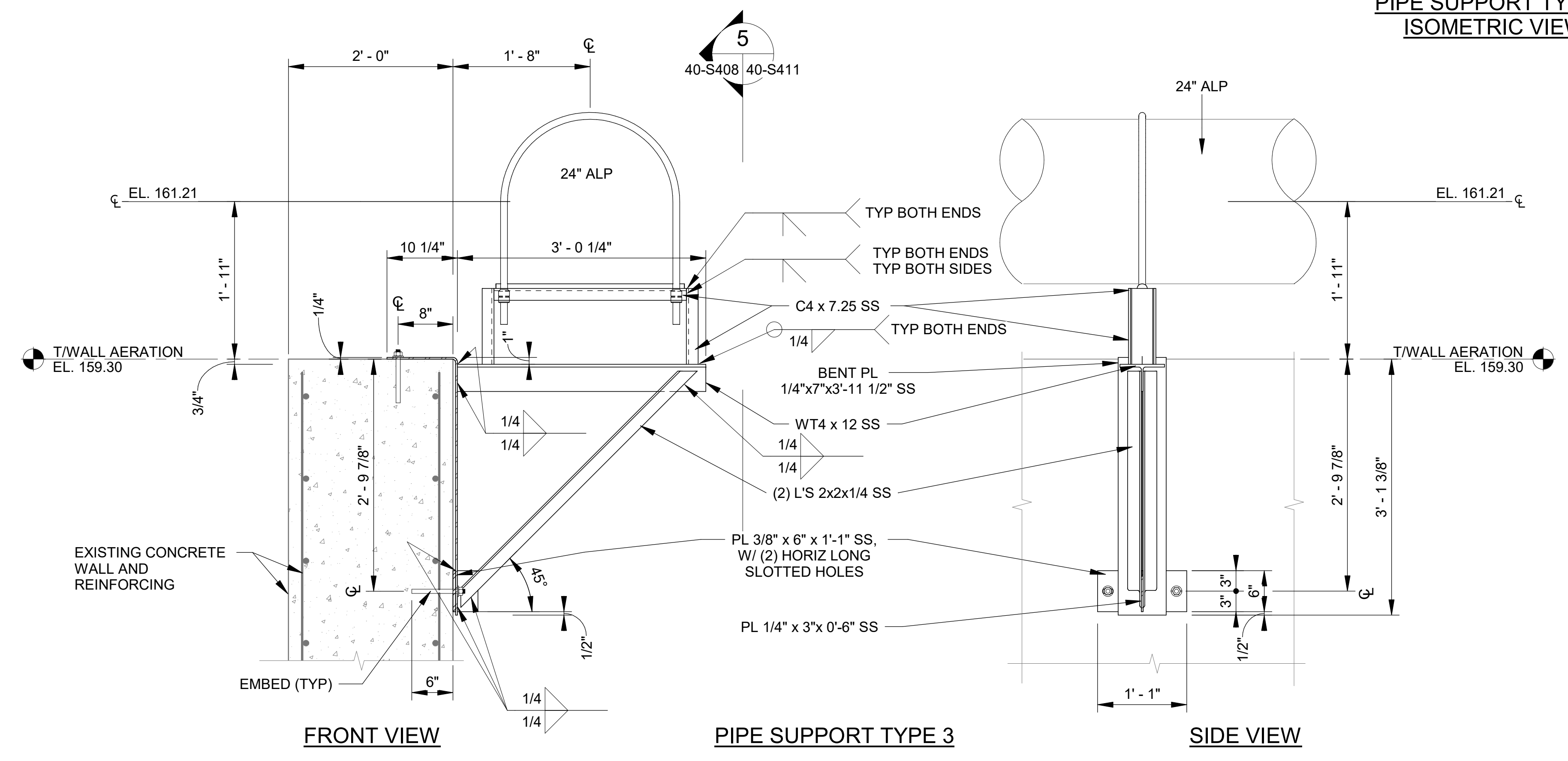
1 SS PIPE SUPPORT AT BASIN
40-S408 | 40-S411 SCALE: 1" = 1'-0"

2 SS PIPE SUPPORT AT BASIN
40-S408 | 40-S411 SCALE: 1" = 1'-0"

3 SS PIPE SUPPORT AT BASIN
40-S408 | 40-S411 SCALE: 1" = 1'-0"

NOTES:

- ALL ANCHORS INTO CONCRETE SHALL BE 5/8"Ø SS THREADED RODS, UNO.
- ALL U-BOLT PIPE ANCHORS SHALL BE 1"Ø SS "NU-BOLTS" WITH HIGH TEMPERATURE POLYSHRINK.
- PIPE TO BE SUPPORTED BY "I-ROD HT" THERMOPLASTIC HALF ROUND SHAPES. HALF ROUNDS TO BE FASTENED TO METAL SUPPORTS WITH "I-ROD" ADHESIVE.
- "NU-BOLT" AND "I-ROD HT" IS MANUFACTURED BY DEEPWATER CORROSION SERVICES.
- FASTEN ANCHORS TO CONCRETE WITH HILTI-HY 200 EPOXY ADHESIVE.
- ALL STRUCTURAL STEEL PIPE SUPPORTS TO BE HOT-DIPPED GALVANIZED PER ASTM A123



4 SS PIPE SUPPORT AT BASIN
40-S406 | 40-S411 SCALE: 1" = 1'-0"

5 SS PIPE SUPPORT AT BASIN
40-S408 | 40-S411 SCALE: 1" = 1'-0"

PIPE SUPPORT TYPE 3 ISOMETRIC VIEW

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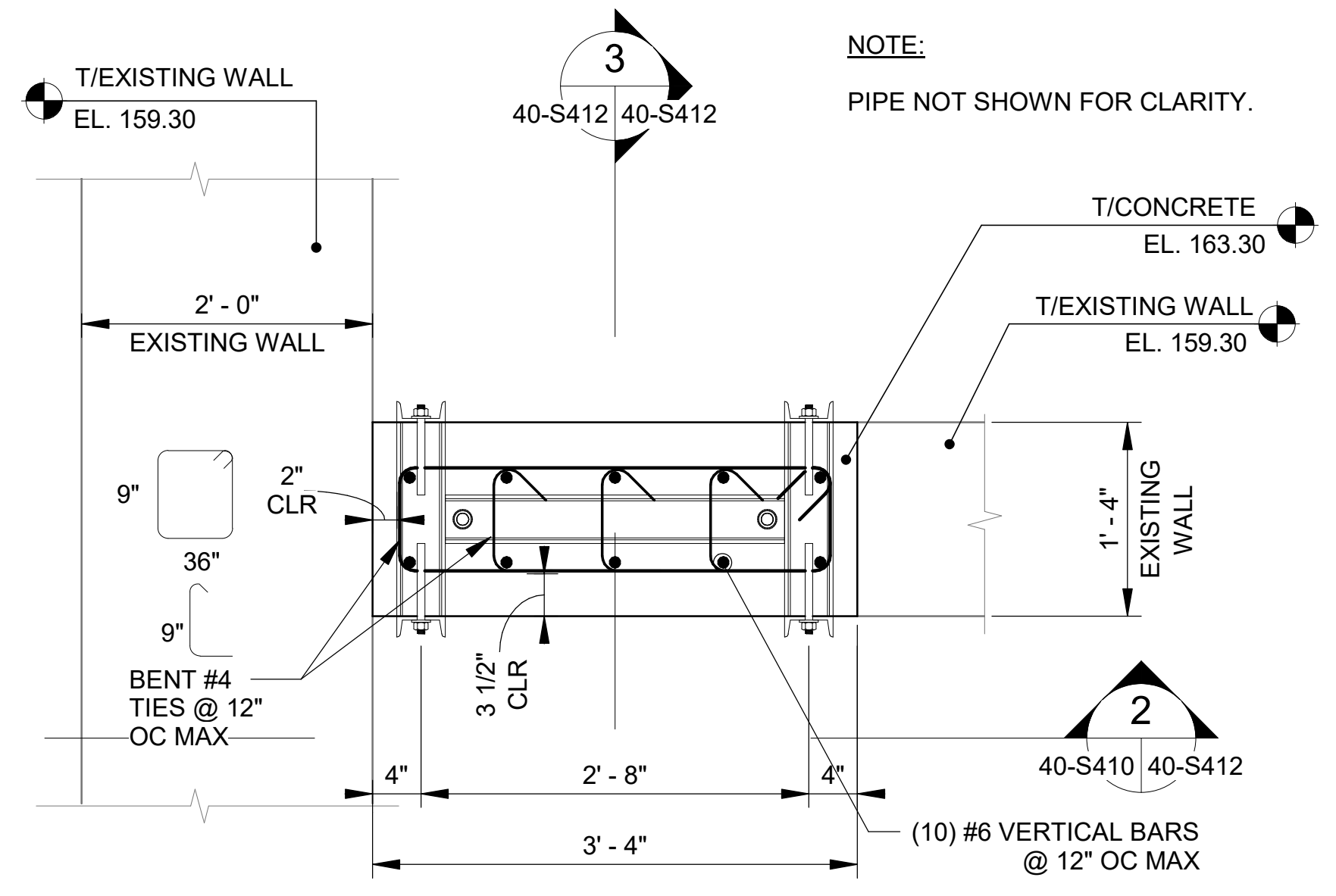
REV	DATE	DESCRIPTION	BY

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 PHASE II IMPROVEMENTS

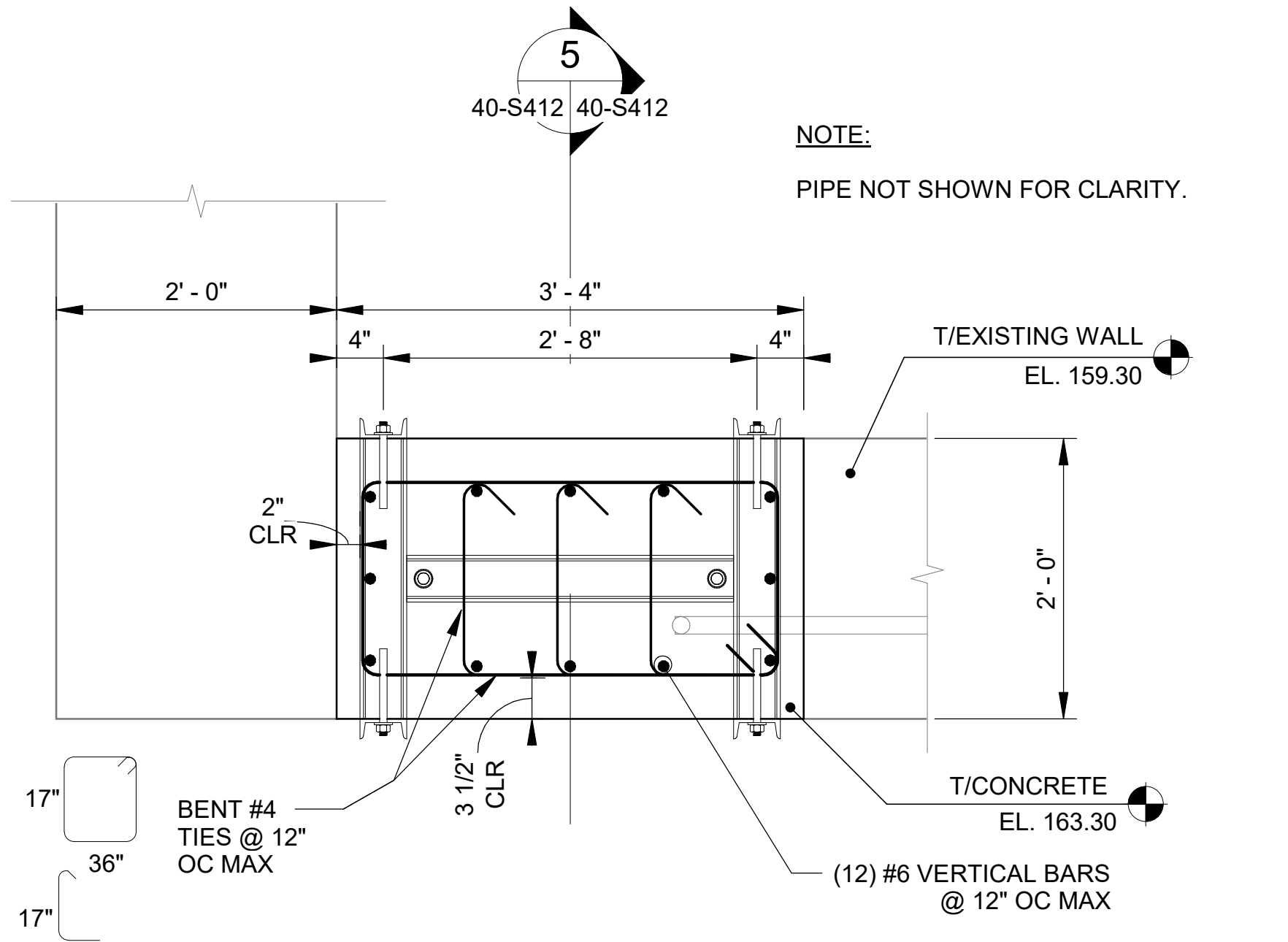
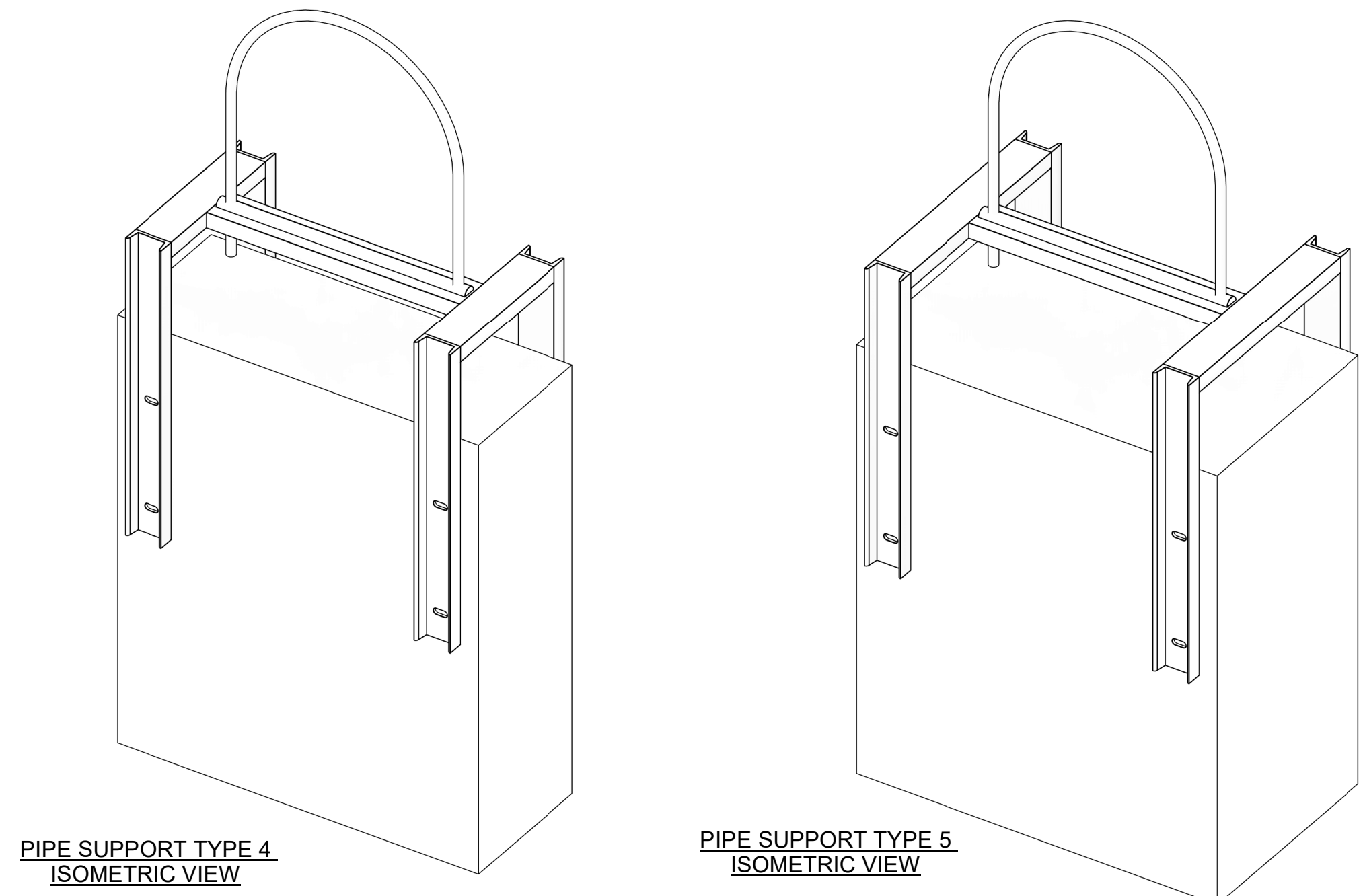
NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 5

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SJC
 DRAWN BY: EGB
 CHECKED BY: KAM

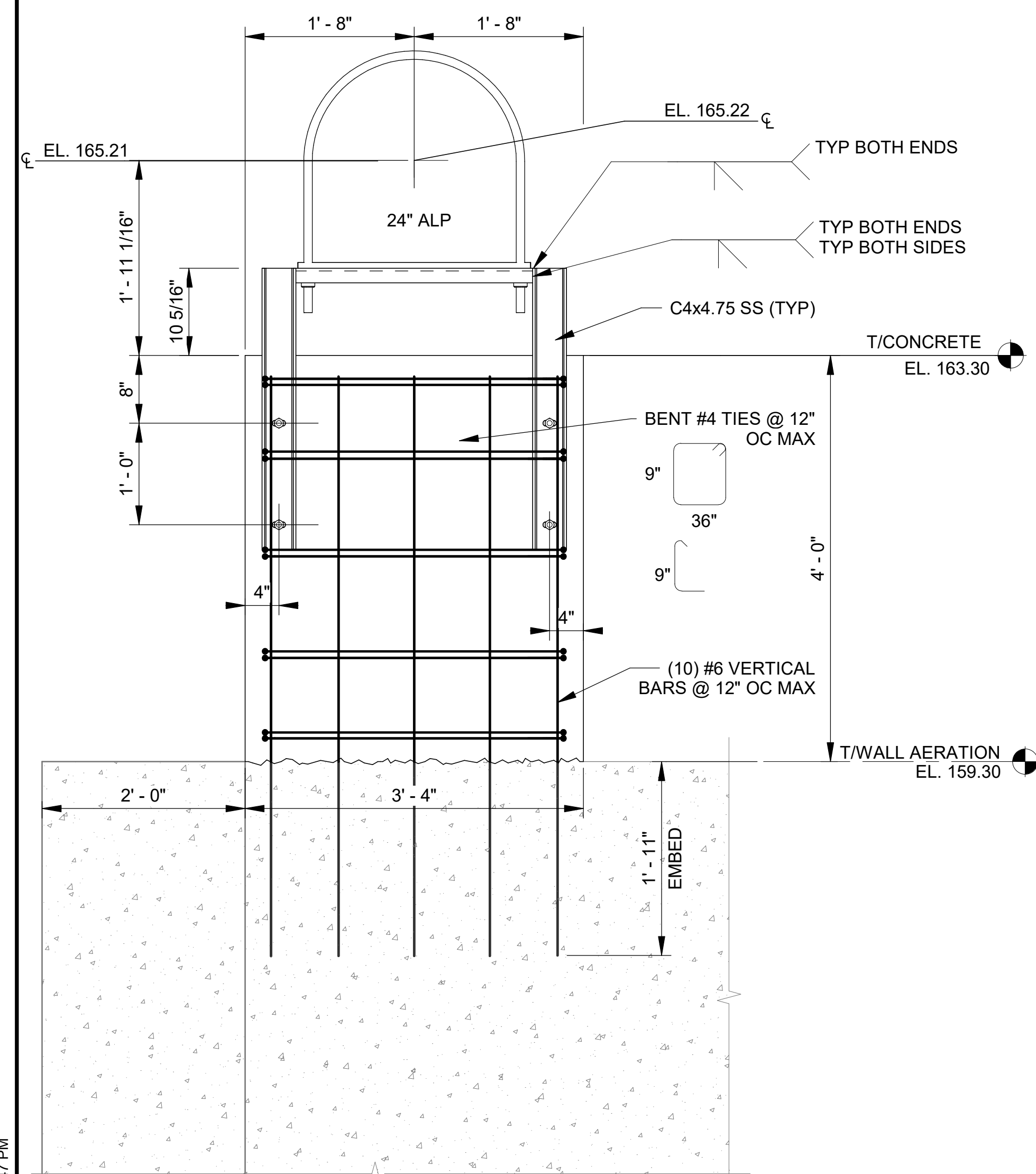
BAR IS ONE INCH ON ORIGINAL DRAWING
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 DRAWING NUMBER
40-S412
 SHEET NUMBER
112



SS PIPE SUPPORT AT BASIN
 SCALE: 1" = 1'-0"

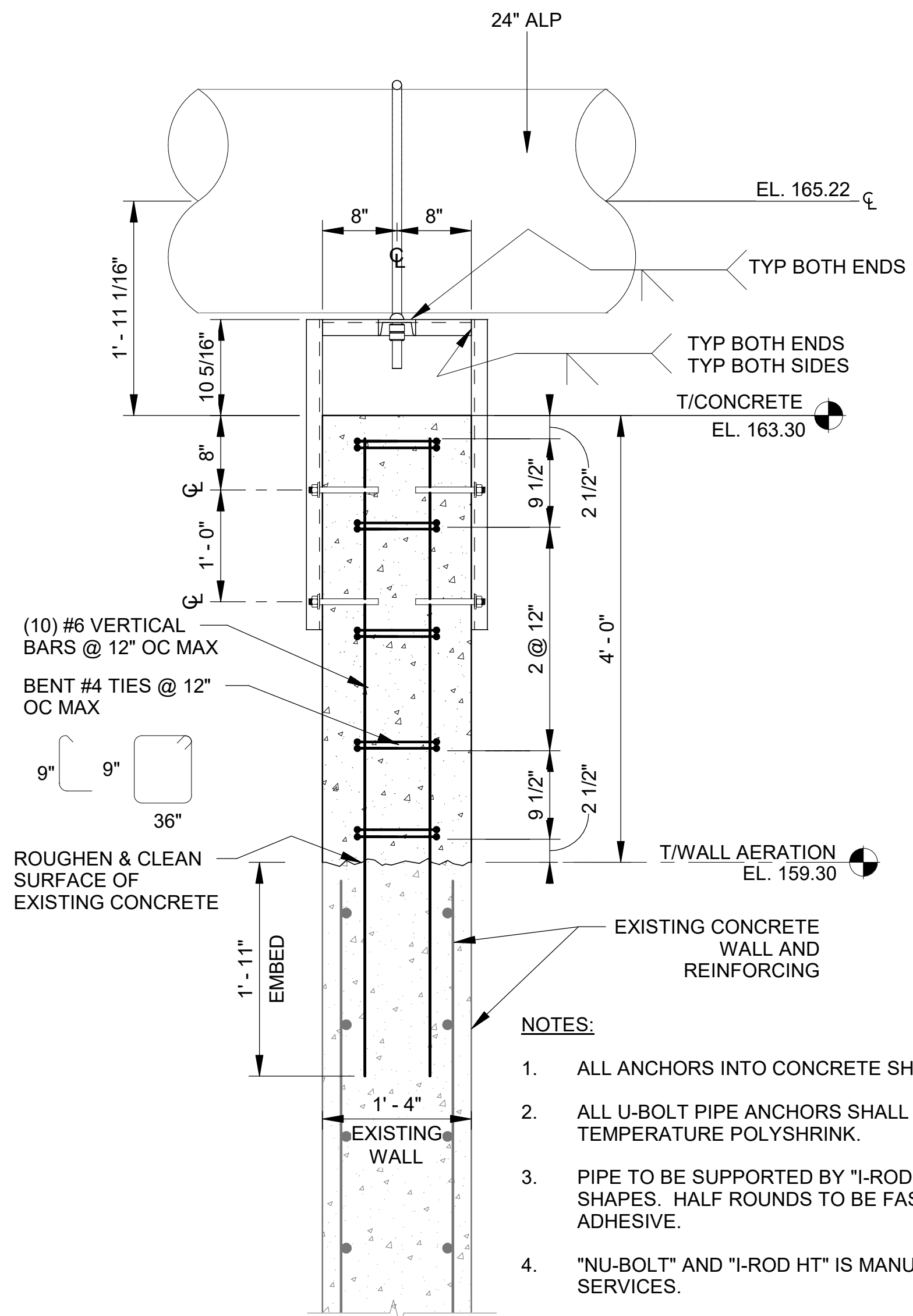


SS PIPE SUPPORT AT BASIN
 SCALE: 1" = 1'-0"



FRONT VIEW
PIPE SUPPORT TYPE 4

SS PIPE SUPPORT AT BASIN
 SCALE: 1" = 1'-0"

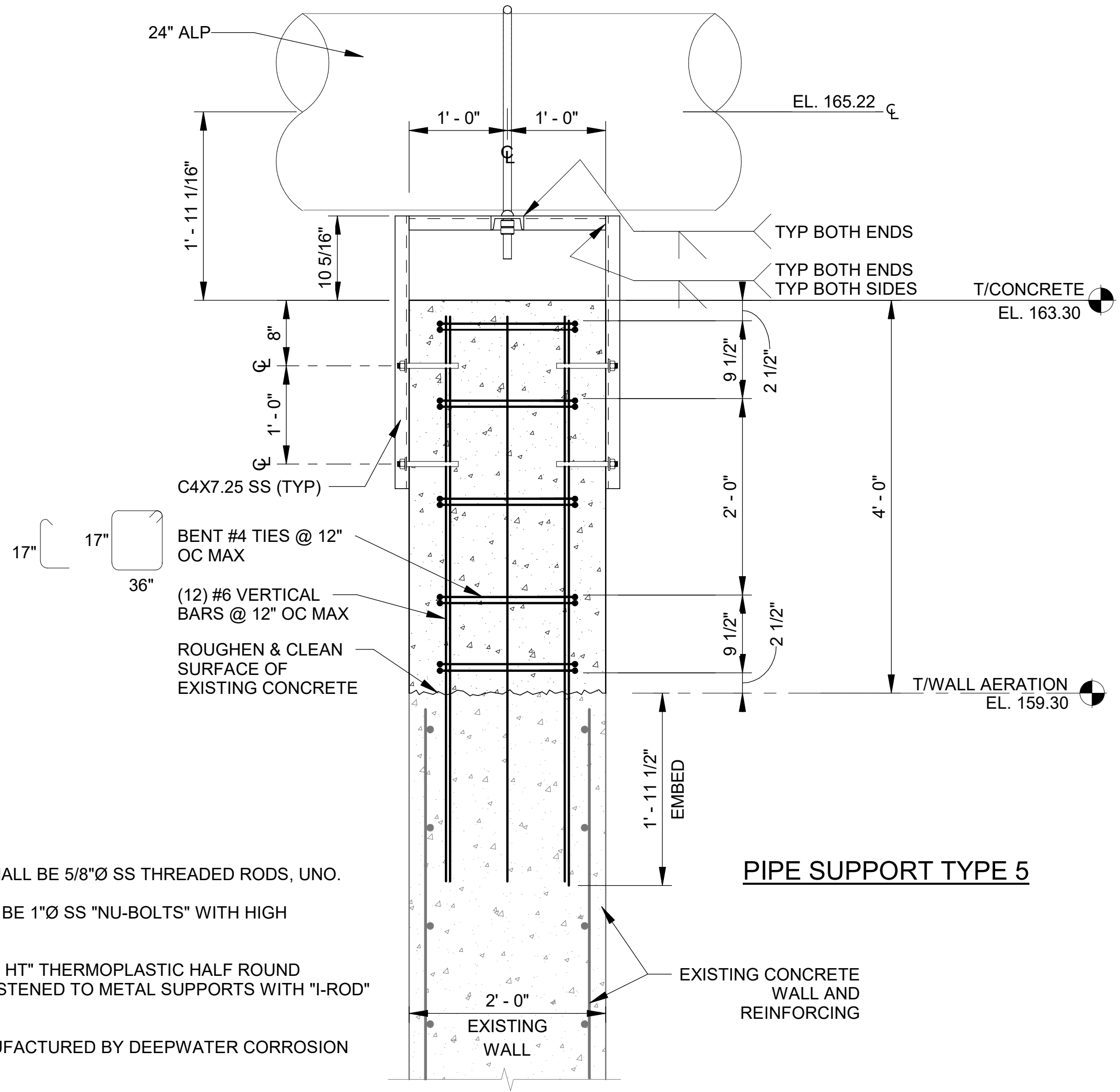


SIDE VIEW
PIPE SUPPORT TYPE 4

SS PIPE SUPPORT AT BASIN
 SCALE: 1" = 1'-0"

NOTES:

- ALL ANCHORS INTO CONCRETE SHALL BE 5/8"Ø SS THREADED RODS, UNO.
- ALL U-BOLT PIPE ANCHORS SHALL BE 1"Ø SS "NU-BOLTS" WITH HIGH TEMPERATURE POLYSHRINK.
- PIPE TO BE SUPPORTED BY "I-ROD HT" THERMOPLASTIC HALF ROUND SHAPES. HALF ROUNDS TO BE FASTENED TO METAL SUPPORTS WITH "I-ROD" ADHESIVE.
- "NU-BOLT" AND "I-ROD HT" IS MANUFACTURED BY DEEPWATER CORROSION SERVICES.
- FASTEN ANCHORS TO CONCRETE WITH HILTI-HY 200 EPOXY ADHESIVE.
- ALL STRUCTURAL STEEL PIPE SUPPORTS TO BE HOT-DIPPED GALVANIZED PER ASTM A123



SIDE VIEW
PIPE SUPPORT TYPE 5

SS PIPE SUPPORT AT BASIN
 SCALE: 1" = 1'-0"

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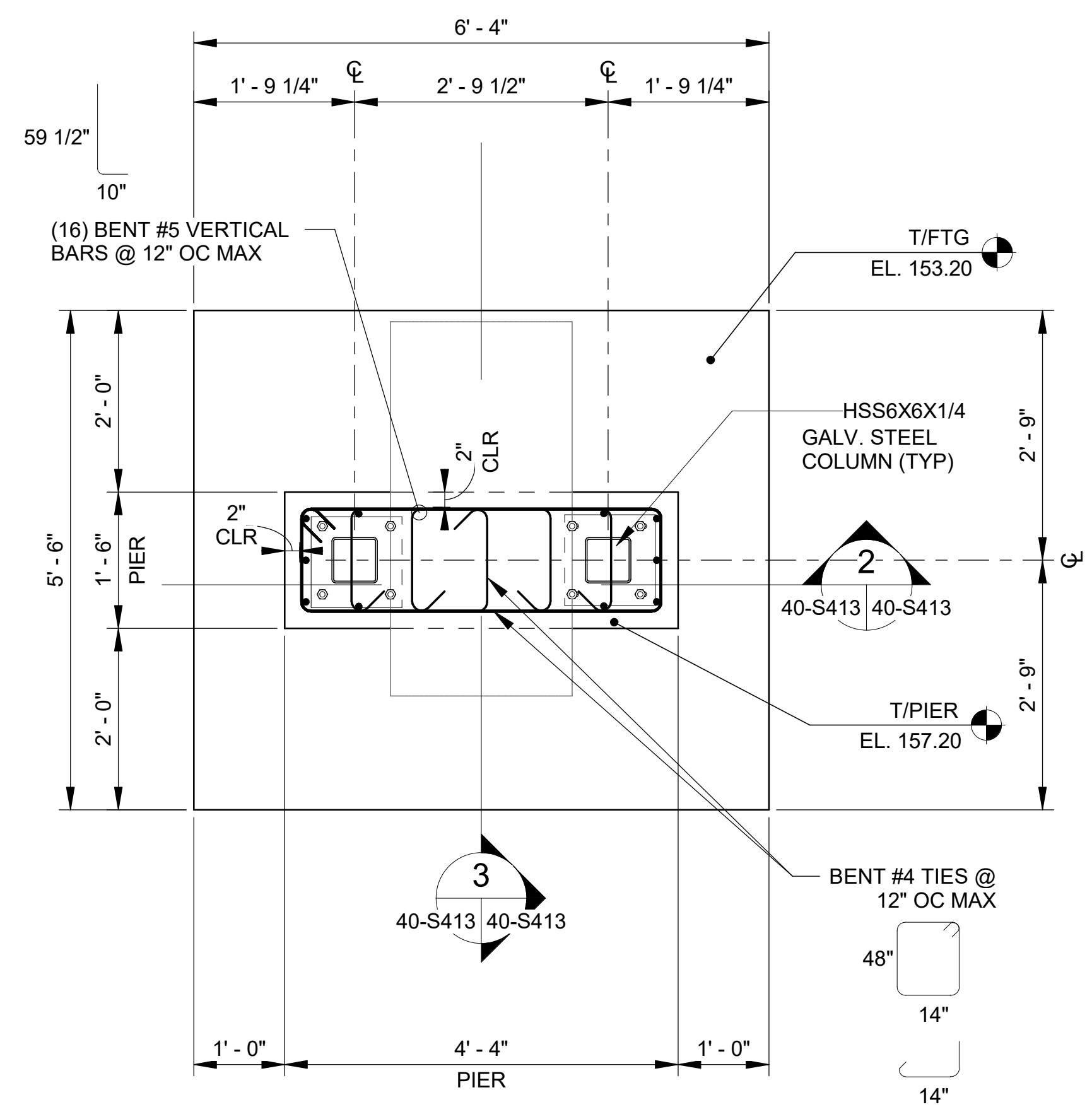
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

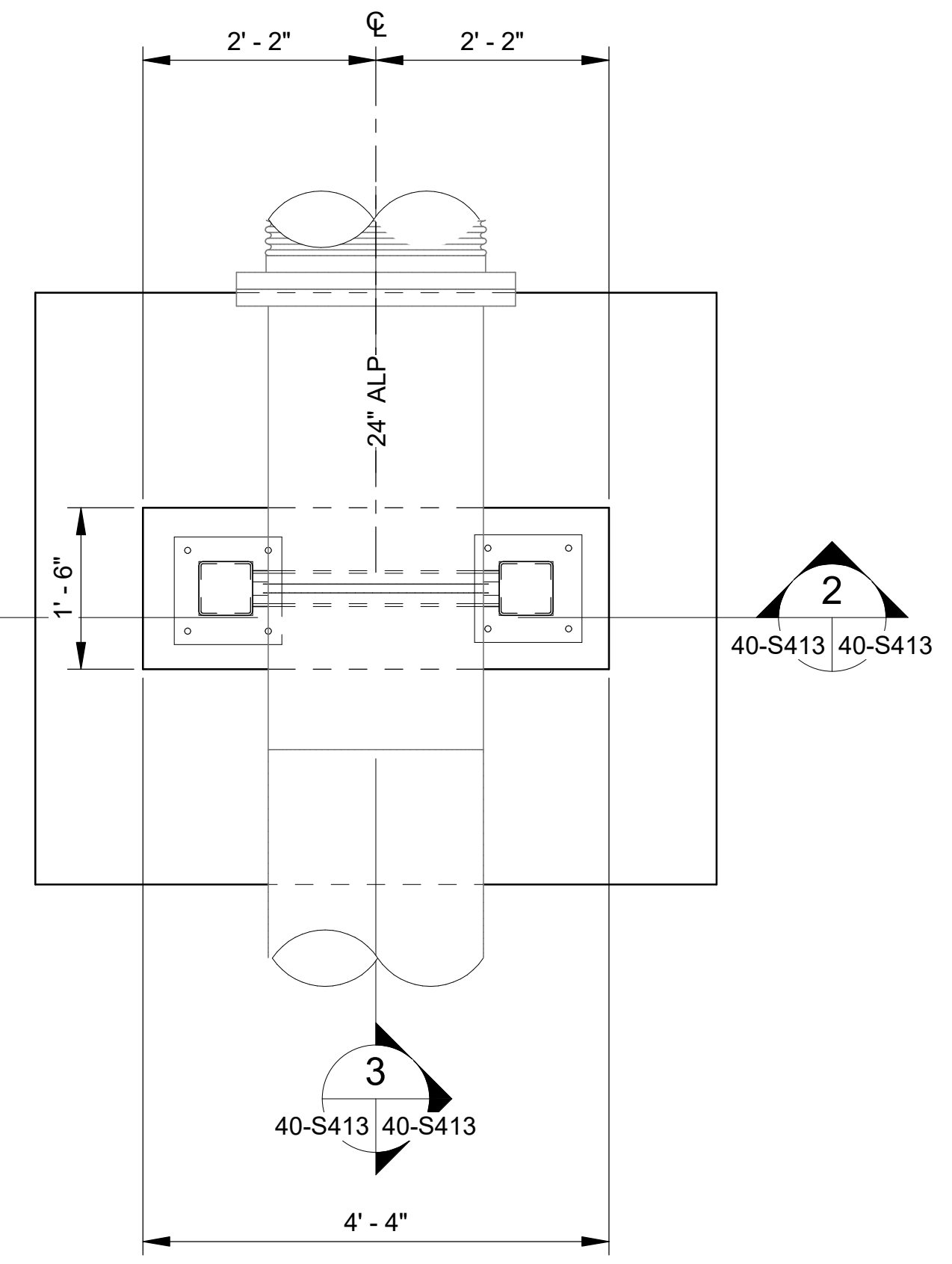
NORTH AERATION BASINS - BLOWER PIPING SUPPORT DETAILS 6

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SJC
 DRAWN BY: EGB
 CHECKED BY: KAM

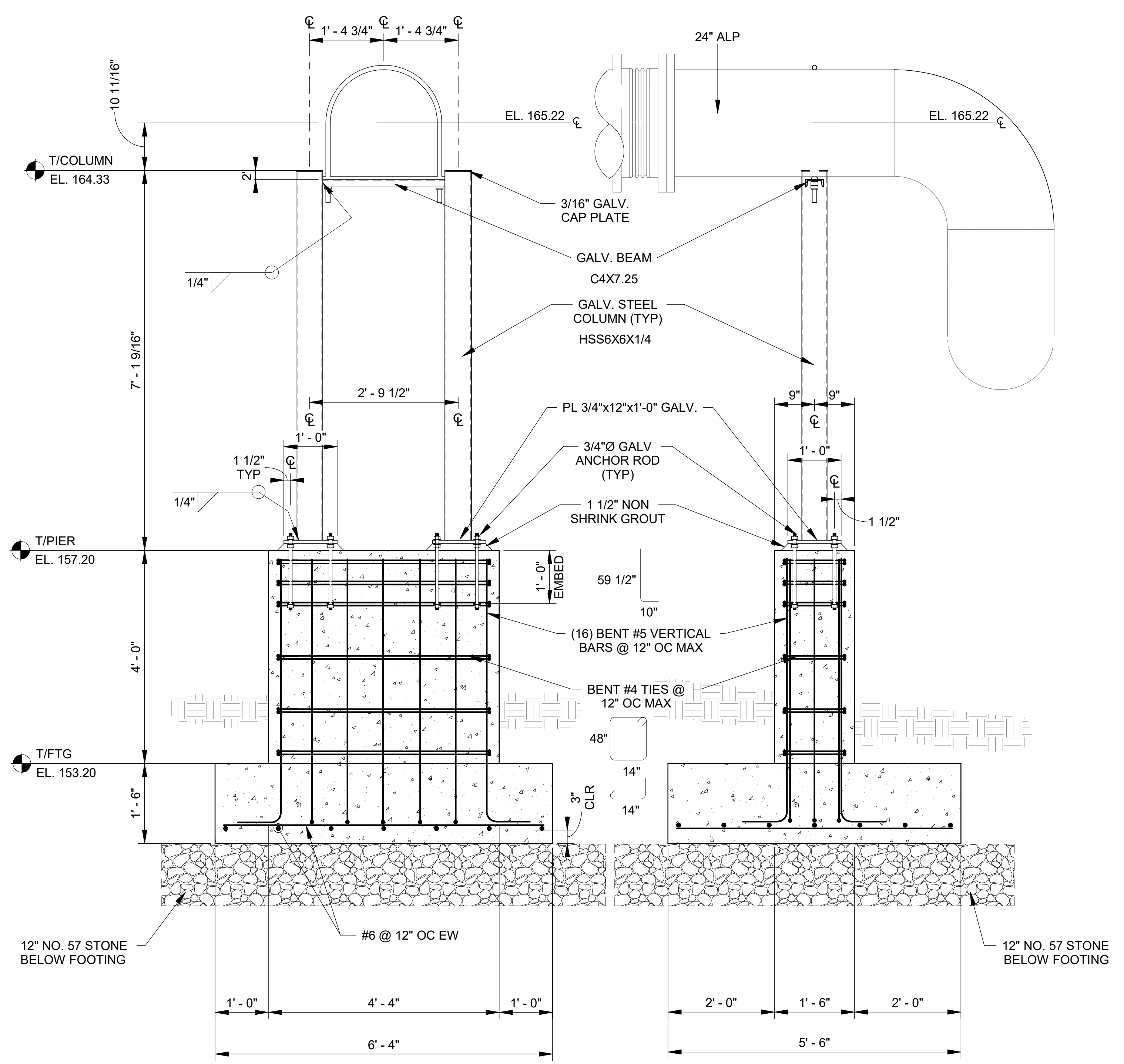
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 DRAWING NUMBER
40-S413
 SHEET NUMBER
113



LOWER PLAN DETAIL



UPPER PLAN DETAIL
 PIPE SUPPORT - PLAN DETAIL
 SCALE: 3/4" = 1'-0"



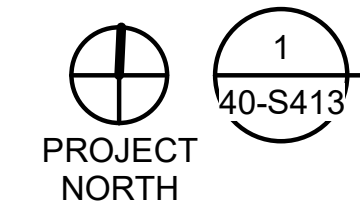
PIPE SUPPORT - SECTION
 SCALE: 3/4" = 1'-0"

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

NOTES:

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- "NU-BOLT" AND "I-ROD HT" IS MANUFACTURED BY DEEPWATER CORROSION SERVICES.
- FASTEN ANCHORS TO CONCRETE WITH HILTI-HY 200 EPOXY ADHESIVE.
- ALL STRUCTURAL STEEL PIPE SUPPORTS TO BE HOT-DIPPED GALVANIZED PER ASTM A123

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REV	DATE	DESCRIPTION	BY
1	12/5/23	ADDENDUM NO 2	RWC

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

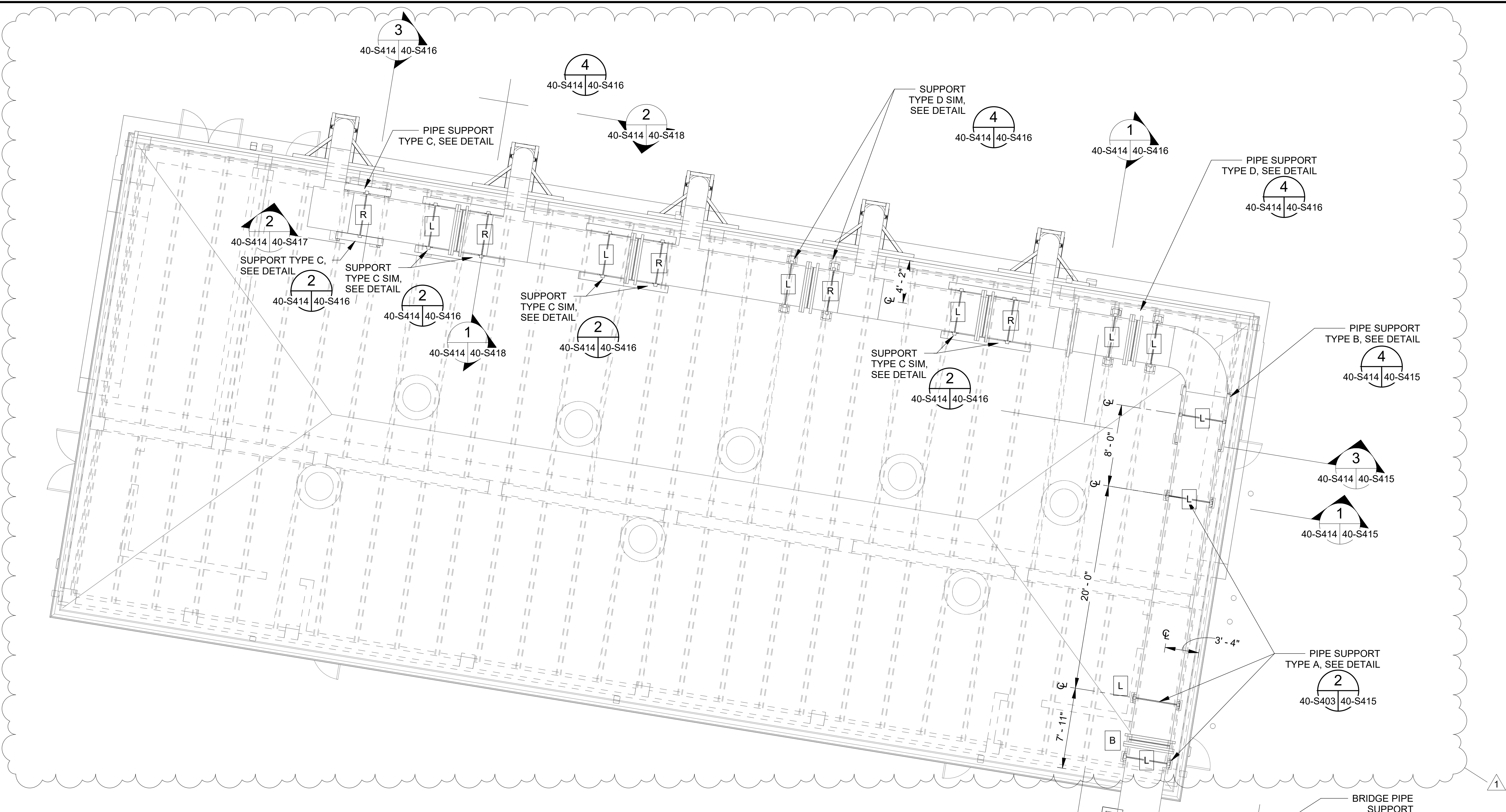
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER BUILDING DETAILS 1

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
 DRAWN BY: EGB
 CHECKED BY: KAM

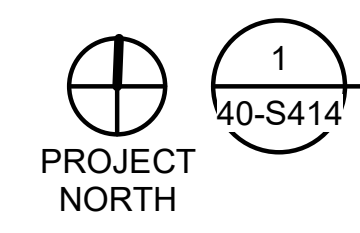
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DRAWING NUMBER
40-S414
 SHEET NUMBER **114**



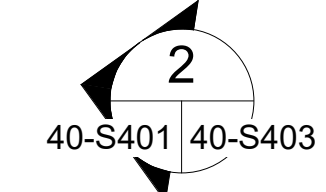
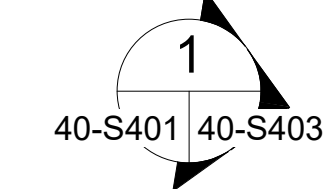
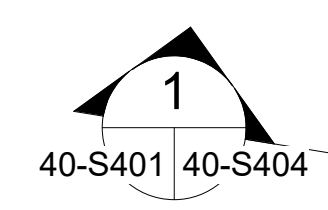
NOTES:

- ALL STRUCTURAL STEEL TO BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 AFTER FABRICATION.
- ALL BOLTED CONNECTIONS TO BE MADE WITH STAINLESS STEEL BOLTS THAT MEET ASTM A 193, GRADE B8.
- FIXED SUPPORTS **R** REQUIRE THAT THE U-BOLTS BE PRE-TENSIONED TO APPROXIMATELY 2000 LBS (EACH SIDE) TO RESTRAIN AXIAL MOVEMENT.
- AT SLIP SUPPORTS **L** LEAVE U-BOLTS ONLY HAND TIGHTENED AND PEEN THREADS SO THAT PIPE CAN EXPAND AND CONTRACT AXIALLY.
- PIPE SUPPORT ARE I-ROD ANTI-CORROSION PIPE SUPPORTS. SIZE OF I-ROD PER MANUFACTURER'S RECOMMENDATIONS.



PLAN DETAIL @ BLOWER BUILDING

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



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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER BUILDING DETAILS 2

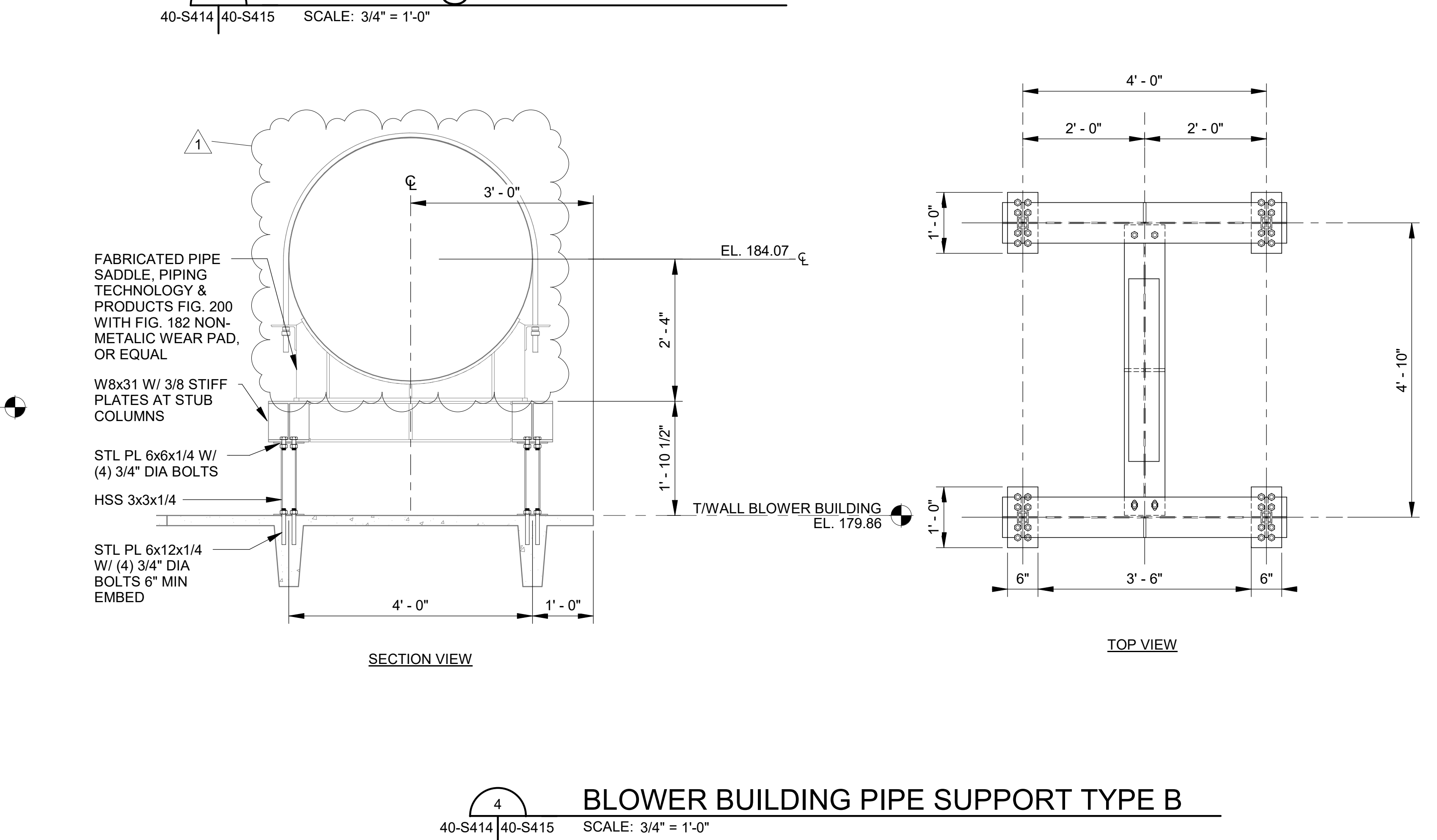
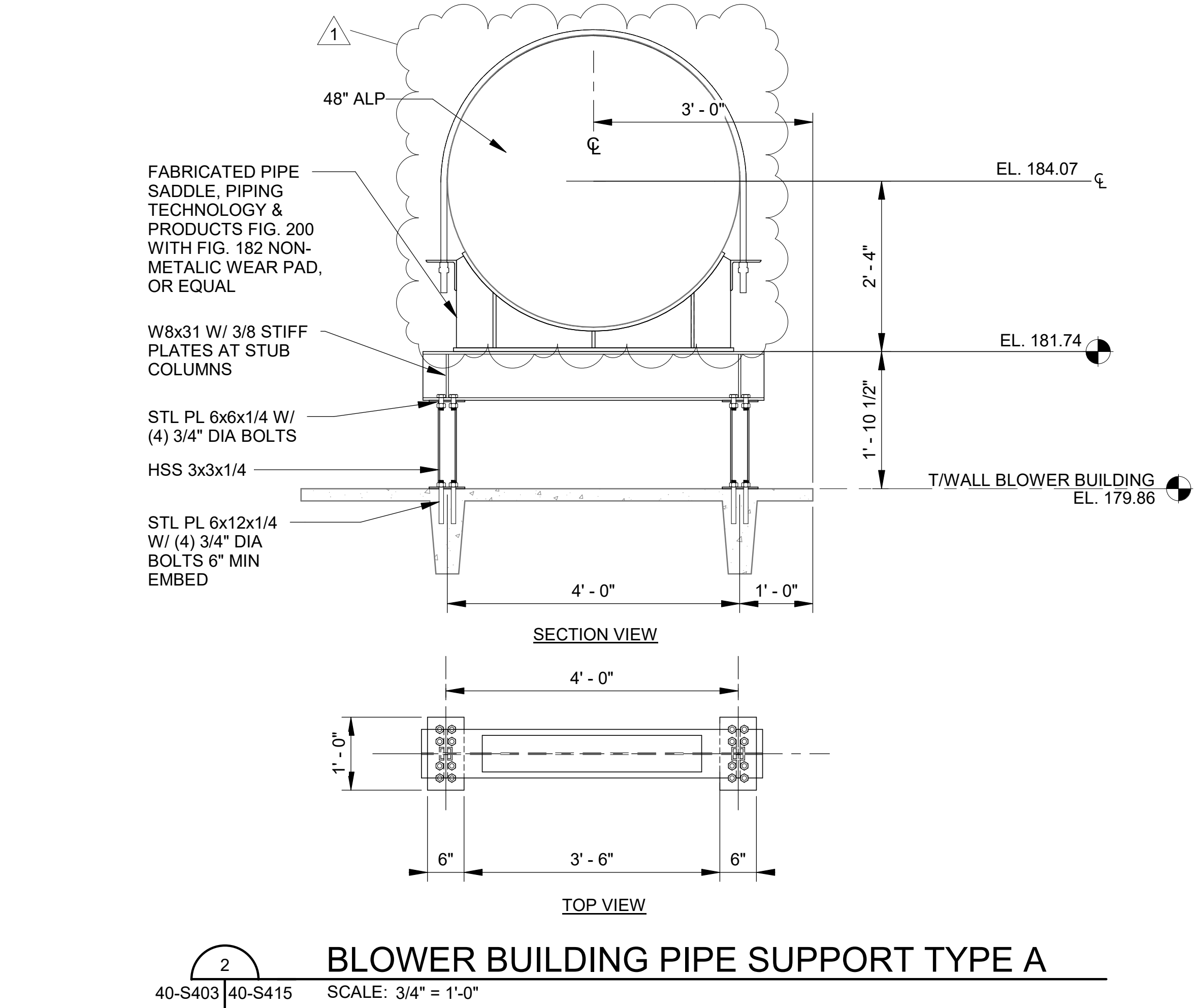
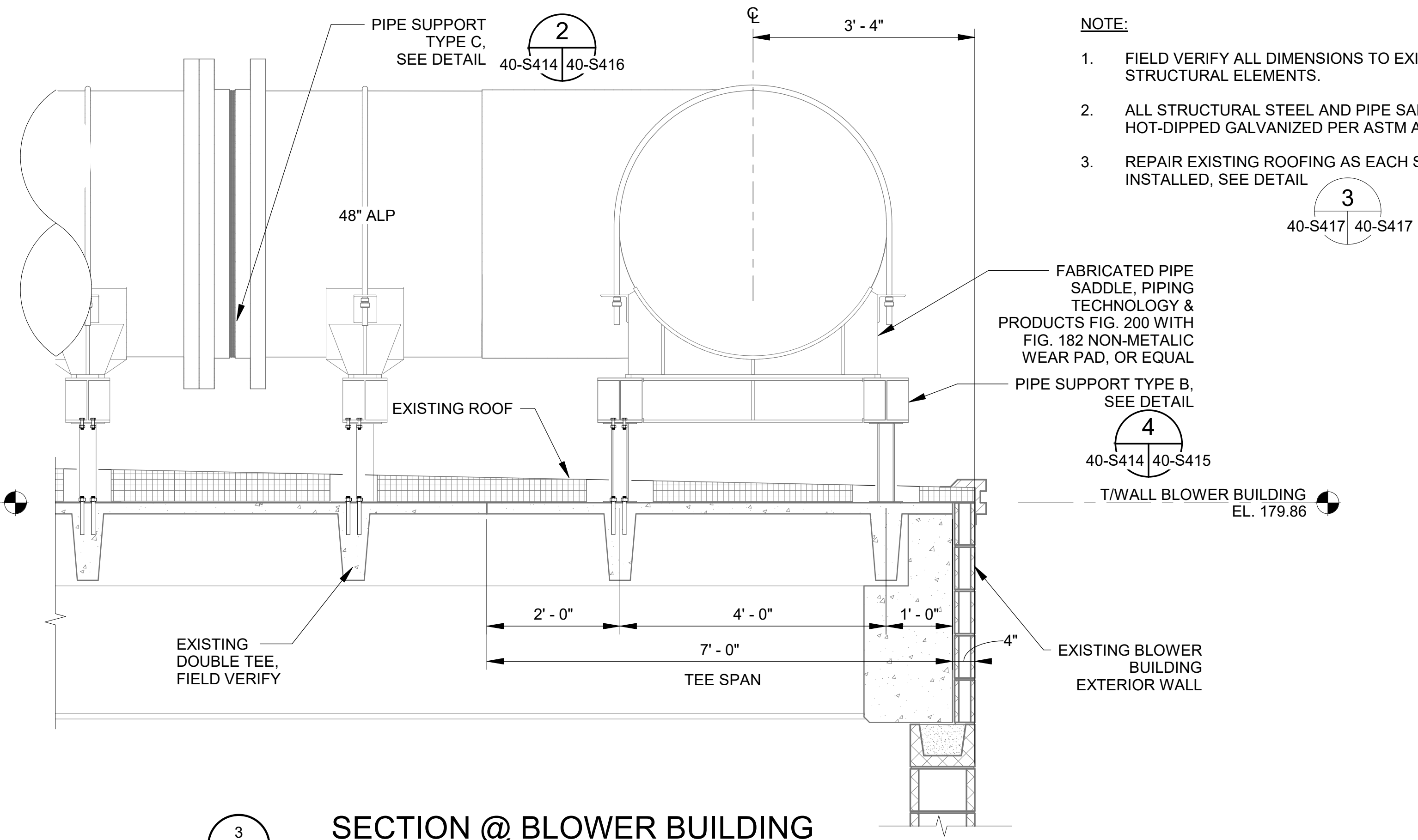
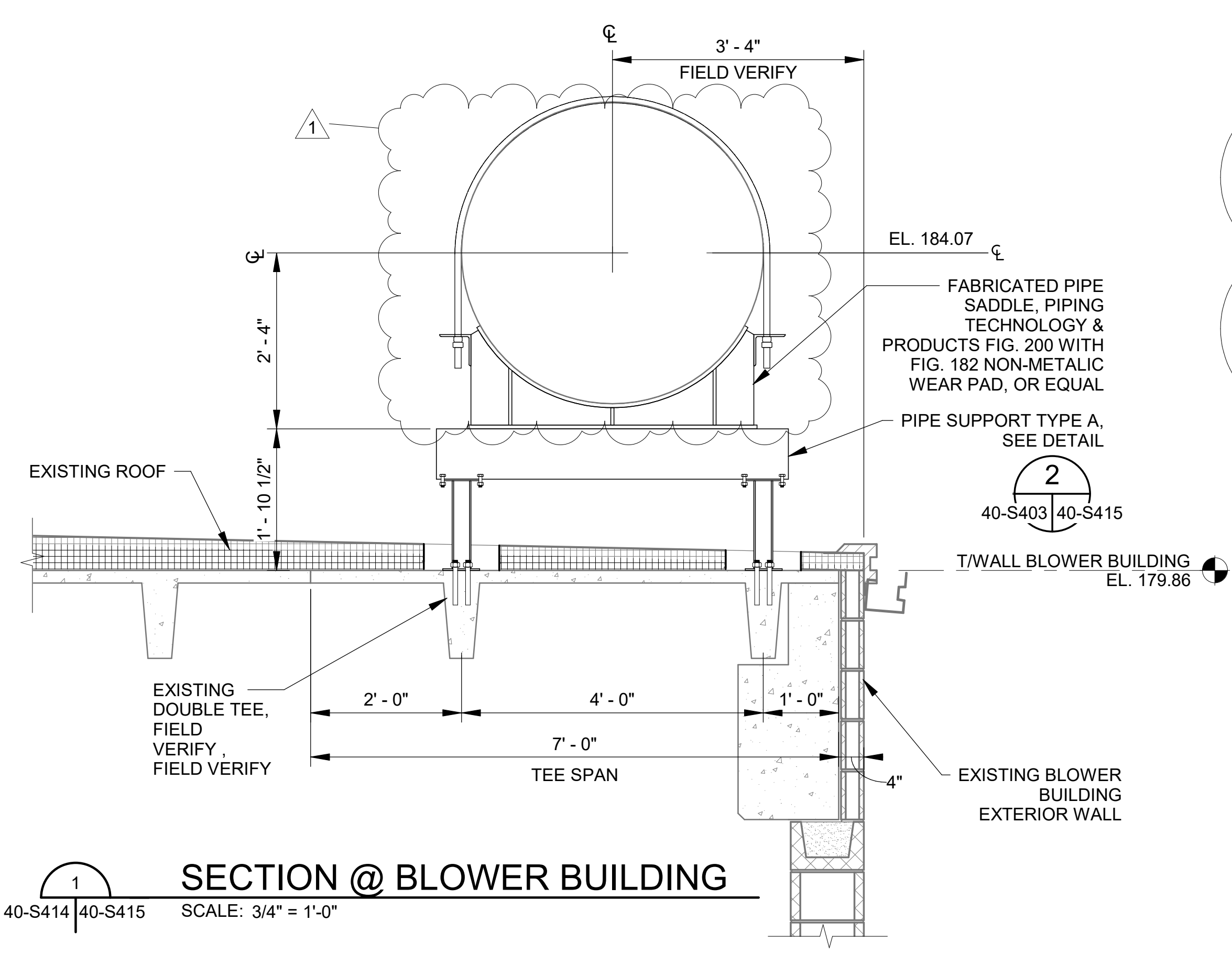
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
 DRAWN BY: EGB
 CHECKED BY: KAM

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DRAWING NUMBER
40-S415
 SHEET NUMBER
115

NOTE:

- FIELD VERIFY ALL DIMENSIONS TO EXISTING STRUCTURAL ELEMENTS.
- ALL STRUCTURAL STEEL AND PIPE SADDLES TO BE HOT-DIPPED GALVANIZED PER ASTM A123.
- REPAIR EXISTING ROOFING AS EACH SUPPORT IS INSTALLED, SEE DETAIL



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CITY OF TUSCALOOSA
 TUSCALOOSA, AL
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

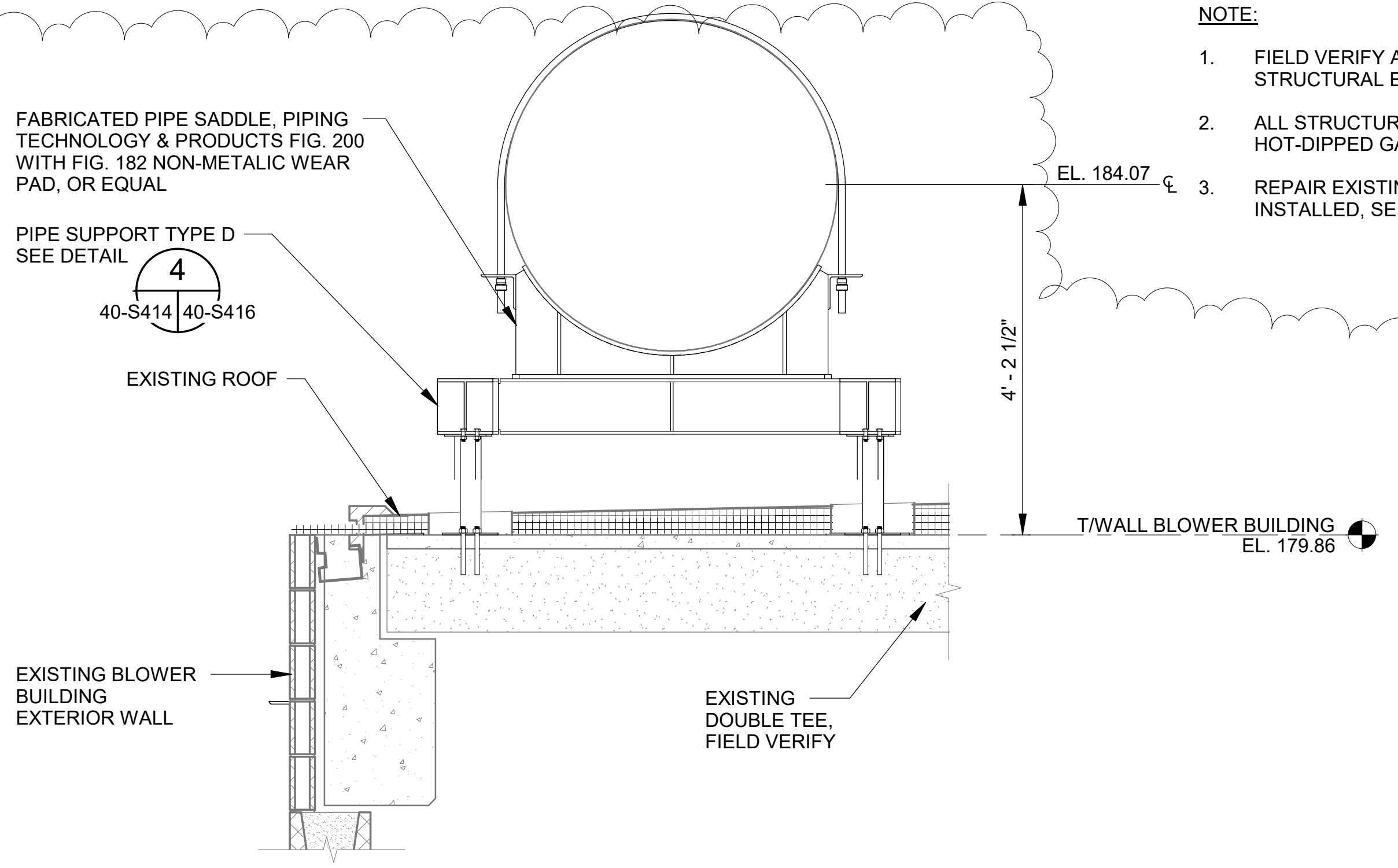
NORTH AERATION BASINS - BLOWER BUILDING DETAILS 3

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
 DRAWN BY: EGB
 CHECKED BY: KAM

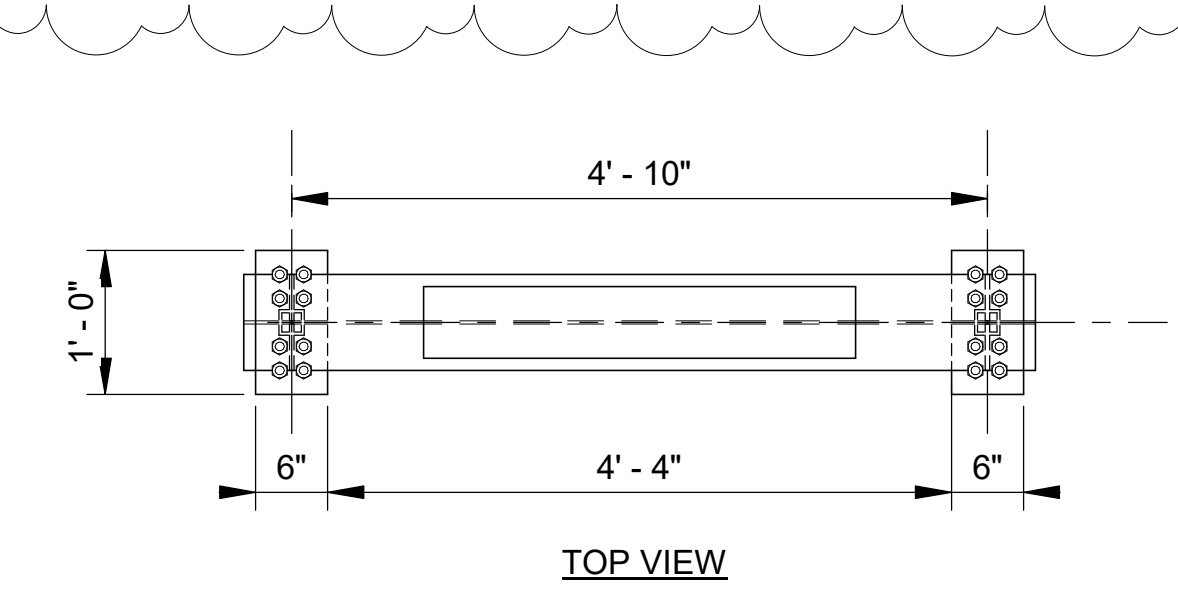
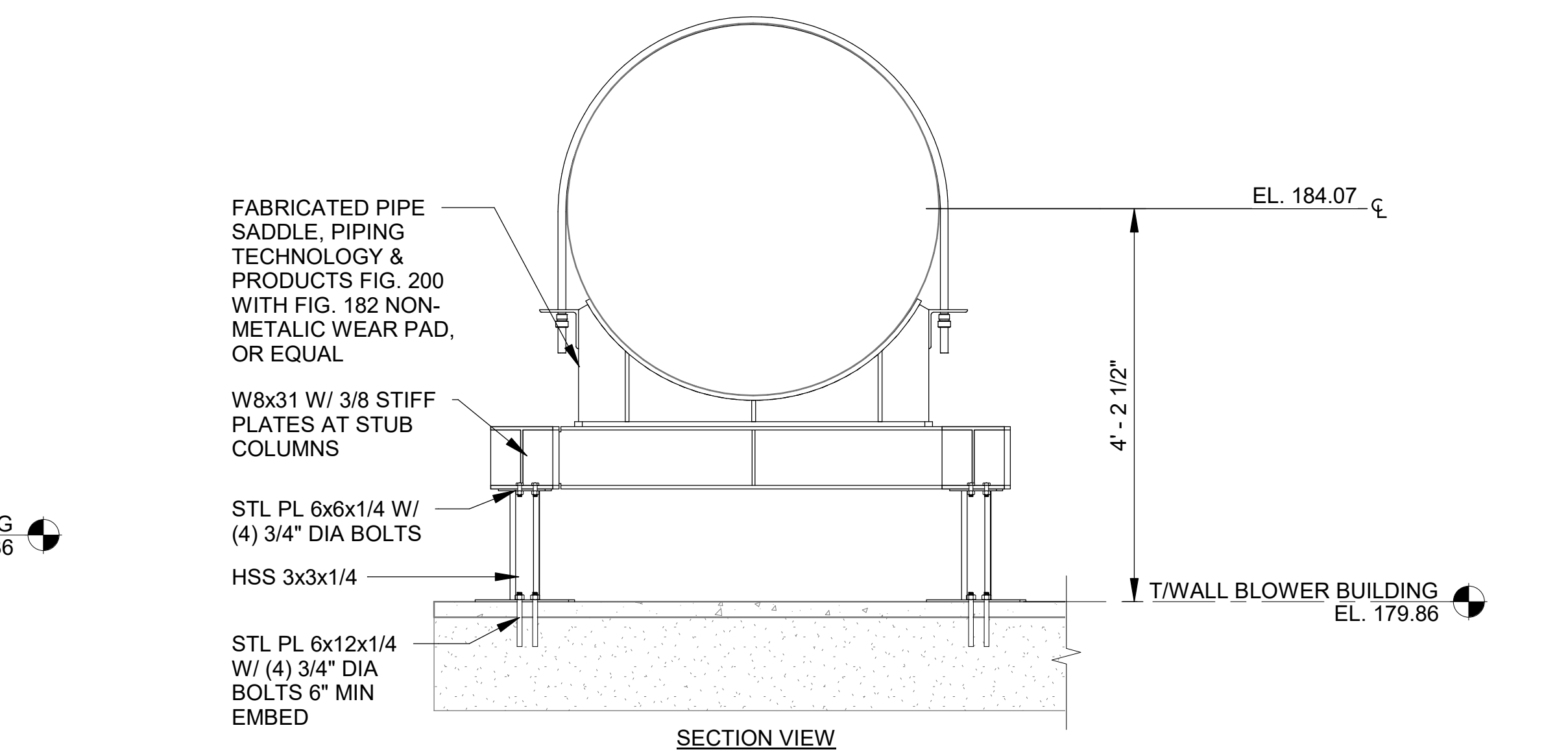
BAR IS ONE INCH ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.
 DRAWING NUMBER
40-S416
 SHEET NUMBER
116

- NOTE:**
- FIELD VERIFY ALL DIMENSIONS TO EXISTING STRUCTURAL ELEMENTS.
 - ALL STRUCTURAL STEEL AND PIPE SADDLES TO BE HOT-DIPPED GALVANIZED PER ASTM A123.
 - REPAIR EXISTING ROOFING AS EACH SUPPORT IS INSTALLED, SEE DETAIL 3

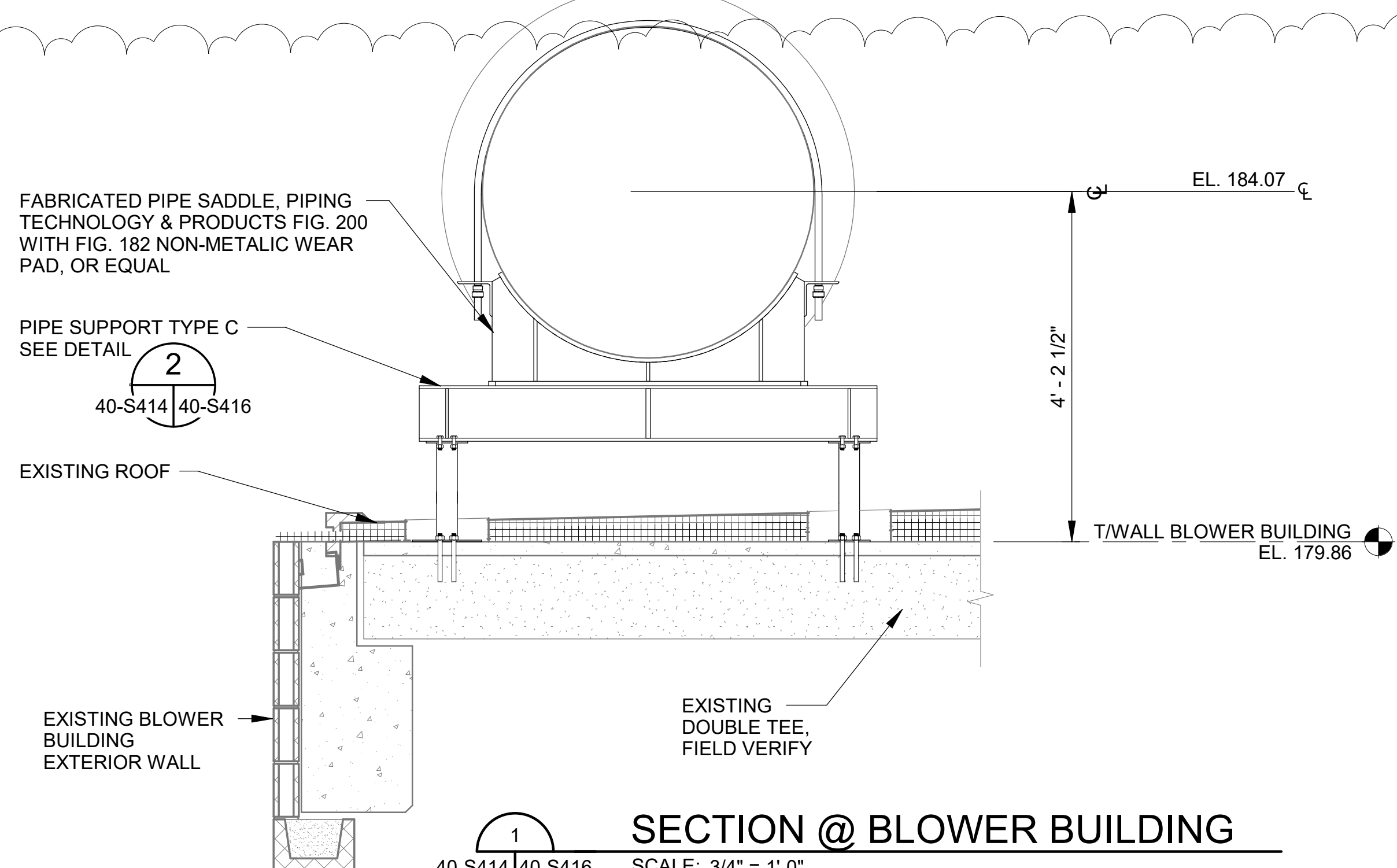
3
 40-S417 40-S417



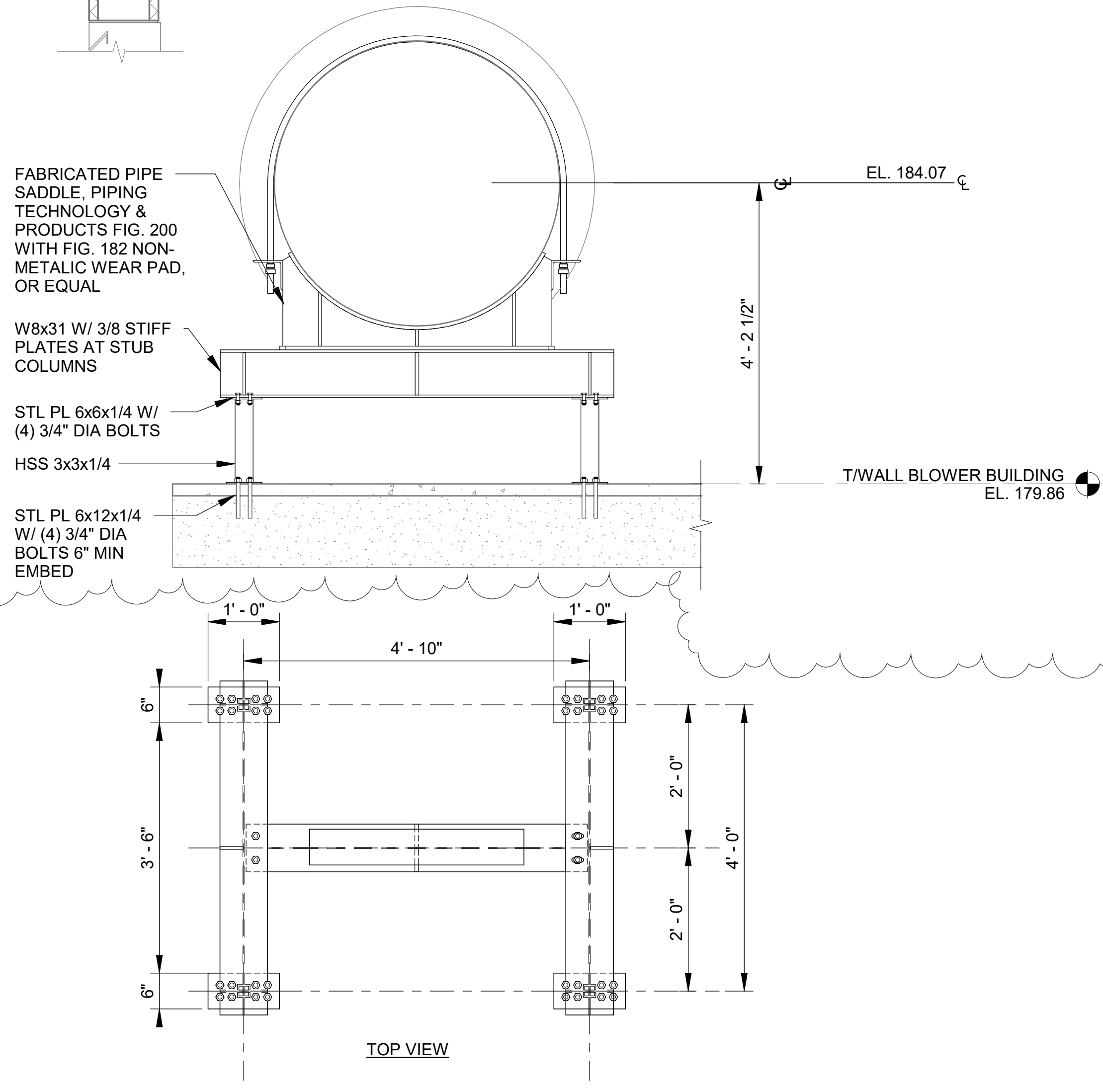
SECTION @ BLOWER BUILDING
 40-S414 40-S416 SCALE: 3/4" = 1'-0"



BLOWER BUILDING PIPE SUPPORT TYPE D
 40-S414 40-S416 SCALE: 3/4" = 1'-0"



SECTION @ BLOWER BUILDING
 40-S414 40-S416 SCALE: 3/4" = 1'-0"



BLOWER BUILDING PIPE SUPPORT TYPE C
 40-S414 40-S416 SCALE: 3/4" = 1'-0"

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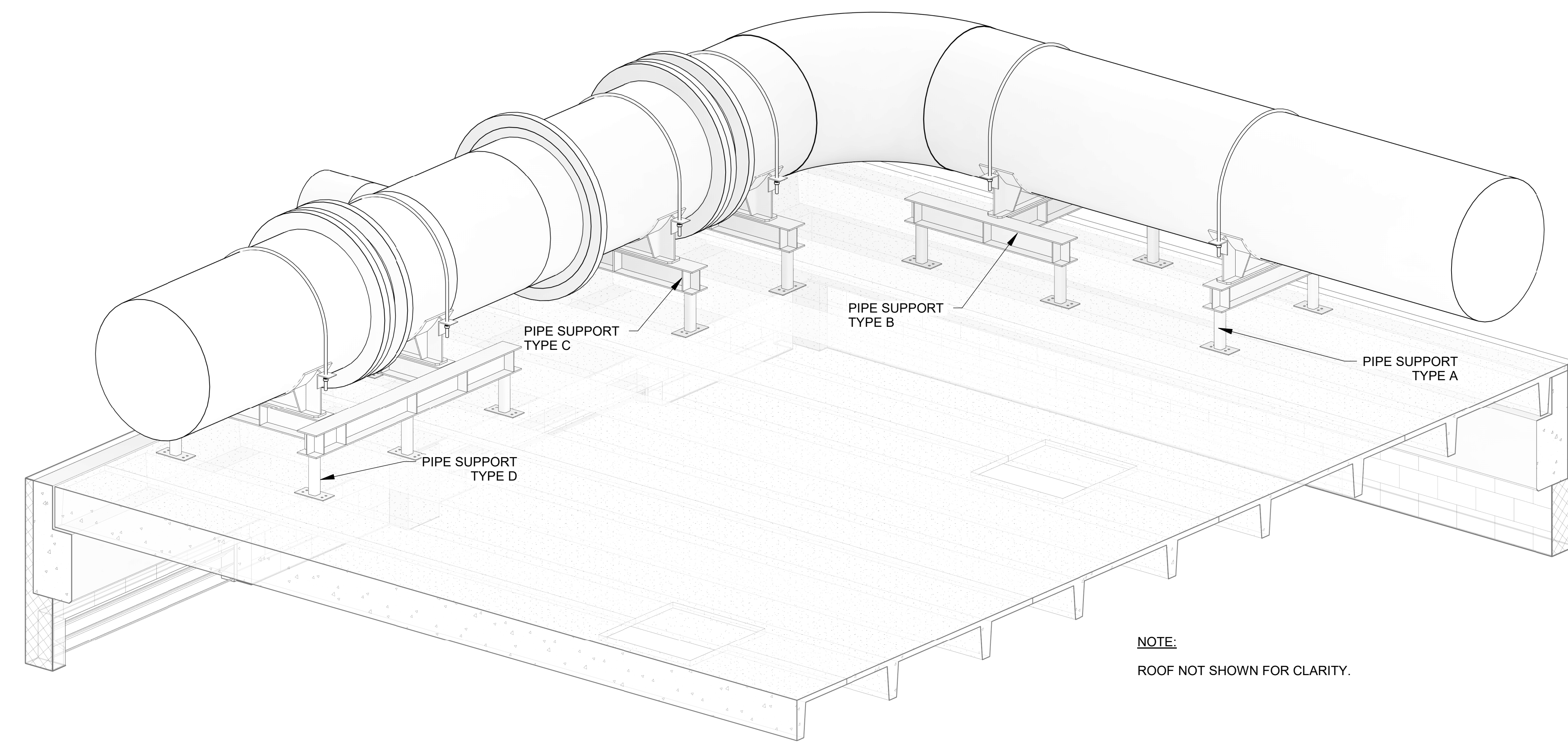
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NOTE:

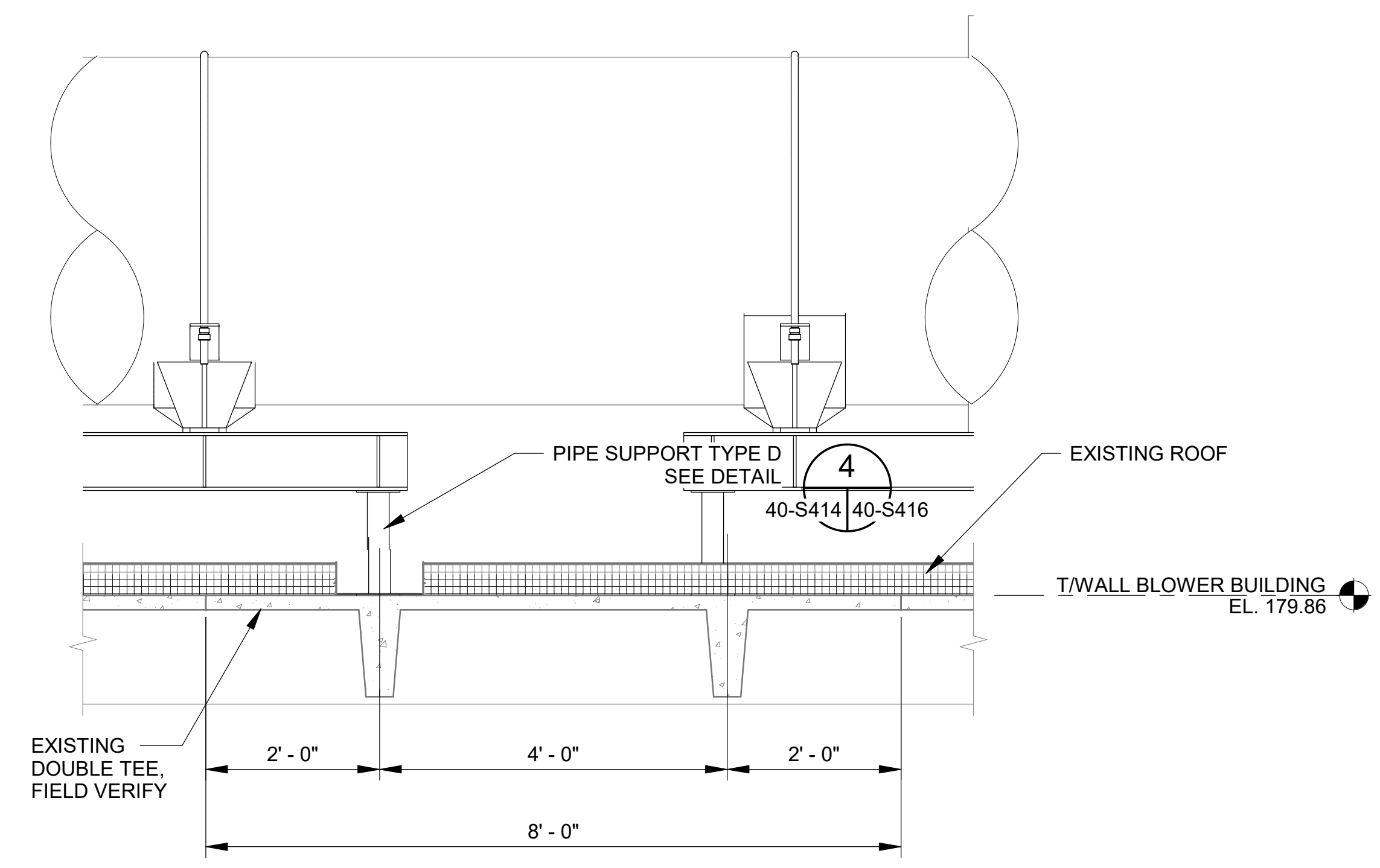
1. FIELD VERIFY ALL DIMENSIONS TO EXISTING STRUCTURAL ELEMENTS.
2. ALL STRUCTURAL STEEL AND PIPE SADDLES TO BE HOT-DIPPED GALVANIZED PER ASTM A123.
3. REPAIR EXISTING ROOFING AS EACH SUPPORT IS INSTALLED, SEE DETAIL

3
 40-S417 40-S417

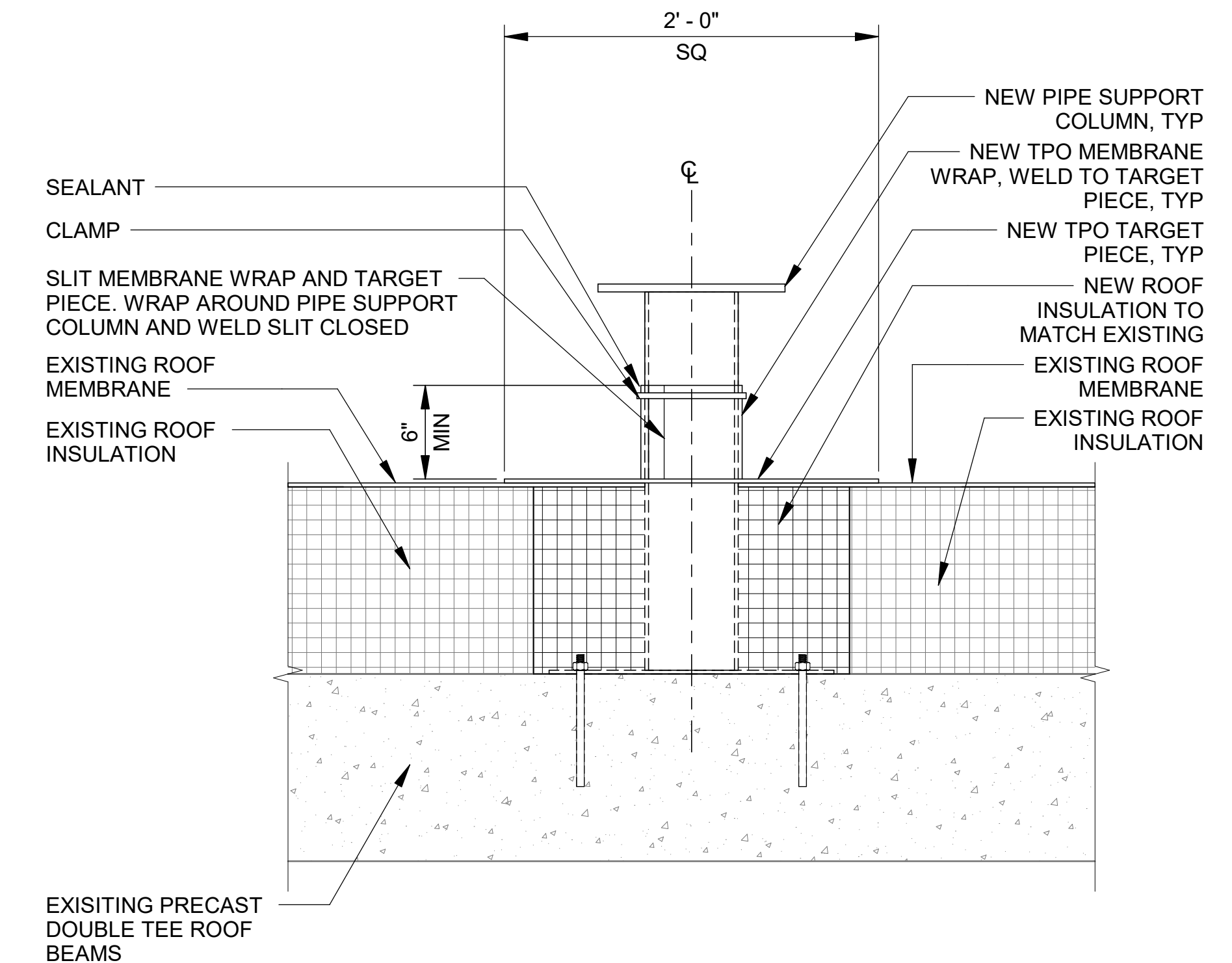


NOTE:
 ROOF NOT SHOWN FOR CLARITY.

1
 40-S417
PIPE SUPPORT ISOMETRIC VIEW
 SCALE: NOT TO SCALE



2
 40-S414 40-S417
SECTION @ BLOWER BUILDING
 SCALE: 3/4" = 1'-0"



NOTES:

1. TO PROTECT BUILDING INTERIOR, ROOF REPAIRS TO OCCUR ON SAME DAY THAT EXISTING ROOF IS REMOVED.
2. REPAIR MATERIALS ARE TO BE THE SAME THICKNESS AS THE EXISTING ROOFING.

3
 40-S417
ROOF REPAIR DETAIL
 SCALE: NOT TO SCALE

Revit File: BIM_360/19W10160 - Hilliard N Fletcher WRRF Anaerobic/HFWRRF_40 - NORTH AERATION BASINS.rvt
 PLOT Date: 1/19/2024 5:34:55 PM

REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
 TUSCALOOSA, AL

 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER BUILDING DETAILS 4

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
 DRAWN BY: EGB
 CHECKED BY: KAM

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 DRAWING NUMBER
40-S417
 SHEET NUMBER
117



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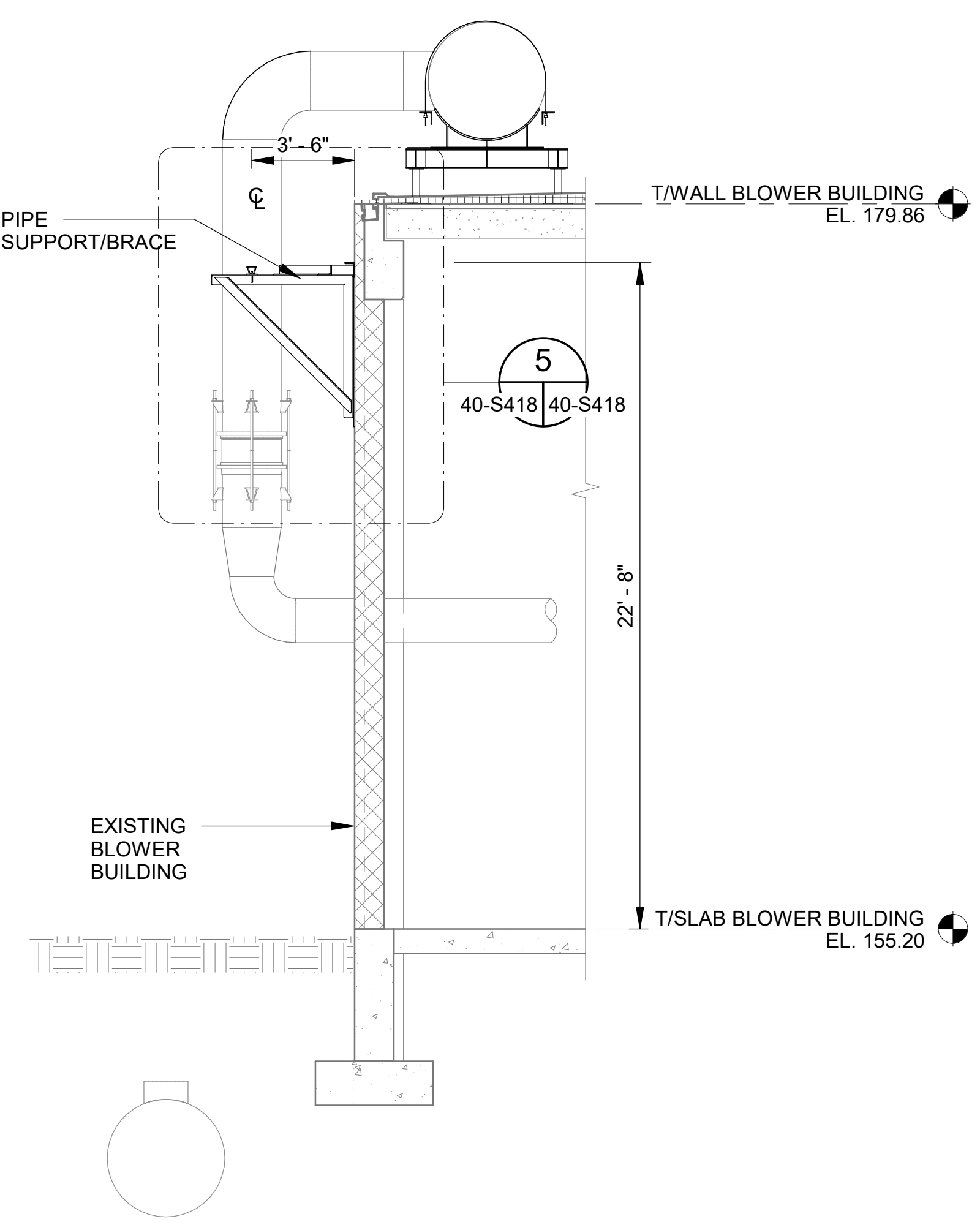
CITY OF TUSCALOOSA
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 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER BUILDING DETAILS 5

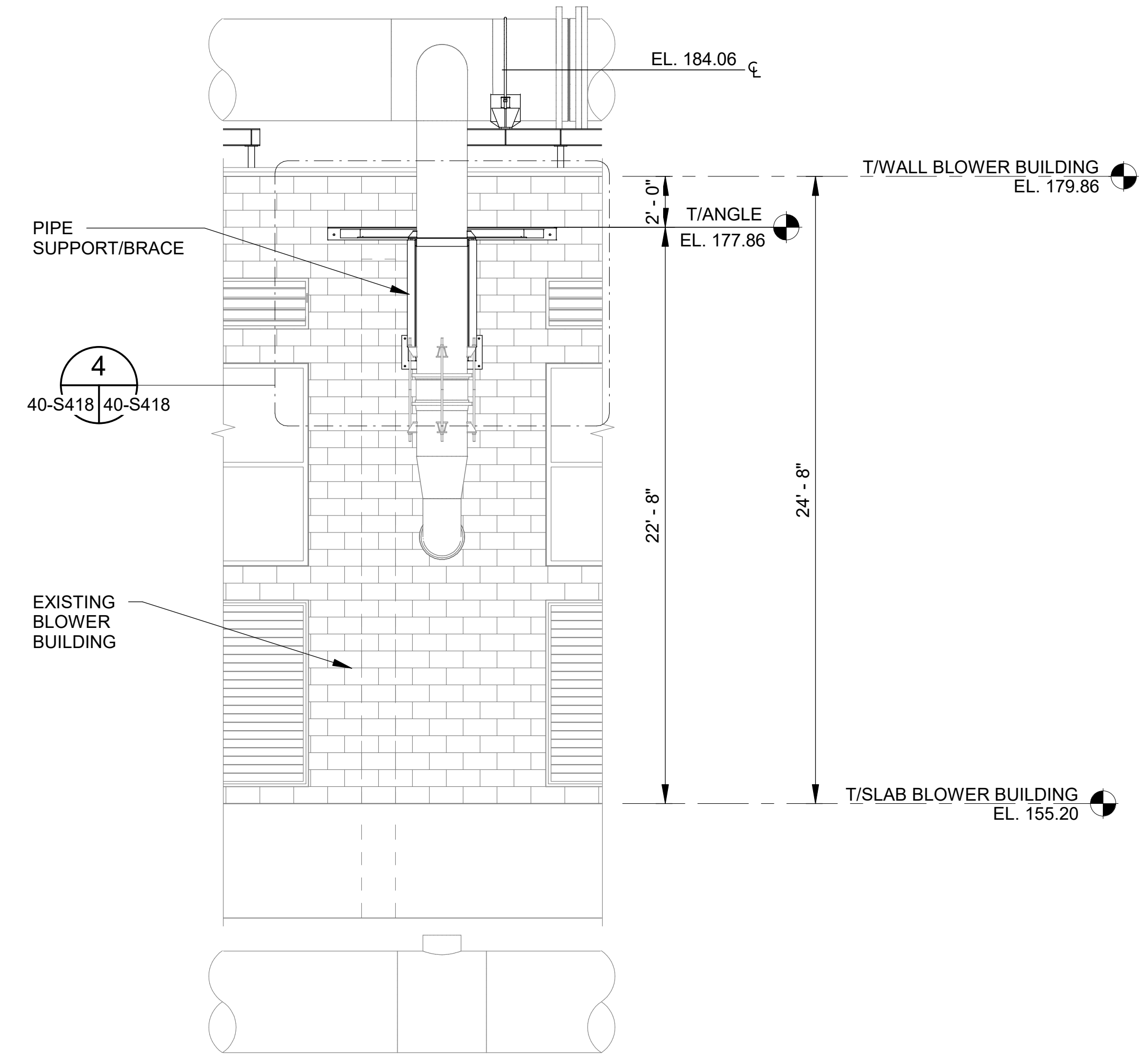
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: KAM
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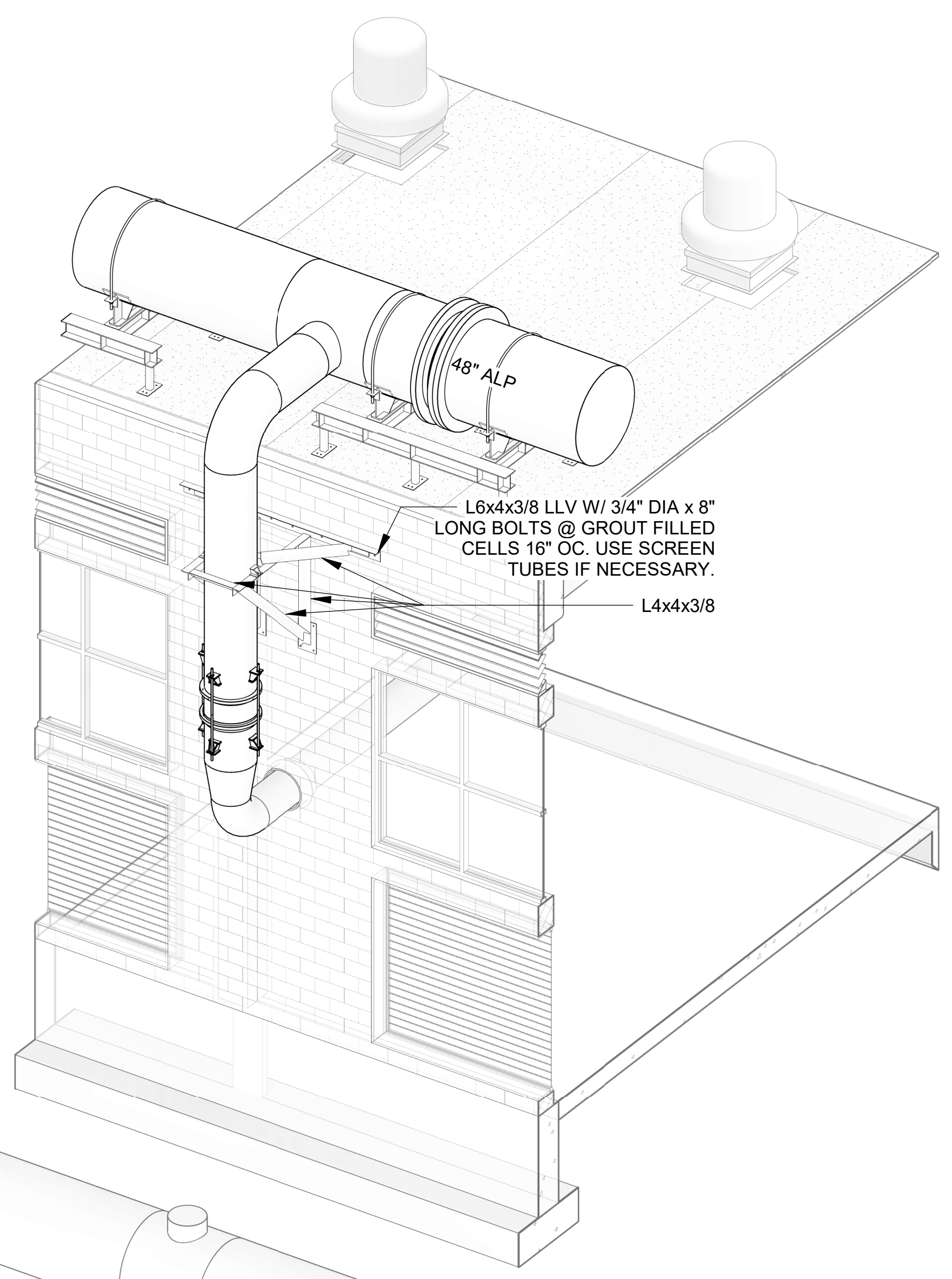
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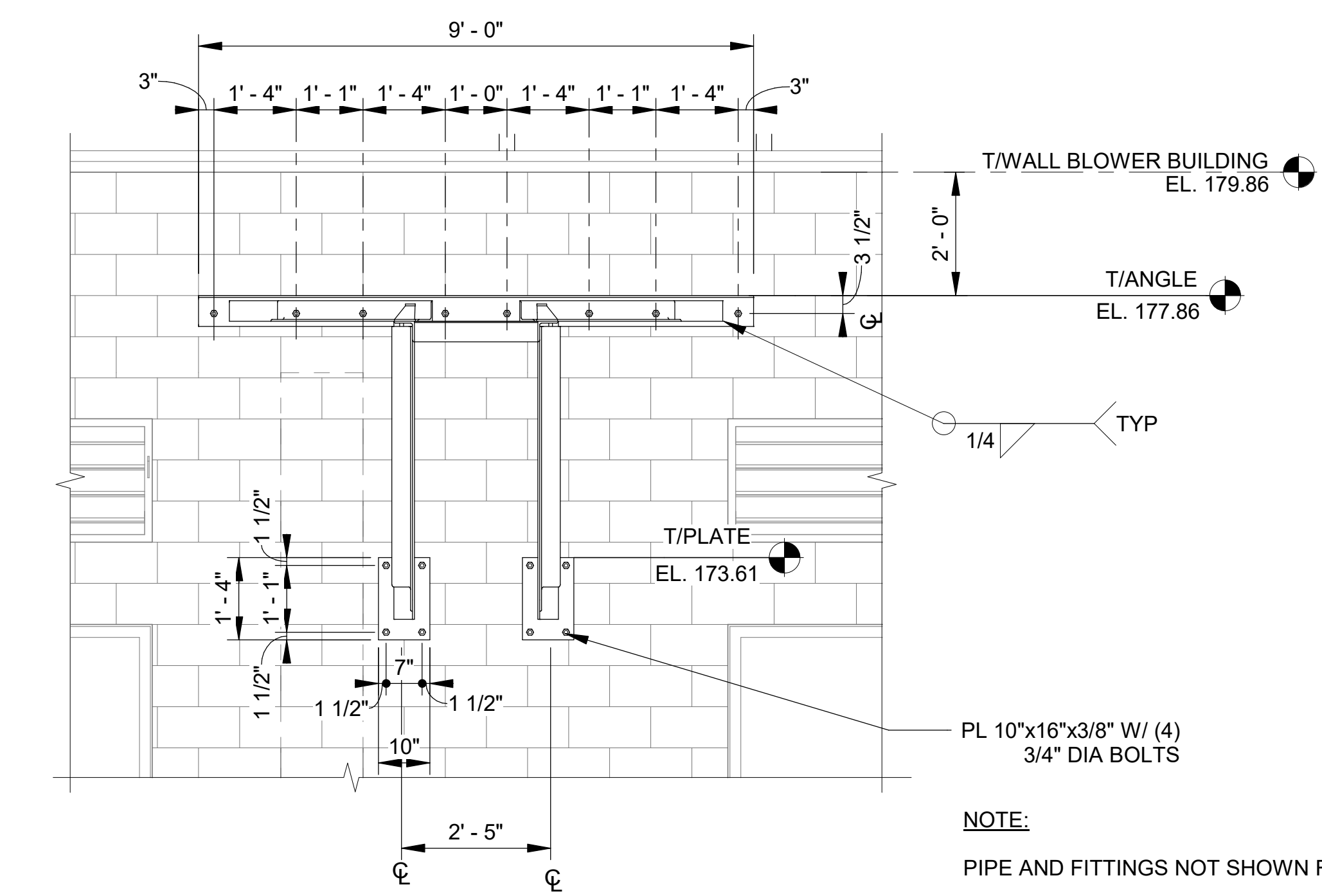
SECTION @ BLOWER BUILDING
 40-S414 | 40-S418 SCALE: 1/4" = 1'-0"



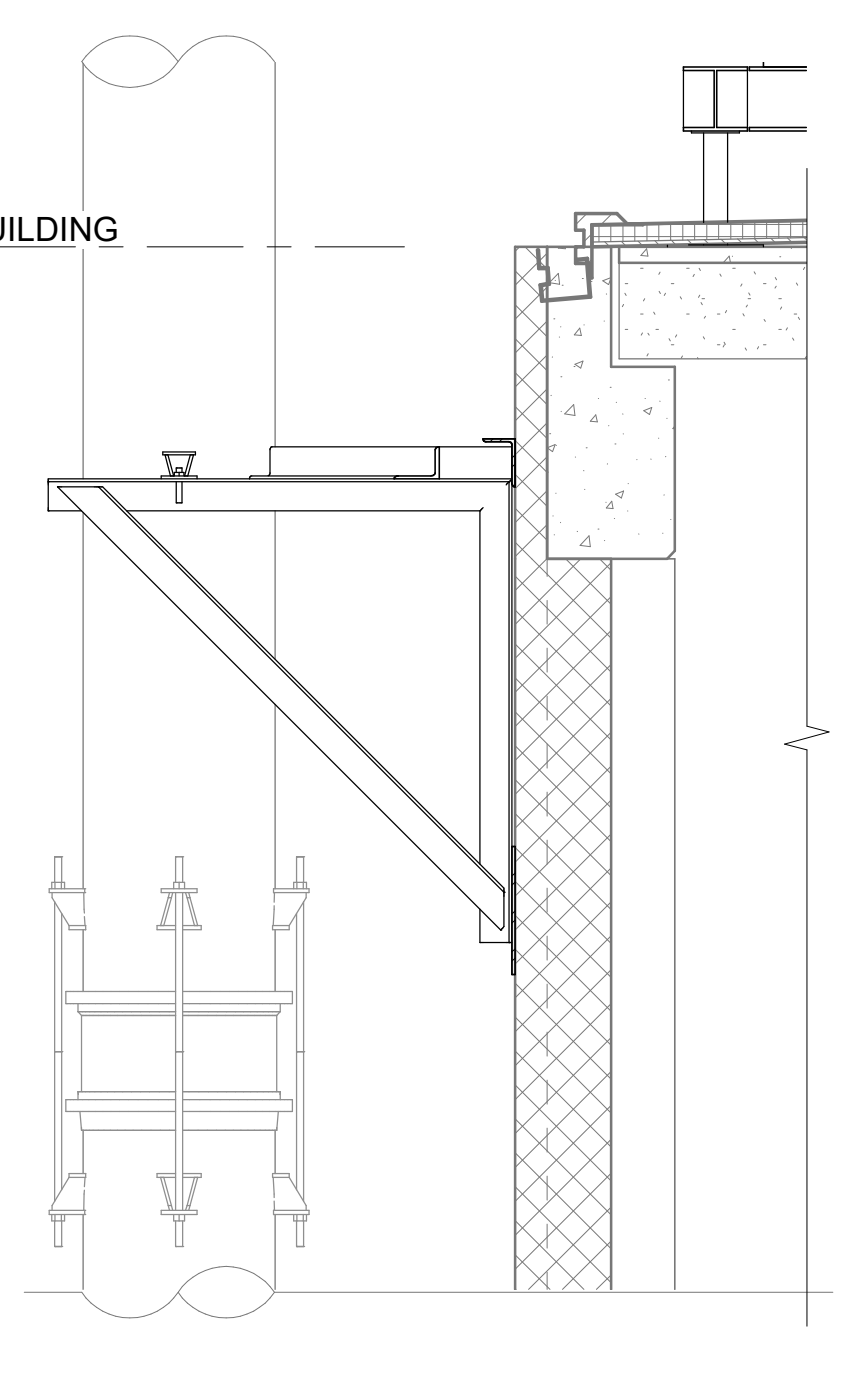
SECTION @ BLOWER BUILDING
 40-S414 | 40-S418 SCALE: 1/4" = 1'-0"



PIPE SUPPORT ISOMETRIC VIEW
 40-S418 SCALE: NOT TO SCALE



SUPPORT DETAIL
 40-S418 | 40-S418 SCALE: 1/2" = 1'-0"



SUPPORT DETAIL
 40-S418 | 40-S418 SCALE: 1/2" = 1'-0"

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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

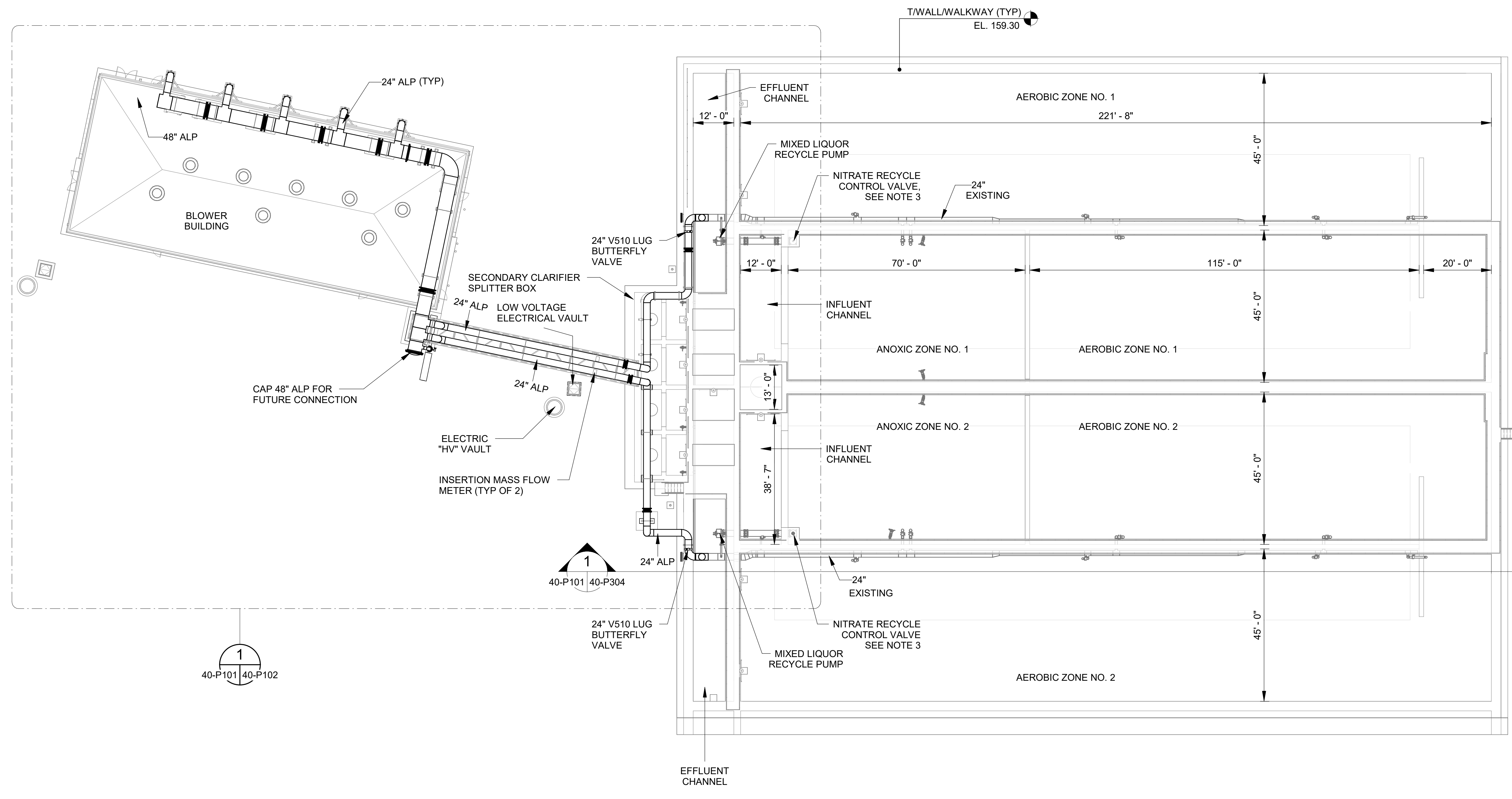
NORTH AERATION BASINS - BLOWER PIPING OVERALL PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: EGB
 CHECKED BY: RDT

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DRAWING NUMBER
40-P101
 SHEET NUMBER **119**

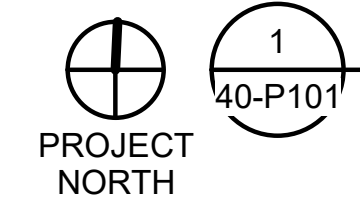
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LEGEND

	TO BE DEMOLISHED
	FUTURE CONSTRUCTION
	EXISTING CONSTRUCTION
	NEW CONSTRUCTION

- GENERAL NOTES:**
- EXISTING CERAMIC DIFFUSERS NOT SHOWN IN BASINS FOR CLARITY. DIFFUSERS SHALL BE REPLACED AS DESCRIBED IN SPECIFICATION SECTION 44 42 13.
 - BELOW GRADE PIPING NOT SHOWN FOR CLARITY.
 - VALVE STEM OF NITRATE RECYCLE VALVE SHALL BE REPLACED. EXISTING VALVE TO REMAIN.



NORTH AERATION BASIN BLOWER PIPING OVERALL PLAN
 SCALE: 1/16" = 1'-0"

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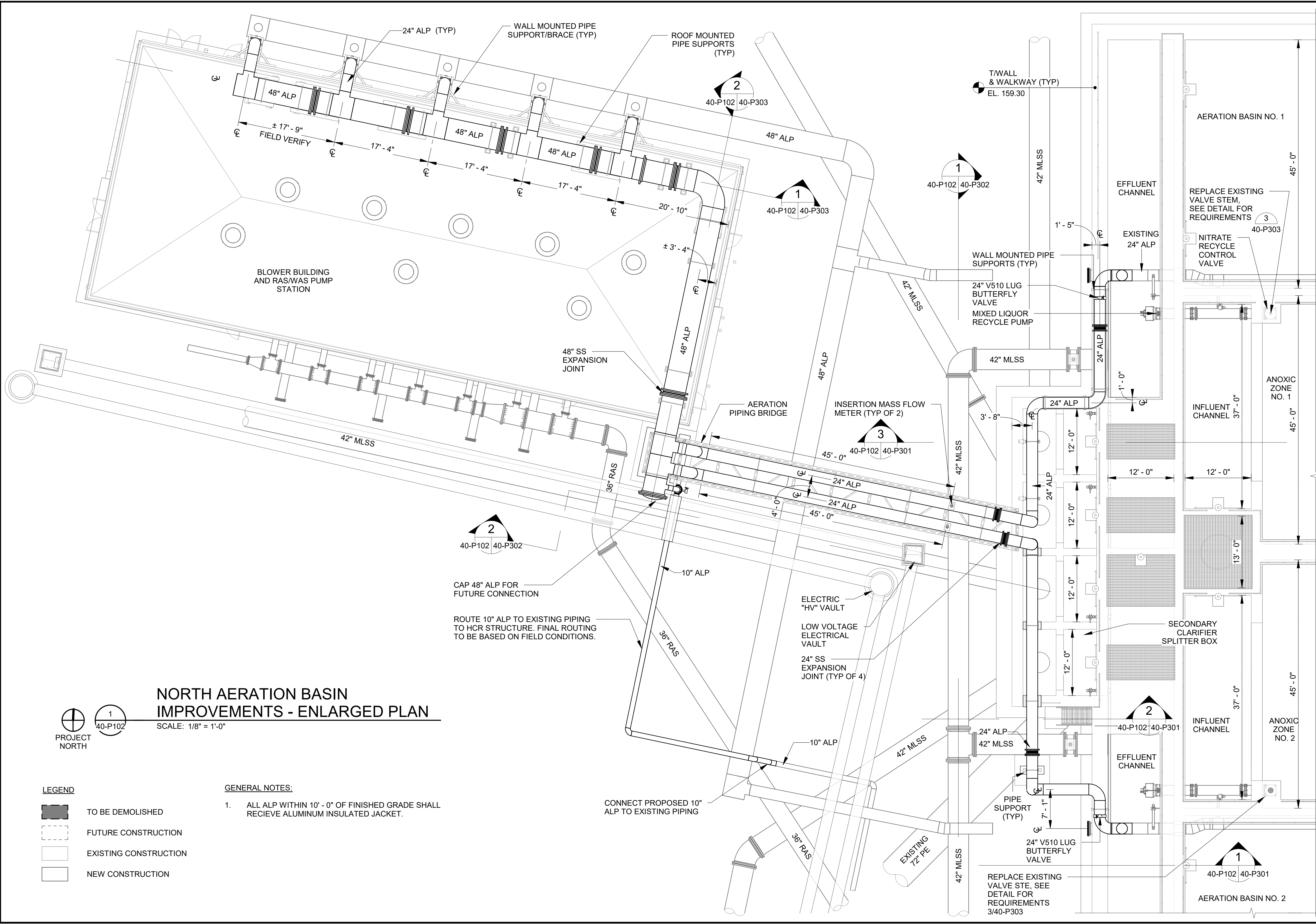
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 PHASE II IMPROVEMENTS

NORTH AERATION BASIN IMPROVEMENTS - ENLARGED PLAN

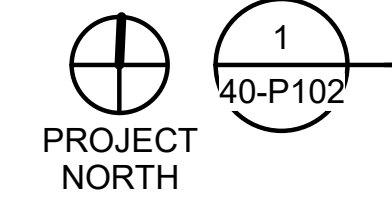
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: EGB
 CHECKED BY: RDT

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40-P102
 SHEET NUMBER
120



NORTH AERATION BASIN IMPROVEMENTS - ENLARGED PLAN
 SCALE: 1/8" = 1'-0"



LEGEND

	TO BE DEMOLISHED
	FUTURE CONSTRUCTION
	EXISTING CONSTRUCTION
	NEW CONSTRUCTION

- GENERAL NOTES:**
- ALL ALP WITHIN 10' - 0" OF FINISHED GRADE SHALL RECEIVE ALUMINUM INSULATED JACKET.

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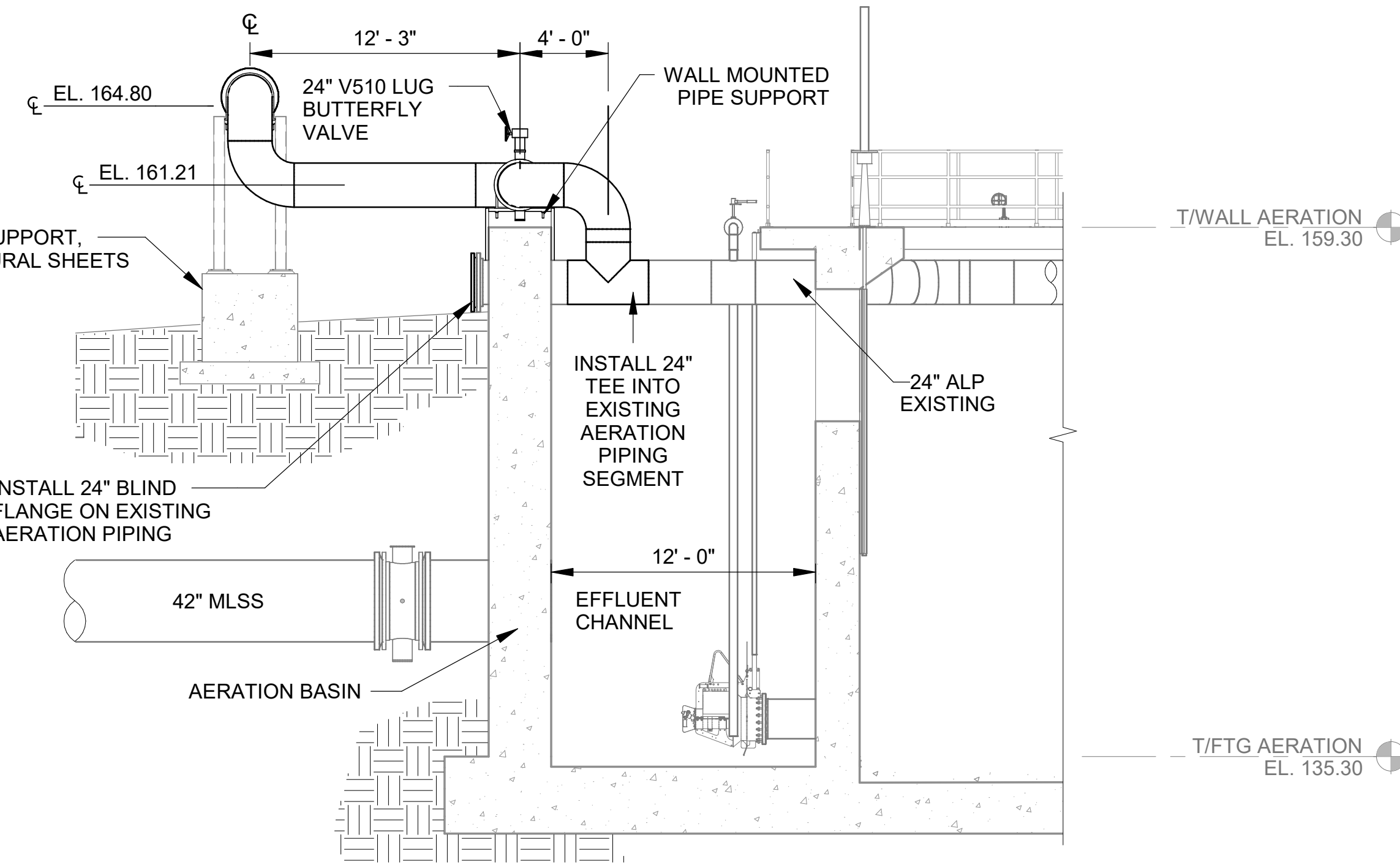
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 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 1

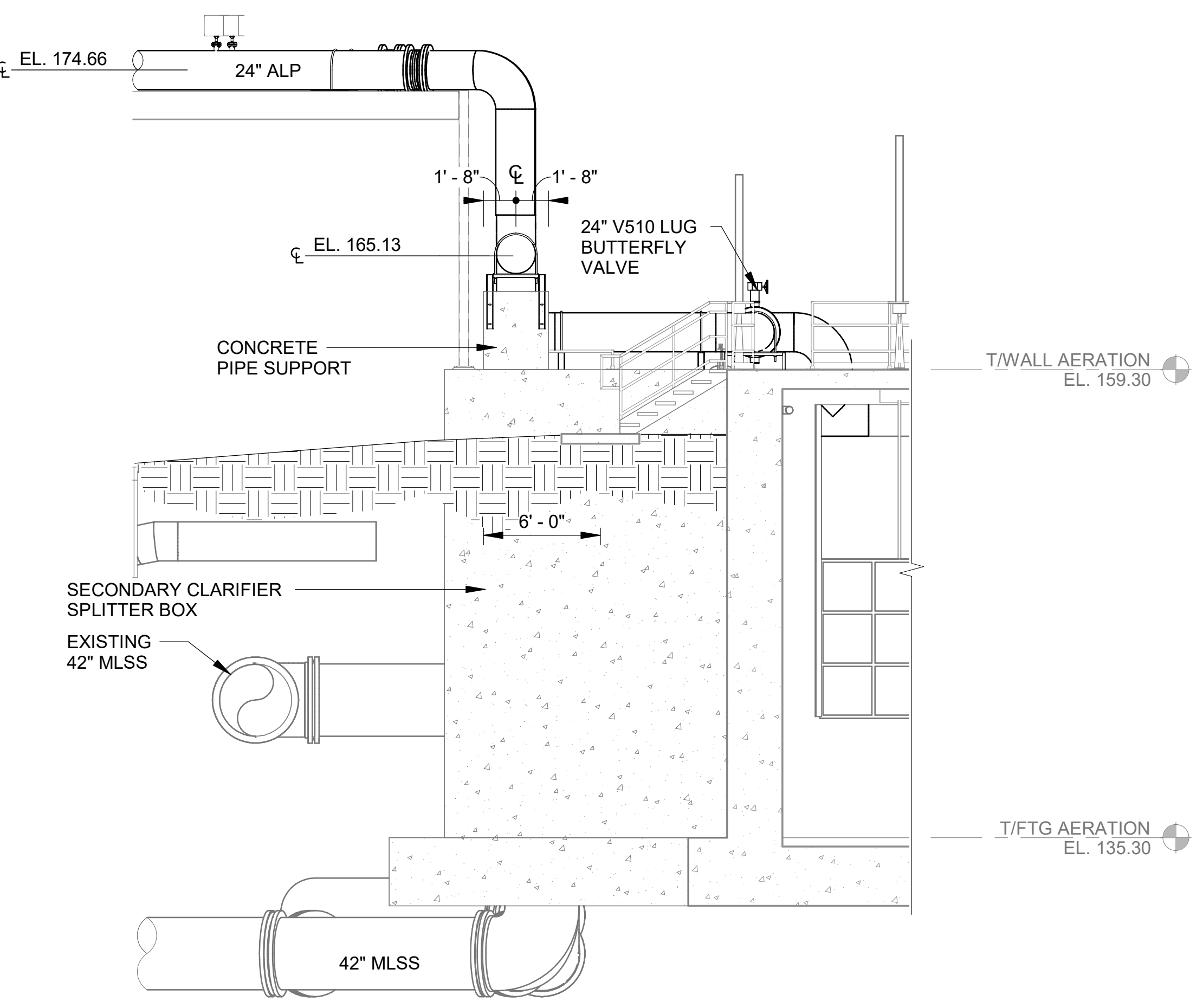
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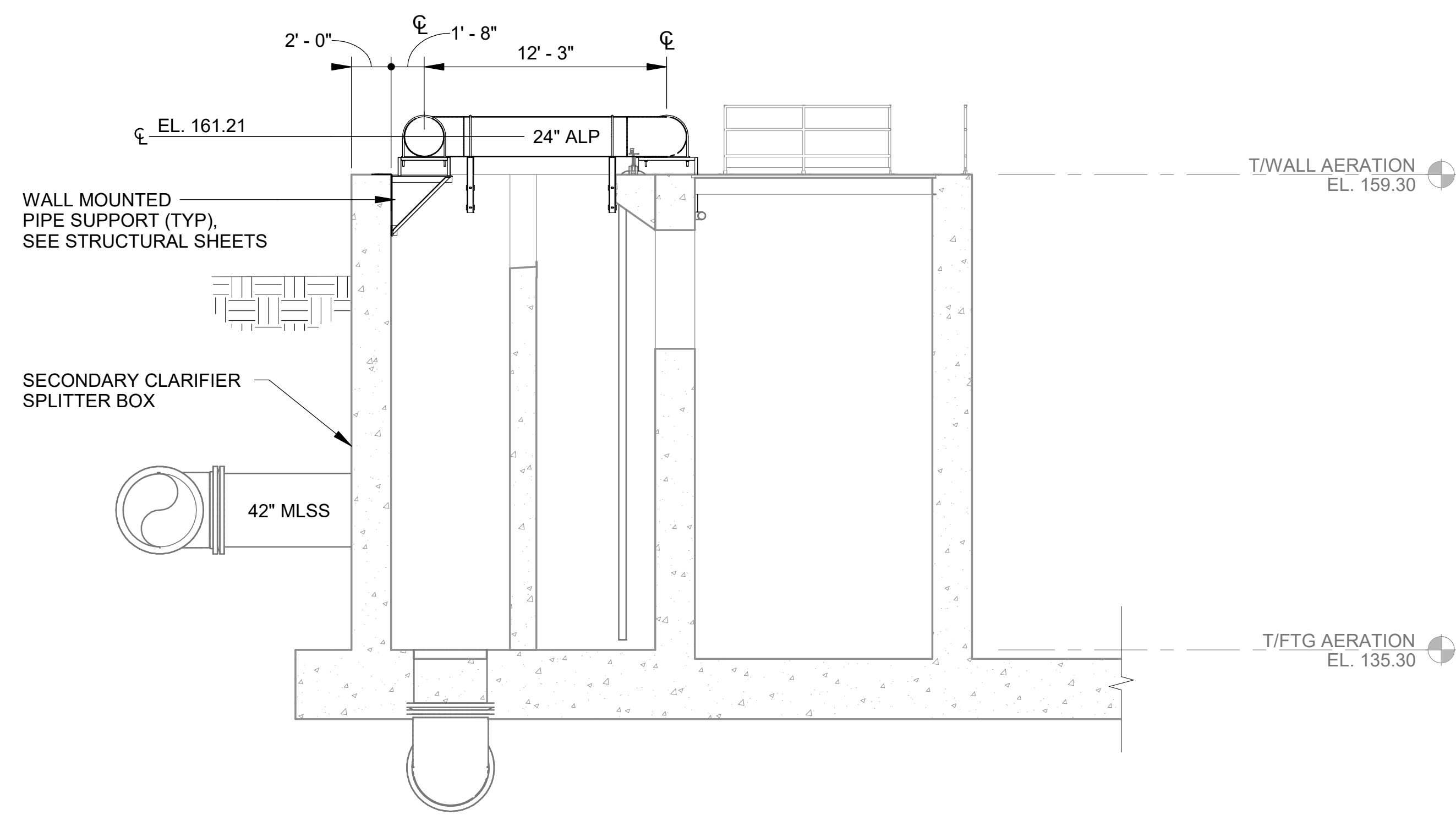
DRAWING NUMBER
40-P301
 SHEET NUMBER
121



SECTION 1
 40-P102 | 40-P301 SCALE: 3/16" = 1'-0"



SECTION 2
 40-P102 | 40-P301 SCALE: 3/16" = 1'-0"



SECTION 3
 40-P102 | 40-P301 SCALE: 3/16" = 1'-0"

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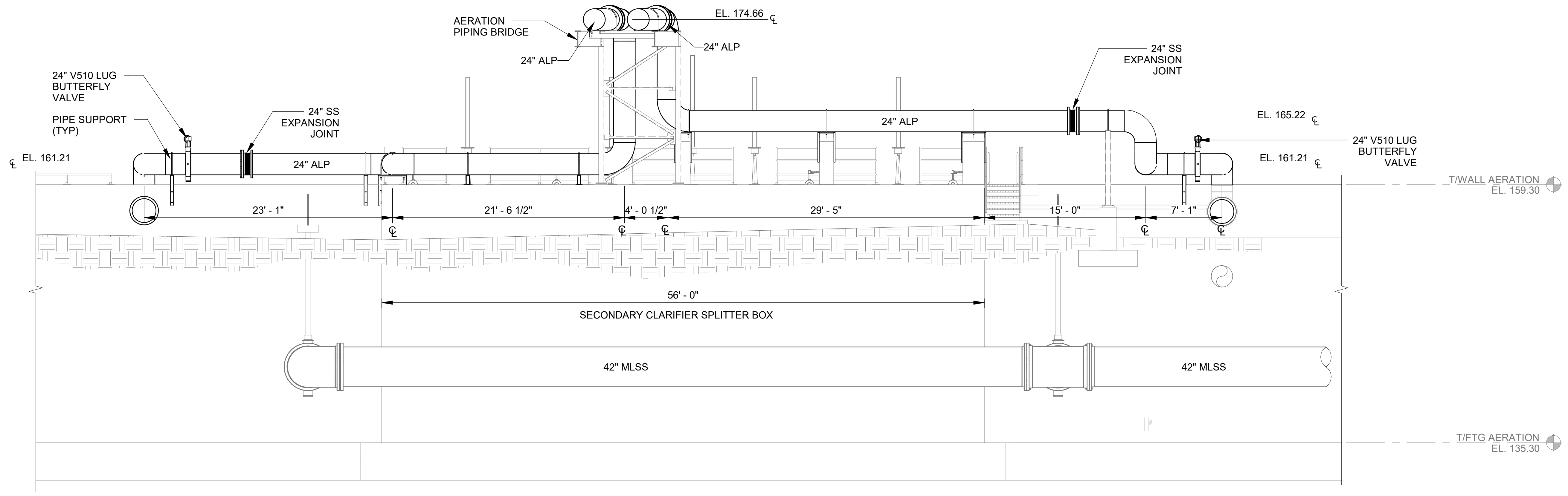
 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 2

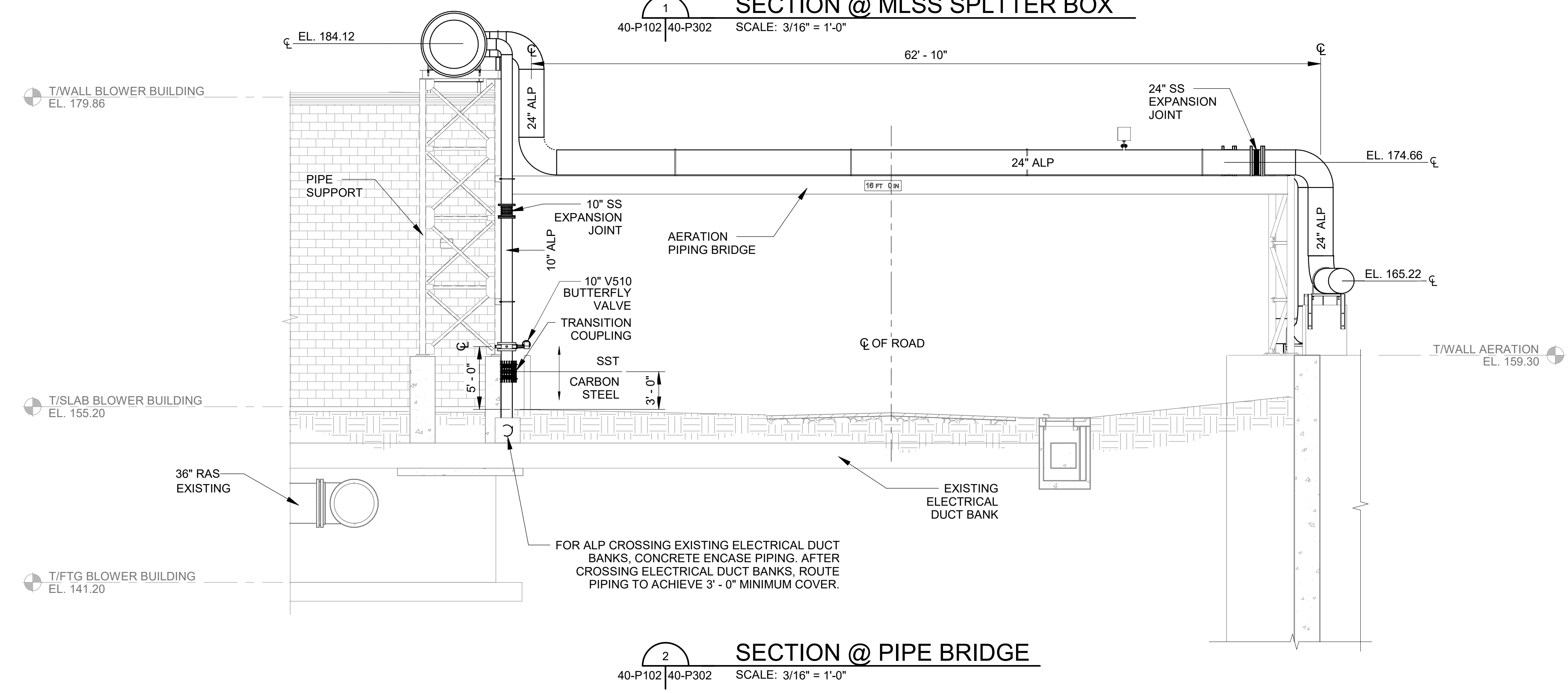
JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: EGB
 CHECKED BY: RDT

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DRAWING NUMBER
40-P302
 SHEET NUMBER
122



SECTION @ MLSS SPLTTER BOX
 SCALE: 3/16" = 1'-0"



SECTION @ PIPE BRIDGE
 SCALE: 3/16" = 1'-0"

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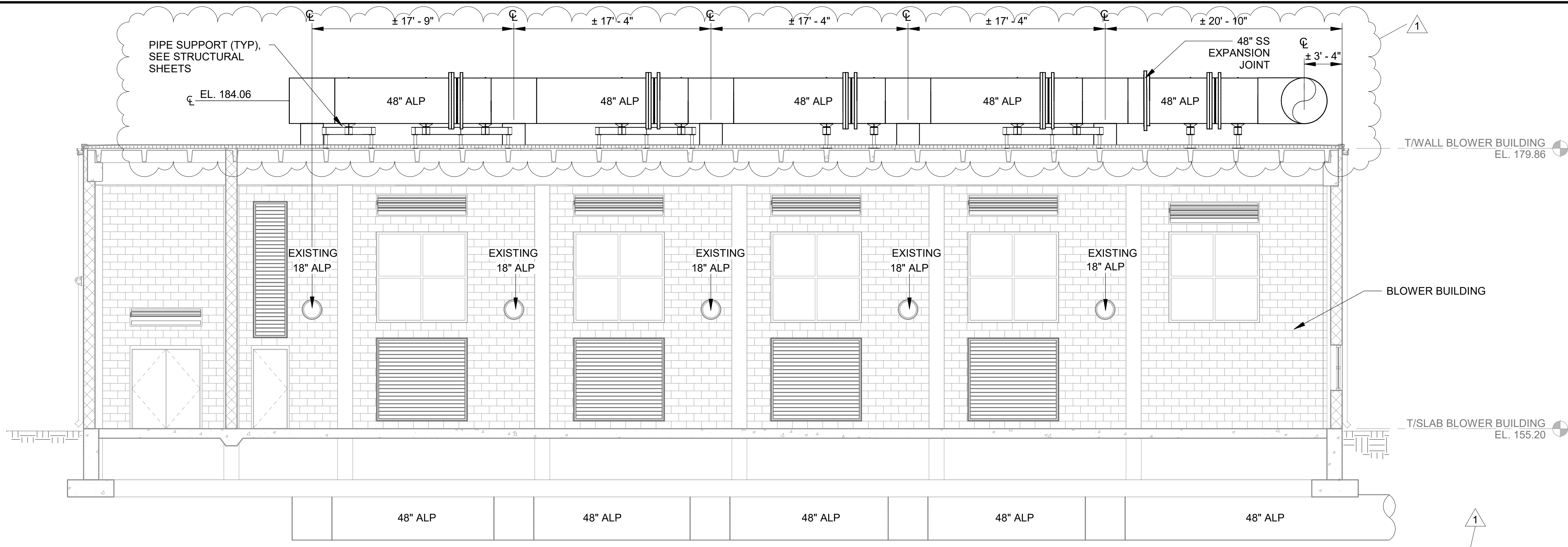
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1	12/5/23	ADDENDUM NO 2	RWC

CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING SECTIONS AND DETAILS 3

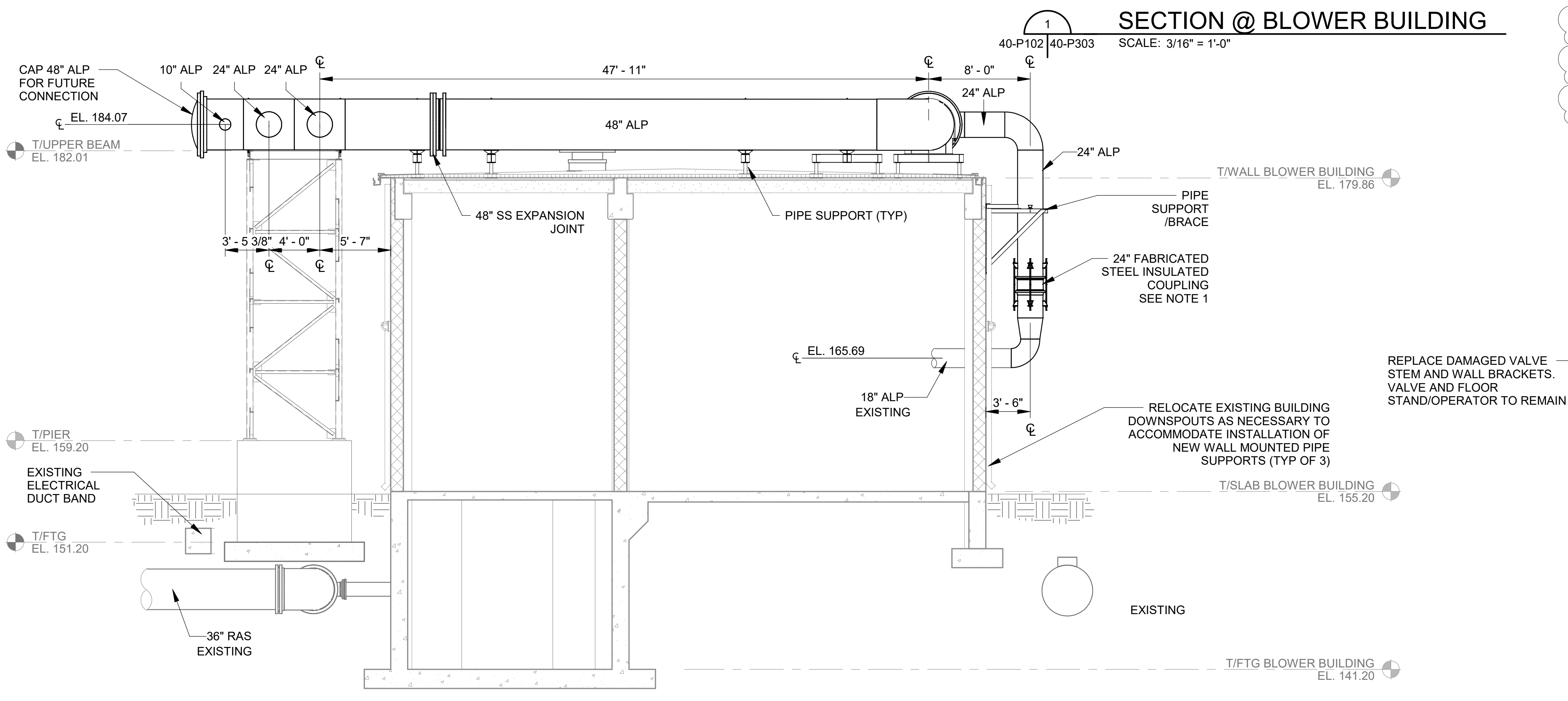
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40-P303
 SHEET NUMBER
123



SECTION @ BLOWER BUILDING
 SCALE: 3/16" = 1'-0"

NOTES:
 1. CONTRACTOR SHALL UTILIZE CARBON STEEL PIPING UP TO INSULATED COUPLING AND THEN TRANSITION TO STAINLESS STEEL FOLLOWING THE INSULATED COUPLING. PROVIDE INSULATED JOINT HARNESSES WITH WELDED LUGS ON EACH SIDE OF COUPLING FOR RESTRAINT.



NITRATE RECYCLE VALVE PHOTO DETAIL
 SCALE: NOT TO SCALE

SECTION @ BLOWER BUILDING
 SCALE: 3/16" = 1'-0"

3
 40-P303

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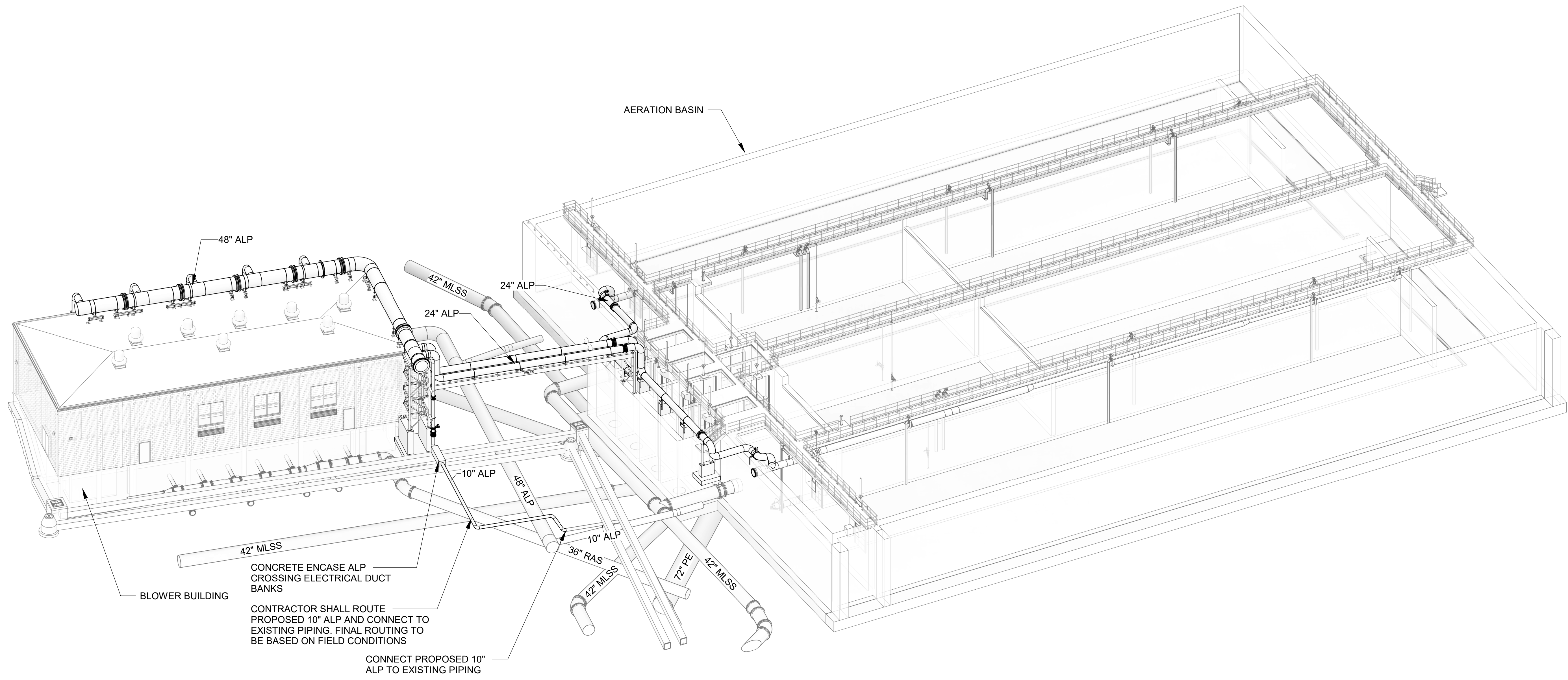
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 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - BLOWER PIPING ISOMETRIC VIEW OVERALL

JOB NO.: 19W10160
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40-P901
 SHEET NUMBER **124**



CONCRETE ENCASE ALP CROSSING ELECTRICAL DUCT BANKS
 CONTRACTOR SHALL ROUTE PROPOSED 10\"/>

NORTH AERATION BASIN BLOWER PIPING ISOMETRIC VIEW OVERALL

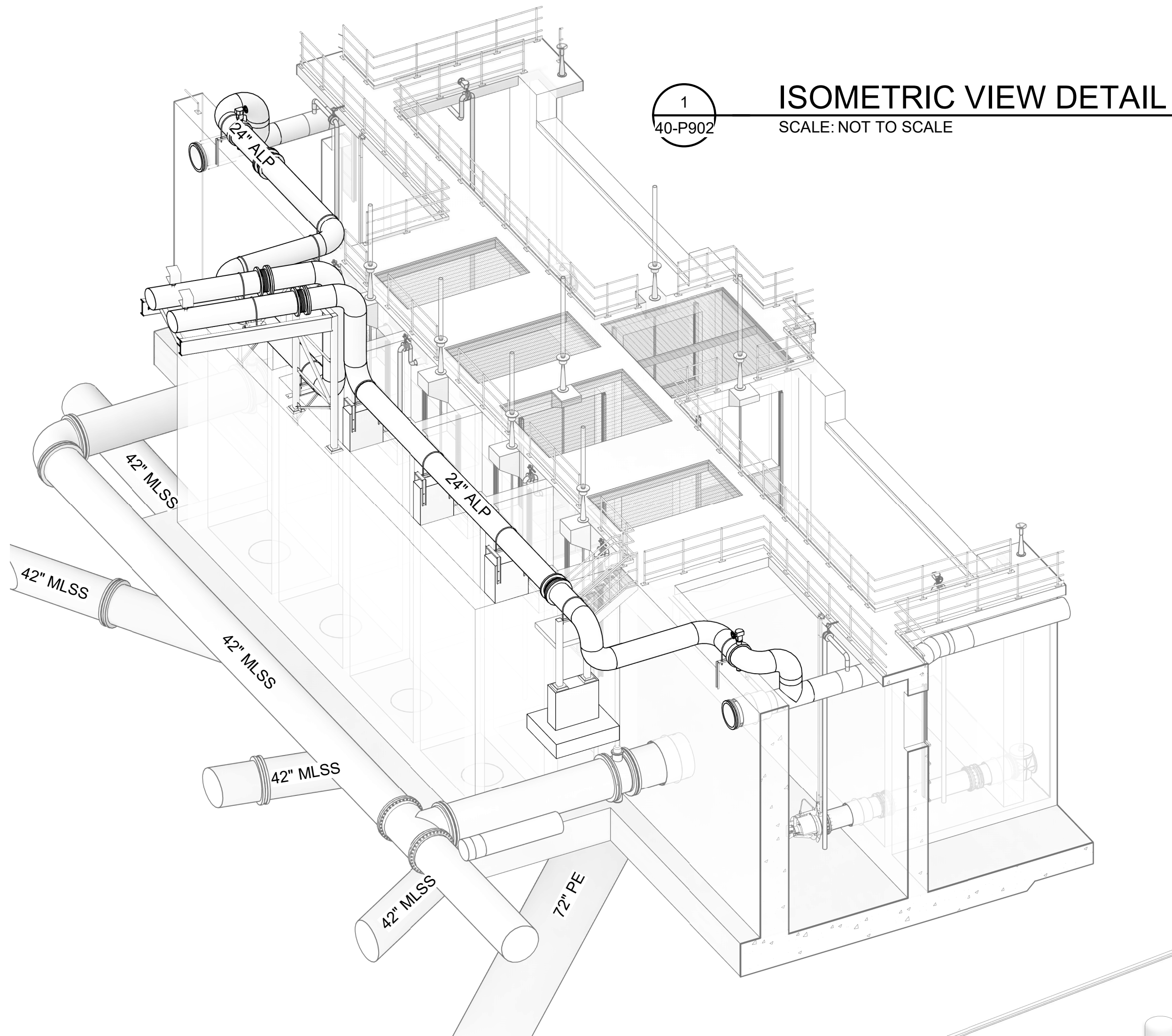
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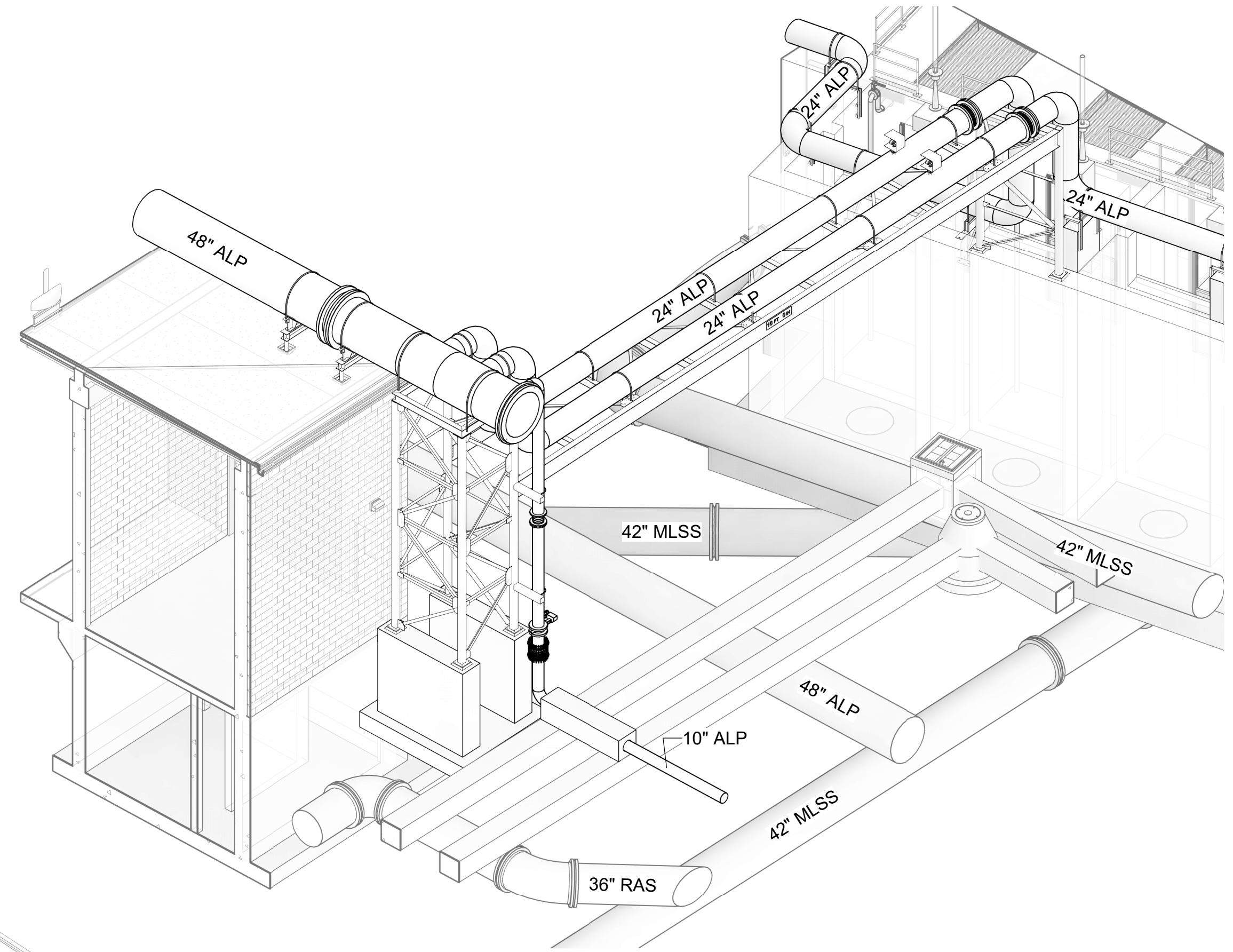
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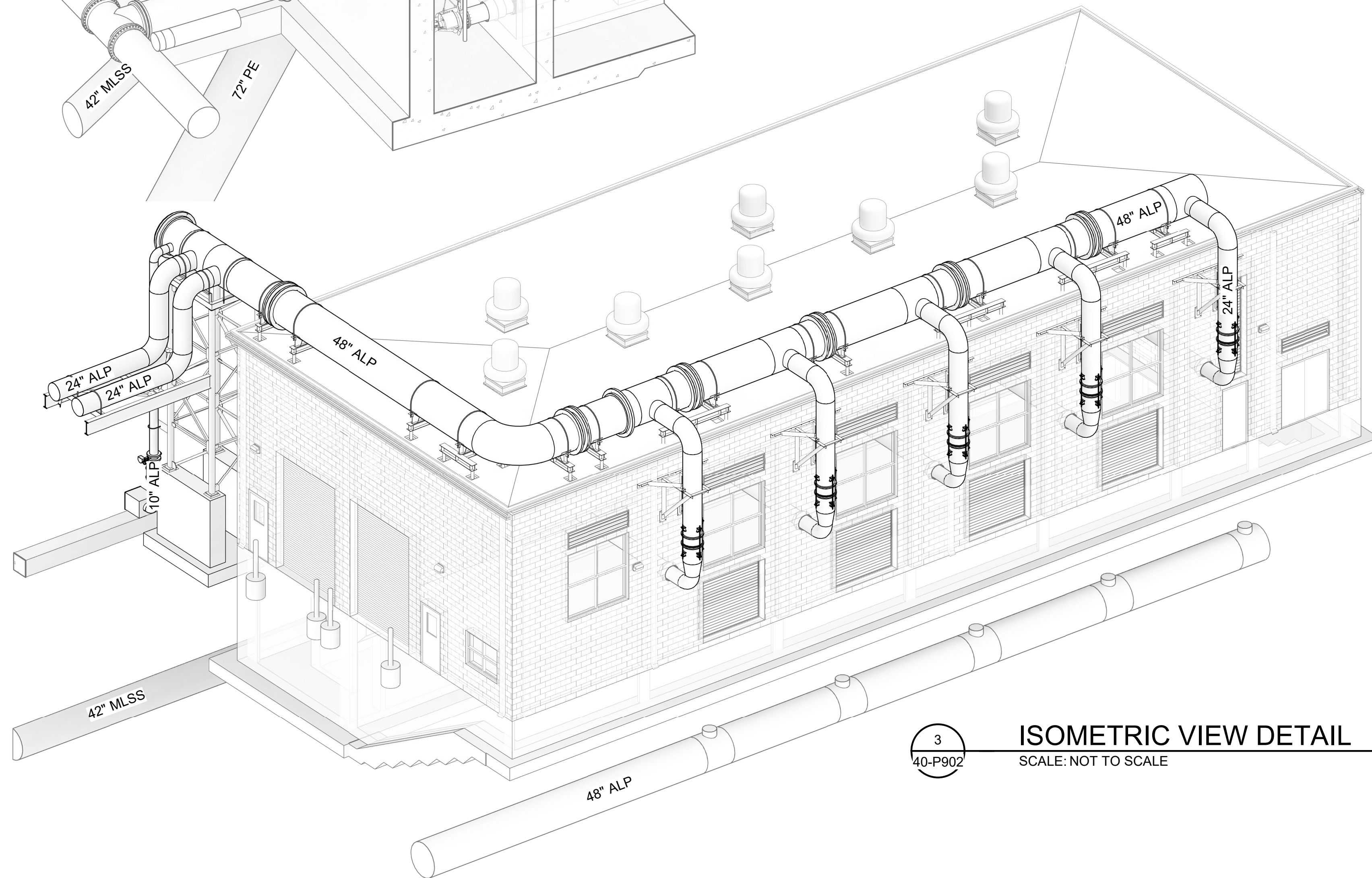
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 PCL Date: 11/9/2024 5:34:17 PM



1
 40-P902 **ISOMETRIC VIEW DETAIL**
 SCALE: NOT TO SCALE



2
 40-P902 **ISOMETRIC VIEW DETAIL**
 SCALE: NOT TO SCALE



3
 40-P902 **ISOMETRIC VIEW DETAIL**
 SCALE: NOT TO SCALE



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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER
 RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION
 BASINS - BLOWER
 PIPING ISOMETRIC
 VIEWS

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: RWC
 DRAWN BY: EGB
 CHECKED BY: RDT

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CITY OF TUSCALOOSA
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

NORTH AERATION BASINS - ELECTRICAL SITE PLAN

JOB NO.: 19W10160
 DATE: JAN. 2024

DESIGNED BY: JCW
 DRAWN BY: SAH
 CHECKED BY: RWC

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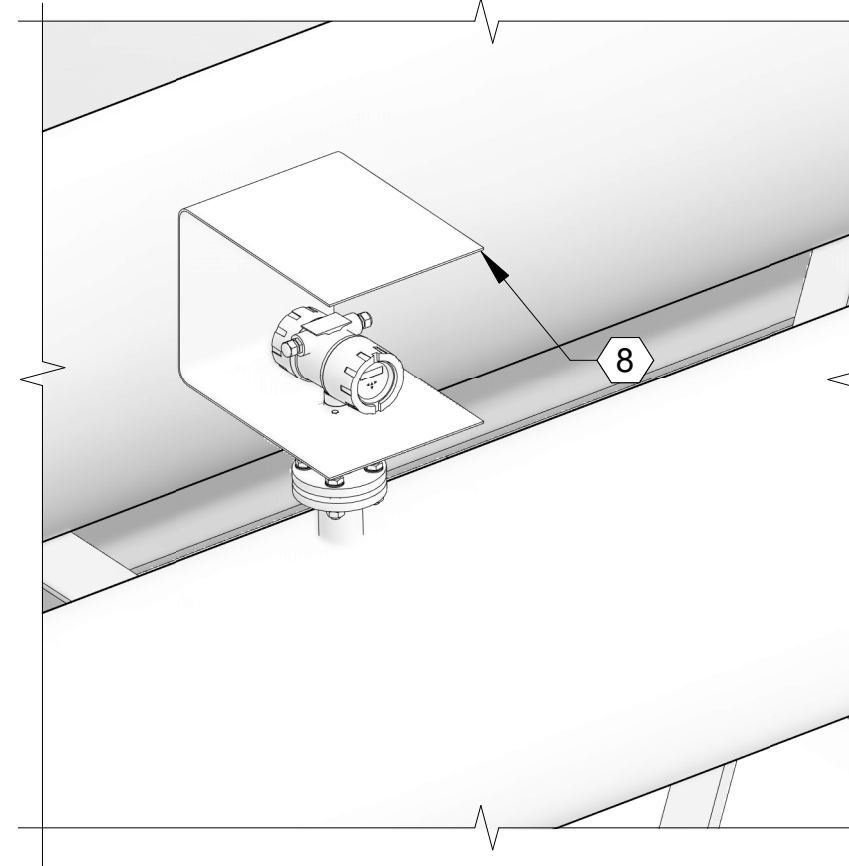
DRAWING NUMBER
40-E101
 SHEET NUMBER **126**

GENERAL NOTES:

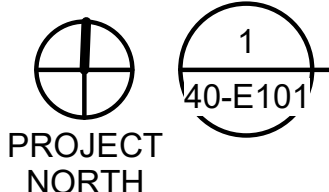
1. CONTRACTOR SHALL COORDINATE CONDUIT, WIRE AND INTERCONNECTIONS AS REQUIRED FOR RELOCATING EXISTING FLOW METERS. MAKE ALL REQUIRED CONNECTIONS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. NOT ALL CONNECTIONS SHOWN.
2. VERIFY LOCATION OF ALL EQUIPMENT PRIOR TO INSTALLATION.
3. SOME CONDUIT RUNS OMITTED FOR CLARITY. COORDINATE ALL CONDUIT ROUTING WITH SUPPLIED EQUIPMENT MANUFACTURER AND ENGINEER PRIOR TO INSTALLATION.
4. BELOW GRADE CONDUIT ROUTING AS SHOWN IS DIAGRAMMATIC IN NATURE AND SHOWN FOR REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING NUMBER OF REQUIRED CONDUITS AND PLACEMENT OF THESE CONDUITS. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A BELOW GRADE CONDUIT ROUTING PLAN FOR REVIEW PRIOR TO INSTALLATION.
5. SEE SHEET 20-X101 FOR AERATION BASINS DEMOLITION PLANS.
6. PROVIDE LIGHTNING PROTECTON FOR NEW AERATON PIPING SYSTEM. FINAL LIGHTING PROTECTION SYSTEM SHALL BE DEVELOPED AND SUBMITTED BY MASTER INSTALLER/DESIGNER CERTIFIED BY UL OR LPI AS REQUIRED IN SPECIFICATION SECTION 26 41 13.
7. USE CRIMPED OR BOLTED CONNECTIONS FOR ALL CONNECTIONS BETWEEN GROUND CONDUCTORS AND BUILDING SYSTEM COMPONENTS. USE EXOTHERMIC WELDED CONNECTIONS FOR ALL UNDERGROUND PORTIONS OF THE SYSTEM WITH THE EXCEPTION OF GROUND ROD TEST WELLS.

KEYED NOTES:

1. INSTALL NEW CONDUIT FROM BLOWER BUILDING TO NEW FLOW METER LOCATION AS SHOWN. CONTRACTOR SHALL FIELD VERIFY CONDUIT ROUTING PRIOR TO CONSTRUCTION AND COORDINATE ROUTE WITH ENGINEER.
2. PULL NEW POWER CONDUCTORS (2-#12, #12 GND) 3/4"C, FOR 120VAC, FROM EXISTING LIGHT PANEL, CIRCUIT #18 (LPB1-18), IN BLOWER BUILDING FOR FLOW METER FIT-6-2-1. MAKE ALL REQUIRED CONNECTIONS.
3. PULL NEW ANALOG CONDUCTORS (1-PAIR STP, 1-PAIR STP SPARE) 3/4"C, FROM EXISTING DATA COLLECTOR PANEL FP-6-32 TO FLOW METER FIT-6-2-1. MAKE ALL REQUIRED CONNECTIONS. SEE SHEET 20-E102 FOR DATA PANEL LOCATION.
4. PULL NEW POWER CONDUCTORS (2-#12, #12 GND) 3/4"C, FOR 120VAC, FROM EXISTING LIGHT PANEL, CIRCUIT #20 (LPB1-20), IN BLOWER BUILDING FOR FLOW METER FIT-6-2-2. MAKE ALL REQUIRED CONNECTIONS.
5. PULL NEW ANALOG CONDUCTORS (1-PAIR STP, 1-PAIR STP SPARE) 3/4"C, FROM EXISTING DATA COLLECTOR PANEL FP-6-32 TO FLOW METER FIT-6-2-2. MAKE ALL REQUIRED CONNECTIONS. SEE SHEET 40-E102 FOR DATA PANEL LOCATION.
6. EXISTING CONDUITS FROM IN BLOWER BUILDING MAY BE REUSED. SEE SHEET 40-E102.
7. RELOCATE EXISTING FLOW METERS FIT-6-2-1 AND FIT-6-2-2 FROM EXISTING METER VAULT TO NEW LOCATIONS AS SHOWN. PROVIDE SUN SHIELDS FOR INSTRUMENTATION.
8. PROVIDE SUNSHADE FOR FLOW TRANSMITTERS.



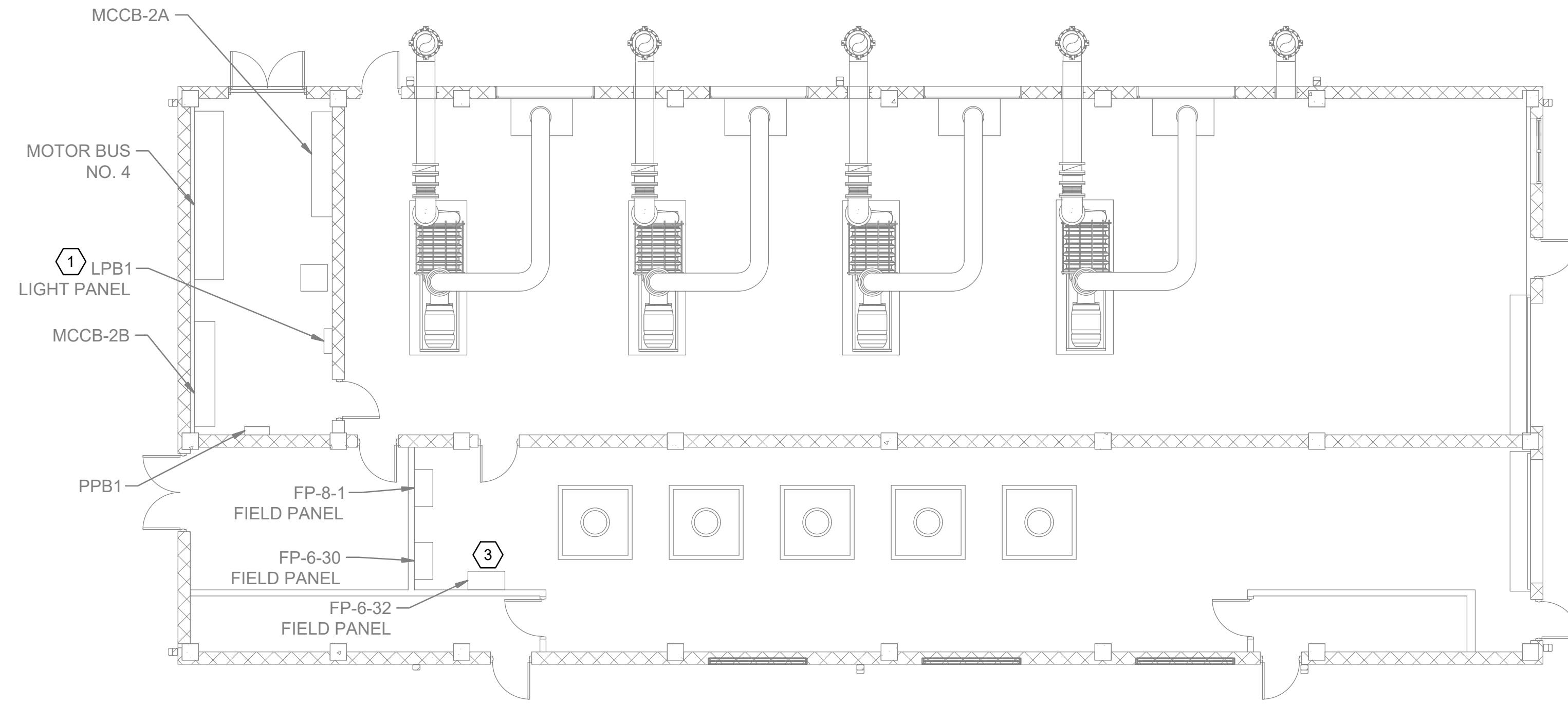
2
 40-E101
FLOW TRANSMITTER SUNSHADE
 SCALE: NOT TO SCALE



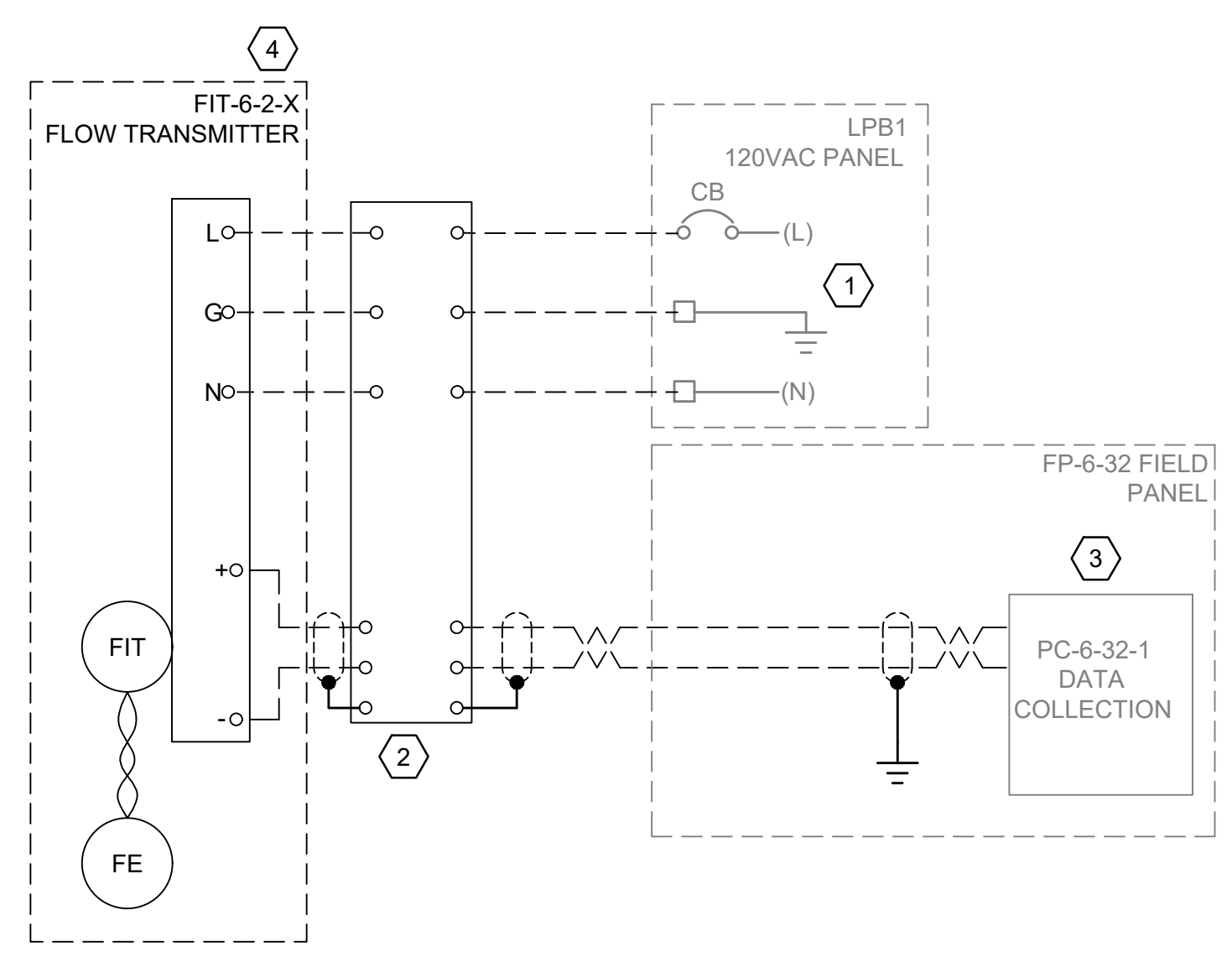
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 40-E101
NORTH AERATION BASINS - ELECTRICAL SITE PLAN
 SCALE: 1/8" = 1'-0"

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1
40-E102
PROJECT NORTH
SCALE: 1/8" = 1'-0"



3
40-E102
FIT-6-2-1 AND FIT-6-2-2 FLOW METER SCHEMATIC
SCALE: NONE

VOLTS 120/208 Φ 3 W 4 PANELBOARD LPB1 MIN AIC 22K
 MAIN 100A MCB LOCATION BLOWER BUILDING 18 KVA TOTAL
 SOURCE T-B1 CIRC. SPACES 42
 MOUNT SURFACE MOUNTED NEMA 1

LOAD IN KVA	LOAD (KVA)			CIR	BKR	CIR	LOAD (KVA)			LOAD IN KVA
	ΦA	ΦB	ΦC				ΦA	ΦB	ΦC	
SPARE	*			1	20		20	2	.3	FP-8-1
LIGHTS-BASEMENT	1.1			3	20		20	4	1.2	LIGHTS-BLOWER ROOM
LIGHTS-BASEMENT		.9		5	20		20	6	1.2	LIGHTS-BLOWER ROOM
LIGHTS-STAIRS	.4			7	20		20	8	1.2	LIGHTS-BLOWER ROOM
RECEPT-BASEMENT	.5			9	20		20	10	.3	FP-6-1-1
RECEPT-BASEMENT		.5		11	20		20	12	.3	FP-6-1-2
LIGHTS-ELEC. ROOM	1.2			13	20		20	14	.3	FP-6-1-3
LIGHTS-RAS/WAS RM	1.5			15	20		20	16	.3	FP-6-1-4
SPARE		*		17	20		20	18	.3	FIT-6-2-1
REC-BLOW/PUMP RM	.4			19	20		20	20	.3	FIT-6-2-2
REC-BLOW/PUMP RM	.9			21	20		20	22	.3	FP-6-30
REC-PUMP ROOM		.8		23	20		20	24	.4	LTS-SEC CLARIFIER 2
REC-ELEC STORAGE	1.1			25	20		20	26	.4	LTS-SEC CLARIFIER 3
LIGHT - EXTERIOR	.8			27	20		20	28	.4	LTS-SEC CLARIFIER 4
LIGHT - EXTERIOR		.8		29	20		20	30	.8	HEAT TRACE-SEC CLAR 2
SITE LIGHTS	1.3			31	20		20	32	.8	HEAT TRACE-SEC CLAR 3
		1.3		33	20		20	34	.8	HEAT TRACE-SEC CLAR 4
			1.3	35	3P		20	36	1.0	RECPTS -AERATION BASIN
SITE LIGHTS	.5			37	20		20	38	.9	SUMP PUMP P-8-3
		.5		39	20		20	40	1.0	METERING PUMP P-8-10-1
		.5		41	3P		20	42		

2
40-E102
EX. LPB1 LIGHT PANEL SCHEDULE MODIFICATIONS
SCALE: NONE

KEYED NOTES:

- ① CIRCUITS #18 AND #20 IN EXISTING LIGHT PANEL LPB1 TO BE REUSED FOR RELOCATED FLOW TRANSMITTERS FIT-6-2-1 AND FIT-6-2-2. SEE SHEET 40-E101 FOR NEW LOCATIONS OF EXISTING FLOW TRANSMITTERS. PULL NEW CONDUCTORS. EXISTING CONDUIT WITHIN THE BLOWER BUILDING MAY BE REUSED. EXTEND NEW CONDUIT AND CONDUCTORS TO FLOW TRANSMITTERS.
- ② FURNISH AND INSTALL NEW ASCO MODEL 265 OR EQUAL SURGE PROTECTIVE DEVICE AT FLOW TRANSMITTER.
- ③ FIELD VERIFY FLOW TRANSMITTERS FIT-6-2-1 AND FIT-6-2-2 ANALOG SIGNAL TERMINATIONS IN FIELD PANEL PF-6-32. MAKE ALL REQUIRED MODIFICATIONS TO FIELD PANEL FP-6-32 FOR ANALOG SIGNAL COMMUNICATION FROM FLOW TRANSMITTERS FIT-6-2-1 AND FIT-6-2-2 TO EXISTING SCADA SYSTEM. PULL ALL NEW CONDUCTORS.
- ④ FLOW TRANSMITTERS FIT-6-2-1 AND FIT-6-2-2 ARE TO BE REUSED IN A NEW LOCATION. PROVIDE SUN-SHIELD FOR TRANSMITTERS. SEE SHEET 40-E101 FOR LOCATION AND PULL ALL NEW CONDUCTORS.



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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY PHASE II IMPROVEMENTS

FLOW METER RELOCATION/ INSTALLATION

JOB NO.: 19W10160
 DATE: JAN. 2024
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 DRAWN BY: SAH
 CHECKED BY: JCW

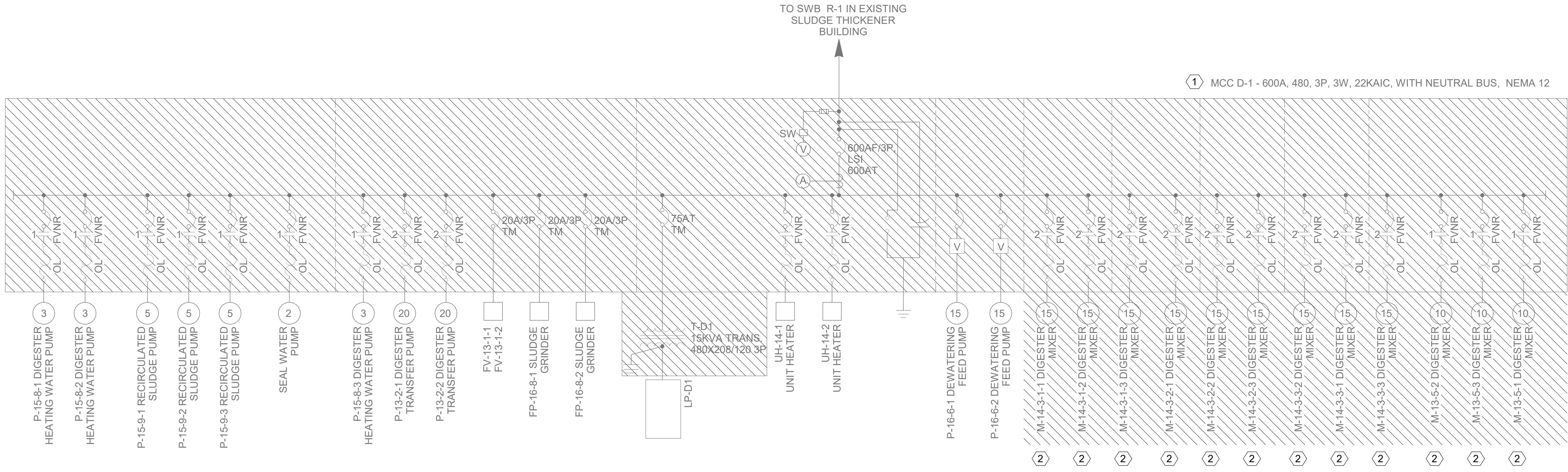
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 Last plotted by: Halsey, Scott A., Plot Style: AECmono.ctb, Plot Scale: 1:2.5849, Plot Date: 1/15/2024 1:43 PM, Plotter used: None

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 Plot Date: 1/22/2024 1:13:54 PM



KEYED NOTES

- ① EXISTING MCC D-1 TO BE REMOVED AND REPLACED WITH NEW. COORDINATE DISPOSAL/SALVAGE WITH OWNER. REUSE EXISTING CONDUCTORS FOR LOADS THAT ARE TO REMAIN AND MAKE ALL REQUIRED CONNECTIONS.
- ② EXISTING MIXERS, CONDUIT AND CONDUCTORS TO BE REMOVED. COORDINATE DISPOSAL/SALVAGE WITH OWNER.

① MCC D-1 - 600A, 480, 3P, 3W, 22KAIC, WITH NEUTRAL BUS, NEMA 12

1
90-E501

ANAEROBIC DIGESTION EXISTING ONELINE DIAGRAM
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION EXISTING ONELINE DIAGRAM

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 DESIGNED BY: SAH
 DRAWN BY: SAH
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 HILLIARD N. FLETCHER WATER RESOURCE RECOVERY FACILITY
 PHASE II IMPROVEMENTS

ANAEROBIC DIGESTION ONELINE DIAGRAM MODIFICATION

JOB NO.: 19W10160
 DATE: JAN. 2024
 DESIGNED BY: SAH
 DRAWN BY: SAH
 CHECKED BY: JCW

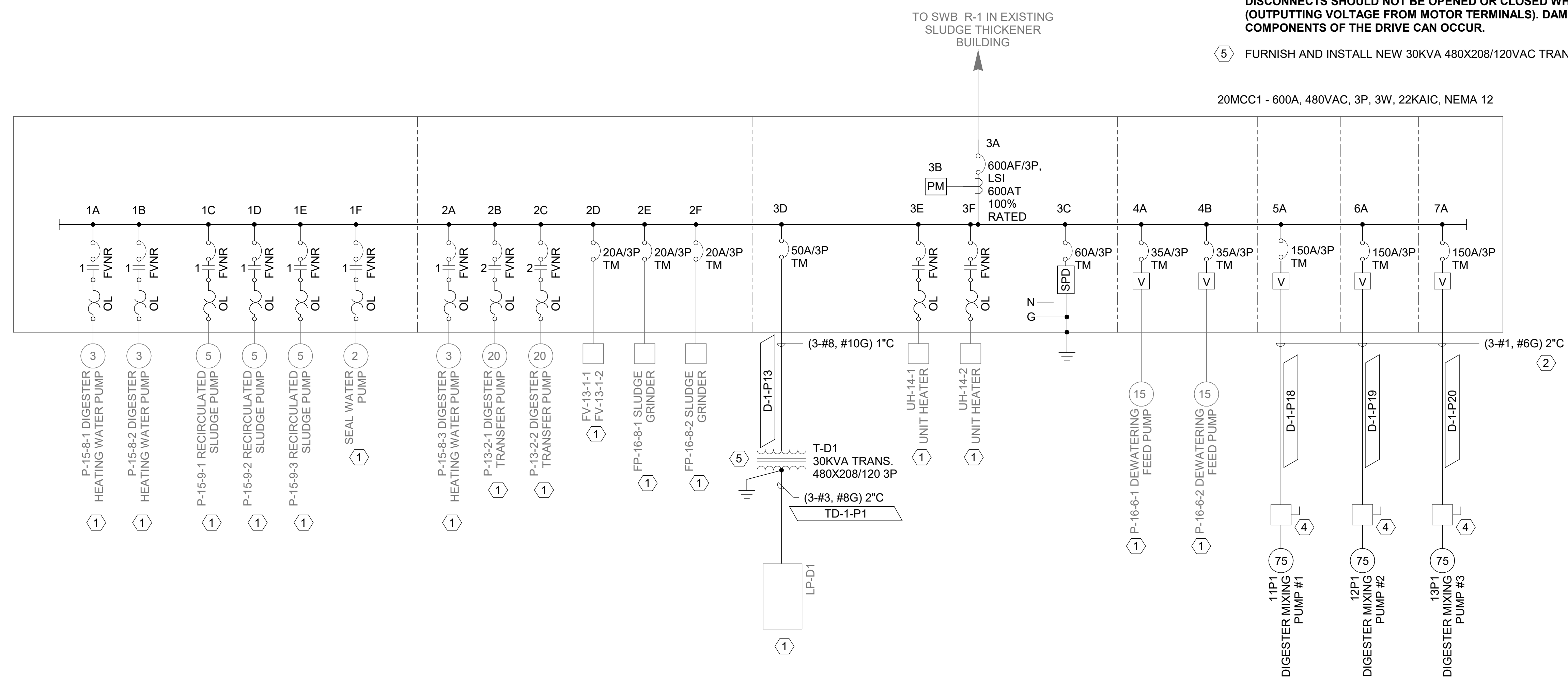
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DRAWING NUMBER
90-E502
 SHEET NUMBER **129**

KEYNOTES

- 1 PROTECT EXISTING CONDUIT AND CONDUCTORS DURING INSTALLATION OF NEW MOTOR CONTROL CENTER AND REUSE.
- 2 PROVIDE NEW CONDUIT AND CONDUCTORS FROM NEW MOTOR CONTROL CENTER TO MIXING PUMPS.
- 3 FUTURE DIGESTER MIXER PUMP AND VFD.
- 4 200A/3P, SS NEMA 4X, DISCONNECT SWITCH. ADD WARNING LABEL TO DISCONNECTS: **NOTE: DISCONNECTS SHOULD NOT BE OPENED OR CLOSED WHILE THE VFD IS RUNNING (OUTPUTTING VOLTAGE FROM MOTOR TERMINALS). DAMAGE TO THE OUTPUT IGBT COMPONENTS OF THE DRIVE CAN OCCUR.**
- 5 FURNISH AND INSTALL NEW 30KVA 480X208/120VAC TRANSFORMER.

20MCC1 - 600A, 480VAC, 3P, 3W, 22KAIC, NEMA 12



1
 90-E502

ANAEROBIC DIGESTION MODIFIED ONELINE DIAGRAM
 SCALE: NOT TO SCALE

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AL COA# ECA500
EXPIRES 12/31/2024
2111 Parkway Office Circle
Suite 100
Birmingham, AL 35244
(205) 443-3080

CONFORMED DRAWING
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REV	DATE	DESCRIPTION	BY

CITY OF TUSCALOOSA
TUSCALOOSA, AL
HILLIARD N. FLETCHER WATER RECOVERY FACILITY
RESOURCE RECOVERY PHASE II IMPROVEMENTS

20CP1 PLC I/O
JOB NO.: 19W10160
DATE: JAN. 2024
DESIGNED BY: SAH
DRAWN BY: SAH
CHECKED BY: JCW
BAR IS ONE INCH ON ORIGINAL DRAWING
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DRAWING NUMBER
90-E701
SHEET NUMBER **130**

20CP1 I/O LIST			
I/O TYPE	UNITS	DESCRIPTION	SOURCE /...
DI	120VAC	VALVE POSITION "A"	ZS-13-1-1
		VALVE POSITION "B"	ZS-13-1-1
		VALVE POSITION "A"	ZS-13-1-2
		VALVE POSITION "B"	ZS-13-1-2
		DIGESTER 1 HIGH LEVEL	LSH-13-4-1
		DIGESTER 2 HIGH LEVEL	LSH-13-4-2
		DIGESTER 3 HIGH LEVEL	SLH-13-4-3
		TRANSFER PUMP 1 RUNNING	20MCC1
		TRANSFER PUMP 2 RUNNING	20MCC1
		LOW FLOW SWITCH 1	FSL-14-2-1
		LOW FLOW SWITCH 2	FSL-14-2-2
		LOW FLOW SWITCH 3	FSL-14-2-3
		PILOT FAIL	FP-14-6
		DIGESTER GAS HIGH PRESSURE	PSH-14-3
		DIGESTER GAS LOW PRESSURE	PSL-14-3
EXPLOSIVE CONDITION	AIT-14-9		
DI	120VAC	LOW FUEL	PSL-15-1
		SLUDGE HEATER FAIL 1	FP-15-1-1
		SLUDGE HEATER FAIL 2	FP-15-1-2
		BOILER FAN 1 ON	FP-15-1-1
		BOILER FAN 2 ON	FP-15-1-2
		BOILER 1 TEMPERATURE LOW	TSL-15-10-1
		BOILER 1 TEMPERATURE 1 HIGH	TSH-15-7-1
		BOILER 1 TEMPERATURE 2 HIGH	TSH-15-10-1
		BOILER 2 TEMPERATURE LOW	TSL-15-10-2
		BOILER 2 TEMPERATURE 1 HIGH	TSH-15-7-2
		BOILER 2 TEMPERATURE 2 HIGH	TSH-15-10-2
		BOILER 3 TEMPERATURE LOW	TSL-15-10-3
		BOILER 3 TEMPERATURE 1 HIGH	TSH-15-7-3
		BOILER 3 TEMPERATURE 2 HIGH	TSH-15-10-3
		DEWATERING FEED PUMP 1 RUNNING	20MCC1
		DEWATERING FEED PUMP 2 RUNNING	20MCC1
		DEWATERING FEED PUMP 1 FAULT	20MCC1
		DEWATERING FEED PUMP 2 FAULT	20MCC1
		MIXER #1 RUNNING	20MCC1
		MIXER #2 RUNNING	20MCC1
		MIXER #3 RUNNING	20MCC1
		MIXER #1 FAULT	20MCC1
		MIXER #2 FAULT	20MCC1
		MIXER #3 FAULT	20MCC1
		DI	120VAC
DEWATERING FEED PUMP 2 HIGH PRESSURE...	PSH-16-6-2		
DEWATERING FEED PUMP RUN COMMAND	FP-16-2-1		
DEWATERING FEED PUMP RUN COMMAND	FP-16-2-2		
DIGESTER HEATING WATER PUMP #1 RUNNING	20MCC1		
DIGESTER HEATING WATER PUMP #2 RUNNING	20MCC1		
DIGESTER HEATING WATER PUMP #3 RUNNING	20MCC1		
RECIRCULATING SLUDGE PUMP #1 RUNNING	20MCC1		
RECIRCULATING SLUDGE PUMP #2 RUNNING	20MCC1		
RECIRCULATING SLUDGE PUMP #3 RUNNING	20MCC1		
BOILER CIRCULATION PUMP 1 RUNNING	FP-15-1-1		
BOILER CIRCULATION PUMP 2 RUNNING	FP-15-1-2		
SPARE			
SPARE			
SPARE			
DI	120VAC	SPARE	
		SPARE	
		SPARE	
		SPARE	
		SPARE	
		SPARE	
		SPARE	
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		SPARE	
		SPARE	

GENERAL NOTES:

I/O LIST PROVIDED REPRESENTS I/O GENERATED FROM EXISTING ALLEN BRADLEY MICROLOGIX PLC PROGRAM AND AVAILABLE RECORD DRAWINGS. CONTRACTOR TO FIELD VERIFY REQUIRED I/O AND ADJUST AS REQUIRED.

20CP1 I/O LIST					
DO	N.O. RELAY	VALVE OPEN	FV-13-1-1		
		VALVE CLOSE	FV-13-1-1		
		VALVE OPEN	FV-13-1-2		
		VALVE CLOSE	FV-13-1-2		
		VALVE POSITION FAULT TO CMP	CMP PANEL		
		HIGH DIGESTER LEVEL TO CMP	CMP PANEL		
		LOW FLOW TO CMP	CMP PANEL		
		GAS FAIL TO CMP	CMP PANEL		
		EXPLOSIVE CONDITION TO CMP	CMP PANEL		
		LOW FUEL TO CMP	CMP PANEL		
		HEATER FAIL TO CMP	CMP PANEL		
		SLUDGE HEATER FAIL #1	OL-15-1-1-2		
		SLUDGE HEATER FAIL #2	OL-15-1-2-2		
		DIGESTER HEATING WATER PUMP #1 RUN	20MCC1		
		DIGESTER HEATING WATER PUMP #2 RUN	20MCC1		
DIGESTER HEATING WATER PUMP #3 RUN	20MCC1				
DO	N.O. RELAY	RECIRCULATING SLUDGE PUMP #1 RUN	20MCC1		
		RECIRCULATING SLUDGE PUMP #2 RUN	20MCC1		
		RECIRCULATING SLUDGE PUMP #3 RUN	20MCC1		
		DEWATERING FEED PUMP 1 RUN	20MCC1		
		DEWATERING FEED PUMP 2 RUN	20MCC1		
		DEWATERING FEED PUMP RUNNING	FP-16-2-1		
		DEWATERING FEED PUMP RUNNING	FP-16-2-2		
		DEWATERING FEED PUMP FAULT	FP-16-2-1		
		DEWATERING FEED PUMP FAULT	FP-16-2-2		
		SPARE			
		SPARE			
		SPARE			
		SPARE			
		SPARE			
		DO	N.O. RELAY	SPARE	
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
SPARE					
AI	4-20MA			DIGESTER 4 LEVEL	LIT-13-3
				DIGESTER GAS PRESSURE	PIT-14-3
		DIGESTER GAS FLOW RATE	FT-14-7		
		DIGESTER 1 GAS FLOW RATE	FT-14-1-1		
		DIGESTER 2 GAS FLOW RATE	FT-14-1-2		
		DIGESTER 3 GAS FLOW RATE	FT-14-1-3		
		DIG 1 HEATING WATER TEMPERATURE	TIT-7-1		
		DIG 2 HEATING WATER TEMPERATURE	TIT-7-2		
		DIG 3 HEATING WATER TEMPERATURE	TIT-7-3		
		DIG 1 RECIRC WATER TEMPERATURE	TIT-10-1		
		DIG 2 RECIRC WATER TEMPERATURE	TIT-10-2		
		DIG 3 RECIRC WATER TEMPERATURE	TIT-10-3		
		BOILER WATER TEMPERATURE	TIT-15-4		
		DEWATERING FEED PUMP 1 SPEED	20MCC1		
		DEWATERING FEED PUMP 2 SPEED	20MCC1		
AI	4-20MA	DEWATERING FEED PUMP 1 SPEED SETPOINT	FP-16-2-1		
		DEWATERING FEED PUMP 2 SPEED SETPOINT	FP-16-2-2		
		DIGESTER #1 LEVEL	LIT-13-4-1		
		DIGESTER #2 LEVEL	LIT-13-4-2		
		DIGESTER #3 LEVEL	LIT-13-4-3		
		SPARE			
SPARE					
SPARE					
SPARE					

20CP1 I/O LIST			
AO	4-20MA	GAS FLOW TO CMP	CMP PANEL
		DIGESTER 1 GAS FLOW RATE	CMP PANEL
		DIGESTER 2 GAS FLOW RATE	CMP PANEL
		DIGESTER 3 GAS FLOW RATE	CMP PANEL
		BOILER WATER VALVE POSITION CONTROL	TCV-15-5
AO	4-20MA	DEWATERING FEED PUMP 1 SPEED SETPOINT	20MCC1
		DEWATERING FEED PUMP 2 SPEED SETPOINT	20MCC1
		HEAT EXCHANGER 1 3-WAY TEMP CONTROL VALVE	TCV-15-7-1
		HEAT EXCHANGER 2 3-WAY TEMP CONTROL VALVE	TCV-15-7-2
		HEAT EXCHANGER 3 3-WAY TEMP CONTROL VALVE	TCV-15-7-3
		SPARE	
		SPARE	
		SPARE	

FIELD PANEL
FP-15-1 TO BE REMOVED



GAS LEAK
DETECTION PLC
CONTROL PANEL TO
BE REMOVED

1
90-E701

CONTROL PANEL DEMO

SCALE: NOT TO SCALE

FP-16-7 ENCLOSURE TO
REMAIN. REMOVE CONTROL
COMPONENTS AND EXTEND I/O
WIRING TO NEW PLC CONTROL
PANEL. COVER PANEL
OPENINGS.



FIELD PANEL FP-13-1
TO BE REMOVED.



2
90-E701

CONTROL PANEL DEMO

SCALE: NOT TO SCALE

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