

VILLAGE OF CADIZ, OHIO

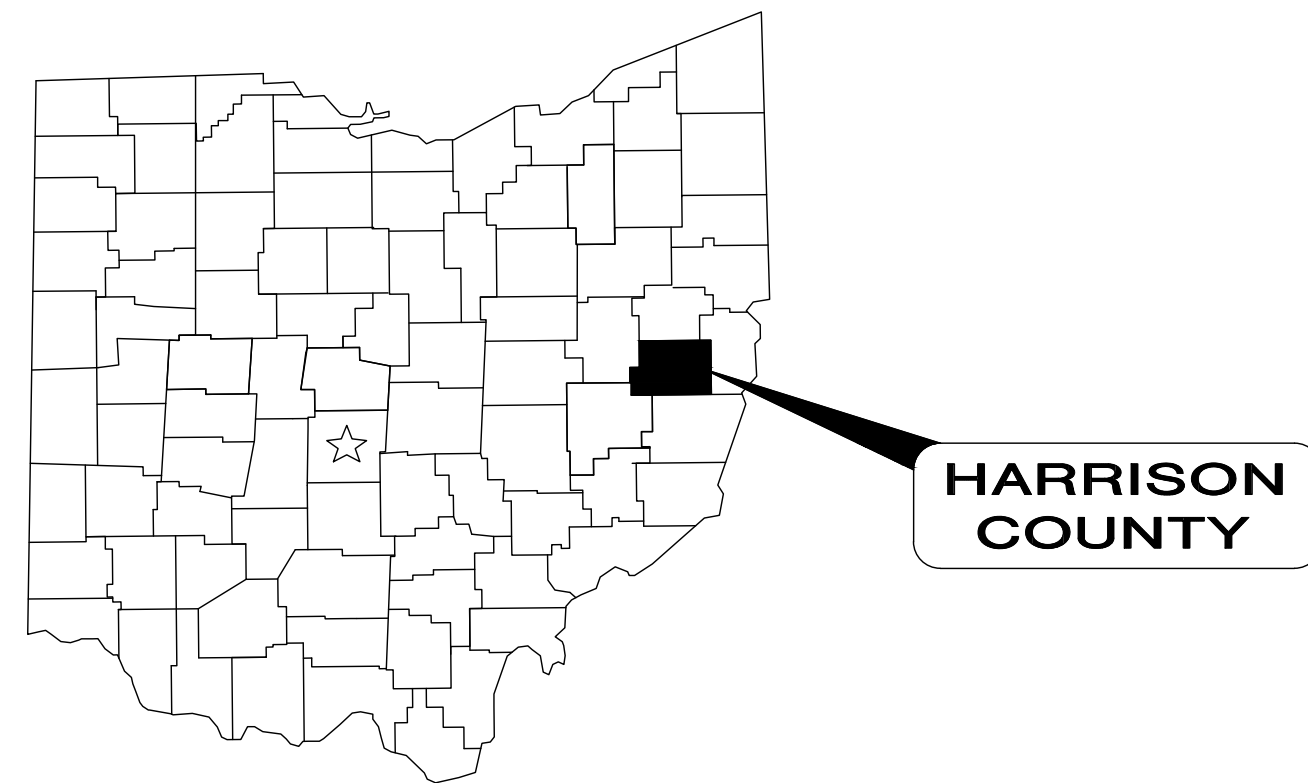
WATER TREATMENT PLANT HAB IMPROVEMENTS

BID SET

HARRISON COUNTY, OHIO

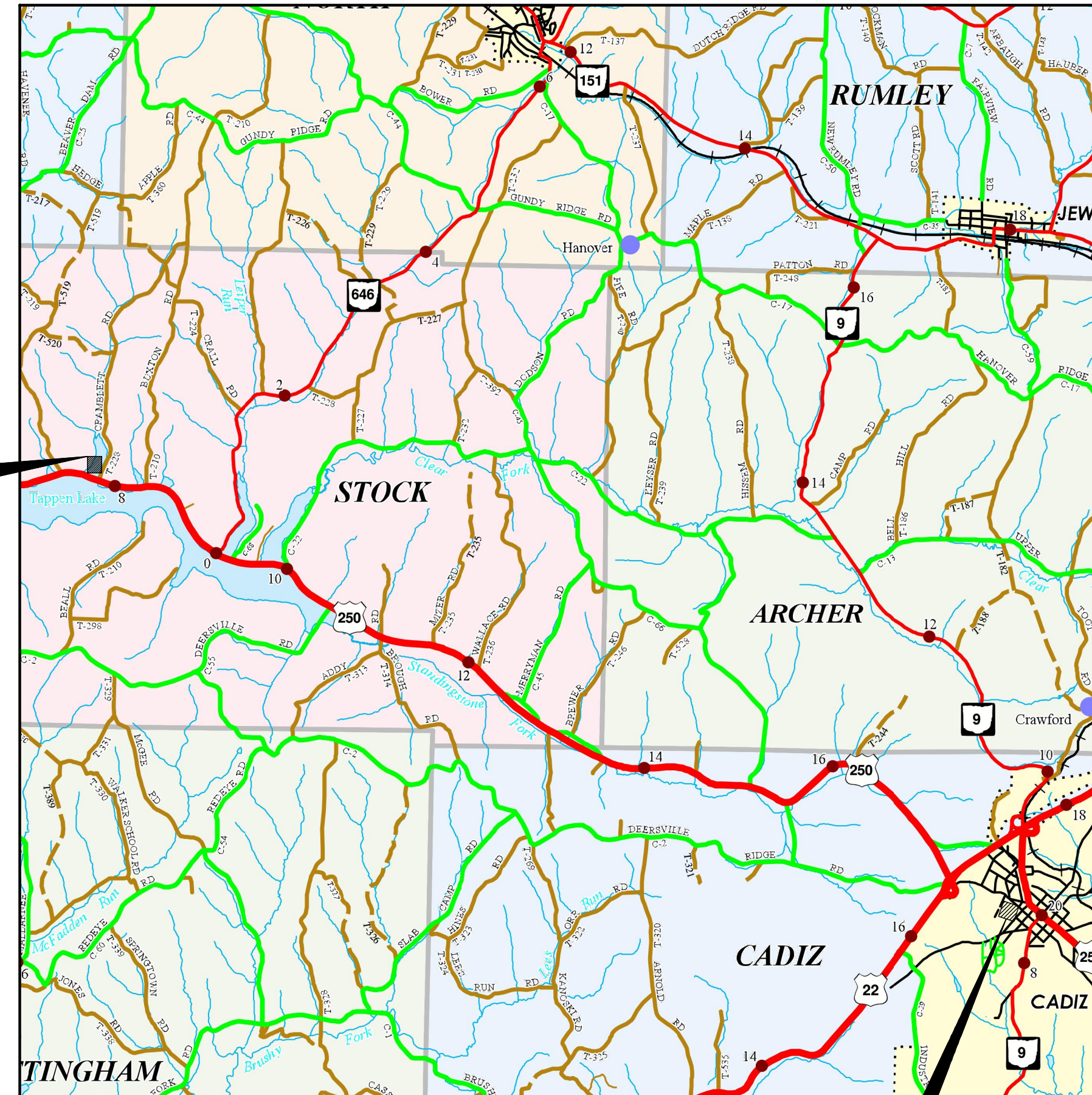
MARCH 2020

BID



HARRISON COUNTY

RAW WATER PUMPING FACILITY PROJECT LOCATION



CADIZ WTP PROJECT LOCATION

APPROVALS

Ted Andrzejewski
 TED ANDRZEJEWSKI, VILLAGE ADMINISTRATOR DATE 10/28/19

OFFICE:

VILLAGE HALL
 128 COURT ST.
 CADIZ, OH 43907
 (740) 942-8844

PROJECT SITE

WATER TREATMENT PLANT
 316 W. WARREN ST.
 CADIZ, OH 43907
 (740) 942-3884

ENGINEER:

CT CONSULTANTS, INC.
 7965 NORTH HIGH STREET, SUITE 340
 COLUMBUS, OHIO 43235

(614) 885-1700 PHONE
 (614) 885-1701 FAX

DANIEL E. BARR



P.E. No. 64544

10/31/19 DATE

ADMINISTRATION

KENNETH ZITKO MAYOR
 TED ANDRZEJEWSKI VILLAGE ADMINISTRATOR
 AMY OSSMAN CLERK TREASURER
 DAVE BARR WWTP SUPERINTENDENT

COUNCIL

THOMAS CRAWSHAW PRESIDENT
 TERRY CAPERS MEMBER
 MIKE MCPEAK MEMBER
 DAN OSSMAN MEMBER
 CHASE SMITH MEMBER
 JOHN VERMILLON MEMBER

LOCATION MAP

NOT TO SCALE



ENGINEER'S PROJECT No. 190599

- UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.
- THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.



REV.	DESCRIPTION	DATE

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY GENERAL - 00 SERIES
 CADIZ, OHIO
 TITLE SHEET

PROJECT NO.	190599
DISCIPLINE	GENERAL
SHEET NAME	00G-01
SHEET	01
OF	46

BUTTERFLY VALVES																			
DESIGNATION	SIZE	OPERATOR					INSTALLED CONDITIONS			ACCESSORIES					LOCATION				
		LOCKING	HANDWHEEL	WORM GEAR & CHAINWHEEL	MOTOR	NUT	ON/OFF, MODULATING (M)	LEVER & CHAIN	CYLINDER	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM		CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES
FFR-BV-01	16"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 24, 30D-05; SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-02	16"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 24, 30D-05; SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-03	16"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 24, 30D-05; SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-04	16"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 24, 30D-05; SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-05	3"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-06	3"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-07	3"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 25, 30D-06; SHT. 27, 30D-08
FFR-BV-08	3"	X		X		ON/OFF			FF	X	X		X	X	X	X			FILTER BLDG. SHT. 25, 30D-06; SHT. 27, 30D-08
FPR-BV-01	10"	X		X		M			FF	X									FILTER BLDG. SHT. 26, 30D-07; SHT. 27, 30D-08
FPR-BV-02	10"	X		X		ON/OFF			FF	X									FILTER BLDG. SHT. 26, 30D-07; SHT. 27, 30D-08
FPR-BV-03	10"	X		X		ON/OFF			FF	X									FILTER BLDG. SHT. 26, 30D-07; SHT. 27, 30D-08
FPR-BV-04	10"	X		X		ON/OFF			FF	X									FILTER BLDG. SHT. 26, 30D-07; SHT. 27, 30D-08
FPR-BV-05	10"	X		X		ON/OFF			FF	X									FILTER BLDG. SHT. 26, 30D-07; SHT. 27, 30D-08

GATE VALVES																	
DESIGNATION	SIZE	OPERATOR			INSTALLED CONDITIONS					ACCESSORIES					STEM TYPE	LOCATION	
		MOTOR	NUT	HANDWHEEL	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES	ADJ. VALVE BOX			NON-RISING STEM
RPF-GV-01	8"			X	FF	X									X	NO	RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RPF-GV-02	8"			X	FF	X									X	NO	RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RTM-GV-01	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-02	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-03	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-04	12"				MJ			X						X	X	NO	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-05	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-06	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-07	12"				MJ			X						X	X	NO	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-08	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-09	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-10	12"				MJ			X						X	X	NO	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-11	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-12	4"				MJ			X						X	X	NC	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-GV-13	12"				MJ			X						X	X	NO	RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
YRD-GV-01	8"				MJ			X						X	X	NO	GENERAL SITE AND PIPING PLAN SHT. 05, 01C-01

COMBINATION AIR VALVES																			
DESIGNATION	SIZE	OPERATOR			INSTALLED CONDITIONS					ACCESSORIES					STEM TYPE	LOCATION			
		MOTOR	NUT	HANDWHEEL	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES	ADJ. VALVE BOX			NON-RISING STEM	RISING STEM	NORMALLY OPENED (NO) / NORMALLY CLOSED (NC)
RPF-AV-01	2"				TH	X													RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RPF-AV-02	2"				TH	X													RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RTM-AV-01	2"				TH			X											RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-AV-02	1"				TH			X											RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
RTM-AV-03	1"				TH			X											RAW WATER TRANSMISSION MAIN SHT. 10, 15D-01; SHT. 11, 15D-02
FPR-AR-01	2"				TH	X													FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-AR-02	2"				TH	X													FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-AR-03	2"				TH	X													FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07


CHECK VALVES																				
DESIGNATION	SIZE	OPERATOR					INSTALLED CONDITIONS			ACCESSORIES					LOCATION					
		TILTING DISC	ELECTRIC CHECK	RUBBER FLAPPER	MOTOR	WAFER STYLE	LEVER & WEIGHT	SPRING SWING	CENTER GUIDE	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM		CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES	ADJ. VALVE BOX
RPF-CV-01	8"			X																RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RPF-CV-02	8"			X																RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
FPR-AN-01	6"			X																FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-AN-02	6"			X																FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-AN-03	8"			X																FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07

PLUG VALVES																				
DESIGNATION	SIZE	OPERATOR					INSTALLED CONDITIONS			ACCESSORIES					LOCATION					
		LEVER & NUT	HANDWHEEL	WORM GEAR & CHAINWHEEL	MOTOR	NUT	WORM GEAR & NUT	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	FLOOR STAND	FLOOR BOX		STEM GUIDES	ADJ. VALVE BOX	NORMALLY OPENED (NO) / NORMALLY CLOSED (NC)		
PSW-PV-01	6"						X													PRETREATMENT SLUDGE WELL SHT. 17, 20D-04; SHT. 18, 20D-05
PSW-PV-02	6"						X													PRETREATMENT SLUDGE WELL SHT. 17, 20D-04; SHT. 18, 20D-05
PSW-PV-03	6"						X													PRETREATMENT SLUDGE WELL SHT. 17, 20D-04; SHT. 18, 20D-05
PSW-PV-04	6"						X													PRETREATMENT SLUDGE WELL SHT. 17, 20D-04; SHT. 18, 20D-05

MUD VALVE SCHEDULE															
DESIGNATION	DIAMETER	STEM LENGTH	STEM GUIDES	OPERATOR			ACCESSORIES					STEM TYPE	LOCATION		
				HANDWHEEL	NUT	MOTOR	FLOOR STAND	FLOOR BOX	SUBMERGED	NON-SUBMERGED	NORMALLY OPENED (NO) / NORMALLY CLOSED (NC)				
PSW-MV-01	6"	20'-10"	X	X										NC	PRETREATMENT (SEE SHEET 20D-05, 20D-04, 20D-06)
PSW-MV-02	6"	20'-10"	X	X										NC	PRETREATMENT (SEE SHEET 20D-05, 20D-04, 20D-06)
PSW-MV-03	6"	20'-10"	X	X										NC	PRETREATMENT (SEE SHEET 20D-05, 20D-04, 20D-06)
PSW-MV-04	6"	20'-10"	X	X										NC	PRETREATMENT (SEE SHEET 20D-05, 20D-04, 20D-06)

BALL VALVES																				
DESIGNATION	SIZE	OPERATOR						INSTALLED CONDITIONS			ACCESSORIES					LOCATION				
		LEVER	WORM GEAR & HANDWHEEL	WORM GEAR & CHAINWHEEL	MOTOR	NUT	TEE HANDLE	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX		STEM GUIDES	ADJ. VALVE BOX		
RPF-BA-01	*2"	X						TH	X											RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
RPF-BA-02	*2"	X						TH	X											RAW WATER PUMPING FACILITY SHT. 08, 10D-03; SHT. 09, 10D-04
FPR-BA-01	*2"	X						TH	X											FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-BA-02	*2"	X						TH	X											FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
FPR-BA-03	*2"	X						TH	X											FILTER BLDG. SHT. 24, 30D-05; SHT. 26, 30D-07
*1/4" TURN BALL VALVE																				

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consultants
architects
planners

ISSUED FOR:		REVISIONS	
REVIEW	DESCRIPTION	REV#	DATE

PROJECT NO.
190599

DISCIPLINE
GENERAL

SHEET NAME
00G-04

SHEET **04** OF **46**

VILLAGE OF CADIZ, OHIO

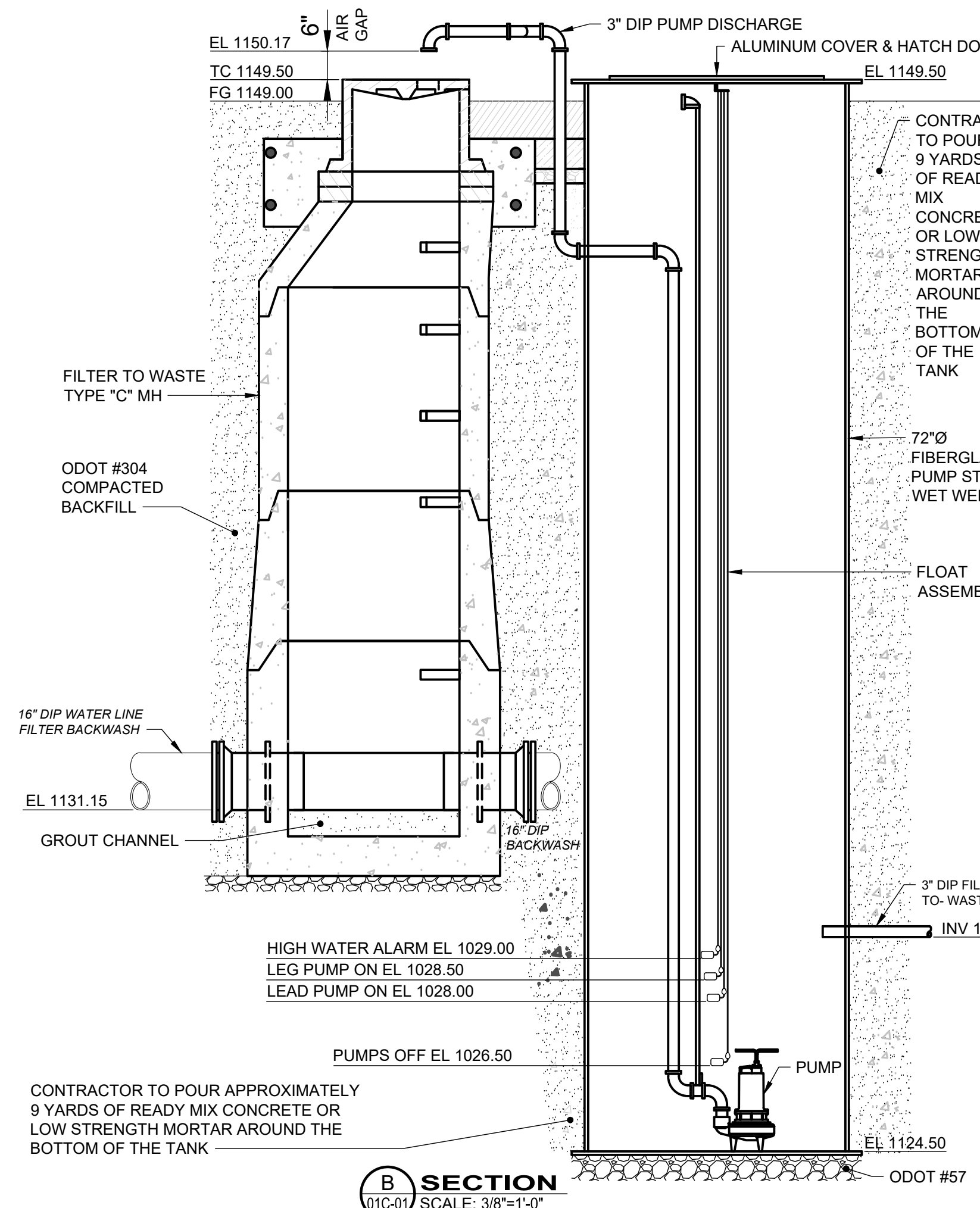
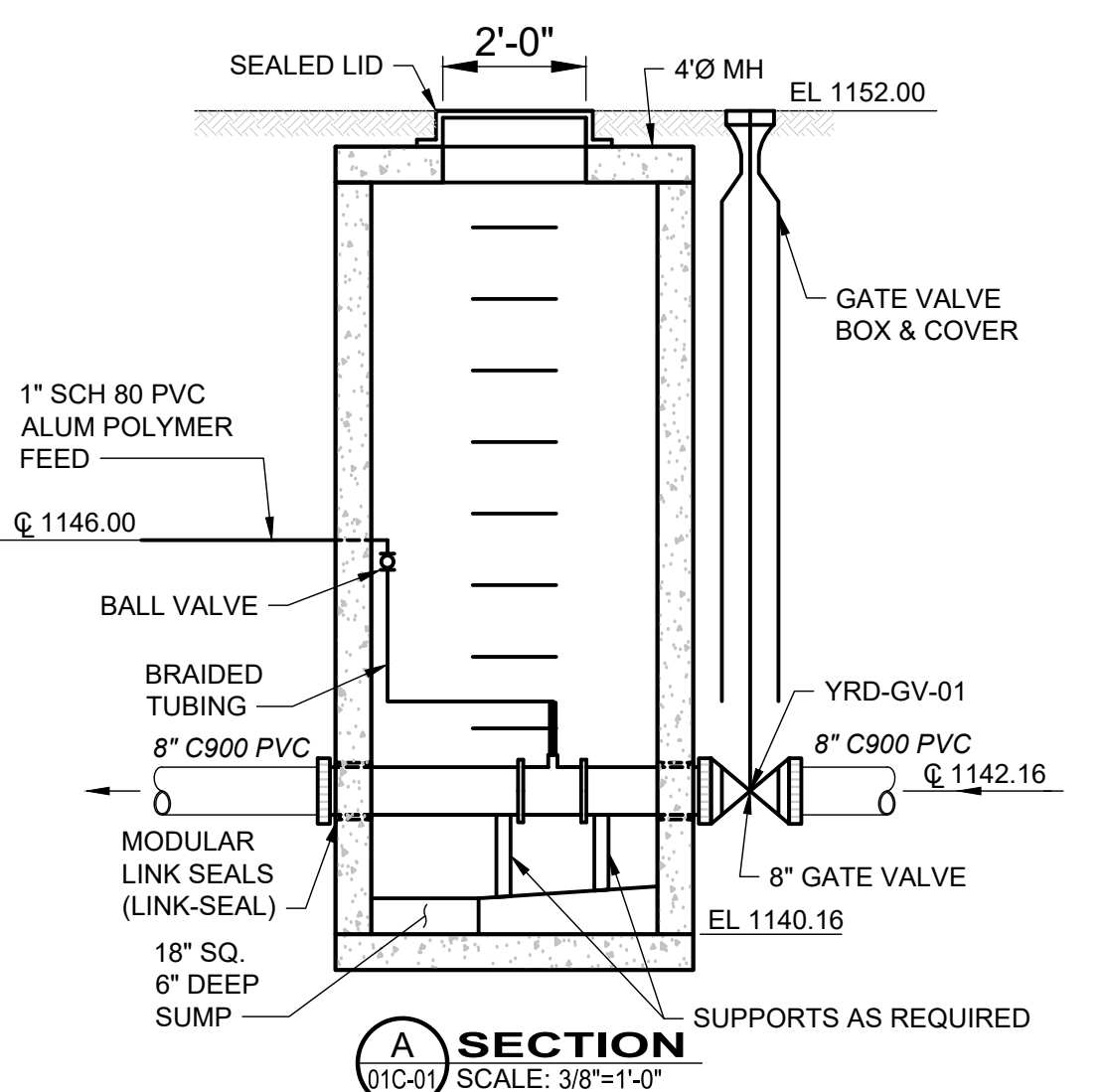
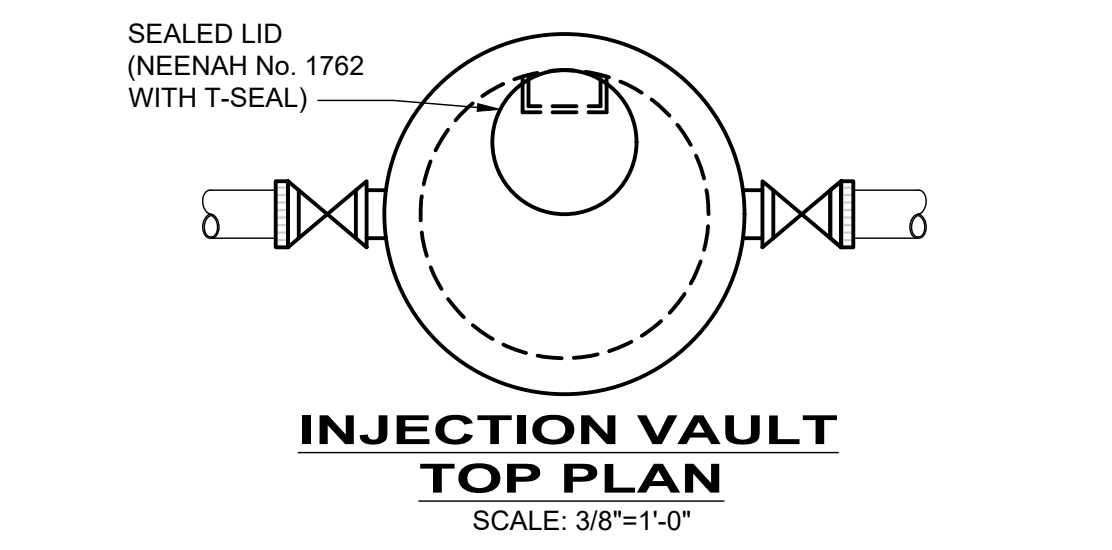
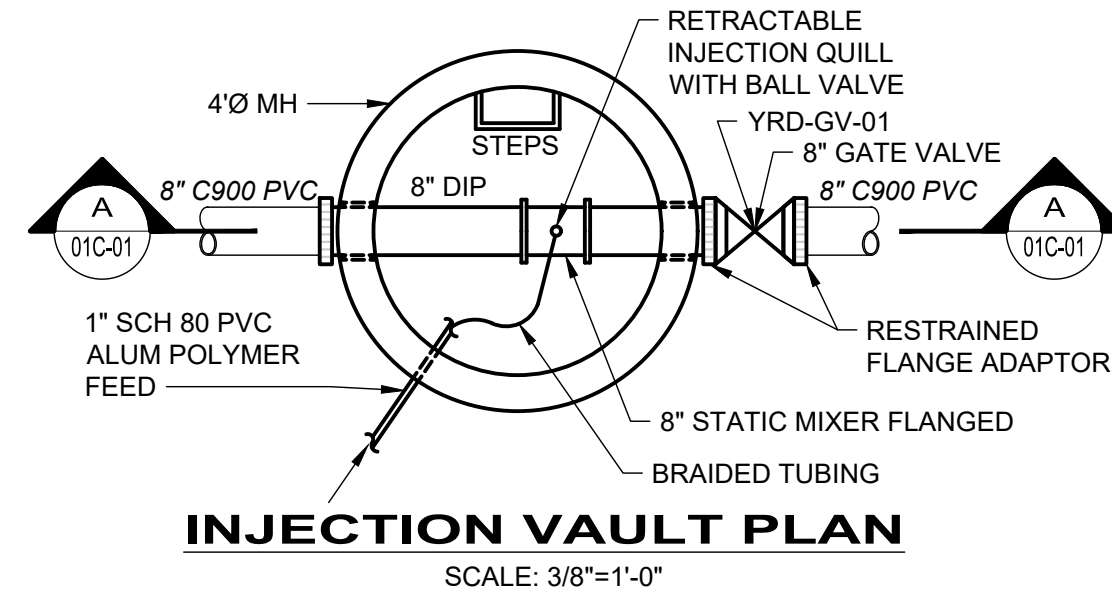
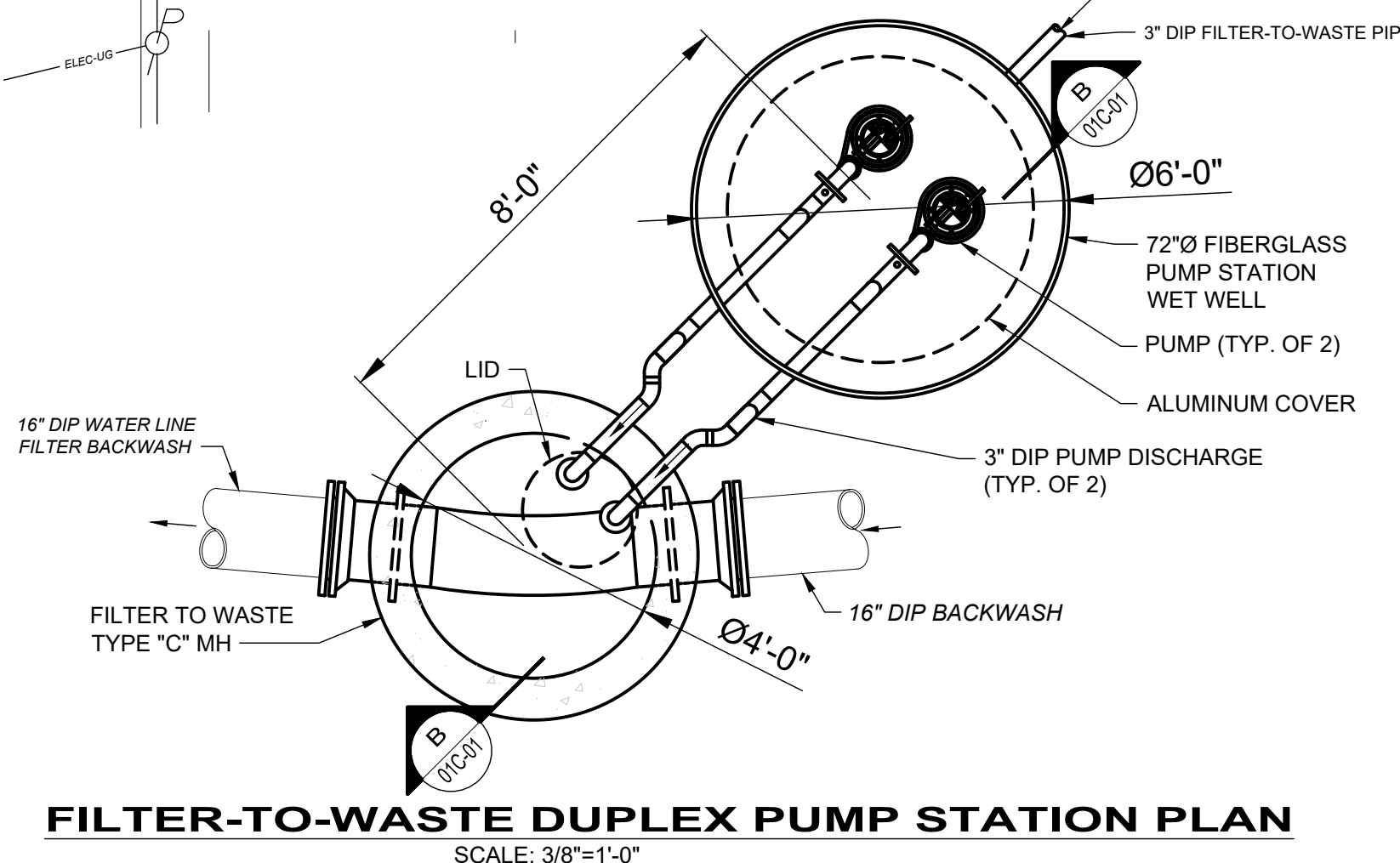
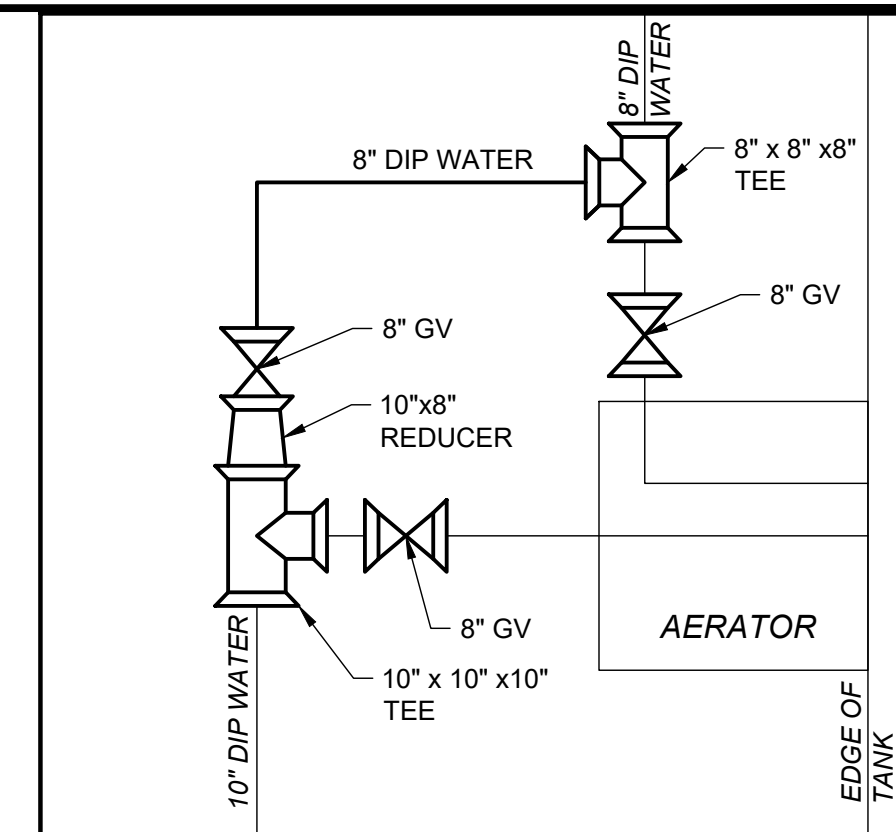
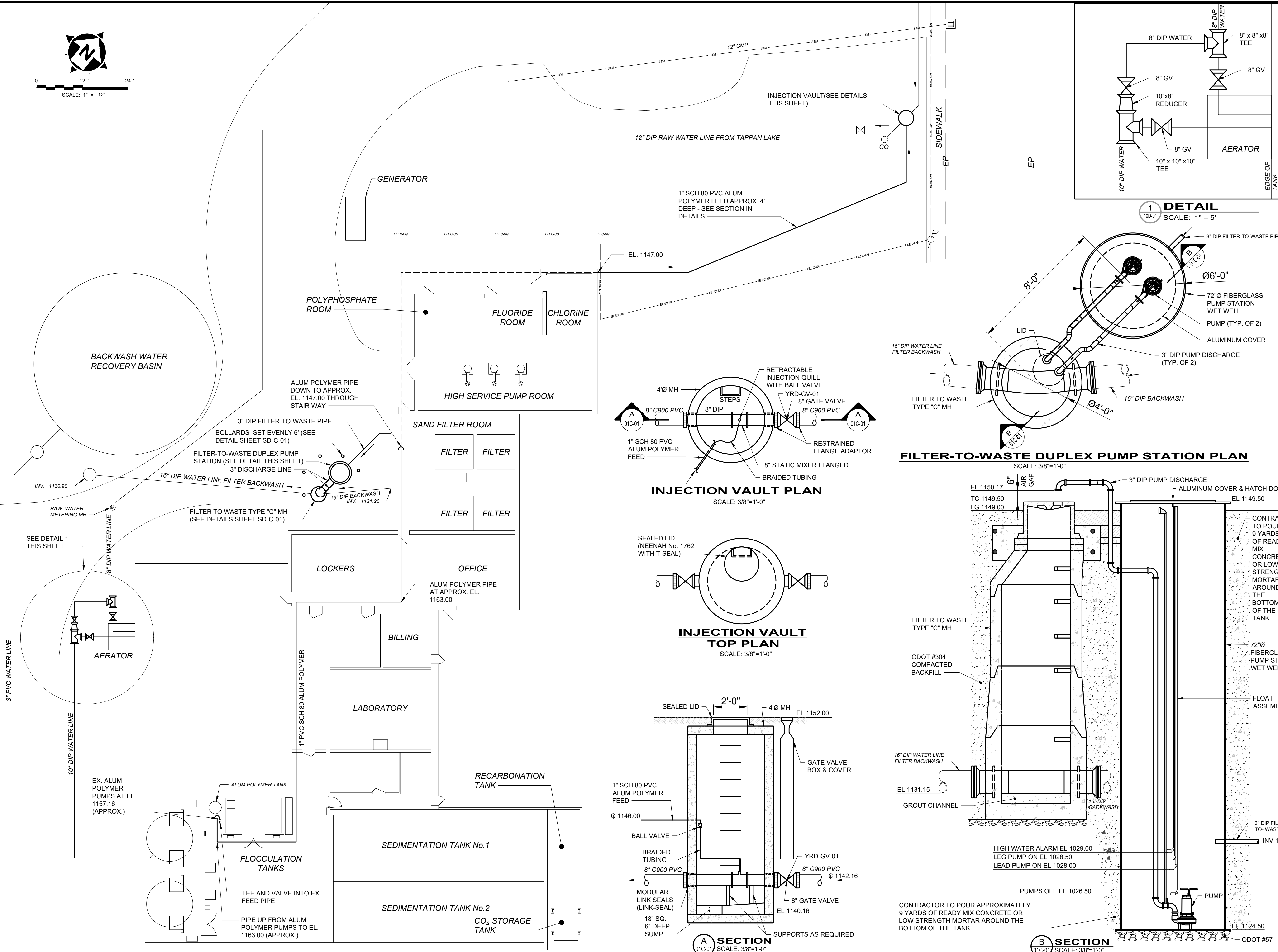
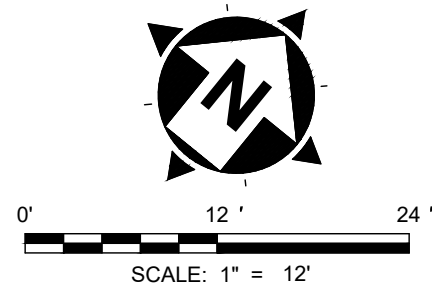
WATER TREATMENT PLANT HAB IMPROVEMENTS

HARRISON COUNTY

GENERAL - 00 SERIES

CADIZ, OHIO

VALVE SCHEDULE



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REV#	DESCRIPTION	DATE

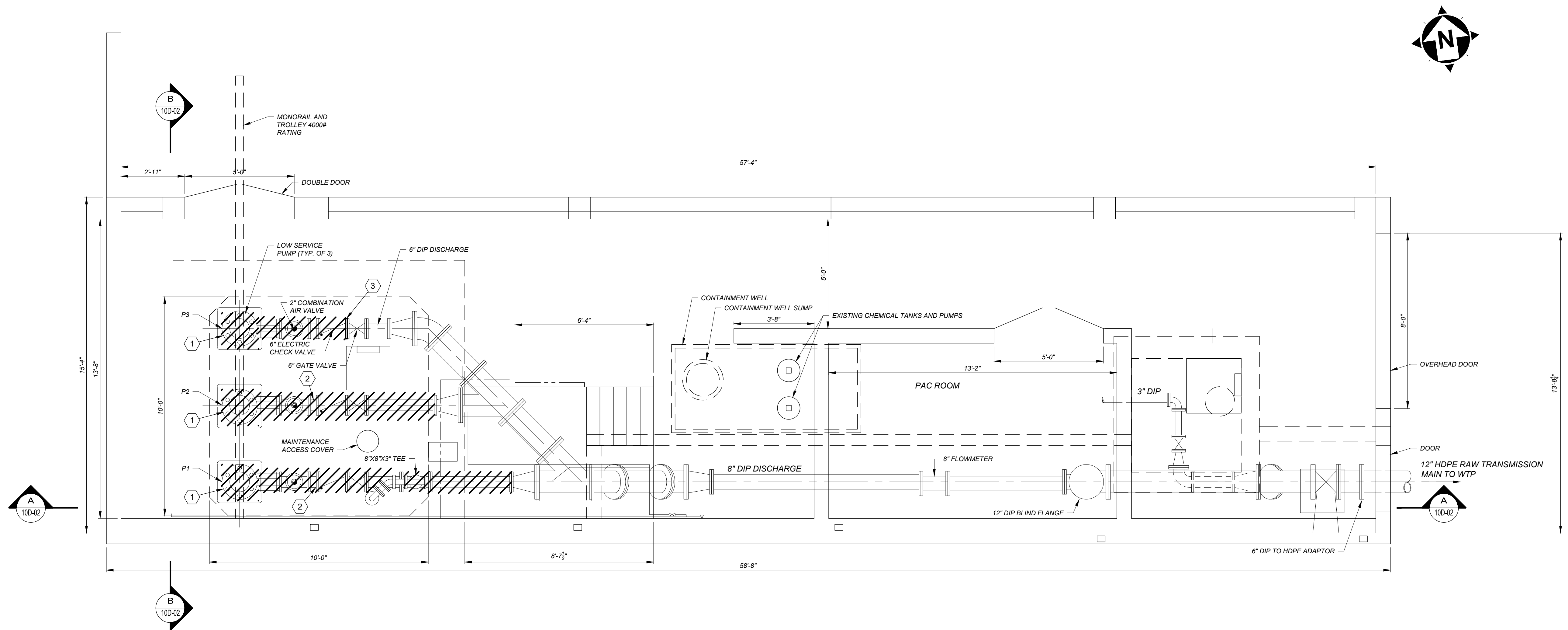
ISSUED FOR:	REVIEW	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
		03/13/2020		JJZ	RE	DAB

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB
IMPROVEMENTS

HARRISON COUNTY CADIZ, OHIO
SITE - 01 SERIES

WATER TREATMENT PLANT GENERAL SITE AND PIPING PLAN

PROJECT NO.	190599
DISCIPLINE	CIVIL
SHEET NAME	01C-01
SHEET	05
OF	46



(X) DEMOLITION CODED NOTES:

1. REMOVE LOW SERVICE PUMP P1, P2 AND P3.
2. REMOVE 6" PIPING AND VALVES.
3. INSTALL 6" BLIND FLANGE.

GENERAL NOTE:

EXISTING MONORAIL AND TROLLEY MAY BE USED BY CONTRACTOR DURING CONSTRUCTION. NOTE 4,000 LB WEIGHT LIFT.

REV.	DESCRIPTION	DATE

ISSUED FOR:	REVIEW
ISSUE DATE:	03/13/2020
SCALE:	3/8" = 1'-0"
DESIGNED BY:	JJZ
DRAWN BY:	RE
CHECKED BY:	DEB

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 TAPPAN LAKE RAW WATER PUMPING FACILITY - 10 SERIES
 TAPPAN LAKE RAW WATER PUMPING FACILITY DEMOLITION PLAN
 CADIZ, OHIO

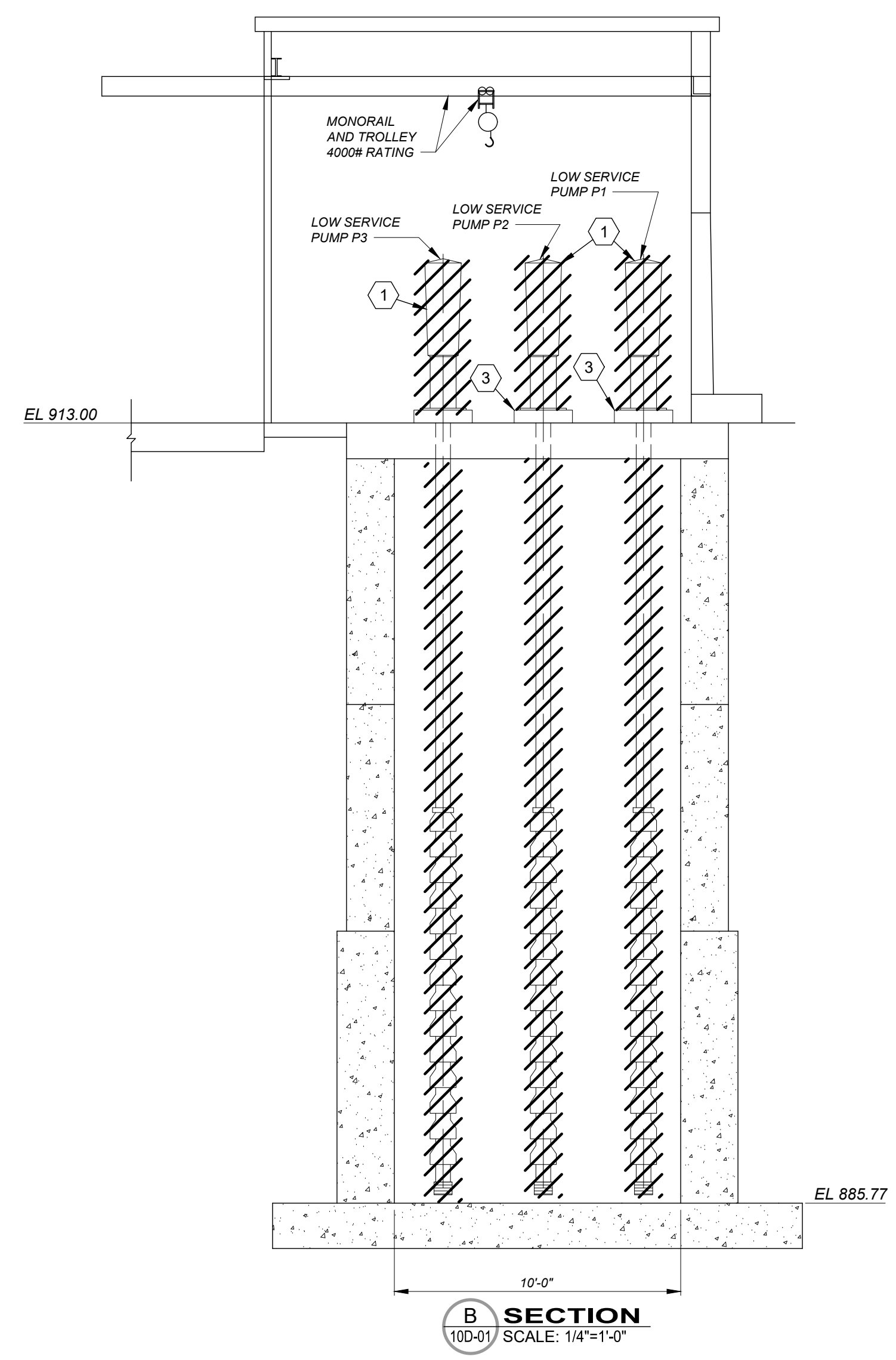
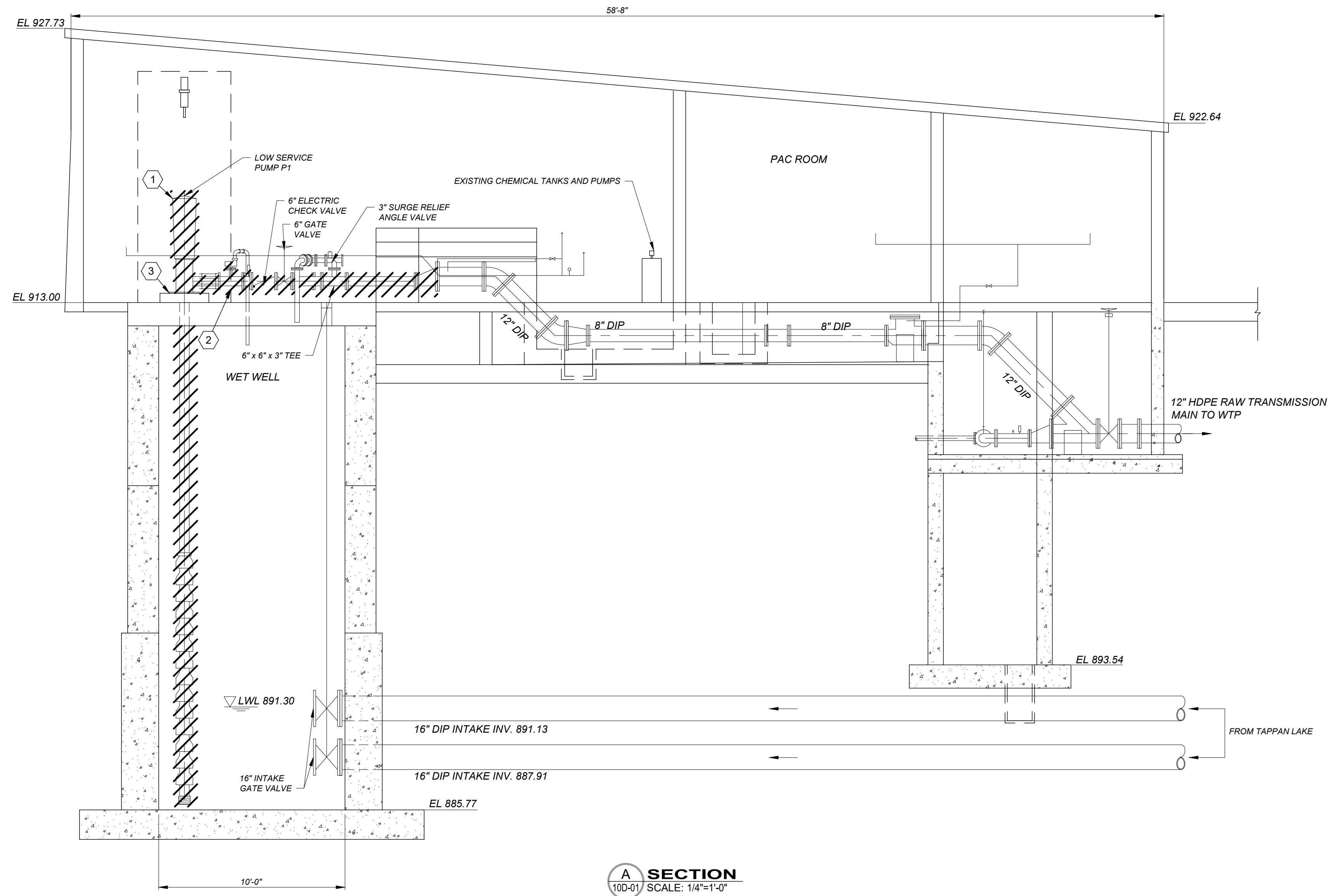
PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	10D-01
SHEET	06
OF	46

REV	DESCRIPTION	DATE

ISSUED FOR:	REVIEW	ISSUE DATE:	AS NOTED	DESIGNED BY:	RE	DEB
		03/13/2020		JDZ		

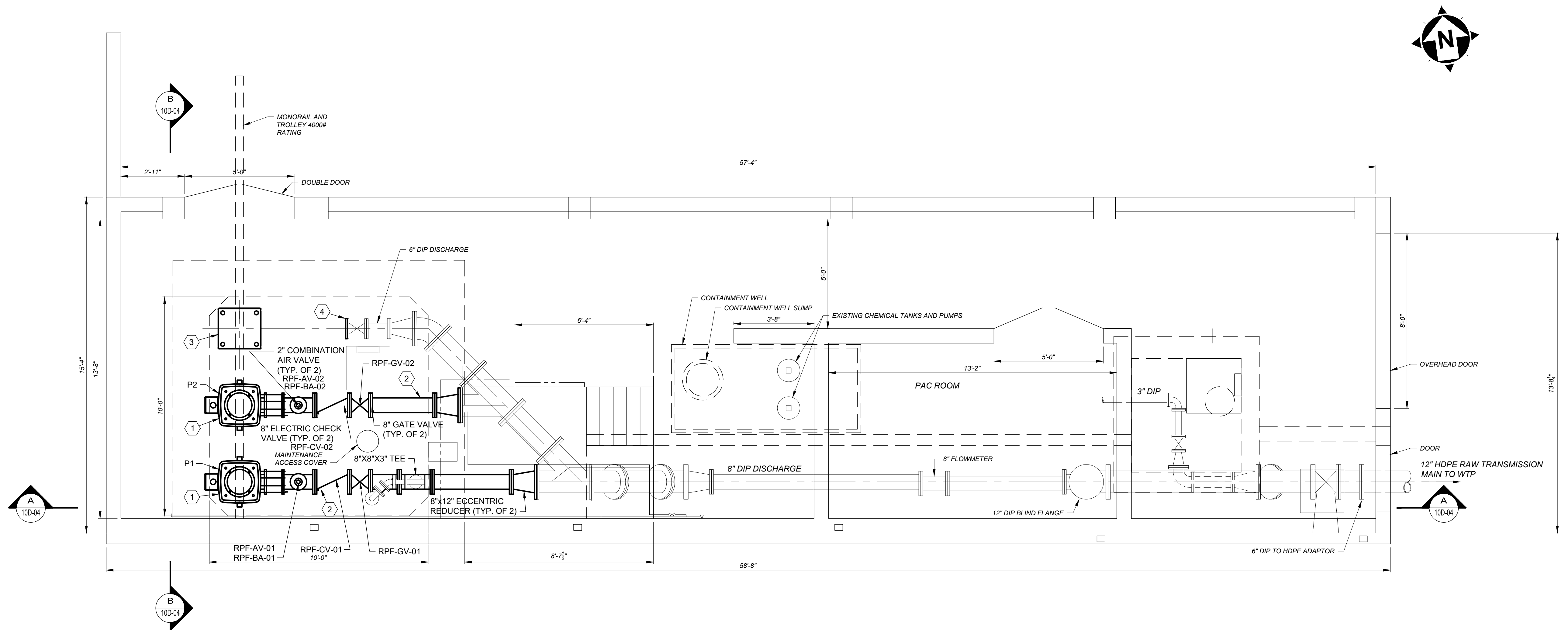
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 TAPPAN LAKE RAW WATER PUMPING FACILITY - 10 SERIES
 TAPPAN LAKE RAW WATER PUMPING FACILITY DEMOLITION SECTIONS

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	10D-02
SHEET	07
OF	46



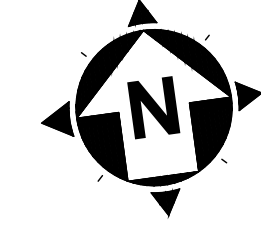
DEMOLITION CODED NOTES:

1. REMOVE LOW SERVICE PUMP P1, P2 AND P3.
2. REMOVE 6" PIPING AND VALVES.
3. REMOVE GROUT PAD AS NECESSARY TO FACILITATE NEW PUMP INSTALLATION.



(X) CODED NOTES:

1. INSTALL NEW LOW SERVICE PUMP P1 AND P2.
2. INSTALL NEW 8" PIPING AND VALVES.
3. 1/4" STEEL PLATE TO COVER HOLE BOLTED TO EXISTING PUMP HEAD MOUNTING BOLTS.
4. INSTALL 6" BLIND FLANGE.



REV.	DESCRIPTION	DATE

ISSUED FOR:	
REVIEW:	
ISSUE DATE:	03/13/2020
SCALE:	3/8" = 1'-0"
DESIGNED BY:	JJZ
DRAWN BY:	RE
CHECKED BY:	DEB

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS

HARRISON COUNTY
RAW WATER PUMPING FACILITY - 10 SERIES

CADIZ, OHIO

TAPPAN LAKE RAW WATER PUMPING FACILITY PROCESS PLAN

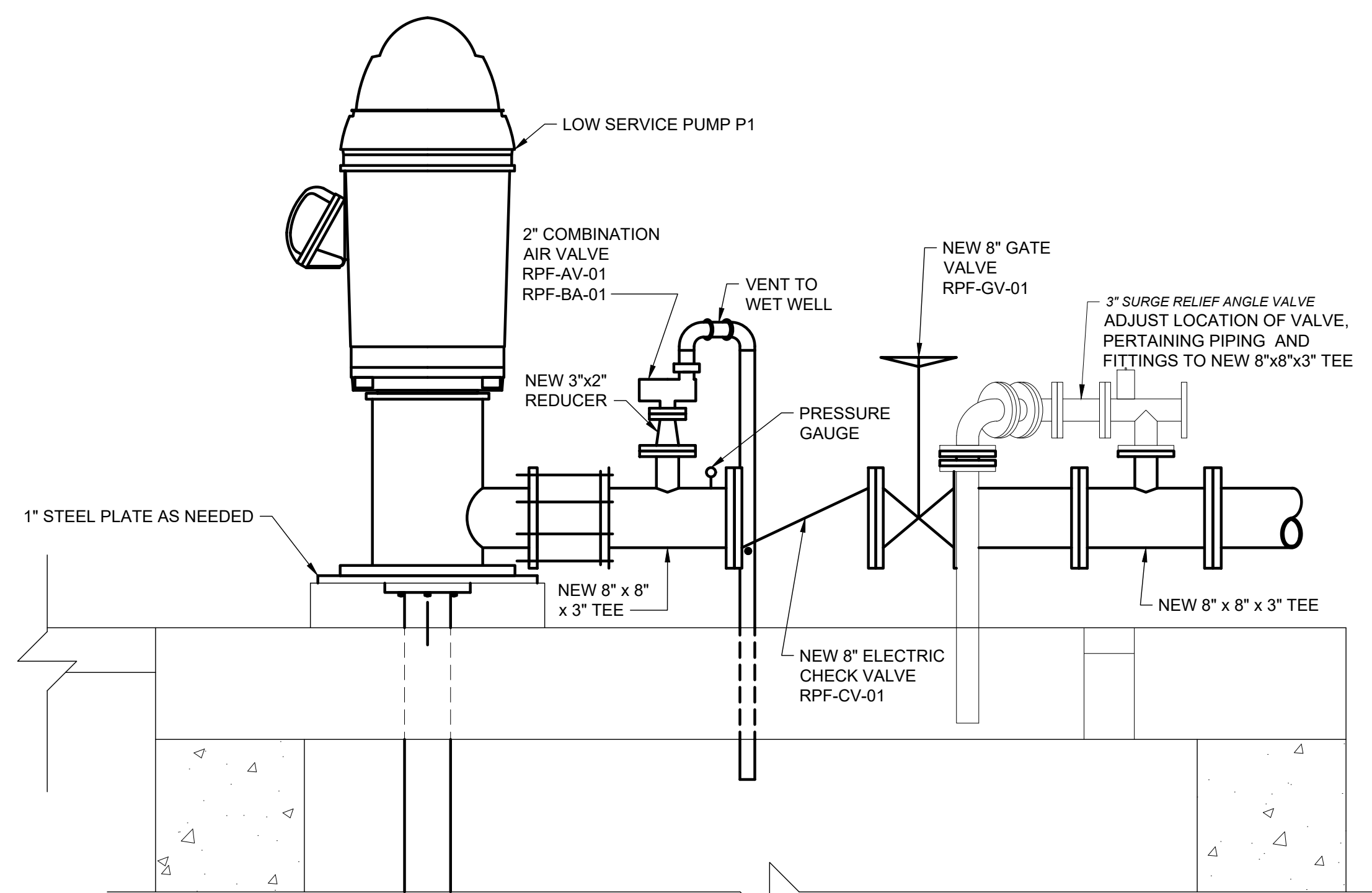
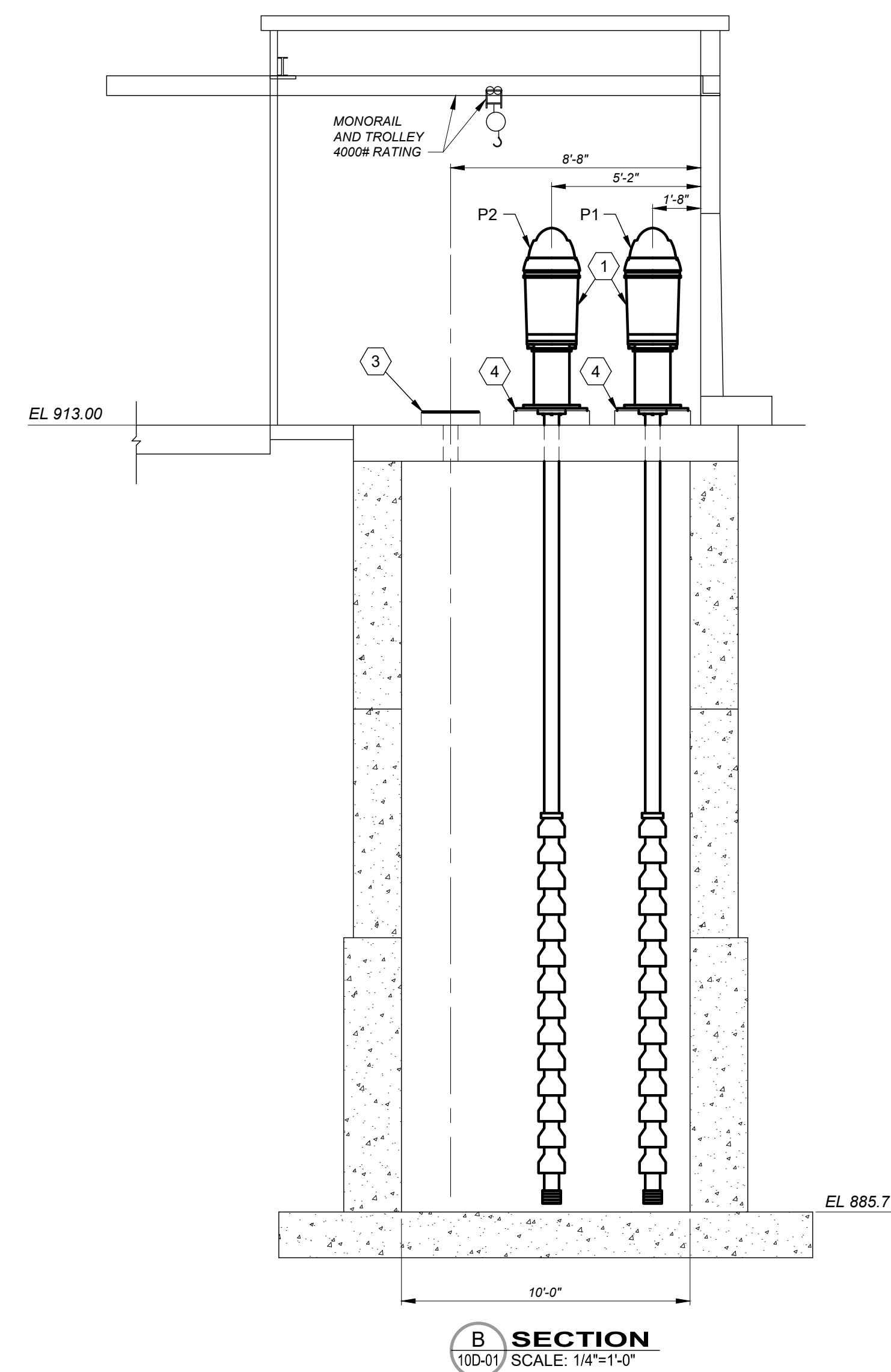
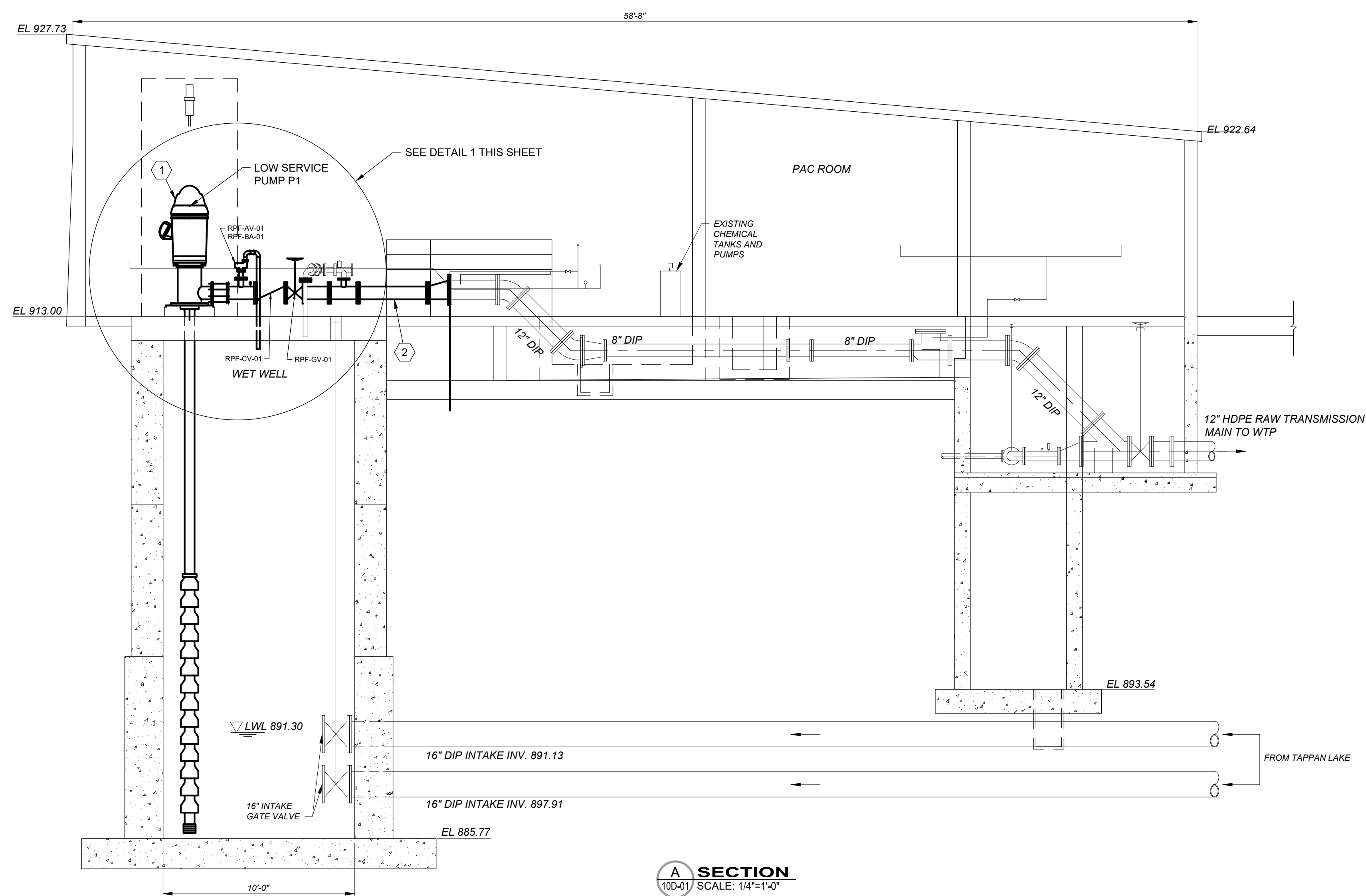
PROJECT NO.		190599
DISCIPLINE		PROCESS
SHEET NAME		10D-03
SHEET	OF	
08	46	

REV	DESCRIPTION	DATE

ISSUED FOR:	REVIEW	ISSUE DATE:	SCALE:	AS NOTED	DESIGNED BY:	JJZ	RE	DEB
		03/13/2020						

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB
 IMPROVEMENTS
 HARRISON COUNTY
 RAW WATER PUMPING FACILITY - 10 SERIES
 TAPPAN LAKE RAW WATER PUMPING FACILITY PROCESS SECTIONS
 CADIZ, OHIO

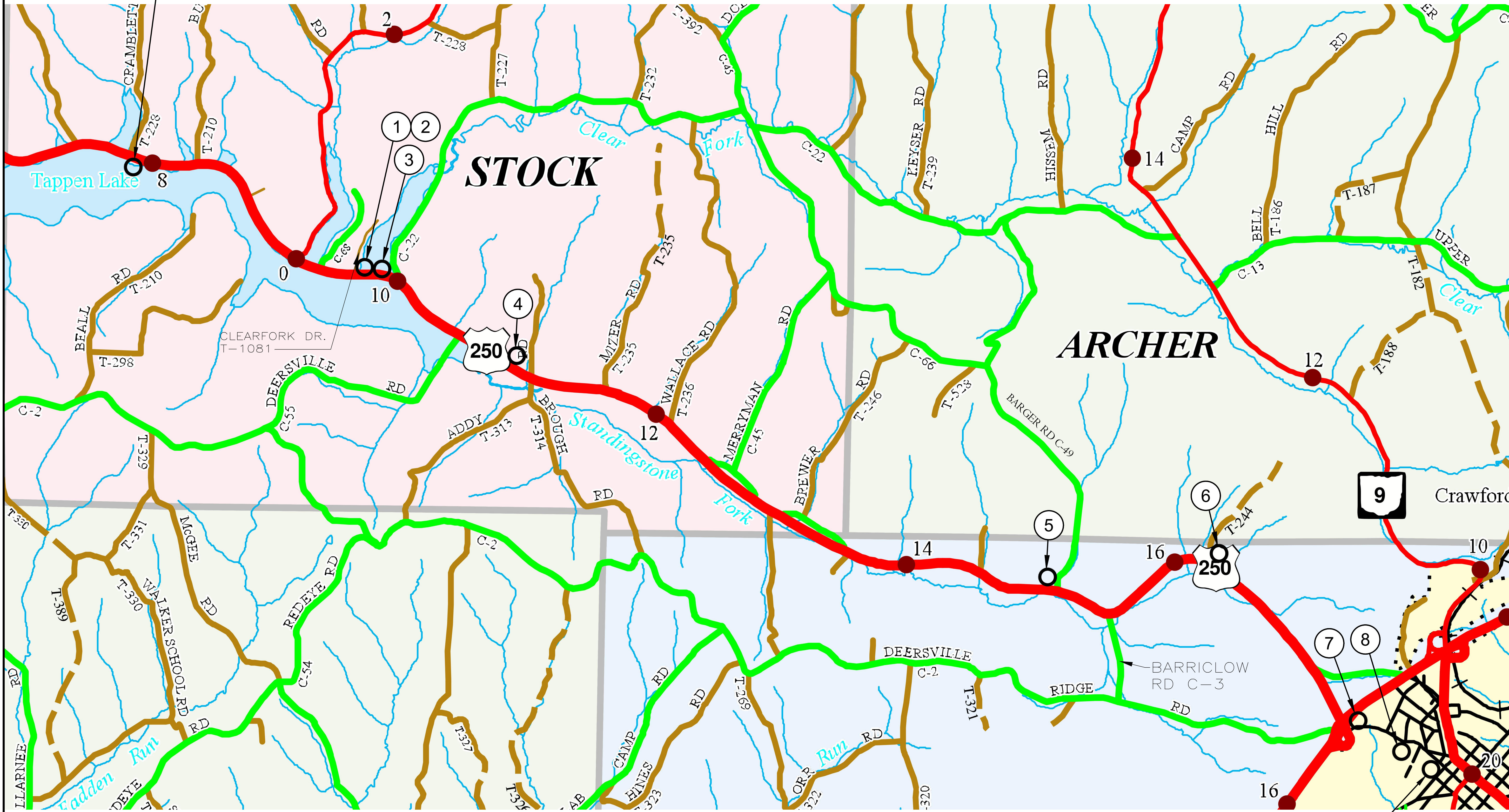
PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	10D-04
SHEET	09
OF	46



(X) CODED NOTES:

1. INSTALL NEW LOW SERVICE PUMP P1 AND P2.
2. INSTALL NEW 8" PIPING AND VALVES.
3. 1/4" STEEL PLATE TO COVER HOLE BOLTED TO EXISTING PUMP HEAD MOUNTING BOLTS.
4. GROUT AS NECESSARY.

RAW WATER PUMP STATION



(X) SEE SHEET 15D-02 FOR WORK ITEMS CODED NOTES

WATER TREATMENT PLANT

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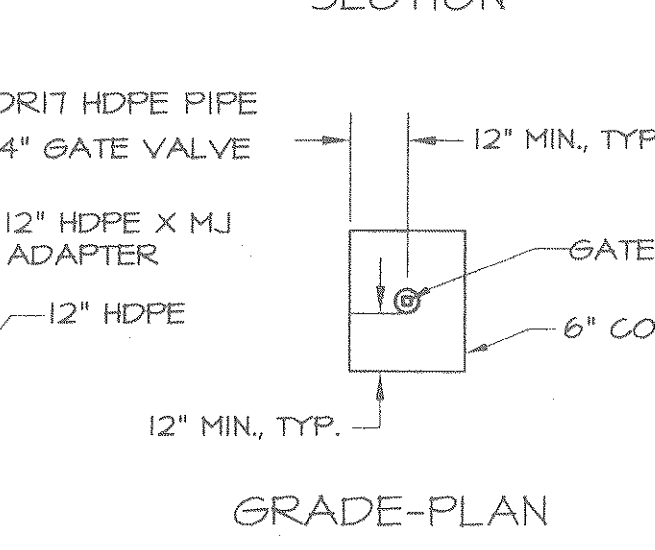
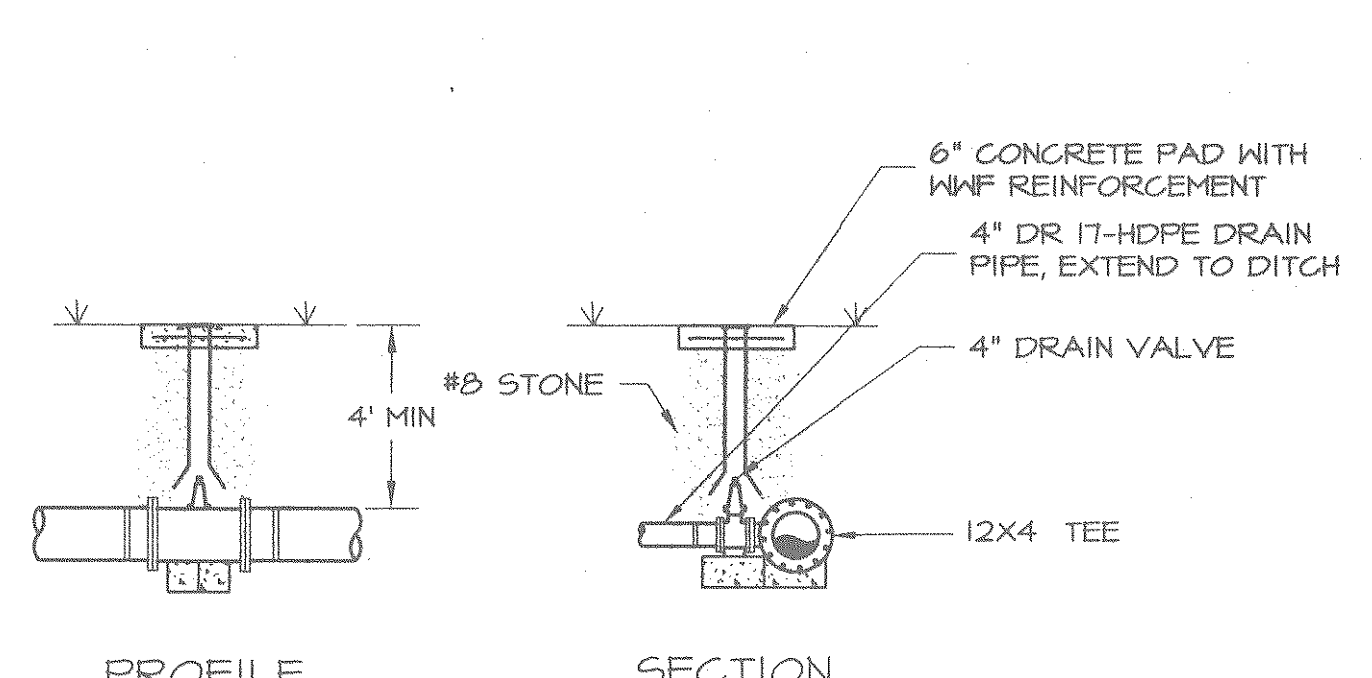
REV.	DESCRIPTION	DATE

ISSUED FOR:	REVIEW:	ISSUE DATE:	SCALE:	N.T.S.
VILLAGE OF CADIZ, OHIO WATER TREATMENT PLANT HAB IMPROVEMENTS		03/13/2020		
HARRISON COUNTY TAPPAN LAKE RAW WATER TRANSMISSION MAIN - 15 SERIES	DESIGNED BY:	DRAWN BY:	CHECKED BY:	
TAPPAN LAKE RAW WATER TRANSMISSION MAIN VALVE & DRAIN WORK				

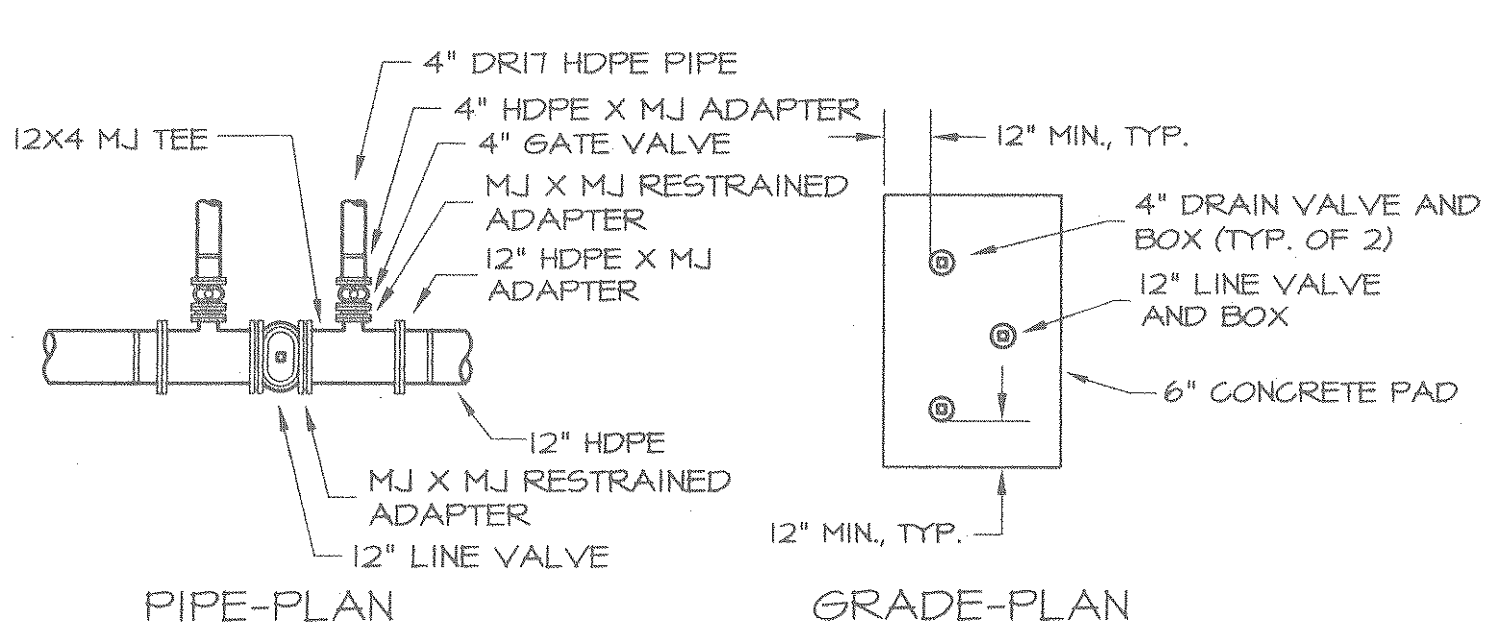
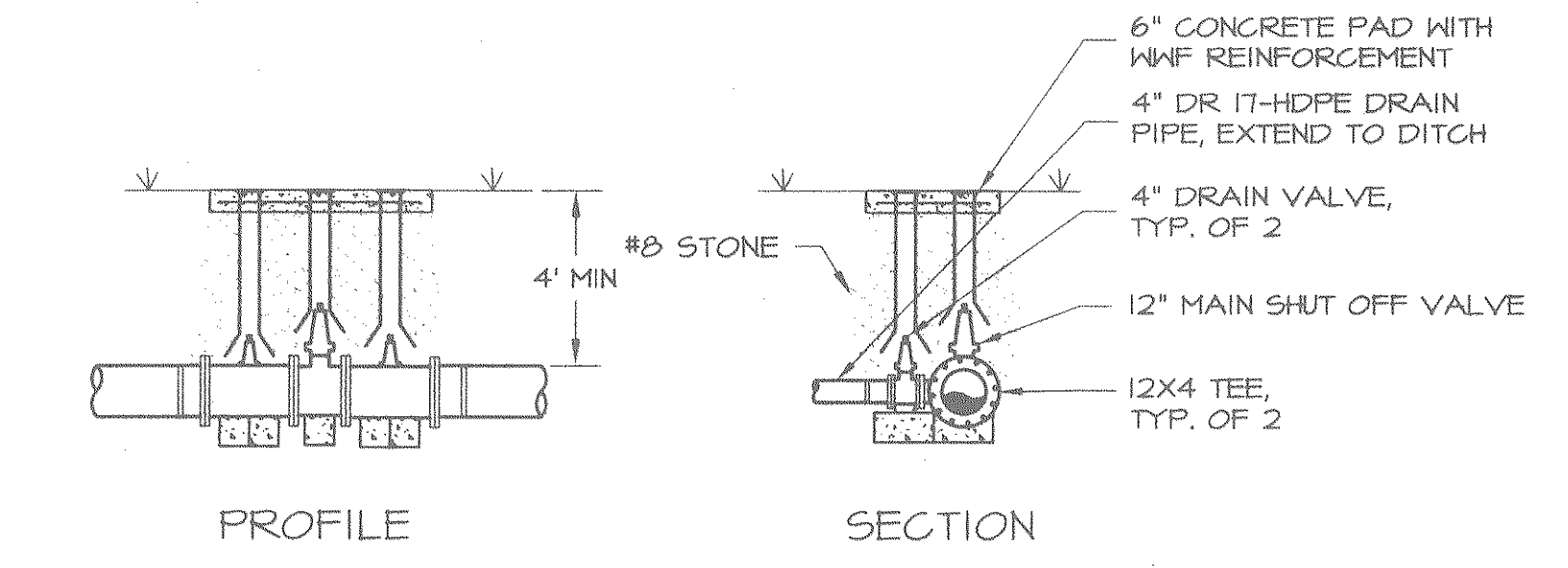
CADIZ, OHIO

PROJECT NO.		190599
DISCIPLINE		PROCESS
SHEET NAME		15D-01
SHEET	OF	10 OF 46

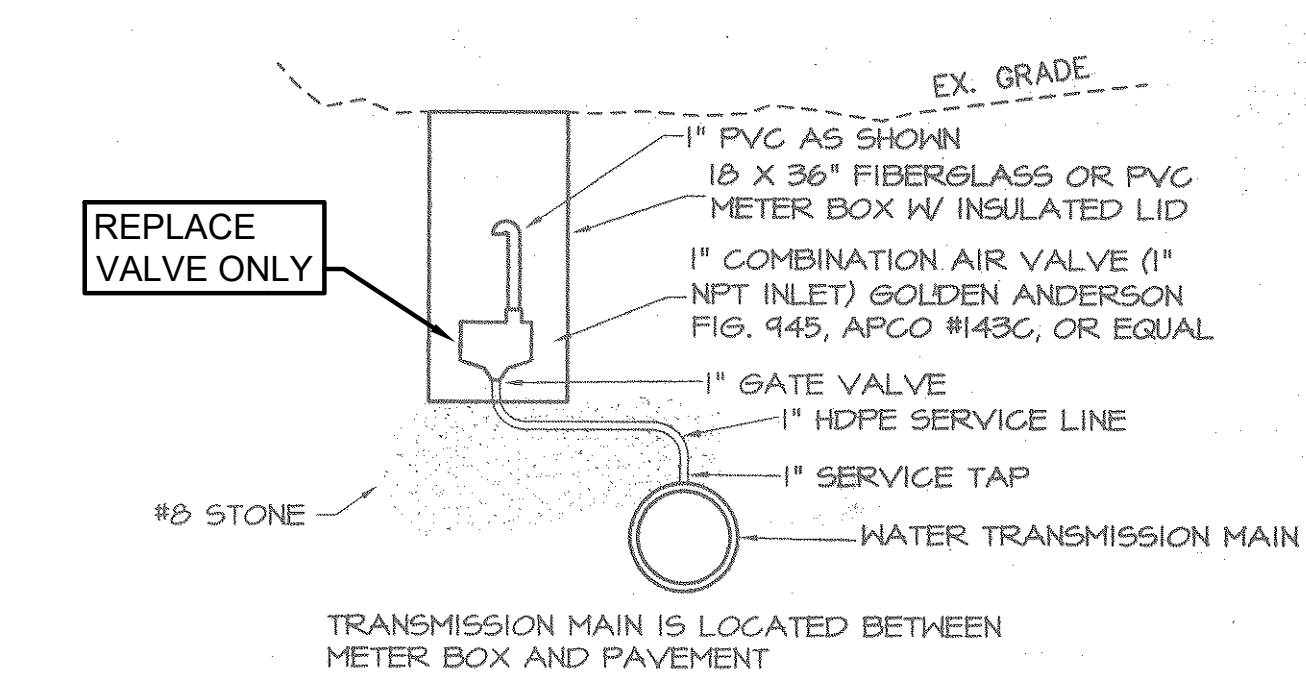
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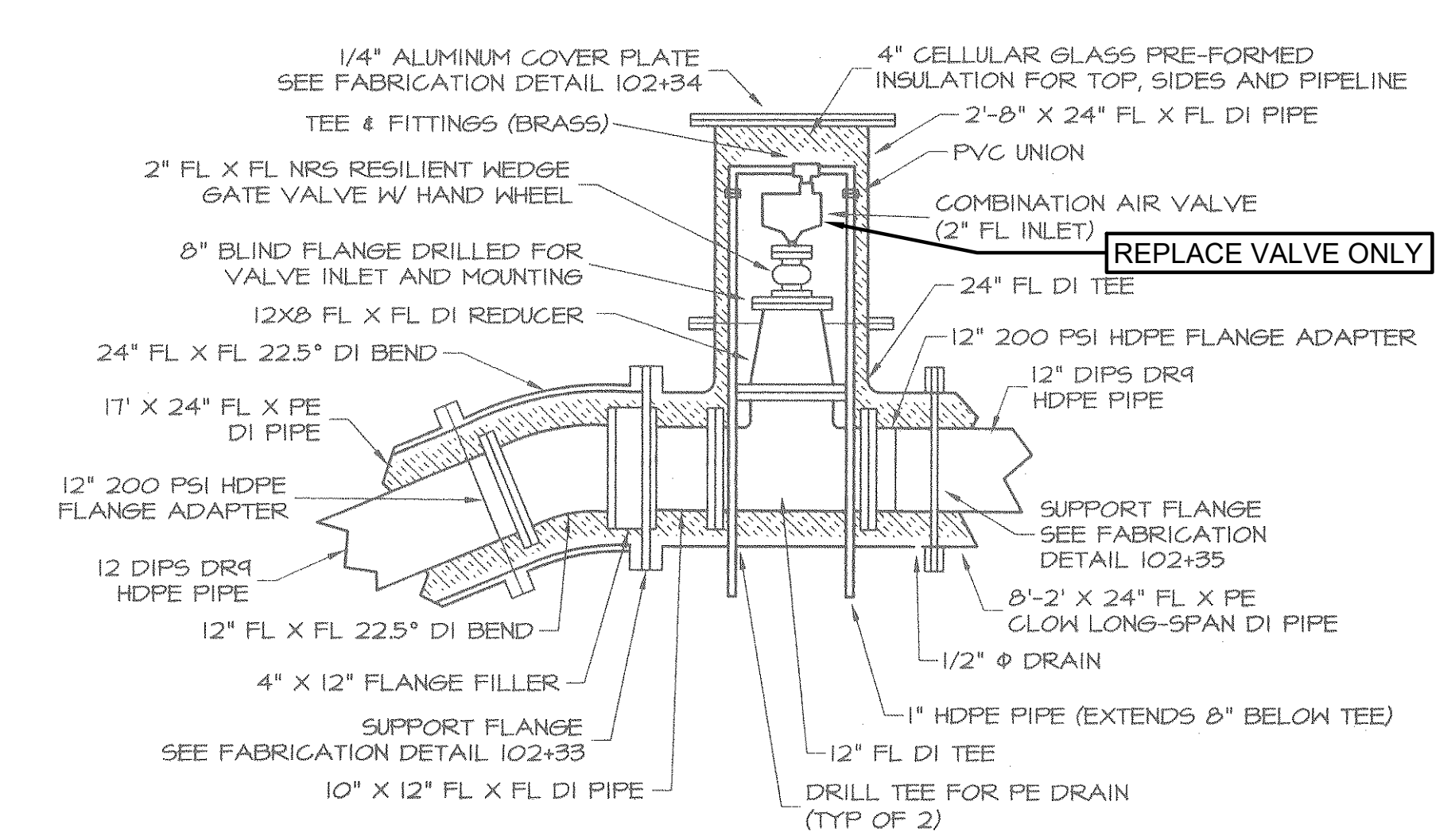
DRAIN VALVE DETAIL
SCALE: 1" = 4"



LINE AND DRAIN VALVE DETAIL
SCALE: 1" = 4"



COMBINATION AIR VALVE DETAIL
SCALE: 1" = 2"



COMBINATION AIR VALVE DETAIL AT BRIDGE
SCALE: 1" = 2"

X WORK ITEM CODED NOTES				
ITEM	DESCRIPTION DETAIL	LOCATION	WORK DESCRIPTION	SCHEDULE LABEL
1	DRAIN VALVE	NORTH SIDE OF US 250, 340' EAST OF CLEARFORK DRIVE T-1081 (WEST END OF BRIDGE).	REPLACE ONE (1) 12" X 4" MJ TEE, ONE (1) 4" MJ GATE VALVES, STEM, YARD BOX, AND CONCRETE PAD.	RTM-GV-01
2	COMBINATION AIR VALVE	NORTH SIDE OF US 250, 365' EAST OF CLEARFORK DRIVE T-1081 (WEST END OF BRIDGE).	REPLACE 2" FL INLET COMBINATION AIR VALVE ONLY.	RTM-AV-01
3	LINE AND DRAIN VALVE	NORTH SIDE OF US 250, 550' EAST OF CLEARFORK DRIVE T-1081 (EAST END OF BRIDGE).	REPLACE TWO (2) 12" X 4" MJ TEE'S, TWO (2) 4" AND ONE (1) 12" MJ GATE VALVES, STEMS, YARD BOXES, AND CONCRETE PAD.	RTM-GV-02 RTM-GV-03 RTM-GV-04
4	LINE AND DRAIN VALVE	NORTH SIDE OF US 250, 485' WEST OF ADDY ROAD T-313.	REPLACE TWO (2) 12" X 4" MJ TEE'S, TWO (2) 4" AND ONE (1) 12" MJ GATE VALVES, STEMS, YARD BOXES, AND CONCRETE PAD.	RTM-GV-05 RTM-GV-06 RTM-GV-07
5	LINE AND DRAIN VALVE	NORTH SIDE OF US 250, 430' WEST OF BARGER ROAD CR-49.	REPLACE TWO (2) 12" X 4" MJ TEE'S, TWO (2) 4" AND ONE (1) 12" MJ GATE VALVES, STEMS, YARD BOXES, AND CONCRETE PAD.	RTM-GV-08 RTM-GV-09 RTM-GV-10
6	LINE AND DRAIN VALVE	NORTH SIDE OF US 250, 80' EAST OF LIGGETT ROAD T-244 (ABANDONED).	REPLACE TWO (2) 12" X 4" MJ TEE'S, TWO (2) 4" AND ONE (1) 12" MJ GATE VALVES, STEMS, YARD BOXES, AND CONCRETE PAD.	RTM-GV-11 RTM-GV-12 RTM-GV-13
7	COMBINATION AIR VALVE	NORTH SIDE OF DEERSVILLE AVENUE, 300' EAST OF US 250, JUST INSIDE OF CADIZ VILLAGE LIMITS.	REPLACE 1" THREADED INLET COMBINATION AIR VALVE ONLY.	RTM-AV-02
8	COMBINATION AIR VALVE	SOUTH SIDE OF DEERSVILLE AVENUE, 50' WEST OF JONES AVENUE (SOUTHWEST CORNER OF DEERSVILLE AVENUE AND BUTTERNUT LANE).	REPLACE 1" THREADED INLET COMBINATION AIR VALVE ONLY.	RTM-AV-03

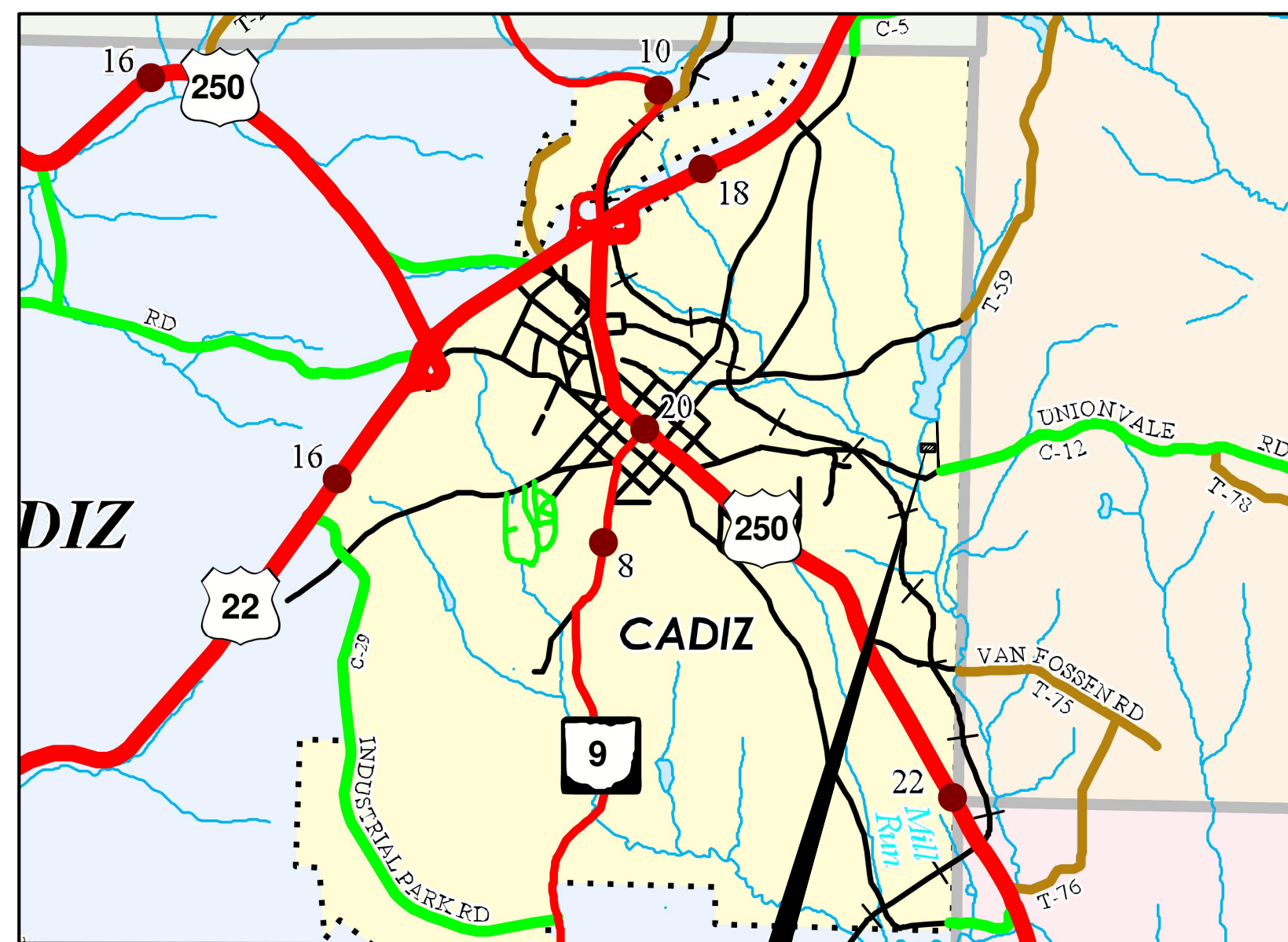
- GENERAL NOTES:**
- WORK LOCATIONS ARE BASED ON THE 2001 "VILLAGE OF CADIZ, RAW WATER TRANSMISSION MAIN" PROJECT DRAWINGS BY T-K ENGINEERING & DESIGN GROUP.
 - THE "DESCRIPTION DETAIL" COLUMN REFERS TO THE VALVE DETAILS AS SHOWN ON SHEETS 46 AND 50 OF 57 IN THE 2001 PROJECT DRAWINGS AND ARE REPRODUCED AS DETAILS IN THIS DRAWING SET. THESE DETAILS APPLY ONLY TO THE RAW WATER TRANSMISSION MAIN WORK PORTION OF THIS PROJECT.
 - DISTANCES MEASURED FROM INTERSECTING ROAD CENTERLINES.
 - SEE SHEET 15D-01 FOR WORK ITEM CODED NOTES LOCATIONS.

- ALL VALVES SHALL BE MECHANICAL JOINT (MJ X MJ) GATE VALVES WITH CAST IRON BODY MEETING THE REQUIREMENTS OF AWWA C509 AS NOTED.
- VALVES SHALL BE OF A RESILIENT SEAT OR RESILIENT WEDGE DESIGN OFFERING BUBBLE OR DRIP TIGHT SEAL UP TO 200 PSI. WEDGE SHALL OPEN SUCH THAT WATERWAY IS FREE OF OBSTRUCTIONS, POCKETS, CAVITIES AND DEPRESSIONS.
- INTERIOR AND EXTERIOR OF VALVE BODY AND BONNET SHALL BE COATED WITH FUSION BONDED EPOXY, MEETING THE REQUIREMENTS OF AWWA C-550.
- DIRECT BURIAL 8" AND 12" VALVES SHALL BE EQUIPPED WITH NON-RISING STEMS (NRS) AND OPERATING NUT (STANDARD DIRECTION OF ROTATION).
- ACCEPTABLE MJ X MJ VALVES (4" - 12") INCLUDE CLOW R/W RESILIENT WEDGE VALVES F-6100, M&H AWWA C509 RESILIENT SEATED GATE VALVES STYLE 4067-01 OR EQUAL.
- VALVES (2" - 12") LOCATED IN VAULTS OR BUILDINGS SHALL BE FLANGED (FLANGE TO FLANGE) OR FLANGE TO MJ, NRS EQUIPPED WITH A HAND WHEEL, UNLESS SPECIFIED OTHERWISE.
- WHERE FLANGES ARE SPECIFIED, THE BOLT PATTERN AND FASTENERS SHALL COMPLY WITH THE ANSI B16.1 CL 125.
- ACCEPTABLE FLANGE TO FLANGE VALVES (4" - 12") INCLUDE CLOW R/W RESILIENT WEDGE VALVES F-6102 M&H AWWA C509 RESILIENT SEATED GATE VALVES STYLE 4067-02 OR EQUAL.
- ACCEPTABLE FLANGE TO MJ VALVES (8") INCLUDE CLOW R/W RESILIENT WEDGE VALVES F-6106 M&H RESILIENT SEATED GATE VALVE STYLE 4067-13 OR EQUAL.
- VALVES (16") LOCATED IN VAULTS OR BUILDINGS SHALL BE FLANGE TO FLANGE NRS EQUIPPED WITH AN OPERATING NUT AND STEM EXTENSION AS SHOWN. VALVES SHALL BE OF A RESILIENT SEAT OR RESILIENT WEDGE DESIGN OFFERING BUBBLE OR DRIP TIGHT SEAL UP TO 150 PSI. WEDGE SHALL OPEN SUCH THAT WATERWAY IS FREE OF OBSTRUCTIONS, POCKETS, CAVITIES AND DEPRESSIONS.
- ALL CONNECTIONS BETWEEN MJ FITTINGS AND BETWEEN MJ VALVES AND FITTINGS SHALL BE MADE WITH THE APPROPRIATE MJ X MJ RESTRAINED ADAPTER. ALL JOINTS ARE RESTRAINED. ALL DI COMPONENTS SHALL BE ENCASED IN POLYETHYLENE MEETING ANSIIAWWA C105/A21.5. ALL FITTINGS AND VALVES SHALL BE RATED FOR 200 PSI WORKING PRESSURE OR HIGHER, EXCEPT AS NOTED.
- FITTINGS SHALL BE DUCTILE IRON MEETING THE REQUIREMENTS OF ANSIIAWWA C153/A21.53 FOR MECHANICAL JOINT AND C110/A21.10, C111/A21.11 FOR FLANGED. INTERIOR OF FITTING SHALL BE CEMENT MORTAR LINED MEETING THE REQUIREMENTS OF ANSIIAWWA C104/A21.4. EXTERIOR COATING SHALL BE ASPHALT.
- VALVE BOXES SHALL BE OF 2 PIECE, SCREW ADJUSTABLE, CAST IRON CONSTRUCTION, WITH 5 1/4" SHAFT. LIDS SHALL BE LOCKING TYPE WITH "WATER" LETTERING. EXTENSION RANGE VARIES WITH LOCATION.
- CURB BOXES WITH ONE PIECE LIDS SHALL BE EXTENSION TYPE WITH 2" INSIDE DIAMETER UPPER SECTION OF CAST IRON CONSTRUCTION. EXTENSION LENGTHS VARY WITH LOCATION.
- CONCRETE PADS SHALL BE REINFORCED WITH 6x6-W2.9xW2.9 WWF.
- CONCRETE FOR PADS SHALL BE 4000 PSI AT 28 DAYS.
- CONCRETE OR HARDWOOD BLOCKING SHALL BE INSTALLED AS SHOWN.
- NO SERVICE CONNECTION SHALL BE MADE TO THE PIPELINE.

REV	DESCRIPTION	DATE

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 TAPPAN LAKE RAW WATER TRANSMISSION MAIN - 15 SERIES
 CADIZ, OHIO
 TAPPAN LAKE RAW WATER TRANSMISSION MAIN VALVE DETAILS

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	15D-02
SHEET	OF
11	46

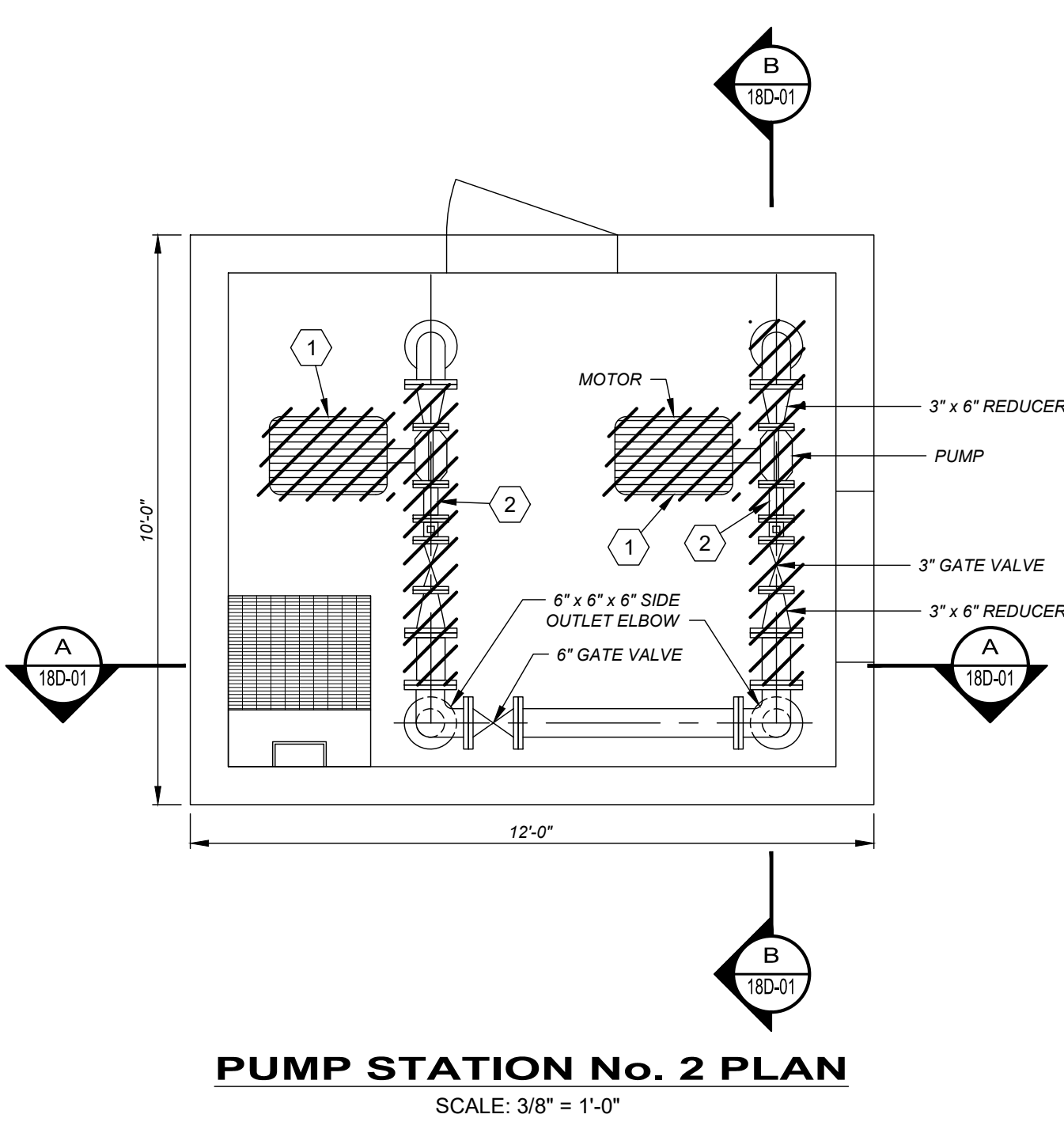
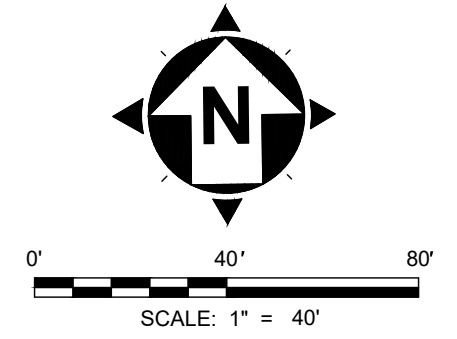


SPARROW RESERVOIR INTAKE PUMP STATIONS LOCATION

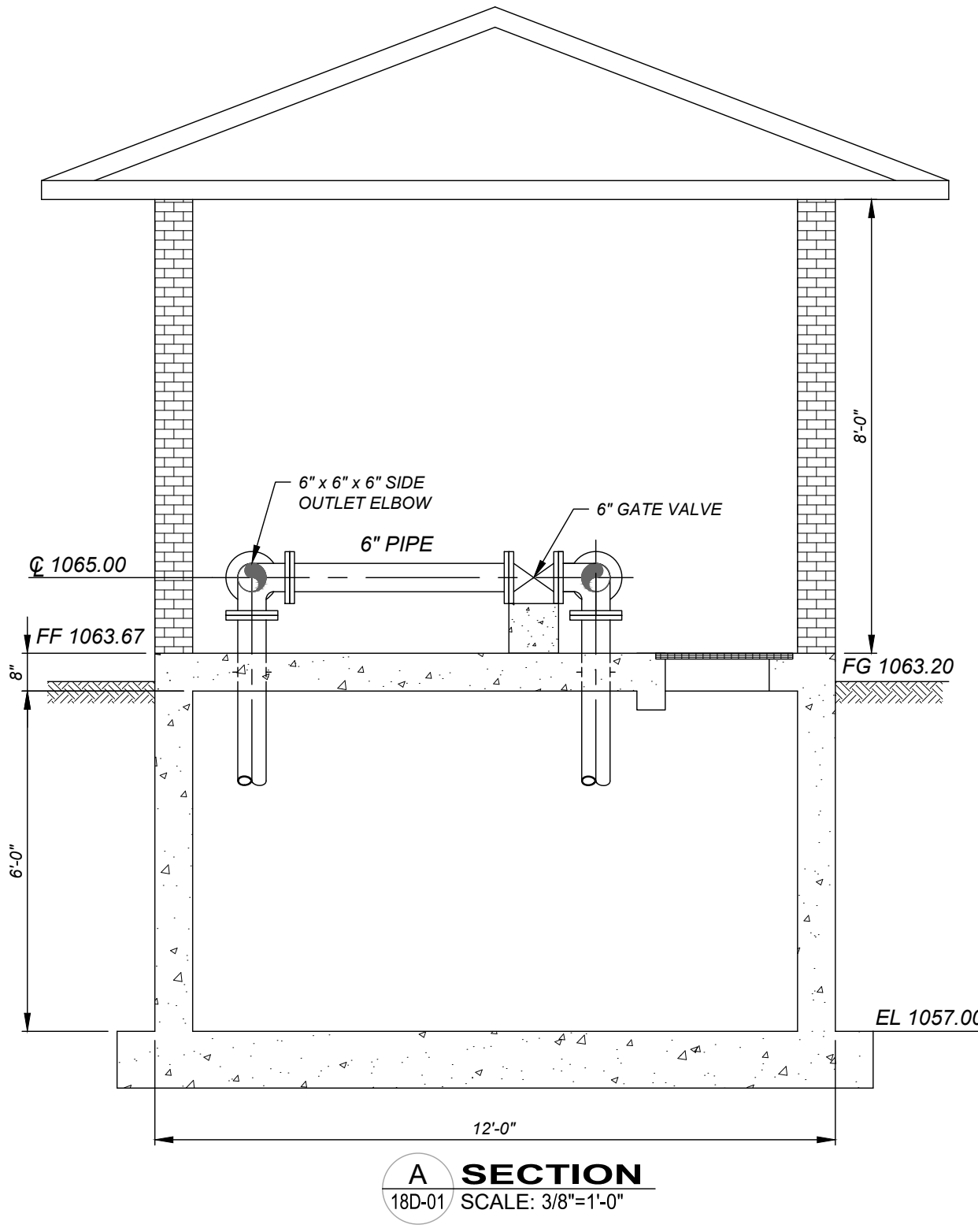
LOCATION MAP
NOT TO SCALE



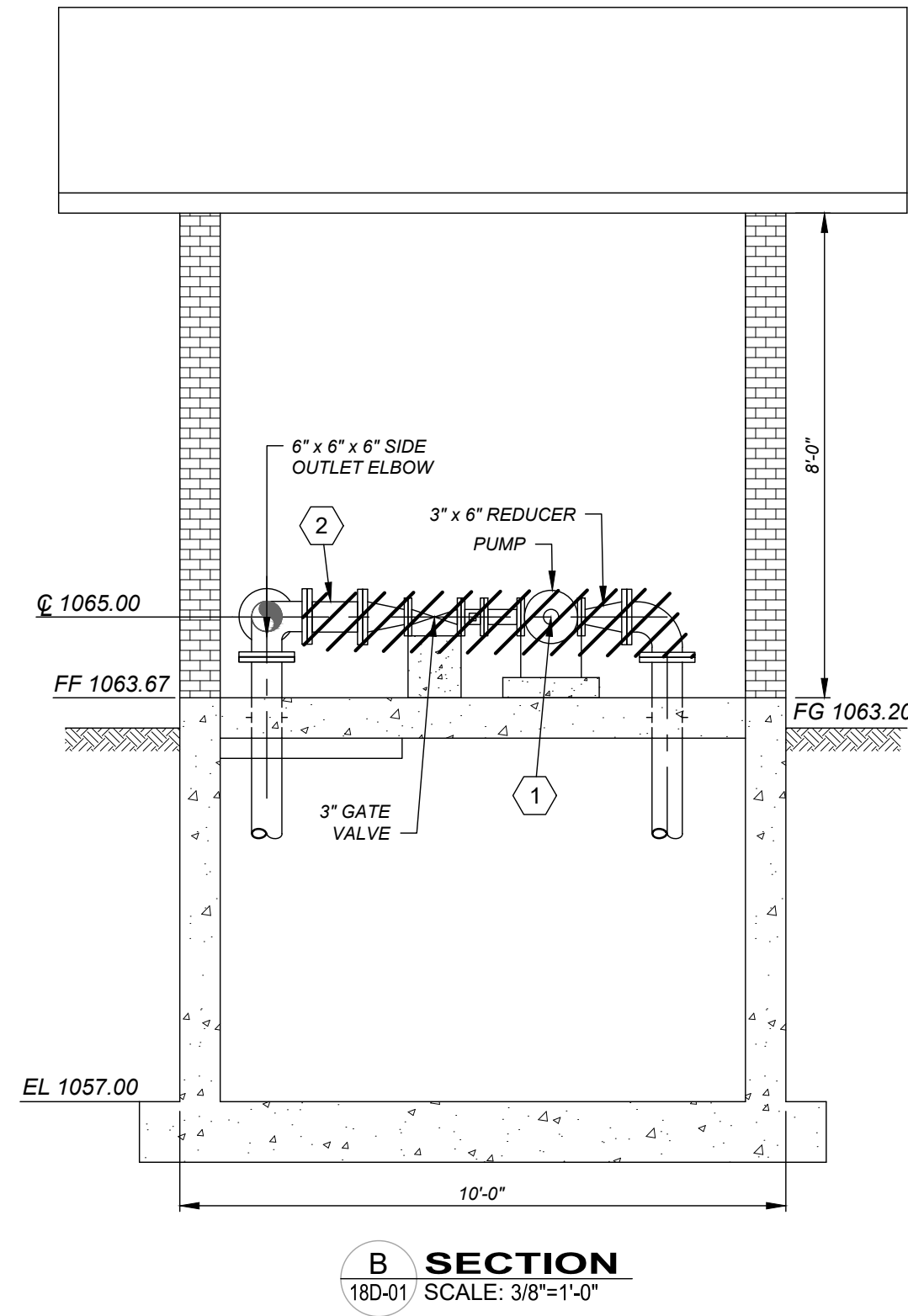
SITE PLAN



PUMP STATION No. 2 PLAN
SCALE: 3/8" = 1'-0"



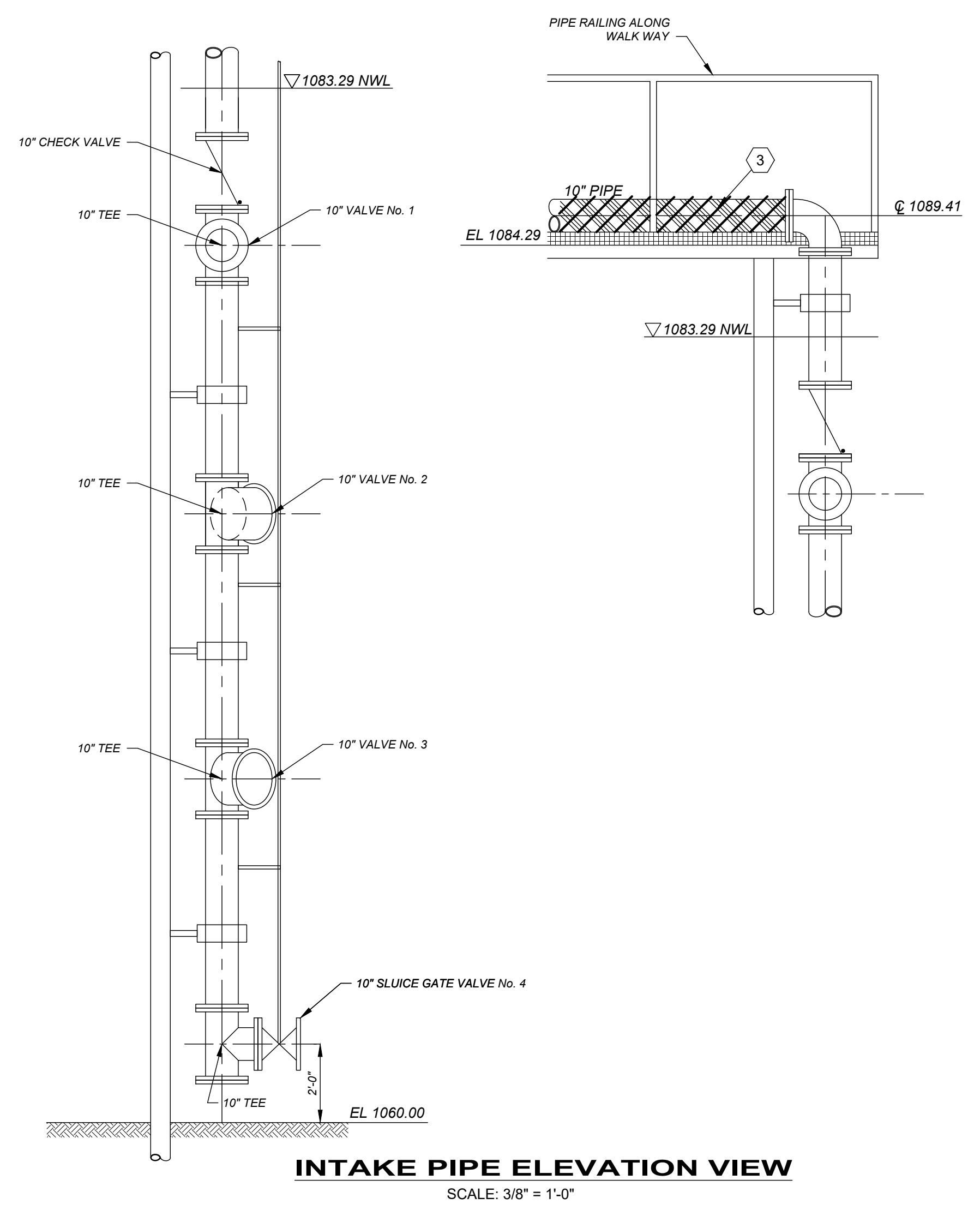
SECTION A
180-01 SCALE: 3/8"=1'-0"



SECTION B
180-01 SCALE: 3/8"=1'-0"

- GENERAL NOTES:**
1. PUMP HOUSE GROUND ELEVATION FROM GOOGLE EARTH. OTHERS DETERMINED FROM LEGACY DRAWINGS BY MCCULLOUGH, 1990 AND 1991.
 2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS BEFORE ORDERING EQUIPMENT.
 3. SALVAGE 3" GATE AND CHECK VALVES AND SURRENDER TO OWNER.

- (X) DEMOLITION CODED NOTES:**
1. REMOVE EXISTING PUMPS AND MOTORS FROM PUMP STATION No. 2.
 2. REMOVE PIPING AND, APPURTENANCES AND SUPPORTS.
 3. REMOVE HEAT TRACE.



INTAKE PIPE ELEVATION VIEW
SCALE: 3/8" = 1'-0"

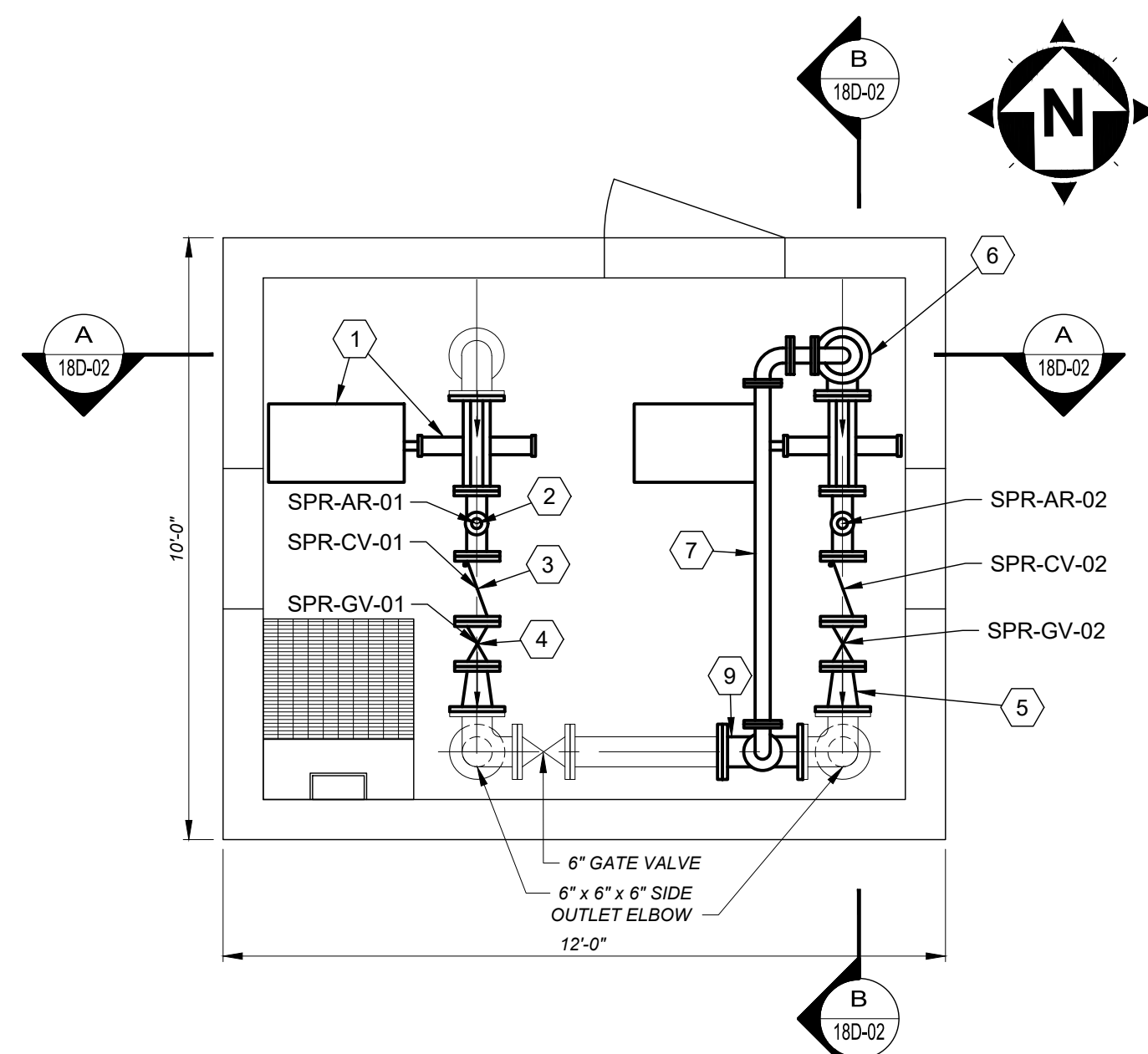
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VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
SPARROW RESERVOIR RAW WATER PUMP INTAKE STATION - 18 SERIES
CADIZ, OHIO
SPARROW RESERVOIR RAW WATER INTAKE PUMP STATION DEMO

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	18D-01
SHEET	OF
12	46



PUMP STATION No. 2 PLAN
SCALE: 3/8" = 1'-0"

DESIGNATION	OPERATOR										INSTALLED CONDITIONS			ACCESSORIES				LOCATION
	SIZE	LEVER	WORM GEAR & HANDWHEEL	WORM GEAR & CHAINWHEEL	MOTOR	NUT	TEE HANDLE	TYPE ENDS			EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES	ADJ. VALVE BOX		
								NON-SUBMERGED	SUBMERGED	BURIED								
RPF-BA-01	2"	X					TH	X									PUMP STATION BLDG SHT. 18D-02	
RPF-BA-02	2"	X					TH	X									PUMP STATION BLDG SHT. 18D-02	

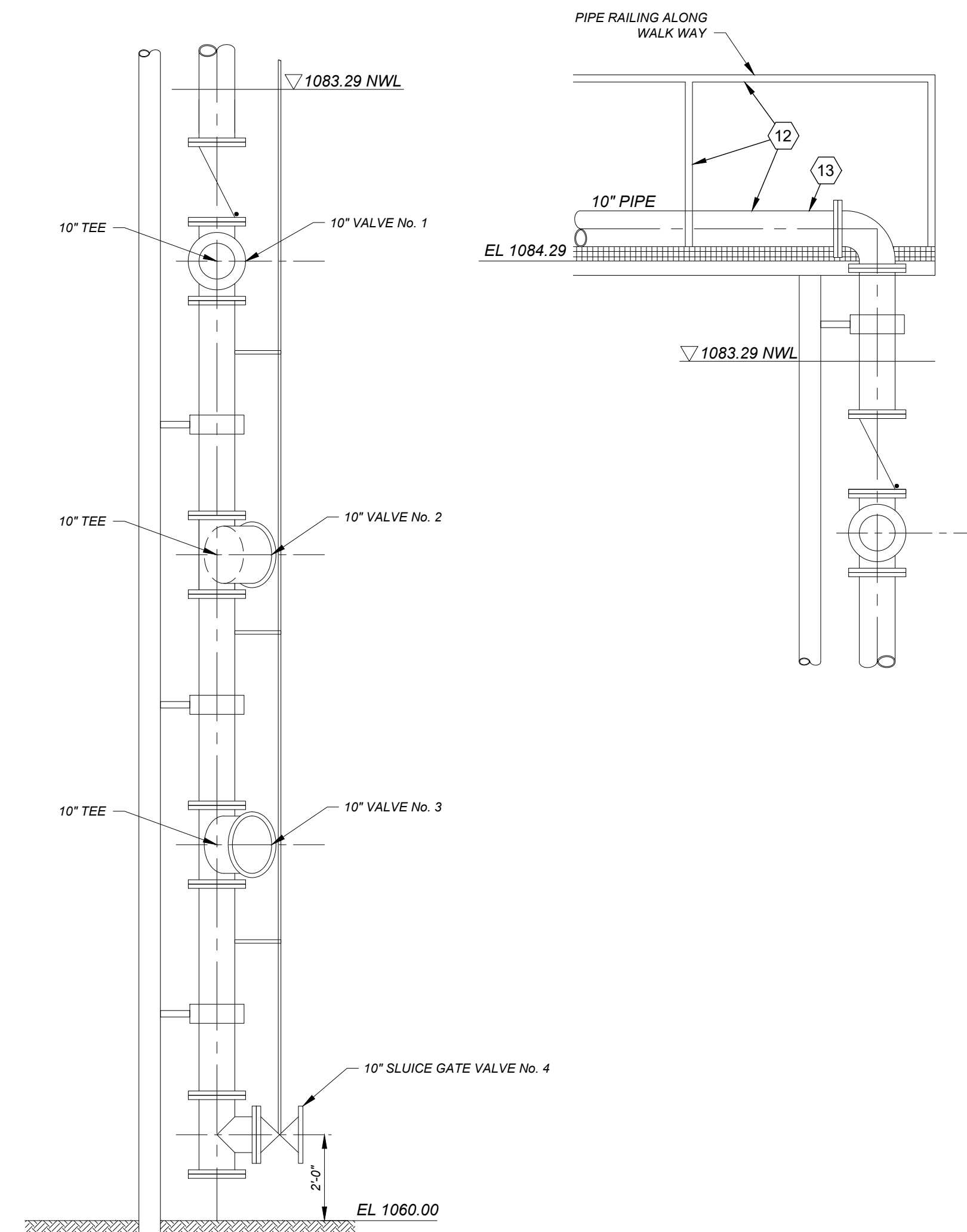
*1/4" TURN BALL VALVE

SPARROW RESERVOIR VALVE SCHEDULE

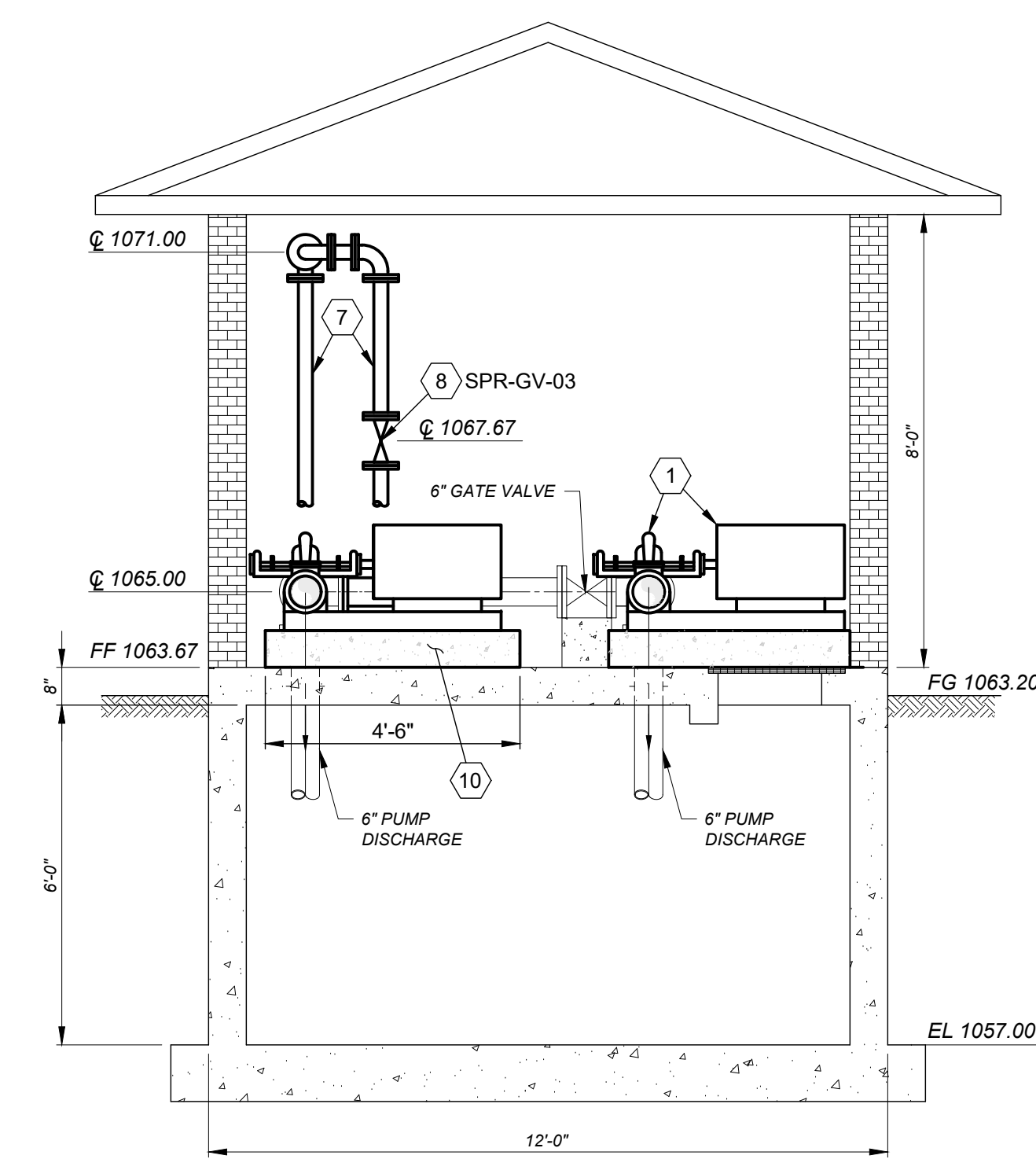
DESIGNATION	OPERATOR										TYPE		INSTALLED CONDITIONS			LOCATION
	SIZE	TILTING DISC	ELECTRIC CHECK	RUBBER FLAPPER	MOTOR	WAFFER STYLE	LEVER & WEIGHT	SPRING SWING	CENTER GUIDE	STRAIGHT	ANGLED	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	
SPR-CV-01	4"			X						X		FF	X			PUMP STATION BLDG SHT. 18D-02
SPR-CV-02	4"			X						X		FF	X			PUMP STATION BLDG SHT. 18D-02

DESIGNATION	OPERATOR				INSTALLED CONDITIONS			ACCESSORIES				STEM TYPE		LOCATION				
	SIZE	MOTOR	NUT	HANDWHEEL	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES		ADJ. VALVE BOX	NON-RISING STEM	RISING STEM	NORMALLY OPENED (NO) / NORMALLY CLOSED (NC)
SPR-GV-01	4"				X	FF	X								X	NO	PUMP STATION BLDG SHT. 18D-02	
SPR-GV-02	4"			X	FF	X									X	NO	PUMP STATION BLDG SHT. 18D-02	
SPR-GV-02	3"			X	FF	X									X	NC	PUMP STATION BLDG SHT. 18D-02	

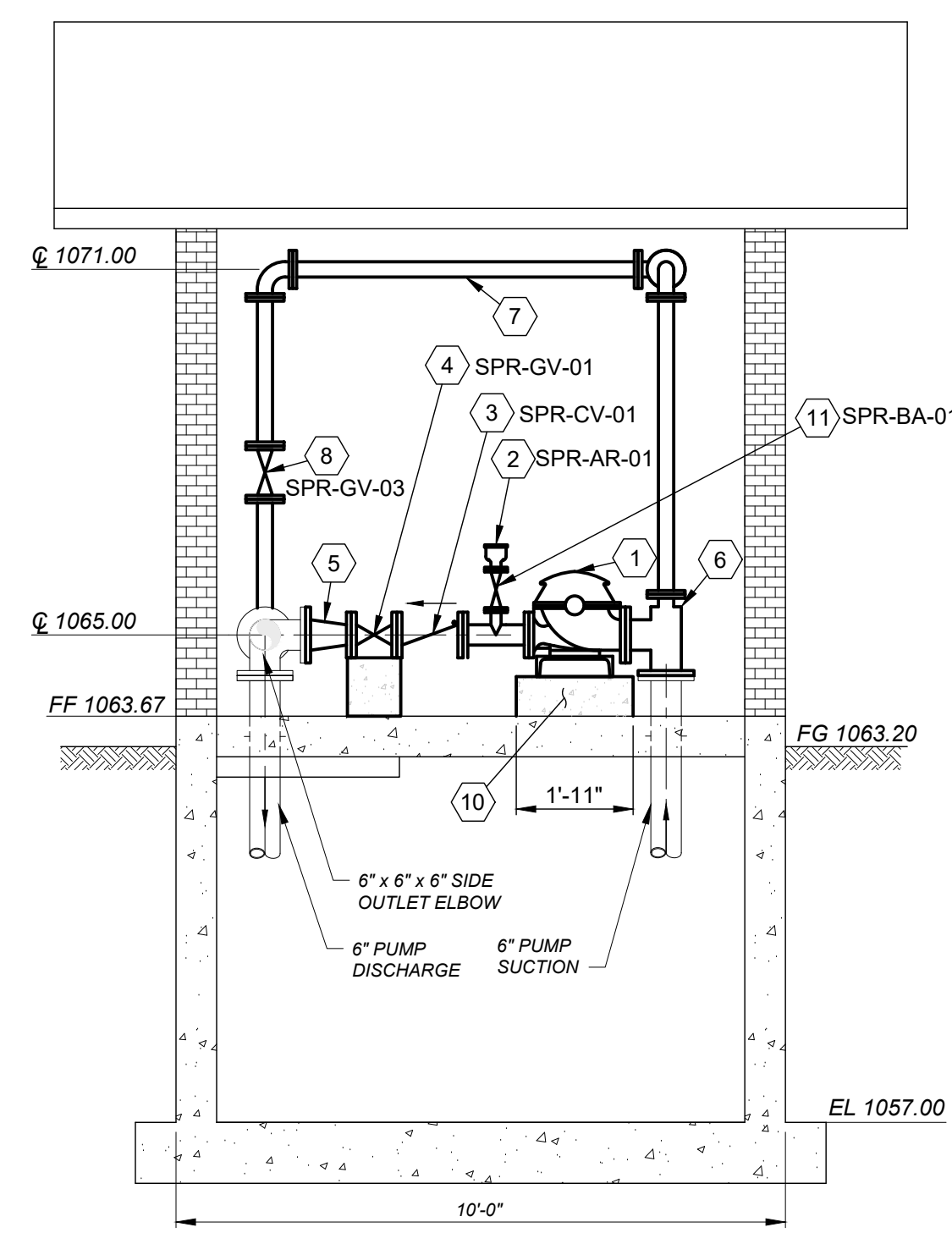
DESIGNATION	OPERATOR				INSTALLED CONDITIONS			ACCESSORIES				STEM TYPE		LOCATION				
	SIZE	MOTOR	NUT	HANDWHEEL	TYPE ENDS	NON-SUBMERGED	SUBMERGED	BURIED	EXTENSION STEM	CHAIN	FLOOR STAND	FLOOR BOX	STEM GUIDES		ADJ. VALVE BOX	NON-RISING STEM	RISING STEM	NORMALLY OPENED (NO) / NORMALLY CLOSED (NC)
SPR-AR-01	2"				TH	X											PUMP STATION BLDG SHT. 18D-02	
SPR-AR-02	2"				TH	X											PUMP STATION BLDG SHT. 18D-02	



INTAKE PIPE ELEVATION VIEW
SCALE: 3/8" = 1'-0"



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



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

CODED NOTES:

- NEW PUMP AND MOTOR WITH SUCTION AND DISCHARGE PRESSURE GAUGES (TYP. OF 2) CRANE PUMP SYSTEMS OR EQUAL.
- NEW 2" AIR RELEASE VALVE (TYP. OF 2).
- NEW 4" CHECK VALVE (TYP. OF 2).
- NEW 4" GATE VALVE (TYP. OF 2).
- NEW 4" x 6" REDUCER (TYP. OF 2).
- NEW 6" x 3" x 6" TEE.
- 3" DIP BYPASS.
- NEW 3" GATE VALVE.
- NEW 6" x 3" TEE.
- 4'-6"L x 1'-11"W x 8" PUMP CONCRETE PAD (TYP. OF 2). CONTRACTOR TO VERIFY THE SIZE OF THE PAD BEFORE CONSTRUCTION.
- 2" BALL VALVE 1/4 TURN (TYP. OF 2).
- PAINT THE RAILING ALONG WALK WAY.
- NEW HEAT TRACE AND INSULATION. MINIMUM 1" ALUMINUM JACKETED FIBERGLASS WITH 8 WATTS PER FOOT TRACING.

NOTES:

- PIPE HANGERS AND SUPPORTS AS NECESSARY.

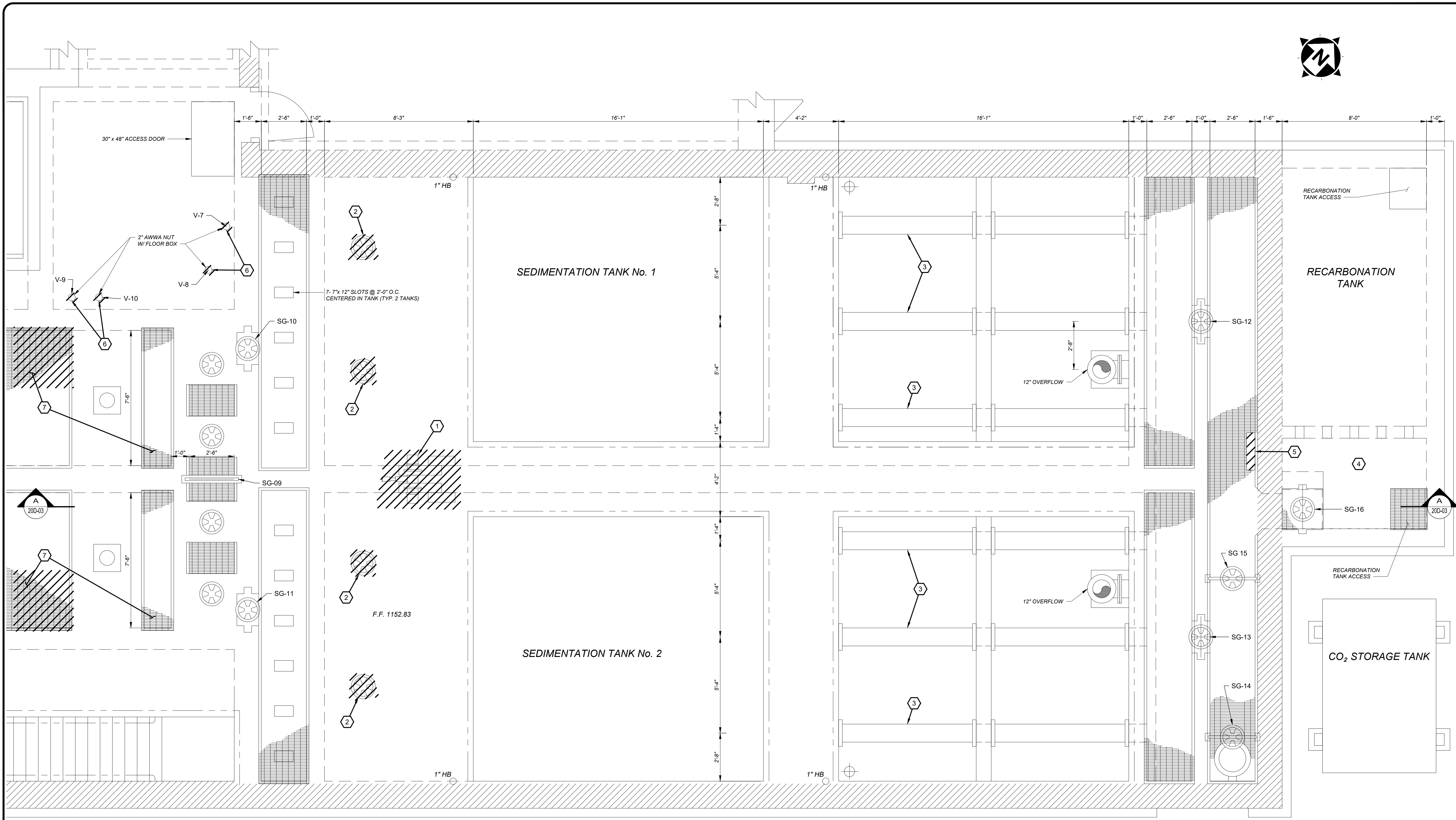
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REVIEW	DESCRIPTION	
ISSUE DATE:	AS NOTED	
03/13/2020	JJZ	
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	DRAWN BY:	DEB
	CHECKED BY:	

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 SPARROW RESERVOIR RAW WATER PUMP INTAKE STATION - 18 SERIES
 SPARROW RESERVOIR WATER INTAKE PUMP STATION PROCESS
 CADIZ, OHIO

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	18D-02
SHEET	OF
13	46

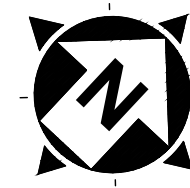


PRETREATMENT DEMOLITION PLAN @ EL. 1156.00

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

(X) DEMOLITION CODED NOTES:

1. REMOVE COMMON DRIVE UNIT.
2. REMOVE MUD VALVE HANDWHEEL AND FLOOR STAND (TYP. OF 4).
3. CLEAN AND REMOVE DEPOSITS FROM EFFLUENT WEIRS AND TROUGHS AND REPORT WEIRS' CONDITION TO ENGINEER.
4. REMOVE ALL CO₂ DIFFUSERS, CO₂ PIPING AND ANCHORS.
5. REMOVE CO₂ FEED PANEL AND PIPING TO AND FROM CO₂ TANK AND DIFFUSERS.
6. REMOVE 6" PLUG VALVES.
7. REMOVE FLOOR GRATING - SEE STRUCTURAL SHEET S-04 (TYP. OF 7 LOCATIONS).



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REV.	DESCRIPTION	DATE

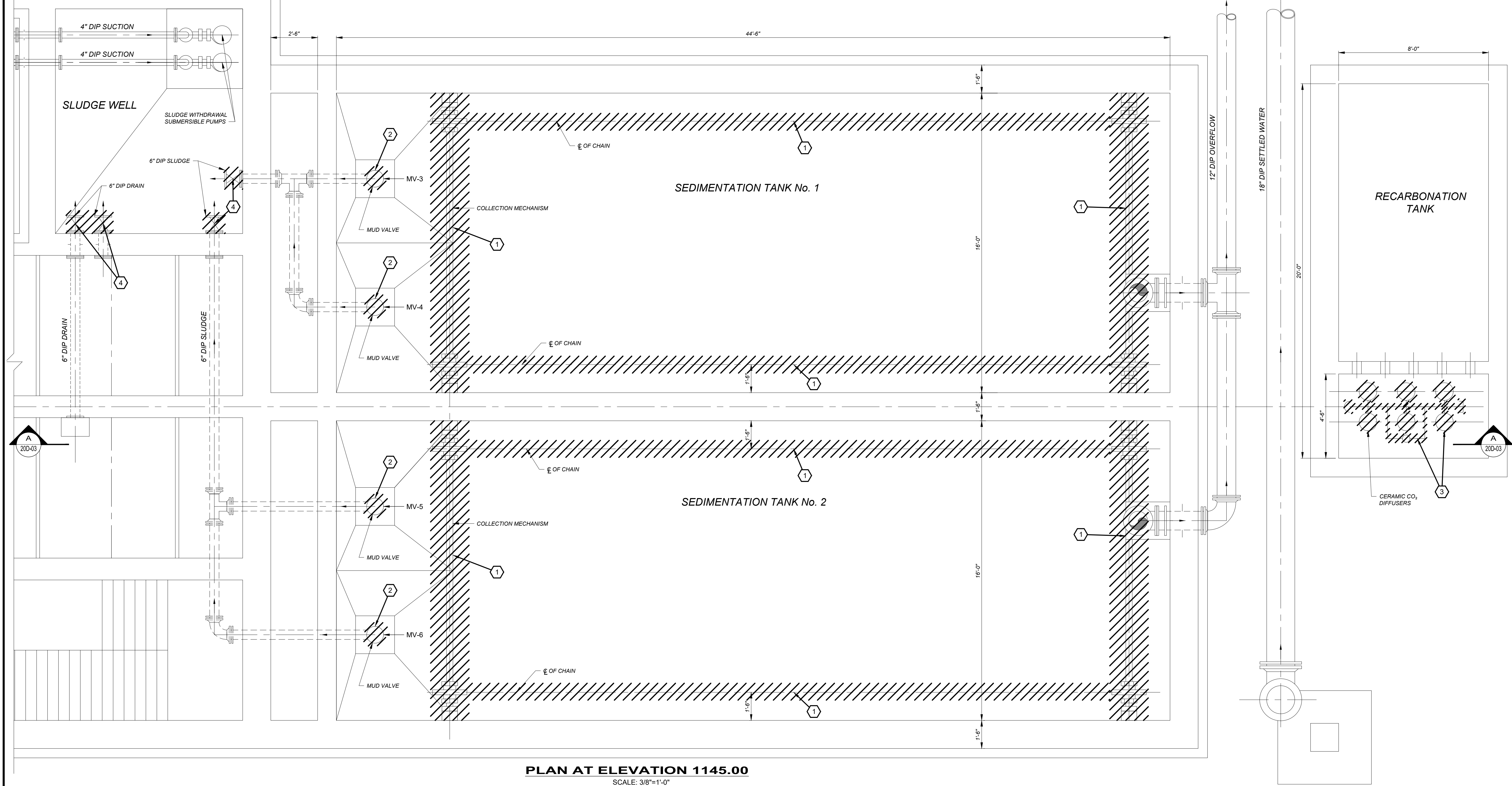
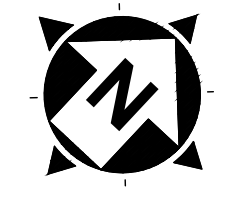
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REVIEW:	
ISSUE DATE:	03/13/2020
SCALE:	3/8"=1'-0"
DESIGNED BY:	JJZ
DRAWN BY:	RE
CHECKED BY:	DEB

**VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB
IMPROVEMENTS**

HARRISON COUNTY
PRETREATMENT - SERIES 20

CADIZ, OHIO
PRETREATMENT DEMOLITION PLAN @ EL. 1156.00

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	20D-01
SHEET	14
OF	46



PLAN AT ELEVATION 1145.00
SCALE: 3/8"=1'-0"

CONSTRUCTION NOTES

1. ONLY ONE SETTLING TANK MAY BE REMOVED FROM SERVICE AT ANY TIME. WORK SHALL NOT COMMENCE ON THE NEXT TANK UNTIL THE PREVIOUS INSTALLATION HAS BEEN RETURNED TO SERVICE, OPERATED SUCCESSFULLY FOR SEVEN (7) CONSECUTIVE DAYS, AND HAS FORMALLY BEEN ACCEPTED BY THE OWNER.
2. TANK SAFETY RAILINGS MAY BE REMOVED AND REINSTALLED AS NECESSARY TO FACILITATE THE WORK. THE SAFETY RAILINGS OR ANOTHER ACCEPTABLE SAFETY BARRIER SHALL BE IN-PLACE DURING PERIODS OF INACTIVITY.
3. ALL TANKS SHALL BE DRAINED AND WASHED DOWN BY THE CONTRACTOR PRIOR TO WORK. COORDINATE TANK DRAINING AND WASH DOWN WATER DRAINING WITH THE OWNER.
4. RECARBONATION TANK WORK CAN ONLY BE CONDUCTED BETWEEN THE 10-12 HOUR OPERATIONAL DAY. THE TANKS HAS TO BE CLEANED AND DISINFECTED BEFORE BEING PLACED BACK INTO SERVICE. REMAINING WORK CAN BE PERFORMED DURING NORMAL PLANT OPERATING HOURS.
5. VERIFY ALL TANKS' DIMENSIONS PRIOR TO ORDERING NEW EQUIPMENT.
6. CONSTRUCTION AND DEMOLITION DEBRIS MUST BE KEPT FROM ENTERING SURROUNDING TANKS AND TRENCHES.

DEMOLITION CODED NOTES:

1. REMOVE COLLECTION MECHANISM INCLUDING DRIVE SPROCKET, DRIVE BASE, CHAIN GUARD, BEARING, LIMIT SWITCH, DRIVEN SPROCKET, HEADSHAFT, HEADSHAFT SPROCKETS, STUB SHAFT, DRIVE CHAIN, CHAIN TIGHTENER, HEADSHAFT BEARING, SET COLLARS, WEAR SHOES, FLIGHTS, WEAR STRIP HARDWARE, ANCHORS AND FASTENERS, CARRYING CHAIN, FILLER BLOCKS, WEAR STRIPS, AND SUPPORTS (TYP. OF 2), AND COMMON DRIVE UNIT.
2. REMOVE MUD VALVES (TYP. OF 4).
3. REMOVE ALL CO₂ DIFFUSERS, CO₂ PIPING, AND ANCHORS.
4. REMOVE 6" PLUG VALVES.

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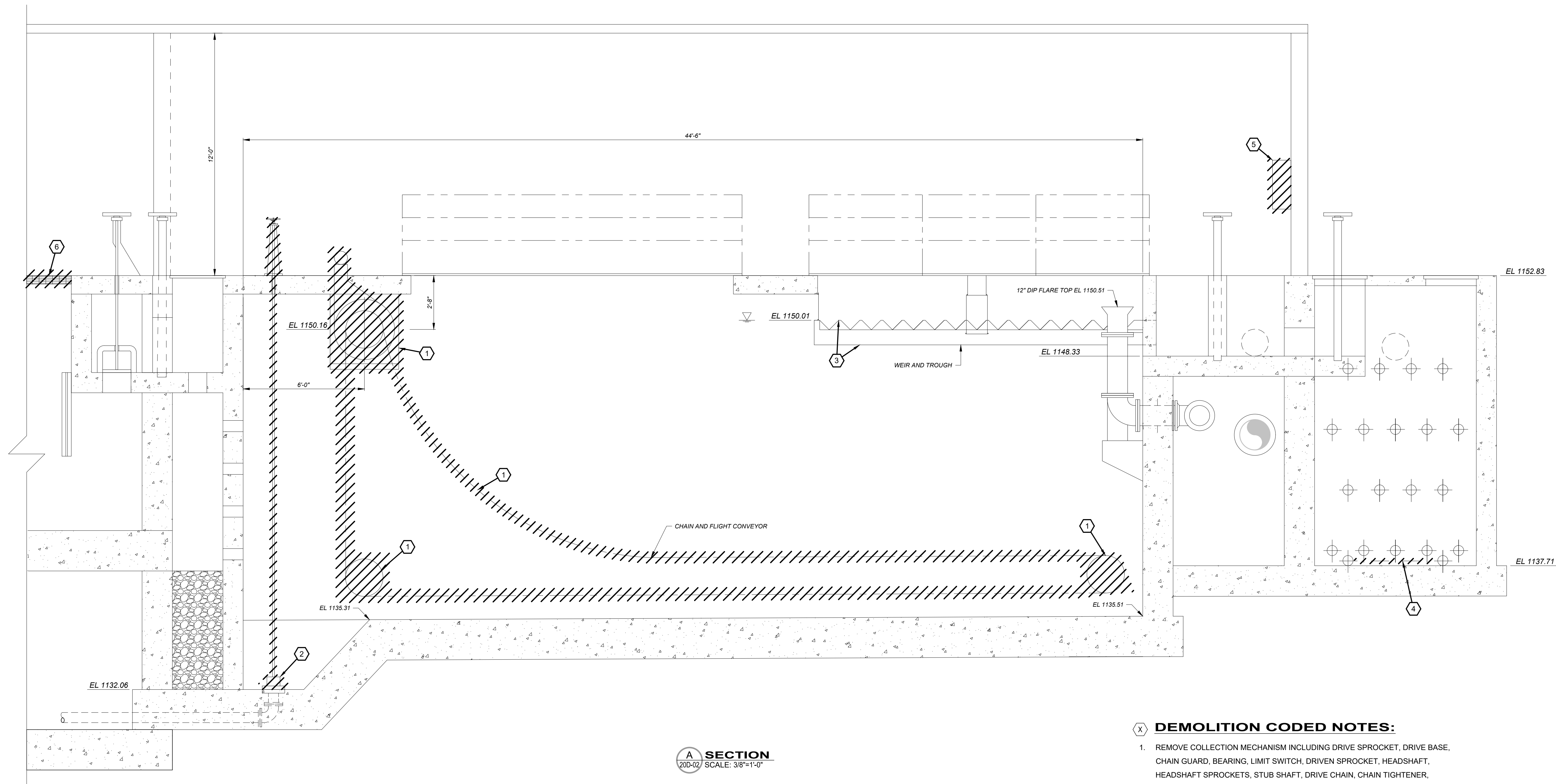
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VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
CADIZ, OHIO
PRETREATMENT - SERIES 20
PRETREATMENT DEMOLITION PLAN @ EL. 1145.00

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	20D-02
SHEET	OF
15	46

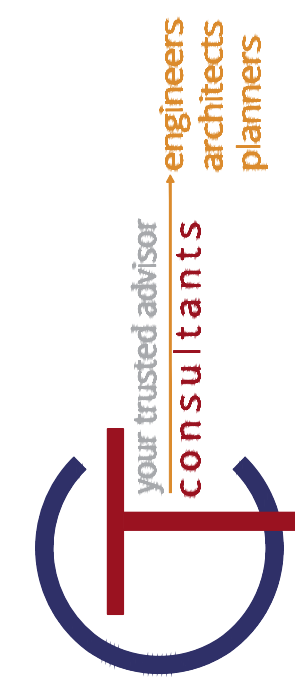


A SECTION
20D-02 SCALE: 3/8"=1'-0"

(X) DEMOLITION CODED NOTES:

1. REMOVE COLLECTION MECHANISM INCLUDING DRIVE SPROCKET, DRIVE BASE, CHAIN GUARD, BEARING, LIMIT SWITCH, DRIVEN SPROCKET, HEADSHAFT, HEADSHAFT SPROCKETS, STUB SHAFT, DRIVE CHAIN, CHAIN TIGHTENER, HEADSHAFT BEARING, SET COLLARS, WEAR SHOES, FLIGHTS, WEAR STRIP HARDWARE, ANCHORS AND FASTENERS, CARRYING CHAIN, FILLER BLOCKS, WEAR STRIPS, AND SUPPORTS (TYP. OF 2), AND COMMON DRIVE UNIT.
2. REMOVE MUD VALVE INCLUDING VALVE STEM, HANDWHEEL AND FLOOR STAND.
3. CLEAN AND REMOVE DEPOSITS FROM EFFLUENT WEIRS AND TROUGHS AND REPORT WEIRS' CONDITION TO ENGINEER.
4. REMOVE ALL CO₂ DIFFUSERS, CO₂ PIPING, AND ANCHORS.
5. REMOVE CO₂ CONTROL PANEL.
6. REMOVE FLOOR GRATING.

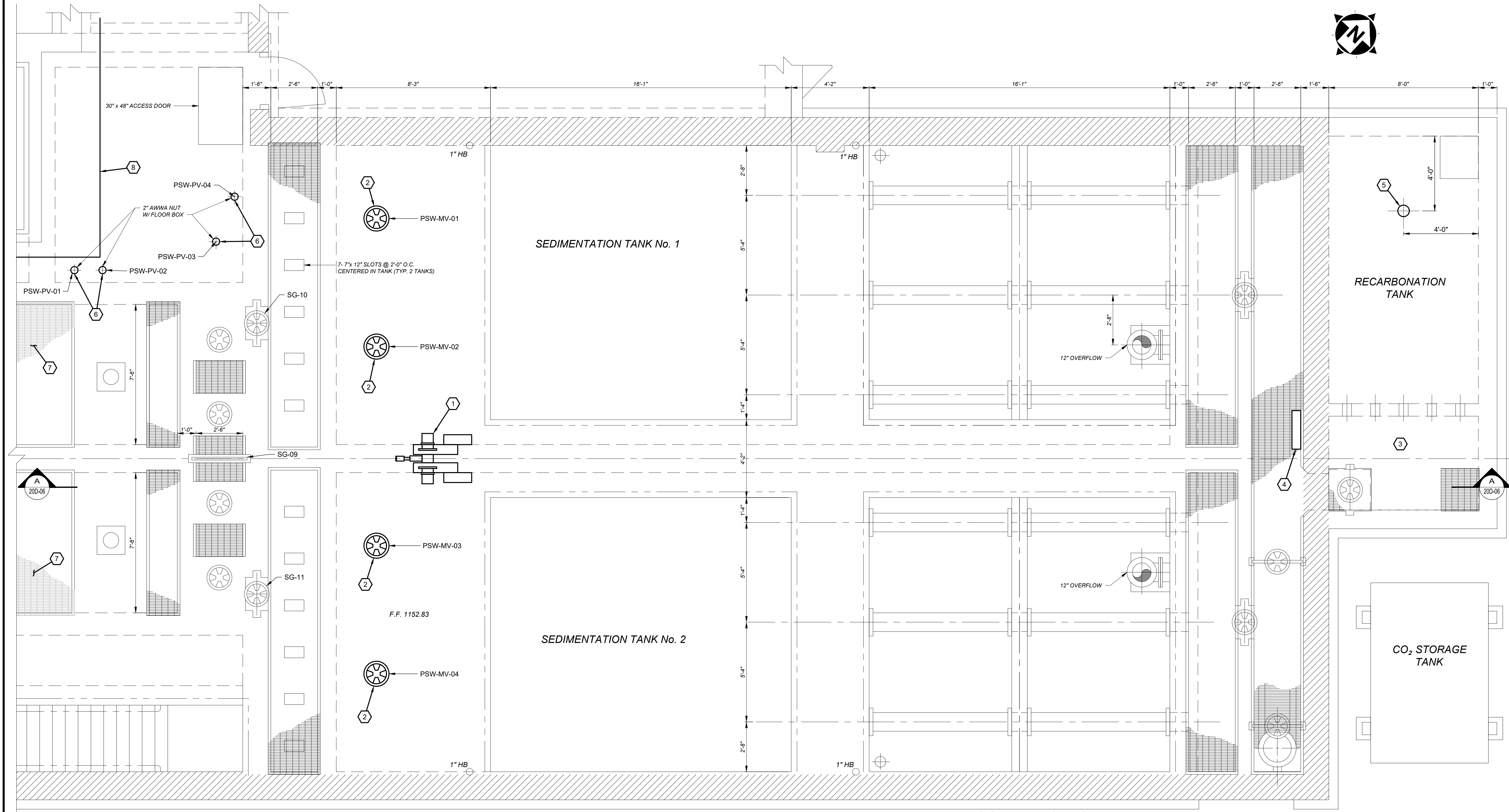
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ISSUED FOR:	REVISIONS
REVIEW	REV. DESCRIPTION
ISSUE DATE: 03/13/2020	DATE
SCALE: AS NOTED	
DESIGNED BY: JZJ	
DRAWN BY: RE	
CHECKED BY: DEB	

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 CADIZ, OHIO
 PRETREATMENT - SERIES 20
 PRETREATMENT DEMOLITION - SECTION A

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	20D-03
SHEET	OF
16	46



PLAN AT ELEVATION 1156.00
SCALE: 3/8"=1'-0"

NOTE: SEE VALVE SCHEDULE, SHEET 00G-03.

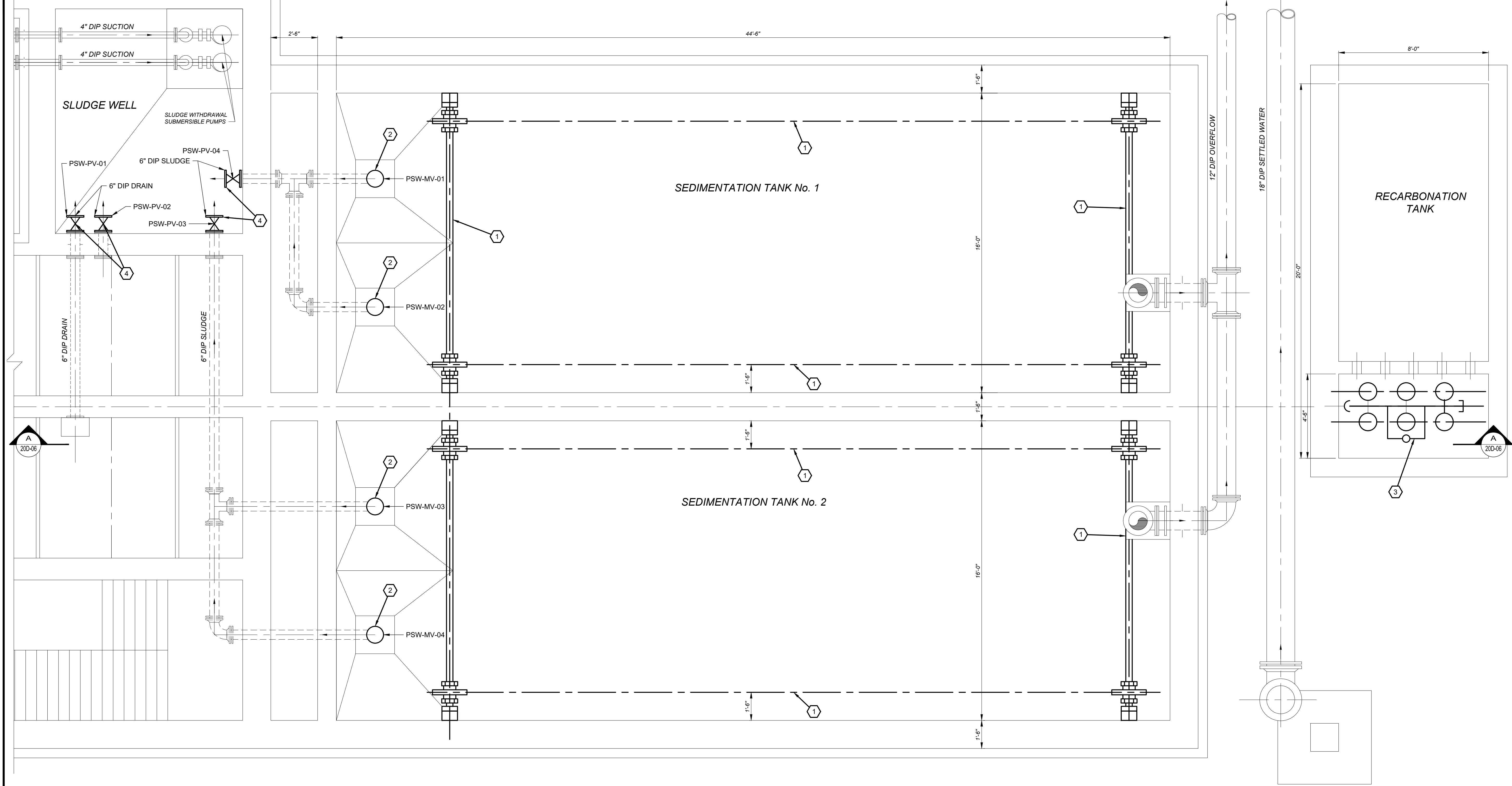
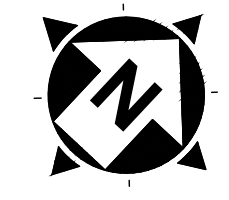
(X) CODED NOTES:

1. NEW COLLECTION MECHANISM INCLUDING DRIVE SPROCKET, DRIVE BASE, CHAIN GUARD, BEARING, LIMIT SWITCH, DRIVEN SPROCKET, HEADSHAFT, HEADSHAFT SPROCKETS, STUB SHAFT, IDLER SPROCKETS, DRIVE CHAIN, CHAIN TIGHTENER, HEADSHAFT BEARING, SET COLLARS, WEAR SHOES, FLIGHTS, WEAR STRIP HARDWARE, ANCHORS AND FASTENERS, CARRYING CHAIN, FILLER BLOCKS, WEAR STRIPS, RETURN RAILS, FLOOR TRACKS, AND SUPPORT (TYP. OF 2), AND COMMON DRIVE UNIT WITH 316 SS COVER AND PLASTIC BASE.
2. NEW MUD VALVE INCLUDING STEM, HANDWHEEL AND FLOOR STAND.
3. NEW CO₂ DIFFUSER, CO₂ PIPING AND ANCHORS. CO₂ FEED SYSTEM CONTROL PANEL SUPPLIER TO DETERMINE NUMBER AND PLACEMENT OF CO₂ DIFFUSERS.
4. NEW AUTOMATED pH CONTROL AND CO₂ FEED SYSTEM CONTROL PANEL WITH TYPE 304 SS PIPING TO AND FROM DIFFUSERS AND CO₂ STORAGE TANK.
5. NEW pH PROBE. PROBE LOCATION TO BE VERIFIED BY pH CONTROL AND CO₂ FEED SYSTEM SUPPLIER.
6. NEW 6" PLUG VALVES.
7. NEW ALUMINUM 7-SGF-4 FLOOR GRATES, OHIO GRATINGS, INC.
8. 1" SCH 80 PVC FROM ALUM POLYMER PUMP TO INJECTION VAULT.

ISSUED FOR:	REVISIONS
REVIEW	REV. 1 DESCRIPTION
ISSUE DATE:	DATE
03/13/2020	
SCALE:	AS NOTED
DESIGNED BY:	JJZ
DRAWN BY:	RE
CHECKED BY:	DEB

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 PRETREATMENTS - SERIES 20
 CADIZ, OHIO
 PRETREATMENT IMPROVEMENTS PLAN @ EL. 1156.00

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	20D-04
SHEET	OF
17	46



PLAN AT ELEVATION 1145.00
SCALE: 3/8"=1'-0"

NOTE: SEE VALVE SCHEDULE, SHEET 00G-03.

(X) CODED NOTES:

1. NEW COLLECTION MECHANISM INCLUDING DRIVE SPROCKET, DRIVE BASE, CHAIN GUARD, BEARING, LIMIT SWITCH, DRIVEN SPROCKET, HEADSHAFT, HEADSHAFT SPROCKETS, STUB SHAFT, IDLER SPROCKETS, DRIVE CHAIN, CHAIN TIGHTENER, HEADSHAFT BEARING, SET COLLARS, WEAR SHOES, FLIGHTS, WEAR STRIP HARDWARE, ANCHORS AND FASTENERS, CARRYING CHAIN, FILLER BLOCKS, WEAR STRIPS, RETURN RAILS, FLOOR TRACKS, AND SUPPORT (TYP. OF 2), AND COMMON DRIVE UNIT WITH 316 SS COVER AND PLASTIC BASE.
2. NEW MUD VALVE INCLUDING STEM, 2" AWWA NUT AND FLOOR BOX.
3. NEW CO₂ DIFFUSERS, CO₂ PIPING, AND ANCHORS. CO₂ FEED SYSTEM CONTROL PANEL SUPPLIER TO DETERMINE NUMBER AND PLACEMENT OF CO₂ DIFFUSERS.
4. NEW 6" PLUG VALVES.

BID

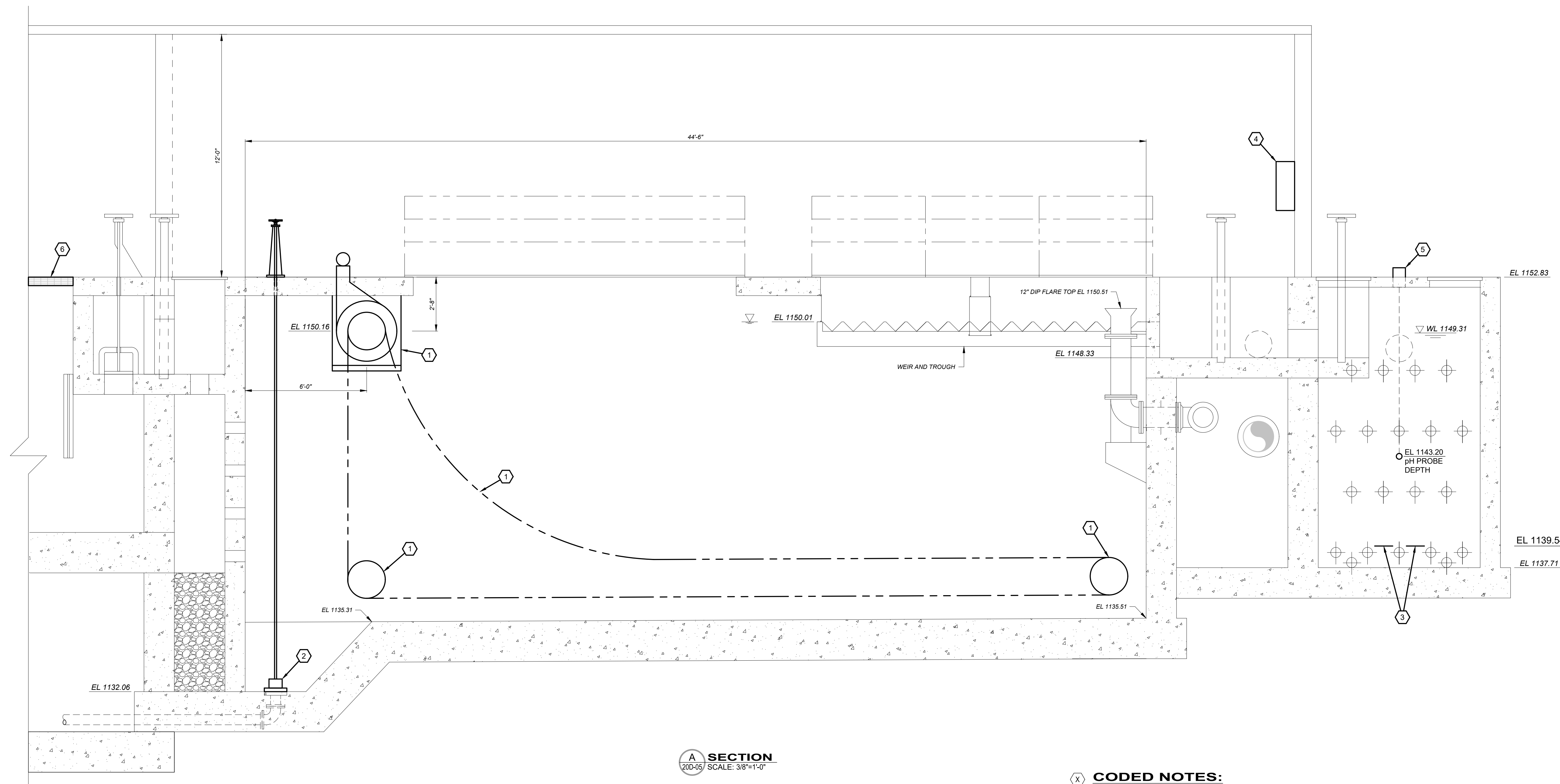
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REV.	DESCRIPTION	DATE

ISSUED FOR:	REVIEW:	ISSUE DATE:	SCALE:	AS NOTED	DESIGNED BY:	JAZ	RE:	DEB
		03/13/2020						

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
CADIZ, OHIO
PRETREATMENT - SERIES 20
PRETREATMENT IMPROVEMENTS PLAN @ EL. 1145.00

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	20D-05
SHEET	OF
18	46



A SECTION
20D-06 SCALE: 3/8"=1'-0"

CODED NOTES:

1. NEW COLLECTION MECHANISM INCLUDING DRIVE SPROCKET, DRIVE BASE, CHAIN GUARD, BEARING, LIMIT SWITCH, DRIVEN SPROCKET, HEADSHAFT, HEADSHAFT SPROCKETS, STUB SHAFT, IDLER SPROCKETS, DRIVE CHAIN, CHAIN TIGHTENER, HEADSHAFT BEARING, SET COLLARS, WEAR SHOES, FLIGHTS, WEAR STRIP HARDWARE, ANCHORS AND FASTENERS, CARRYING CHAIN, FILLER BLOCKS, WEAR STRIPS, RETURN RAILS, FLOOR TRACKS, AND SUPPORT (TYP. OF 2), AND COMMON DRIVE UNIT WITH 316 SS COVER AND PLASTIC BASE.
2. NEW MUD VALVE INCLUDING STEM, HANDWHEEL AND FLOOR STAND.
3. NEW CO₂ DIFFUSER, CO₂ PIPING AND ANCHORS. CO₂ FEED SYSTEM CONTROL PANEL SUPPLIER TO DETERMINE NUMBER AND PLACEMENT OF CO₂ DIFFUSERS.
4. NEW AUTOMATED pH CONTROL AND CO₂ FEED SYSTEM CONTROL PANEL WITH PIPING TO AND FROM DIFFUSERS AND CO₂ STORAGE TANK.
5. NEW pH PROBE. PROBE LOCATION TO BE VERIFIED BY pH CONTROL AND CO₂ FEED SYSTEM SUPPLIER.
6. NEW ALUMINUM 7-SGF-4 FLOOR GRATES, OHIO GRATINGS, INC.

GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS.
2. ALL METAL BELOW TANK RIMS TO BE 316 SS.
3. CO₂ DIFFUSERS MUST BE PLACED AT LEAST 7.50' BELOW WATER LEVEL.

BID

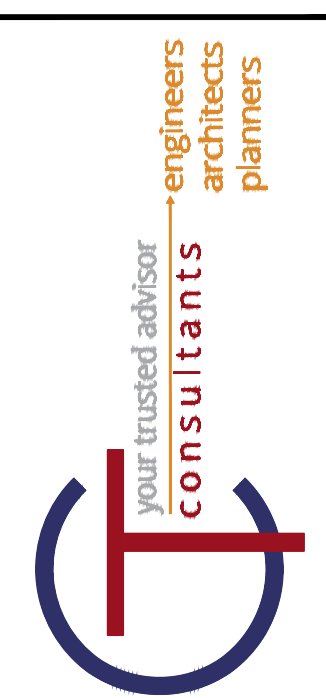


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REVIEW	REV. DESCRIPTION
ISSUE DATE: 03/13/2020	DATE
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DESIGNED BY: JZJ	
DRAWN BY: RE	
CHECKED BY: DEB	

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY PRETREATMENTS - SERIES 20
CADIZ, OHIO
PRETREATMENT IMPROVEMENTS PLAN - SECTION A

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	20D-06
SHEET	OF
19	46

BID



REV	DESCRIPTION	DATE

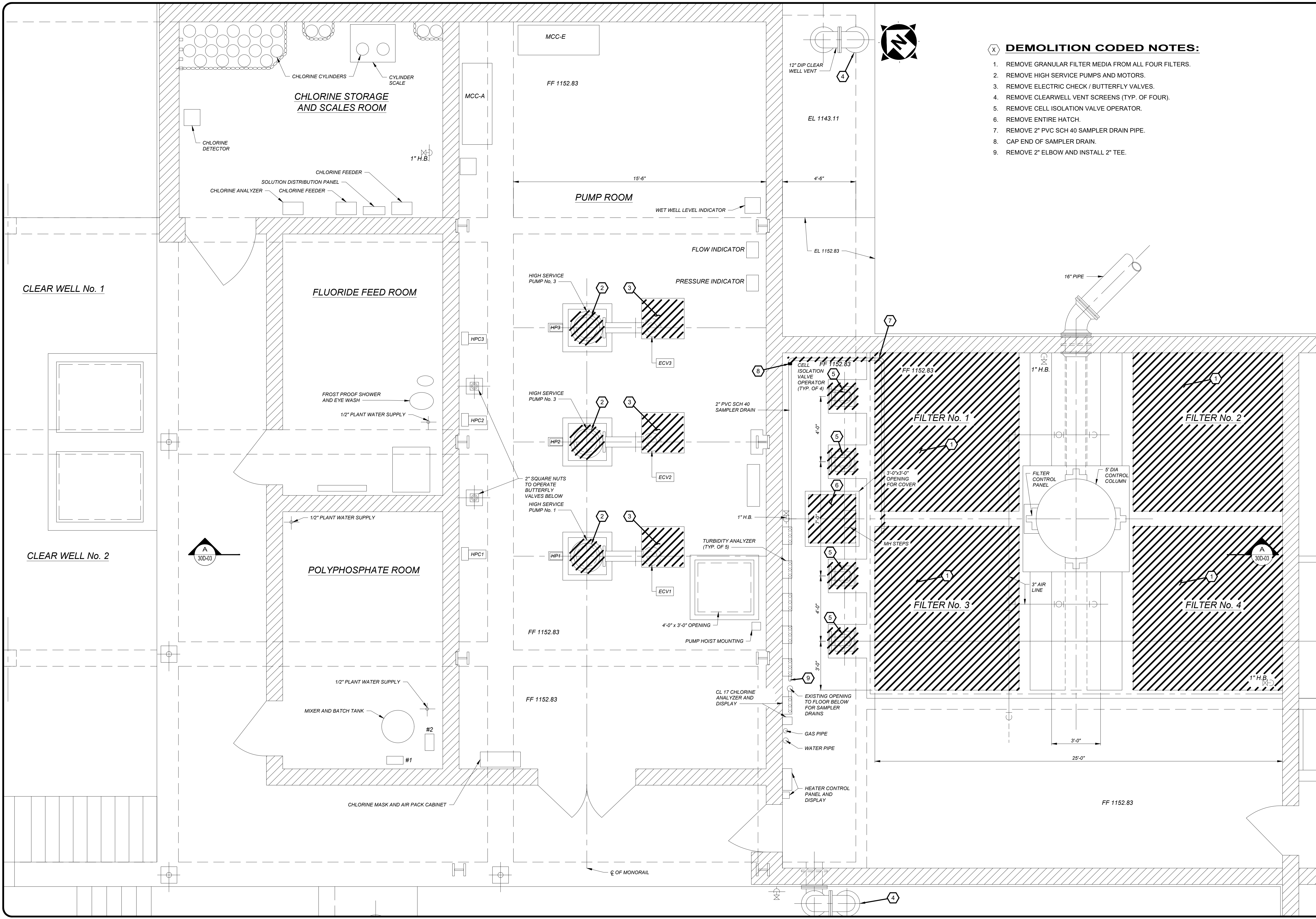
ISSUED FOR: REVIEW
 REVIEW DATE: 03/13/2020
 SCALE: 3/8" = 1'-0"
 DESIGNED BY: JZJ
 DRAWN BY: RE
 CHECKED BY: DEB

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER AND CLEAR WELL DEMOLITION PLAN AT EL 1159.00

PROJECT NO. 190599
 DISCIPLINE DEMOLITION
 SHEET NAME 30D-01
 SHEET 20 OF 46

DEMOLITION CODED NOTES:

1. REMOVE GRANULAR FILTER MEDIA FROM ALL FOUR FILTERS.
2. REMOVE HIGH SERVICE PUMPS AND MOTORS.
3. REMOVE ELECTRIC CHECK / BUTTERFLY VALVES.
4. REMOVE CLEARWELL VENT SCREENS (TYP. OF FOUR).
5. REMOVE CELL ISOLATION VALVE OPERATOR.
6. REMOVE ENTIRE HATCH.
7. REMOVE 2" PVC SCH 40 SAMPLER DRAIN PIPE.
8. CAP END OF SAMPLER DRAIN.
9. REMOVE 2" ELBOW AND INSTALL 2" TEE.

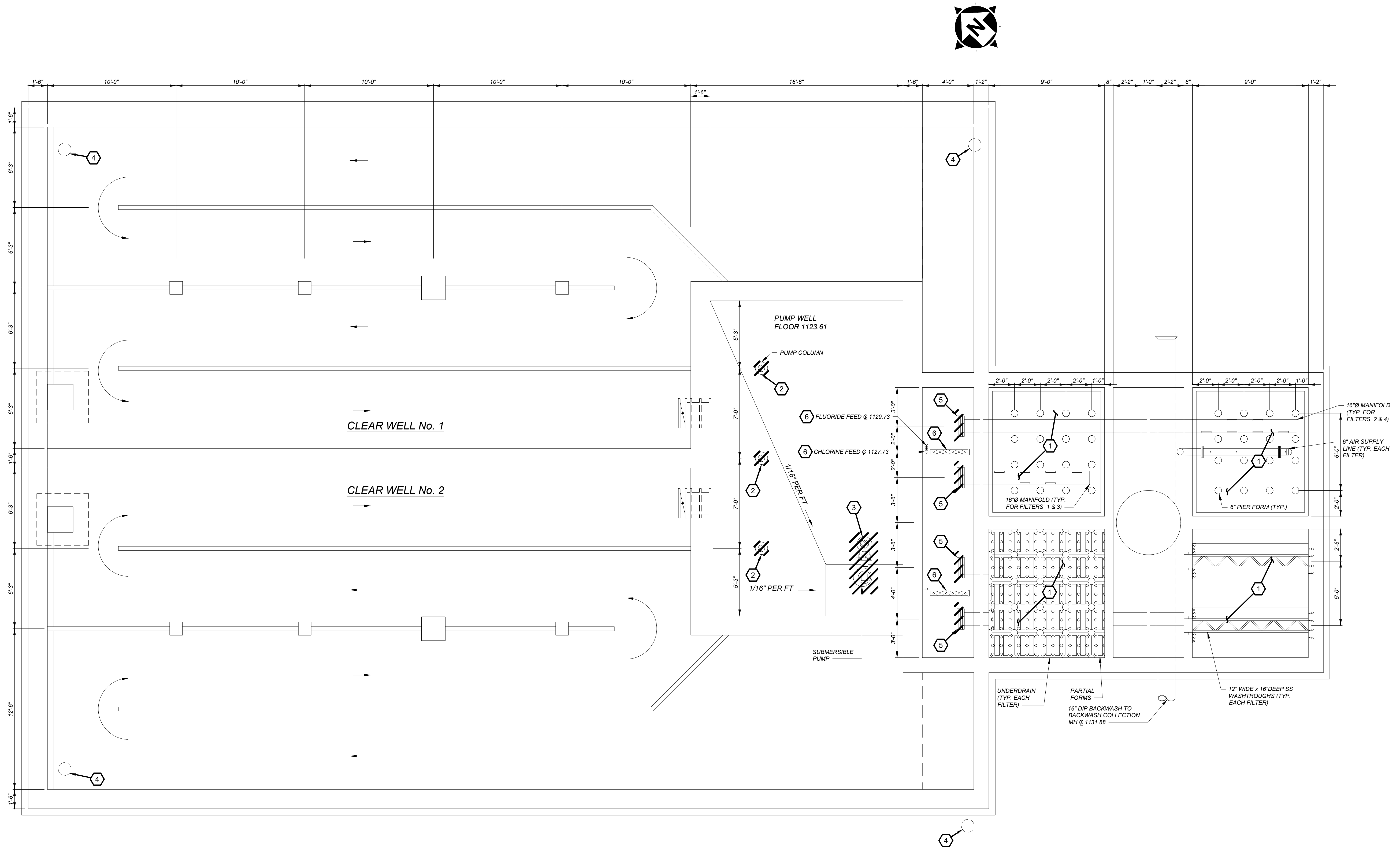


REV.	DESCRIPTION	DATE

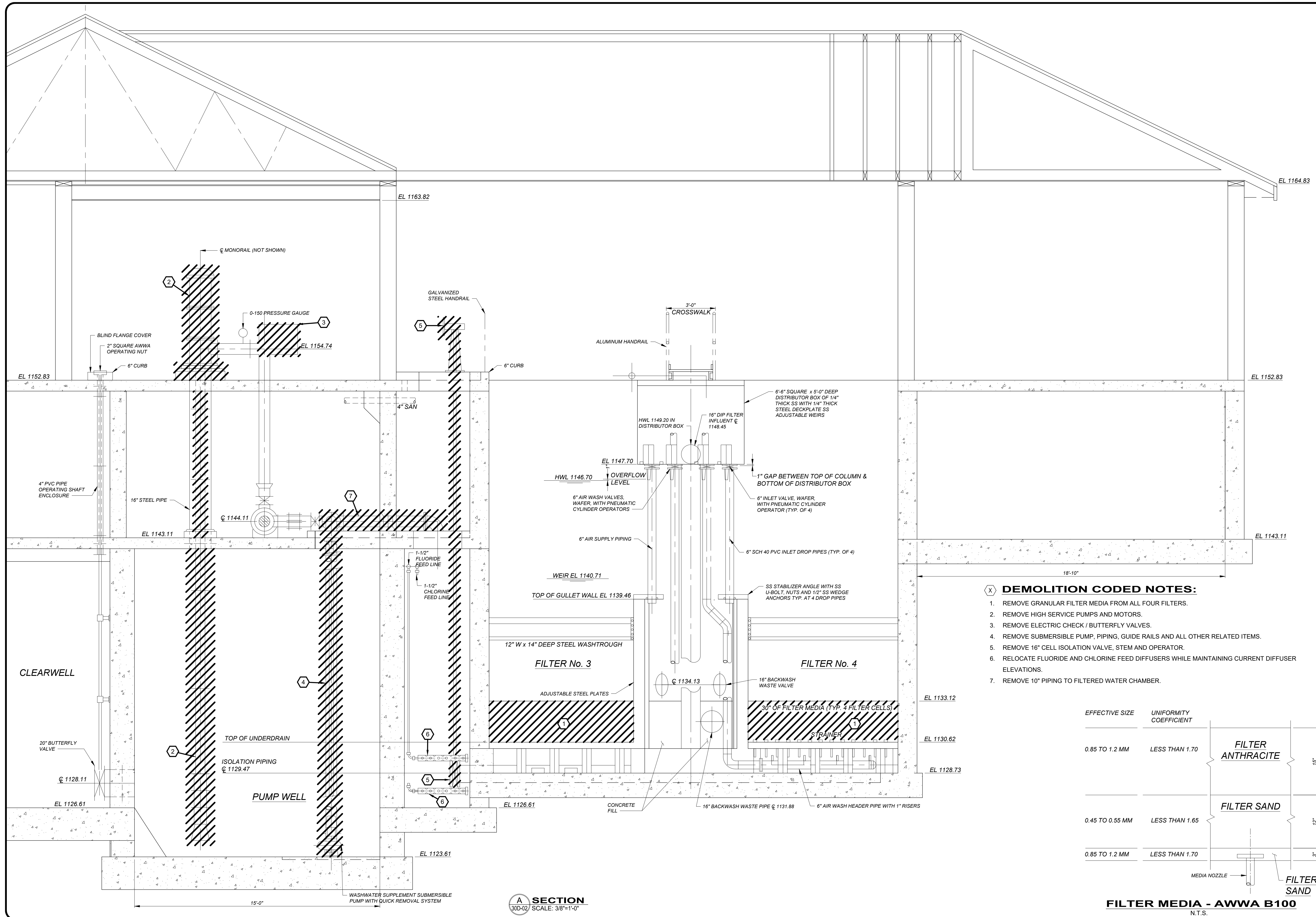
ISSUED FOR:	REVIEW
ISSUE DATE:	03/13/2020
SCALE:	1/4" = 1'-0"
DESIGNED BY:	JJZ
DRAWN BY:	RE
CHECKED BY:	DEB

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
FILTER AND CLEAR WELL DEMOLITION PLAN AT EL 1138.00

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	30D-02
SHEET	21
OF	46



- (X) DEMOLITION CODED NOTES:**
1. REMOVE GRANULAR FILTER MEDIA FROM ALL FOUR FILTERS.
 2. REMOVE HIGH SERVICE PUMPS AND MOTORS.
 3. REMOVE SUBMERSIBLE PUMP, PIPING, GUIDE RAILS AND ALL OTHER RELATED ITEMS.
 4. REMOVE CLEAR WELL VENT SCREENS (TYP. OF FOUR).
 5. REMOVE 16" CELL ISOLATION VALVE, STEM AND OPERATOR.
 6. RELOCATE FLUORIDE AND CHLORINE FEED DIFFUSERS WHILE MAINTAINING CURRENT DIFFUSER ELEVATIONS.



- (X) DEMOLITION CODED NOTES:**
1. REMOVE GRANULAR FILTER MEDIA FROM ALL FOUR FILTERS.
 2. REMOVE HIGH SERVICE PUMPS AND MOTORS.
 3. REMOVE ELECTRIC CHECK / BUTTERFLY VALVES.
 4. REMOVE SUBMERSIBLE PUMP, PIPING, GUIDE RAILS AND ALL OTHER RELATED ITEMS.
 5. REMOVE 16" CELL ISOLATION VALVE, STEM AND OPERATOR.
 6. RELOCATE FLUORIDE AND CHLORINE FEED DIFFUSERS WHILE MAINTAINING CURRENT DIFFUSER ELEVATIONS.
 7. REMOVE 10" PIPING TO FILTERED WATER CHAMBER.

EFFECTIVE SIZE	UNIFORMITY COEFFICIENT		
0.85 TO 1.2 MM	LESS THAN 1.70	FILTER ANTHRACITE	15"
0.45 TO 0.55 MM	LESS THAN 1.65	FILTER SAND	12"
0.85 TO 1.2 MM	LESS THAN 1.70	FILTER SAND	5"

MEDIA NOZZLE → FILTER SAND

A SECTION
30D-02 SCALE: 3/8"=1'-0"

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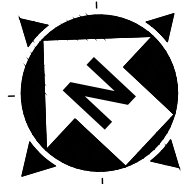
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REV.	DESCRIPTION	DATE

ISSUED FOR:	REVIEW:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
VILLAGE OF CADIZ, OHIO		03/13/2020	3/8" = 1'-0"	JDZ	RE	DEB

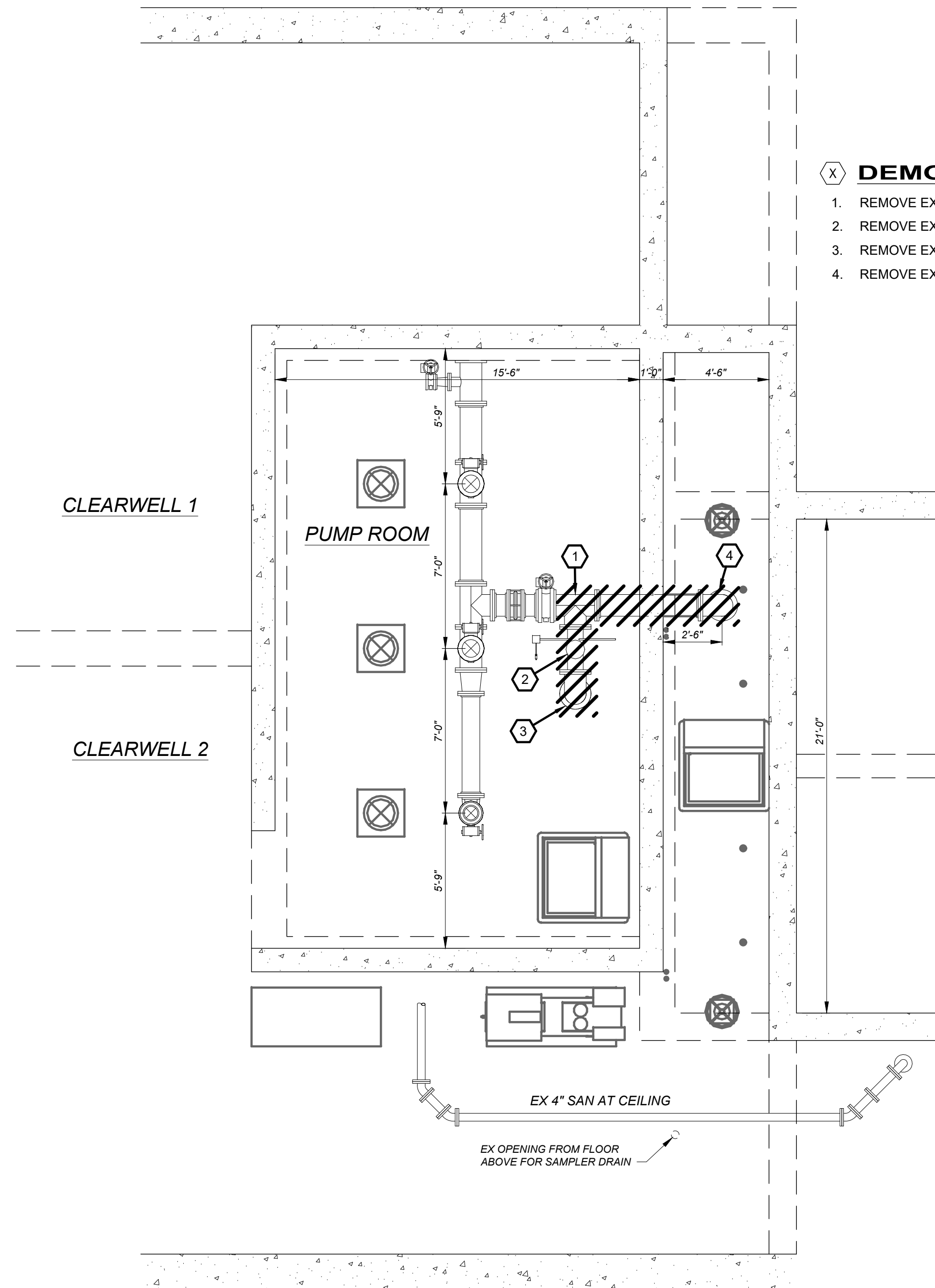
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
CADIZ, OHIO
FILTER BUILDING - 30 SERIES
FILTER & CLEAR WELL DEMOLITION SECTION

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	30D-03
SHEET	22
OF	46

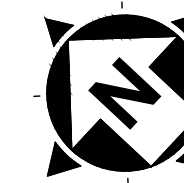


DEMOLITION CODED NOTES:

1. REMOVE EXISTING 10"x8" TEE.
2. REMOVE EXISTING 8" CHECK VALVE.
3. REMOVE EXISTING 8" PIPING TO PUMP.
4. REMOVE EXISTING 10" PIPING TO FILTERED WATER CHAMBER.

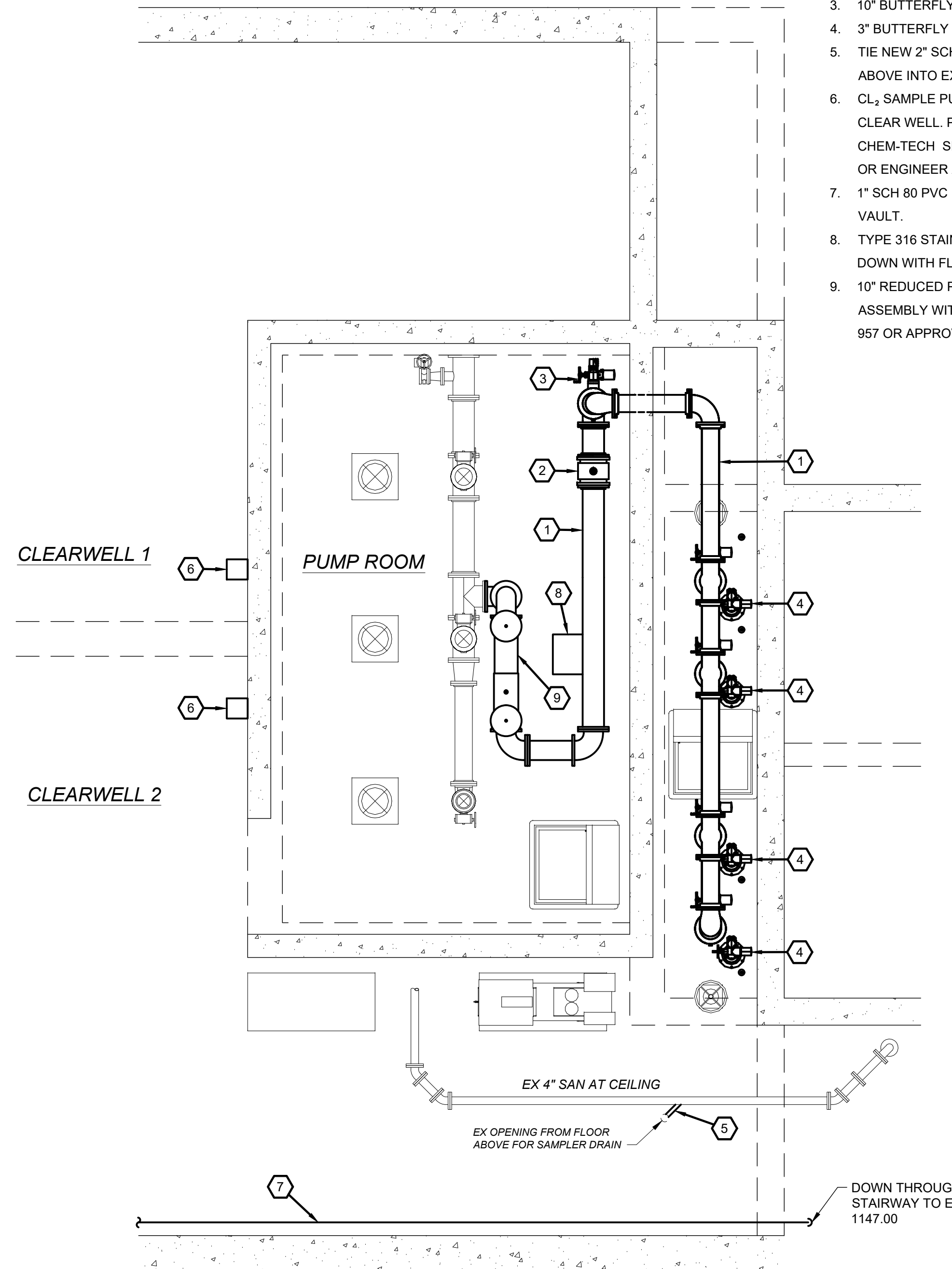


DEMOLITION PLAN AT ELEV. 1145.00
SCALE: 1/4" = 1'-0"



CODED NOTES:

1. 10" DIP BACKWASH SUPPLY PIPING.
2. 10" FLOW METER.
3. 10" BUTTERFLY VALVE WITH MODULATING ACTUATOR.
4. 3" BUTTERFLY VALVE ACTUATORS AND STAND.
5. TIE NEW 2" SCH 40 PVC SAMPLER DRAIN PIPE FROM FLOOR ABOVE INTO EXISTING 4" SANITARY AT CEILING.
6. CL₂ SAMPLE PUMP. TWO (2) REQUIRED, ONE FOR EACH CLEAR WELL. PUMPS SHELL BE PULSAFEEDER CHEM-TECH SERIES 150 RATED FOR UP TO 100 GPD, 60 PSI OR ENGINEER APPROVED EQUIVALENT.
7. 1" SCH 80 PVC FROM ALUM POLYMER PUMP TO INJECTION VAULT.
8. TYPE 316 STAINLESS STEEL CHECKERED PLATE BOLTED DOWN WITH FLUSH 316 STAINLESS STEEL SCREWS.
9. 10" REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY WITH TWO 10" GATE VALVES, WATTS SERIES 957 OR APPROVED EQUAL.



PROCESS PLAN AT ELEV. 1145.00
SCALE: 1/4" = 1'-0"

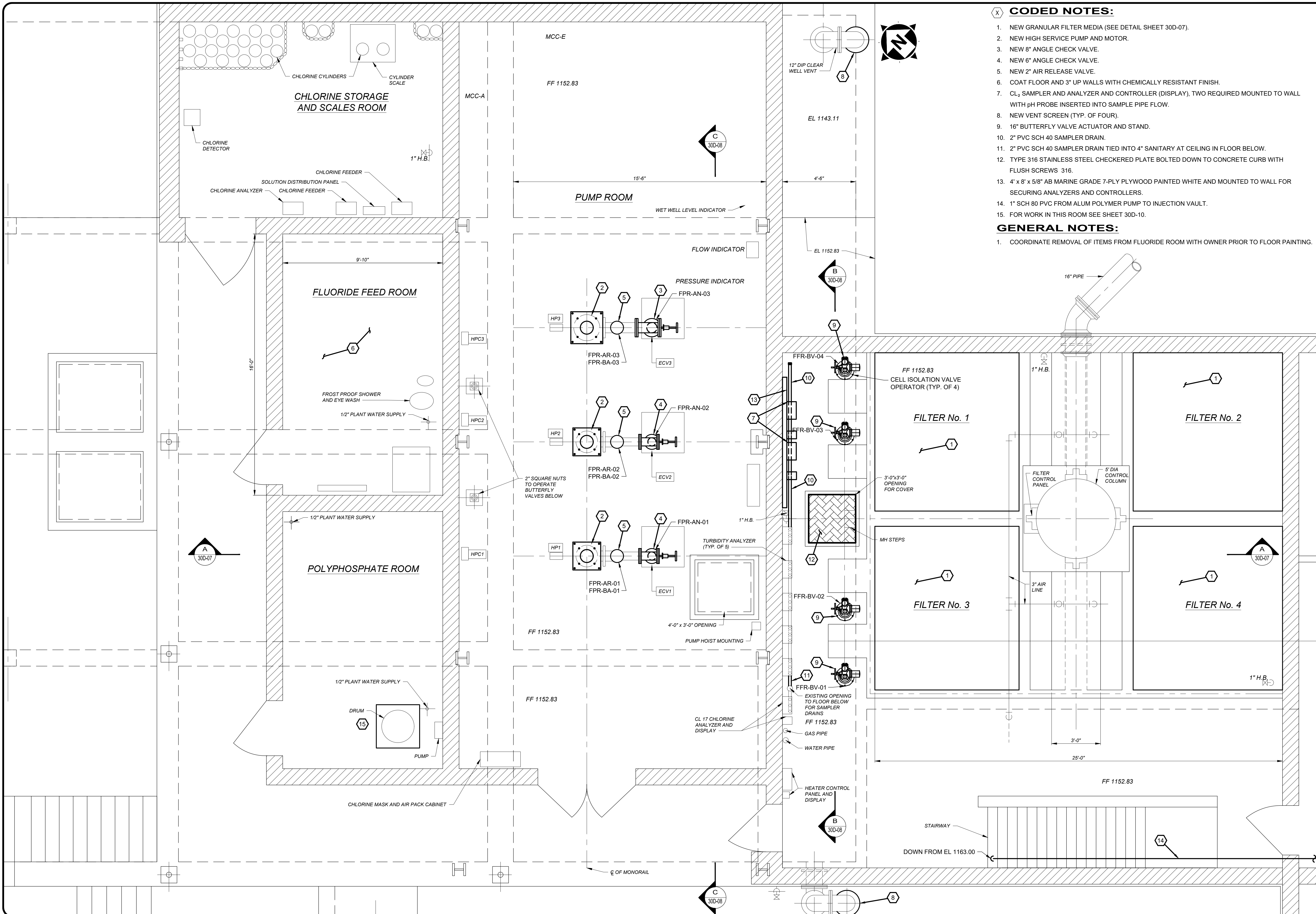
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REVIEW	DATE
ISSUE DATE: 03/13/2020	
SCALE: 1/4" = 1'-0"	
DESIGNED BY: JZJ	
DRAWN BY: ACD	
CHECKED BY: DEB	

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER AND CLEAR WELL DEMOLITION AND PLAN AT EL. 1145.00

PROJECT NO.	190599
DISCIPLINE	DEMOLITION
SHEET NAME	30D-04
SHEET	23
OF	46



- CODED NOTES:**
1. NEW GRANULAR FILTER MEDIA (SEE DETAIL SHEET 30D-07).
 2. NEW HIGH SERVICE PUMP AND MOTOR.
 3. NEW 8" ANGLE CHECK VALVE.
 4. NEW 6" ANGLE CHECK VALVE.
 5. NEW 2" AIR RELEASE VALVE.
 6. COAT FLOOR AND 3" UP WALLS WITH CHEMICALLY RESISTANT FINISH.
 7. CL₂ SAMPLER AND ANALYZER AND CONTROLLER (DISPLAY), TWO REQUIRED MOUNTED TO WALL WITH pH PROBE INSERTED INTO SAMPLE PIPE FLOW.
 8. NEW VENT SCREEN (TYP. OF FOUR).
 9. 16" BUTTERFLY VALVE ACTUATOR AND STAND.
 10. 2" PVC SCH 40 SAMPLER DRAIN.
 11. 2" PVC SCH 40 SAMPLER DRAIN TIED INTO 4" SANITARY AT CEILING IN FLOOR BELOW.
 12. TYPE 316 STAINLESS STEEL CHECKERED PLATE BOLTED DOWN TO CONCRETE CURB WITH FLUSH SCREWS 316.
 13. 4' x 8' x 5/8" AB MARINE GRADE 7-PLY PLYWOOD PAINTED WHITE AND MOUNTED TO WALL FOR SECURING ANALYZERS AND CONTROLLERS.
 14. 1" SCH 80 PVC FROM ALUM POLYMER PUMP TO INJECTION VAULT.
 15. FOR WORK IN THIS ROOM SEE SHEET 30D-10.
- GENERAL NOTES:**
1. COORDINATE REMOVAL OF ITEMS FROM FLUORIDE ROOM WITH OWNER PRIOR TO FLOOR PAINTING.

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REV#	DESCRIPTION	DATE

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		03/13/2020	3/8" = 1'-0"	JJZ	RE	DEB

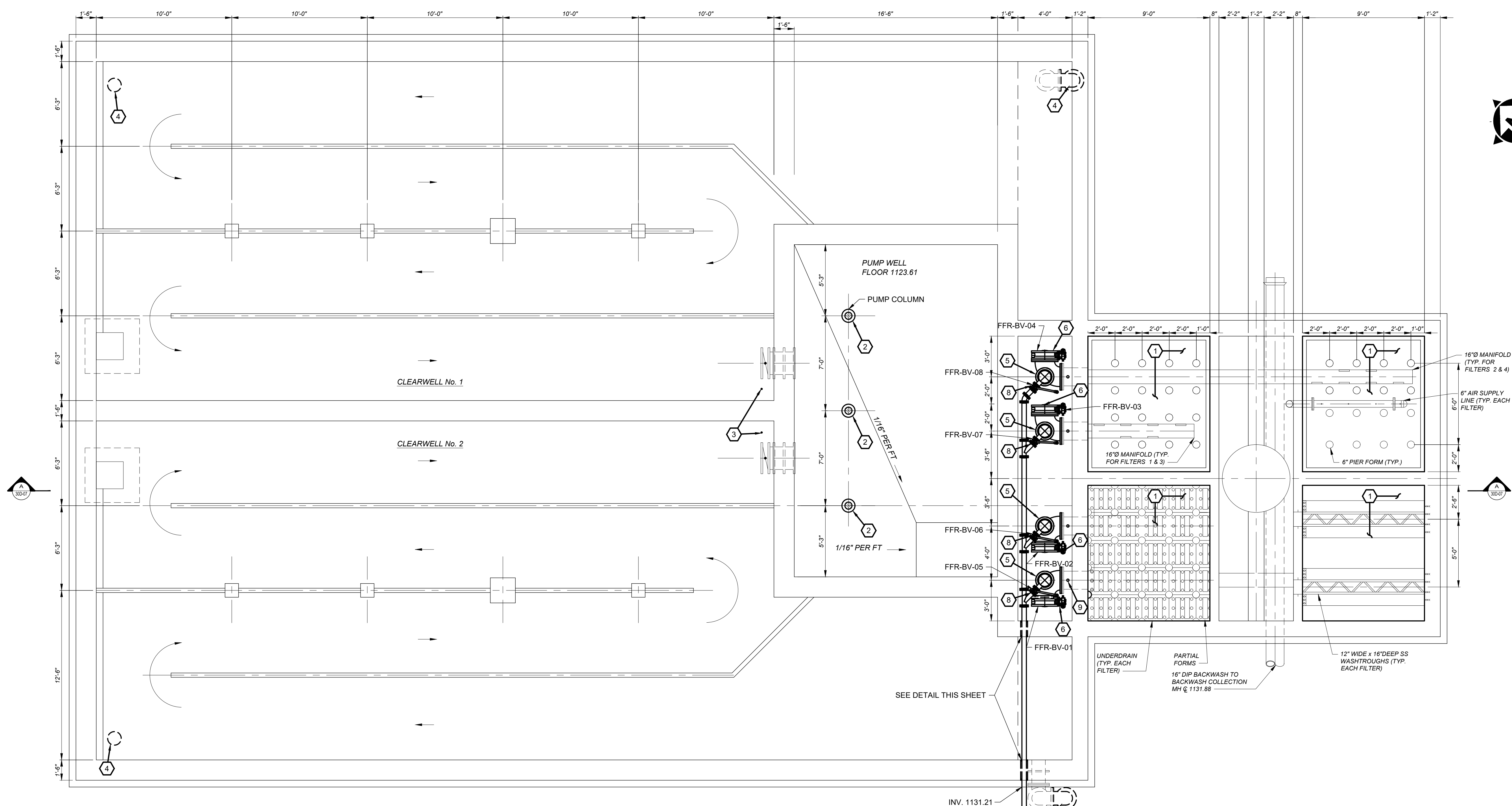
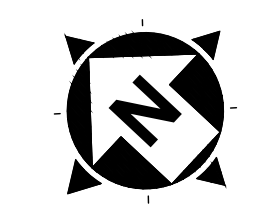
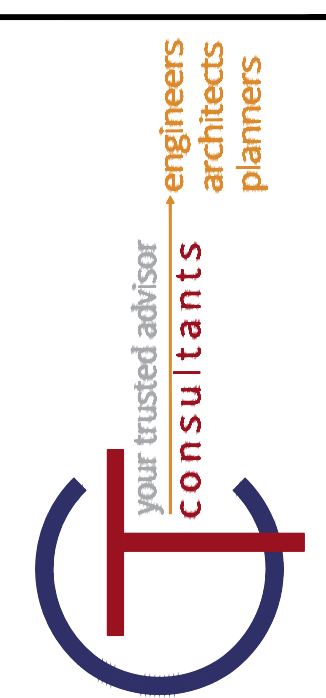
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB
IMPROVEMENTS

HARRISON COUNTY
FILTER BUILDING - 30 SERIES
CADIZ, OHIO

FILTER AND CLEAR WELL NEW PROCESS PLAN AT EL. 1159.00

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	30D-05
SHEET	24
OF	46

BID

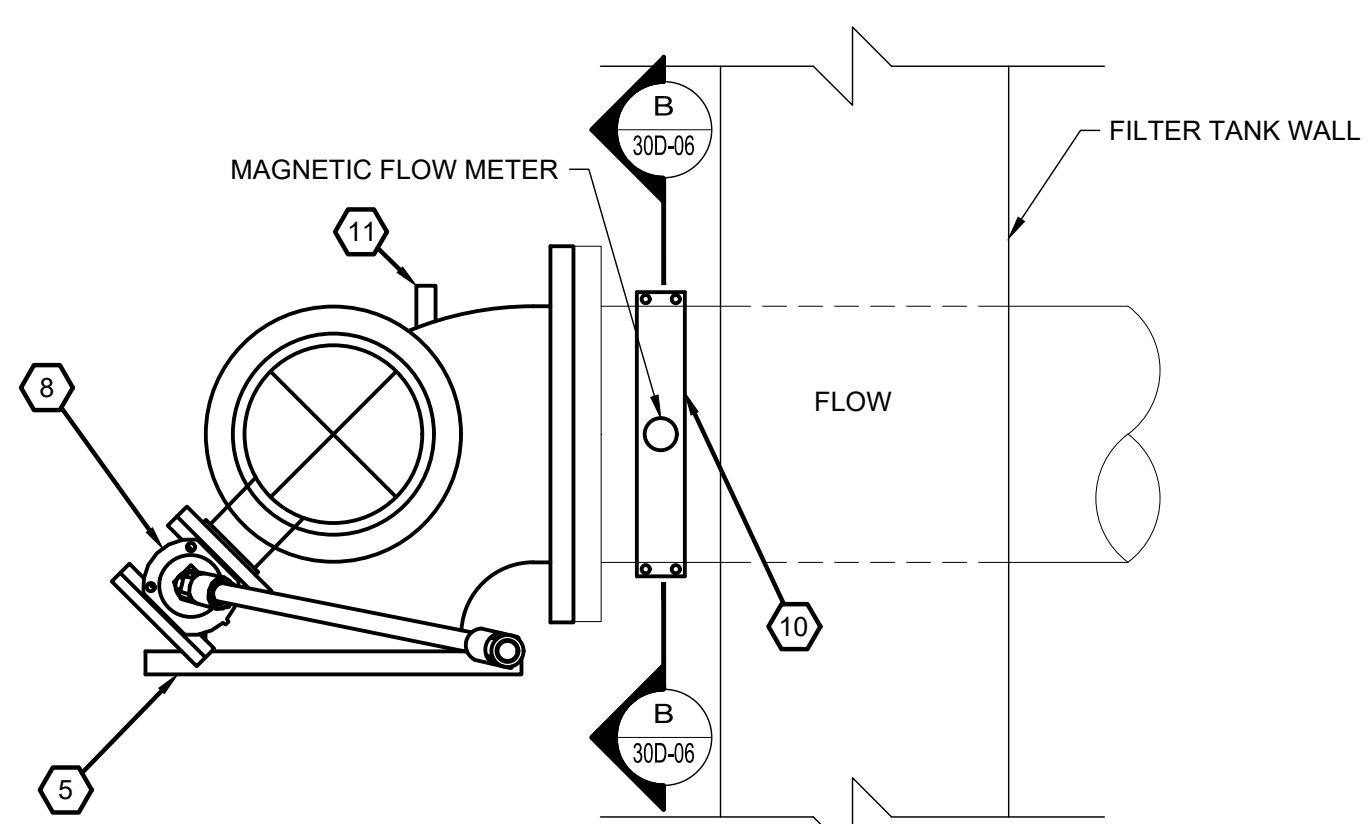


ISSUED FOR:	REVISIONS
REVIEW	REV. DESCRIPTION
ISSUE DATE:	DATE
03/13/2020	
SCALE: 1/4" = 1'-0"	
DESIGNED BY: JZJ	
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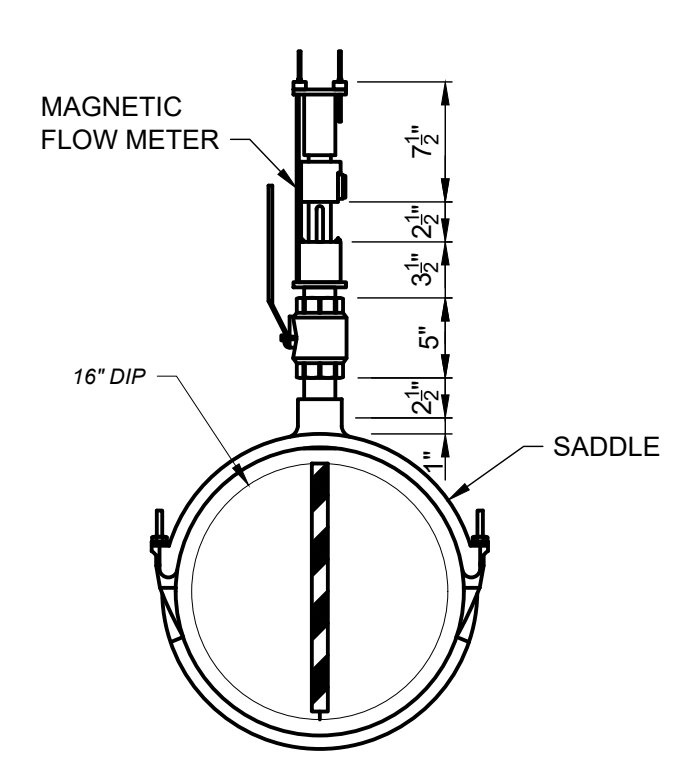
VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER AND CLEAR WELL NEW PROCESS PLAN AT EL. 1138.00

PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	30D-06
SHEET	OF
25	46

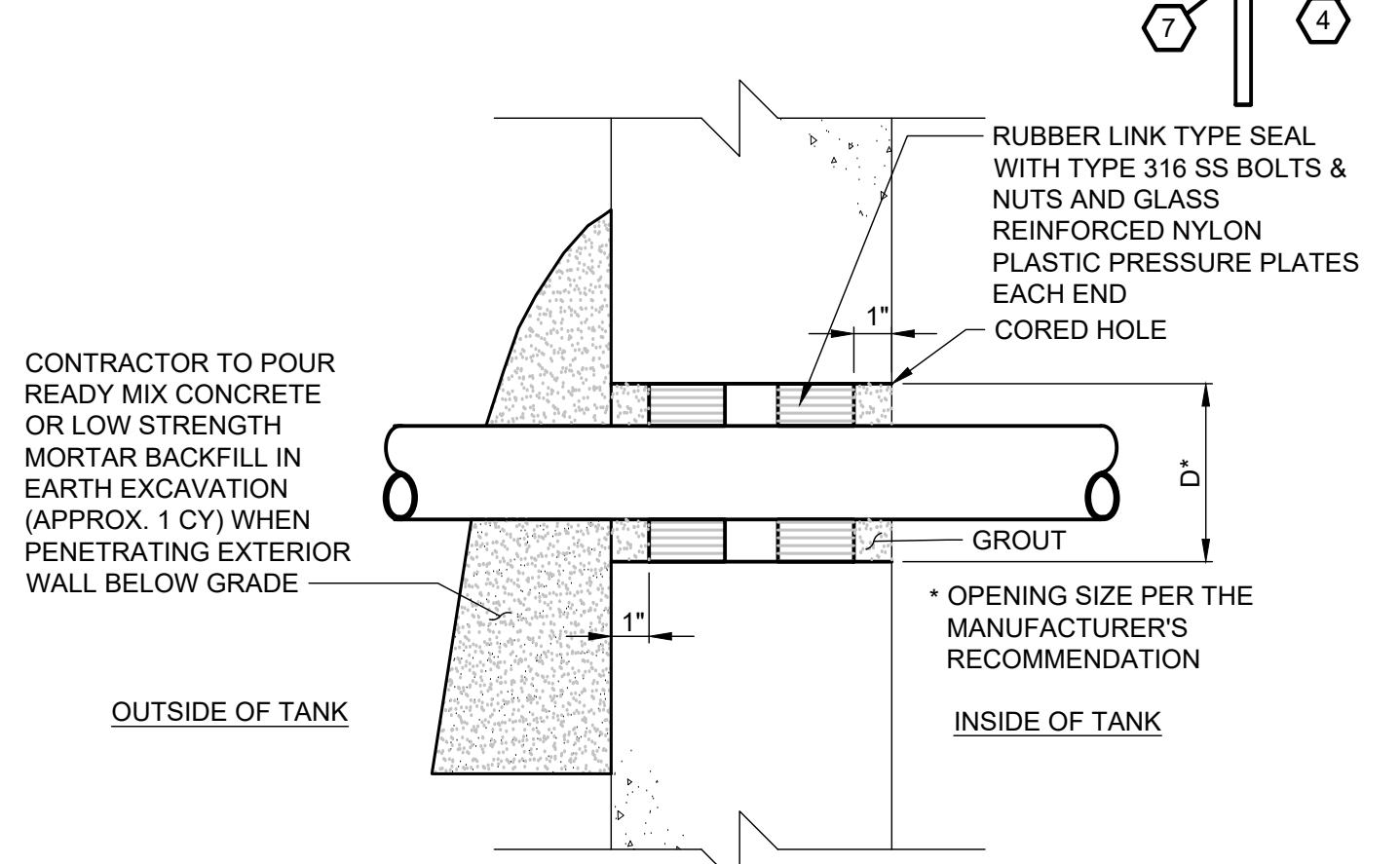
- CODED NOTES:**
1. NEW GRANULAR FILTER MEDIA .
 2. NEW HIGH SERVICE PUMPS AND MOTORS, ABOVE AND BELOW.
 3. 1" SCH 40 PVC CL₂ SAMPLE LINES.
 4. NEW VENT SCREEN (TYP. OF FOUR).
 5. 16" BEND WITH 10" SIDE OUTLET AND BASE.
 6. 16" BUTTERFLY VALVE.
 7. 3" DIP FILTER-TO-WASTE PIPING. TIE INTO NEW LIFT STATION (SEE SHEET 01C-01).
 8. 3" BUTTERFLY VALVE.
 9. FULL PROFILE SUBMERSIBLE INSERTION MAGNETIC FLOW METER (TYP. OF FOUR).
 10. RELOCATE EXISTING TURBIDITY SAMPLE TUBE TO NEW THREADED TAP (TYP. 4).
 11. 1" THREADED TAP (TYP. 4) TO RELOCATE EXISTING TURBIDITY SAMPLE TUBE.



PLAN VIEW
INSERTION FLOW METER DETAIL
 N.T.S.



SECTION B



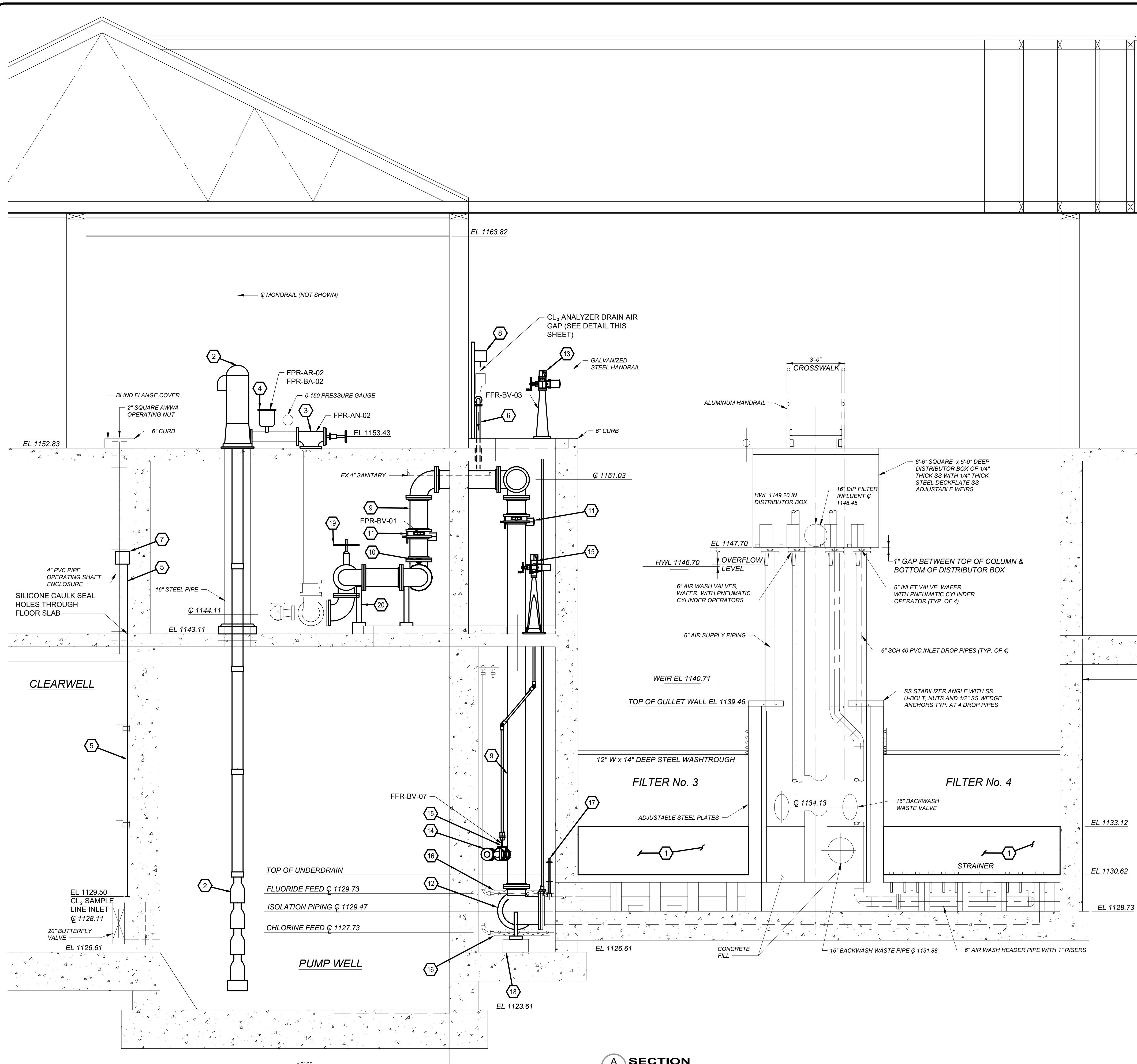
PIPE THRU CONCRETE WITH COMPRESSIBLE RUBBER LINK TYPE SEAL
 N.T.S.

REV.	DESCRIPTION	DATE

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		03/13/2020	3/8" = 1'-0"	JJZ	RE	DEB

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER AND CLEAR WELL NEW PROCESS - SECTIONS 1

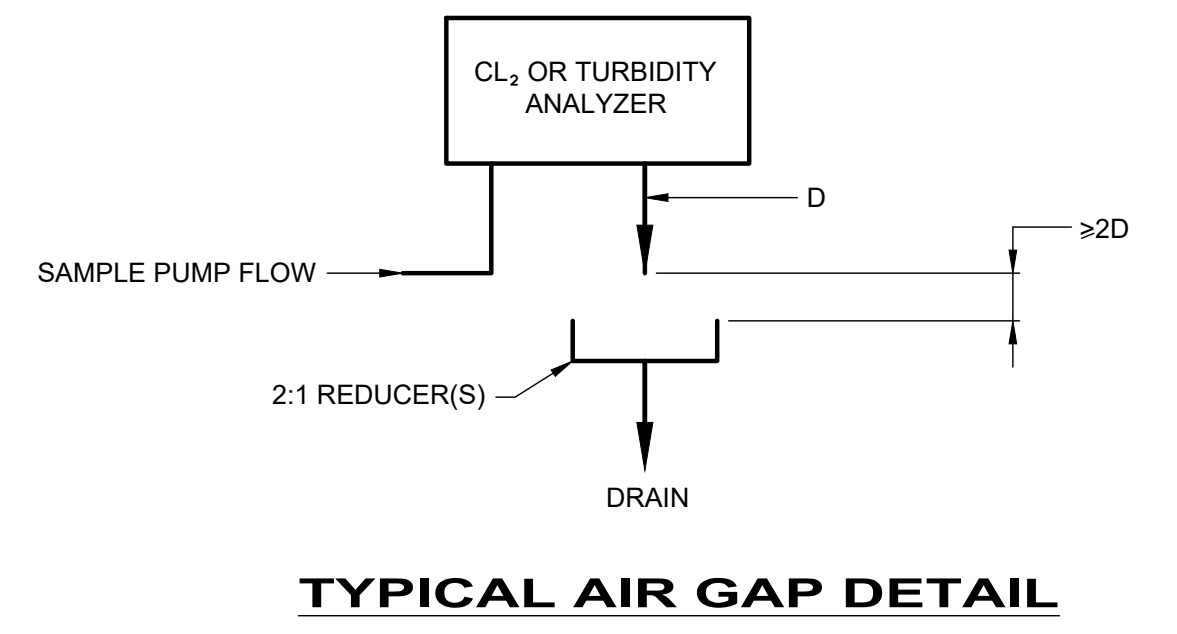
PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	30D-07
SHEET	26
OF	46



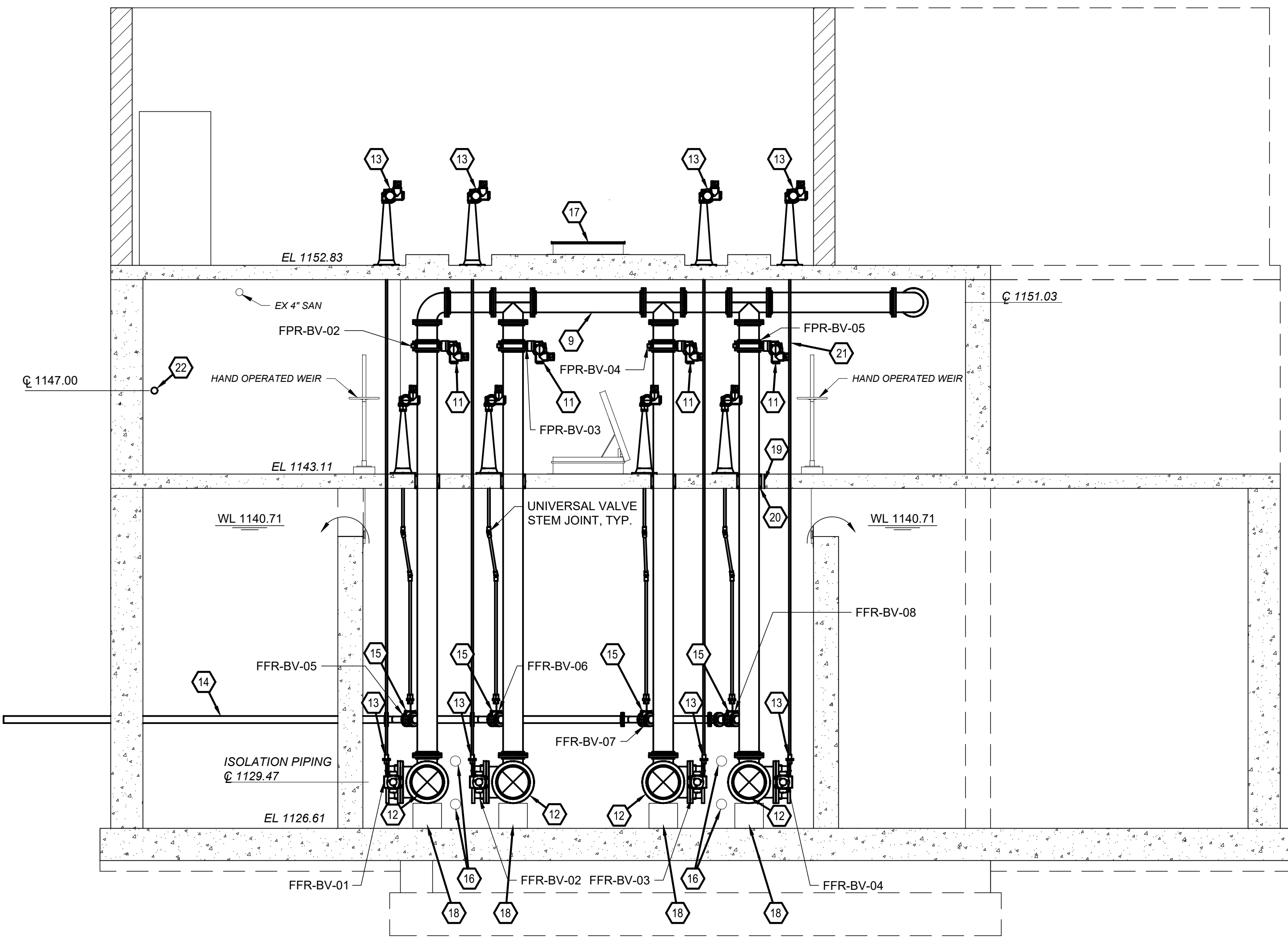
- CODED NOTES:**
- NEW GRANULAR FILTER MEDIA (SEE DETAIL THIS SHEET).
 - NEW HIGH SERVICE VERTICAL TURBINE PUMPS AND MOTORS.
 - NEW ANGLE CHECK VALVE.
 - NEW 2" AIR RELEASE VALVE.
 - 1" SCH 40 PVC CL₂ SAMPLE LINE.
 - 2" PVC SCH 40 CL₂ SAMPLE DRAIN WITH SANITARY P-TRAP 1' ABOVE OPENING THROUGH FLOOR.
 - CL₂ SAMPLE PUMP. TWO (2) REQUIRED, ONE FOR EACH CLEAR WELL.
 - CL₂ ANALYZER MOUNTED TO WALL. TWO (2) REQUIRED, ONE FOR EACH CLEARWELL.
 - 10" DIP BACKWASH SUPPLY PIPING.
 - 10" FLOW METER.
 - 10" BUTTERFLY VALVE WITH ACTUATOR.
 - 16" BEND W/ 10" SIDE OUTLET AND BASE.
 - 16" BUTTERFLY VALVE WITH ACTUATOR.
 - 3" DIP FILTER-TO-WASTE PIPING.
 - 3" BUTTERFLY VALVE.
 - RELOCATED FLUORIDE AND CHLORINE FEED DIFFUSERS.
 - FULL PROFILE INSERTION MAGNETIC FLOW METER (SEE DETAIL SHEET 30D-06).
 - CONCRETE BLOCK AND GROUT AS NECESSARY FOR SUPPORT.
 - 10" REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY WITH TWO 10" GATE VALVES, WATTS SERIES 957 OR APPROVED EQUAL.
 - PIPE SUPPORTS AS NECESSARY.

EFFECTIVE SIZE	UNIFORMITY COEFFICIENT	MEDIA	THICKNESS
0.85 TO 1.2 MM	LESS THAN 1.70	FILTER ANTHRACITE	15"
0.45 TO 0.55 MM	LESS THAN 1.65	FILTER SAND	12"
0.85 TO 1.2 MM	LESS THAN 1.70	FILTER SAND	3"

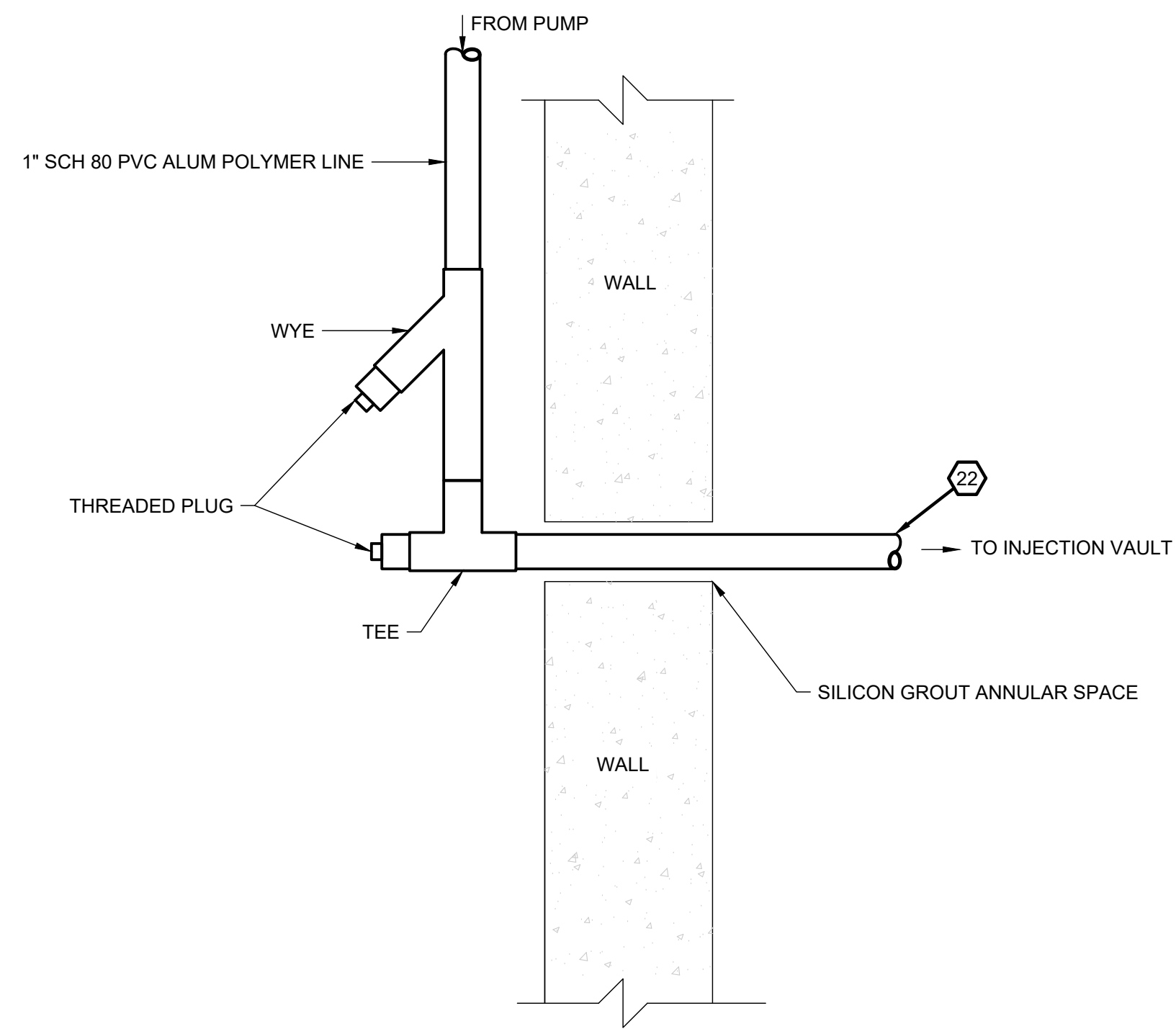
FILTER MEDIA - AWWA B100
N.T.S.



A SECTION
 30D-05 SCALE: 3/8"=1'-0"



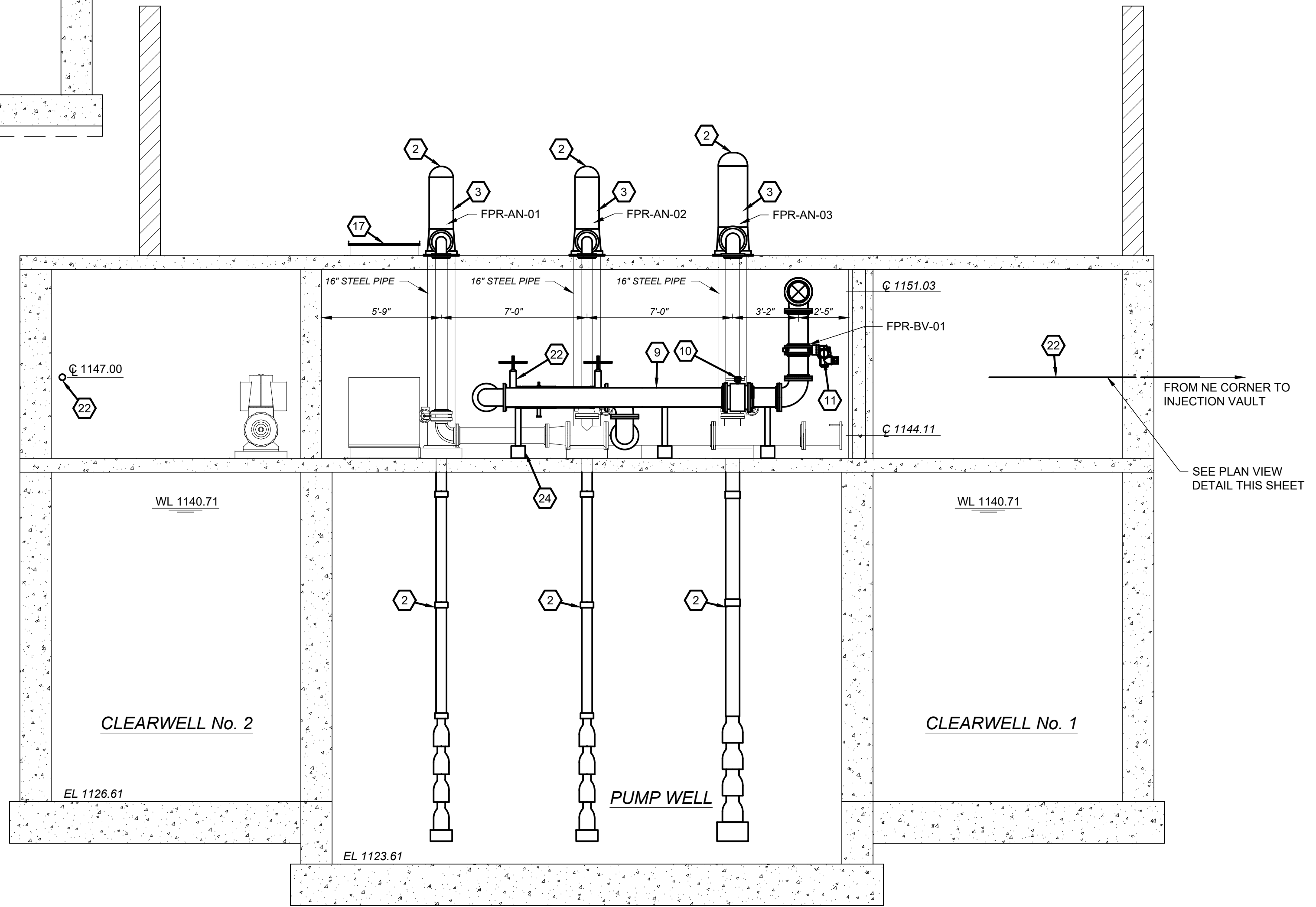
B SECTION
30D-05 SCALE: 1/4"=1'-0"



PLAN VIEW AT WALL DETAIL

(X) CODED NOTES:

1. NEW GRANULAR FILTER MEDIA (SEE DETAIL SHEET 30D-07).
2. NEW HIGH SERVICE PUMPS AND MOTORS.
3. NEW ANGLE CHECK VALVE.
4. NEW 2" AIR RELEASE VALVE.
5. 1" SCH 40 PVC CL₂ SAMPLE LINE.
6. 2" PVC SCH 40 CL₂ SAMPLE DRAIN WITH SANITARY P-TRAP 1' ABOVE OPENING THROUGH FLOOR.
7. CL₂ SAMPLE PUMP. TWO (2) REQUIRED, ONE FOR EACH CLEAR WELL.
8. CL₂ ANALYZER MOUNTED TO WALL. TWO (2) REQUIRED, ONE FOR EACH CLEARWELL.
9. 10" DIP BACKWASH SUPPLY PIPING.
10. 10" FLOW METER.
11. 10" BUTTERFLY VALVE WITH ACTUATOR.
12. 16" BEND W/ 10" SIDE OUTLET AND BASE.
13. 16" BUTTERFLY VALVE WITH ACTUATOR.
14. 3" DIP FILTER-TO-WASTE PIPING.
15. 3" BUTTERFLY VALVE.
16. RELOCATED FLUORIDE AND CHLORINE FEED DIFFUSERS.
17. STAINLESS STEEL CHECKERED PLATE BOLTED DOWN TO CONCRETE CURB.
18. CONCRETE BLOCK AND GROUT AS NECESSARY FOR SUPPORT.
19. GROUT HOLE LEFT FROM 10" BACKWASH DEMOLITION.
20. LINKSEAL NEW 10" PIPE PENETRATION (TYP. 4 PLACES).
21. VALVE STEMS SHALL BE PLACED IN ISOLATION PIPES, DIAMETER DETERMINED BY VALVE STEM DIAMETER (TYP. 4 PLACES).
22. 1" SCH 80 PVC FROM ALUM POLYMER PUMP TO INJECTION VAULT (REFER TO SHEET 01C-01).
23. 10" REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY WITH TWO 10" GATE VALVES, WATTS SERIES 957 OR APPROVED EQUAL.
24. PIPE SUPPORTS AS NECESSARY.



C SECTION
30D-05 SCALE: 1/4"=1'-0"

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		03/13/2020	3/8" = 1'-0"	JDZ	ACB	DEB

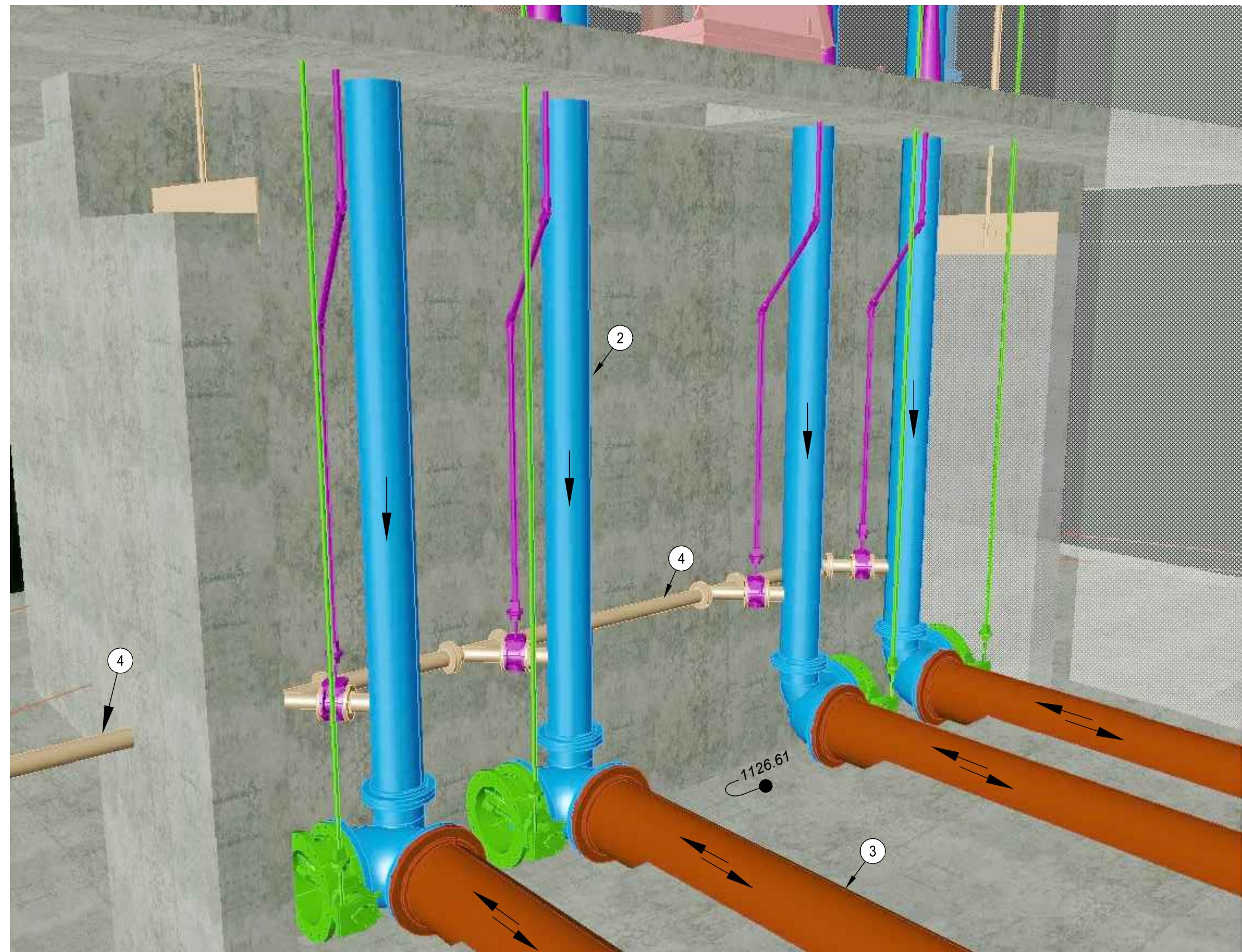
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS

HARRISON COUNTY
FILTER BUILDING - 30 SERIES

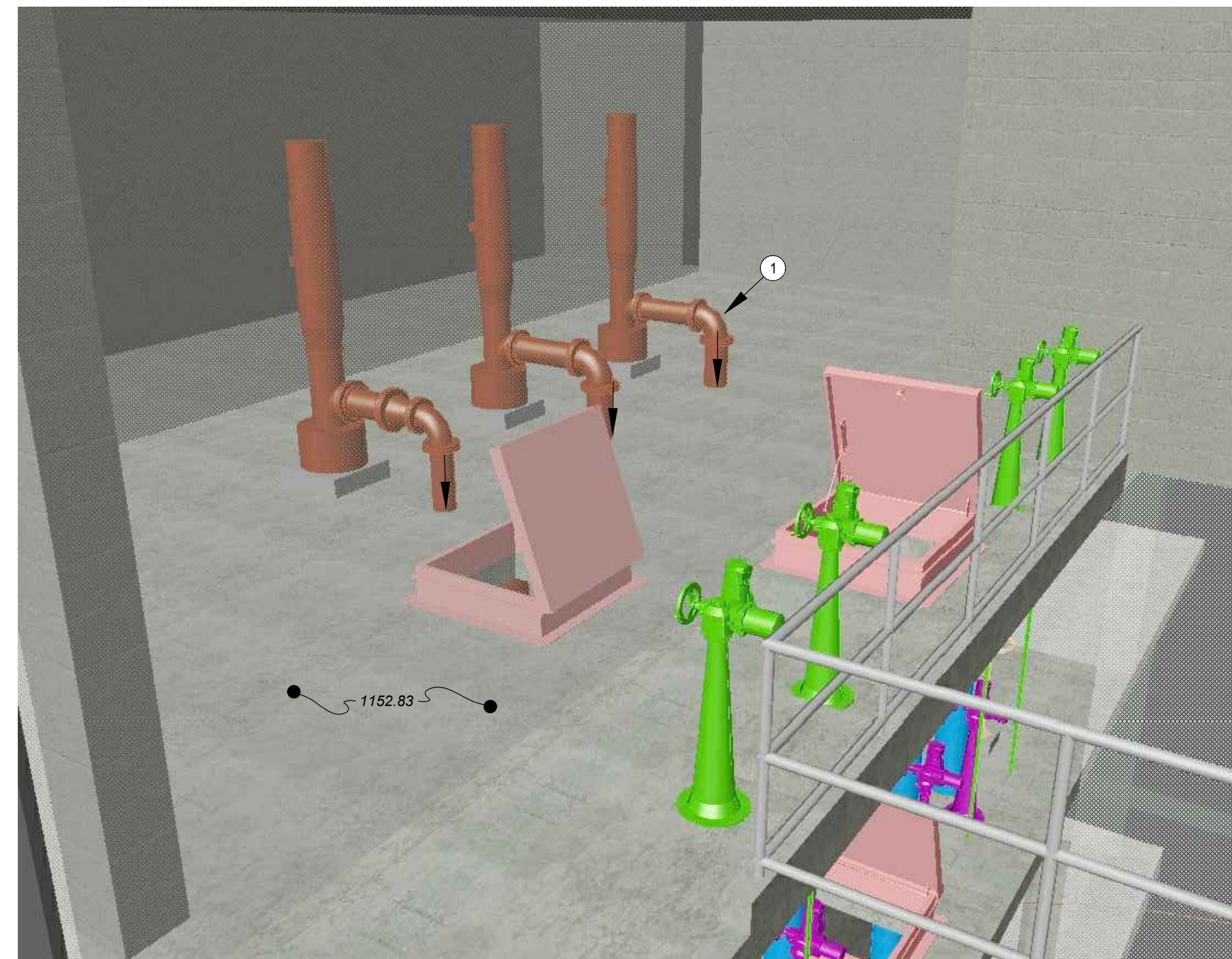
CADIZ, OHIO

FILTER AND CLEAR WELL NEW PROCESS - SECTIONS 2

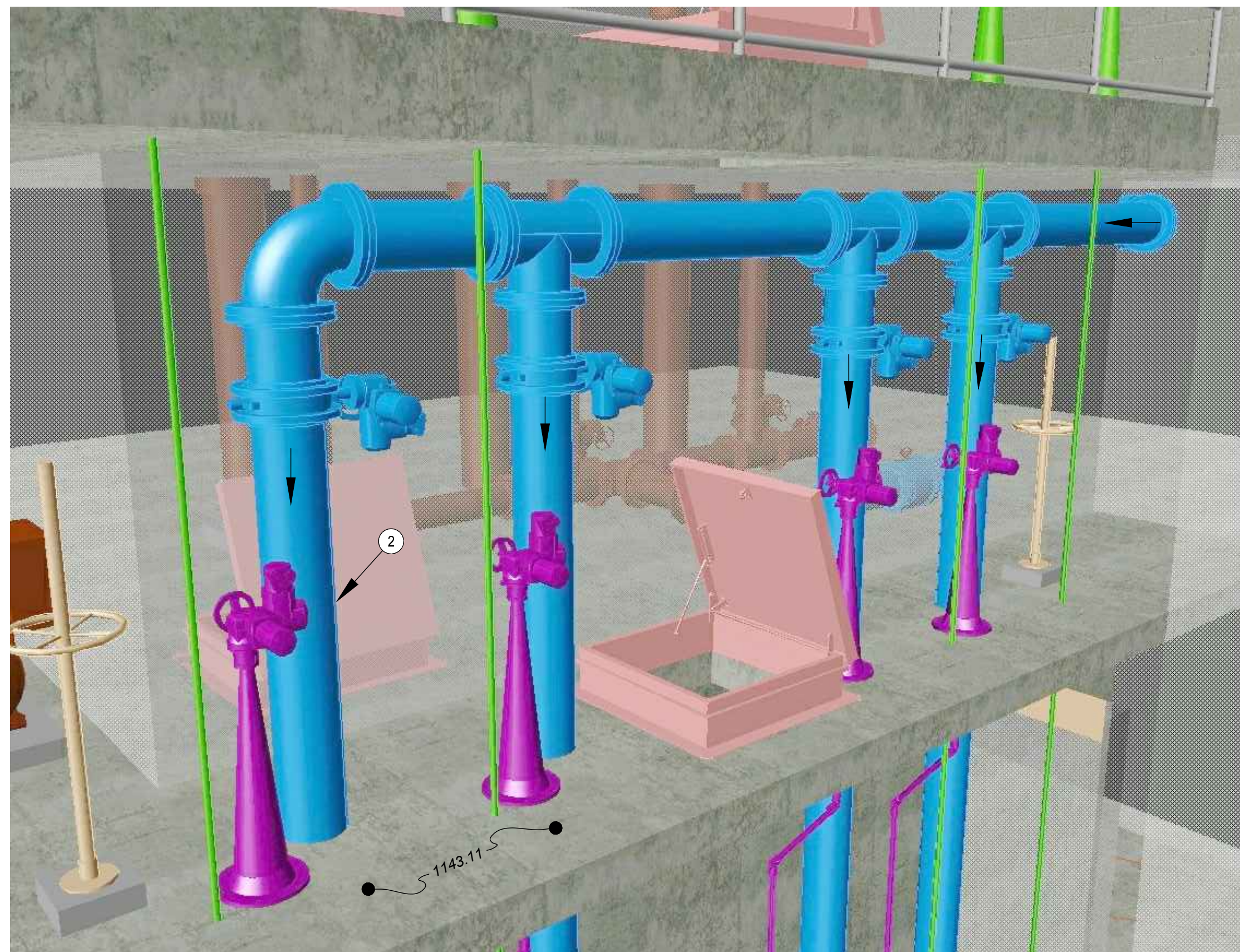
PROJECT NO.	190599
DISCIPLINE	PROCESS
SHEET NAME	30D-08
SHEET	27
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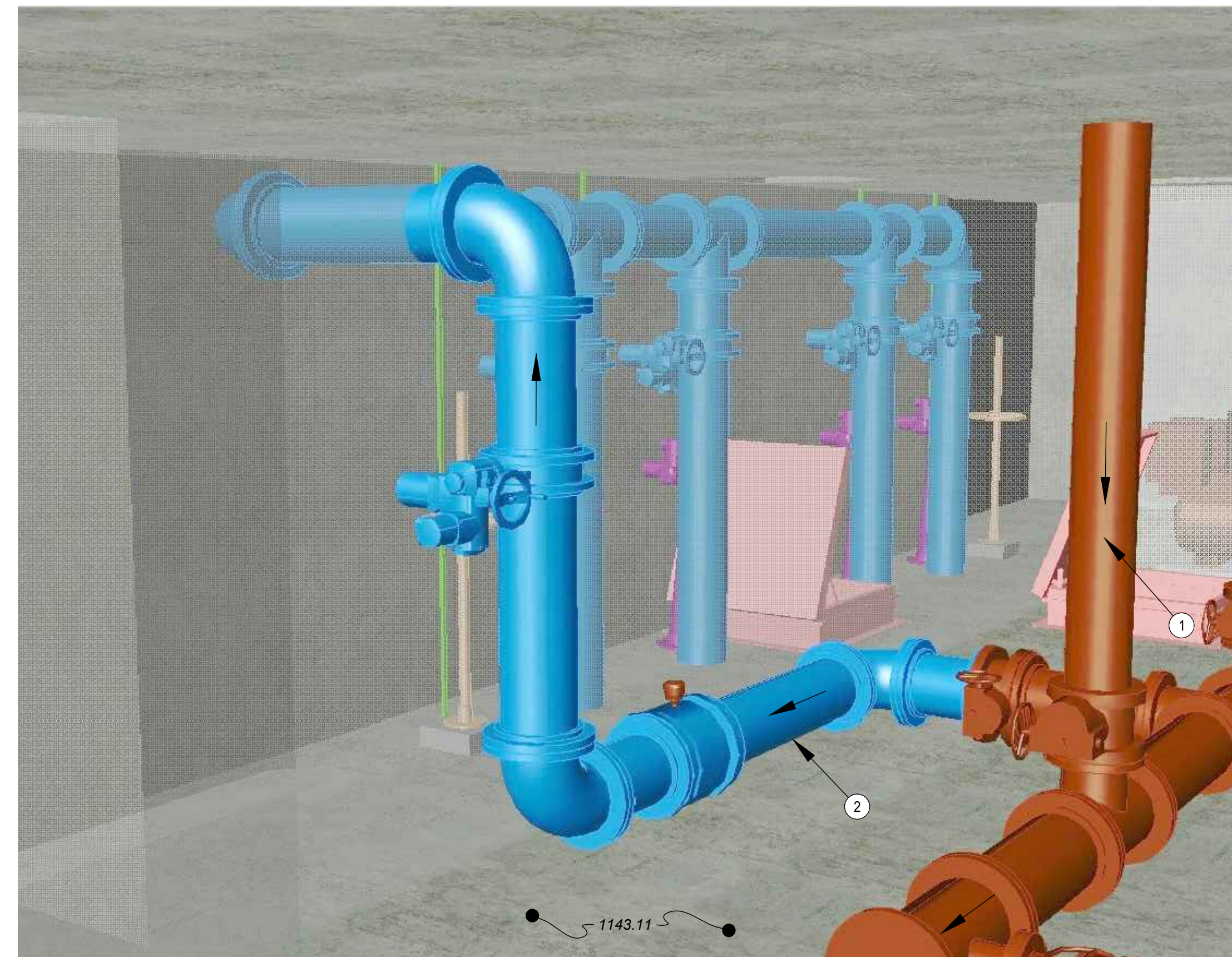
VIEW D - LOWER LEVEL - FILTER ISOLATION CONFIGURATION



VIEW A - UPPER LEVEL - FILTER ISOLATION VALVE STANDS



VIEW C - MIDDLE LEVEL - BACKWASH SUPPLY PIPING



VIEW B - MIDDLE LEVEL - BACKWASH SUPPLY PIPING


CODED NOTES:

- ① 8" HIGH SERVICE PUMP DISCHARGE (TYP. OF 3)
- ② 10" FILTER BACKWASH SUPPLY
- ③ 16" FILTERED WATER/BACKWASH SUPPLY (TYP. 4 FILTERS)
- ④ 3" FILTER-TO-WASTE DRAIN

DRAWING PLAN WRITTEN NOTE:

- 1. 3D VIEW ARE FOR REPRESENTATION ONLY. ACTUAL CONSTRUCTED APPEARANCE MAY VARY.

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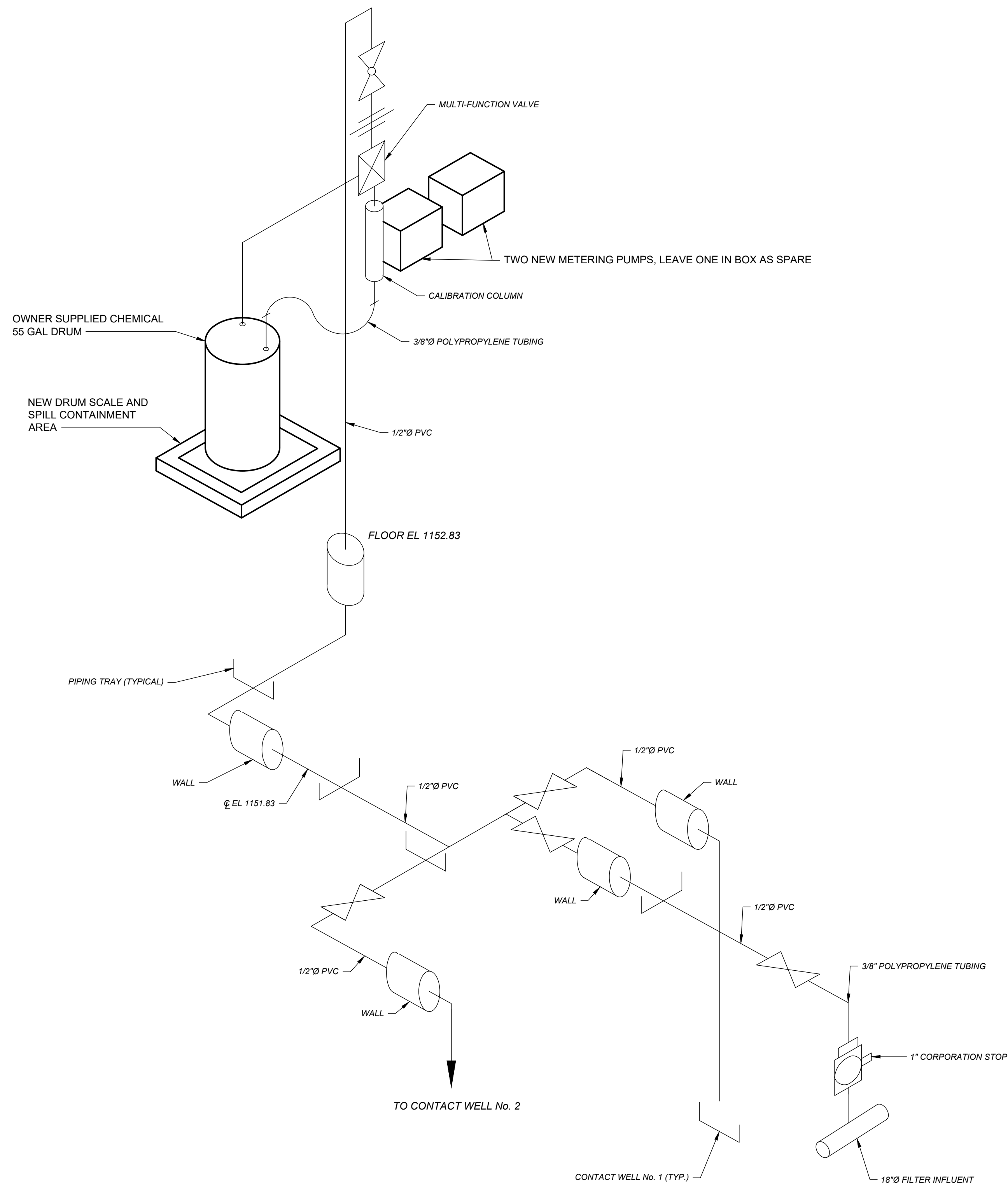
 your trusted advisor
 consultants
 engineers
 architects
 planners

REV#	DESCRIPTION	DATE

ISSUED FOR:	REVIEW	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
VILLAGE OF CADIZ, OHIO WATER TREATMENT PLANT HAB IMPROVEMENTS HARRISON COUNTY FILTER BUILDING - 30 SERIES		03/13/2020	3/8" = 1'-0"	JJZ	ACD	DEB

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER AND CLEAR WELL NEW PROCESS - 3D MODEL

PROJECT NO. 190599	
DISCIPLINE PROCESS	
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PHOSPHATE PIPING DIAGRAM
N.T.S.

PROPOSED WORK:

AS PART OF THIS PROJECT THE CONTRACTOR SHALL:

1. PROVIDE AND INSTALL DRUM SCALE, FEED PUMP AND APPURTENANCES AS NOTED.
2. PROVIDE PIPING/TUBING AND VALVING AS REQD. TO INTERFACE CHEMICAL FEED SYSTEM WITH EXISTING PIPING.
3. PROVIDE A PLASTIC SPILL CONTAINMENT TRAY FOR STORAGE OF CHEMICAL. TRAY SHALL BE FABRICATED OF CHEMICALLY COMPATIBLE MATERIAL AND 55 GAL CAPACITY SIZED TO FIT IN THE SPACE AVAILABLE.
4. PROVIDE ONE SPARE CHEMICAL FEED PUMP NEW IN BOX.

SYSTEM DEMAND:

CURRENT AVERAGE DAILY FLOW (ADF): 0.4 MGD
 CURRENT PEAK DAILY FLOW: 1.0 MGD
 HIGH SERVICE PUMP RATING: 700 GPM
 CHEMICAL FEED PUMP WILL BE ENERGIZED TO RUN WITH HIGH SERVICE PUMPS

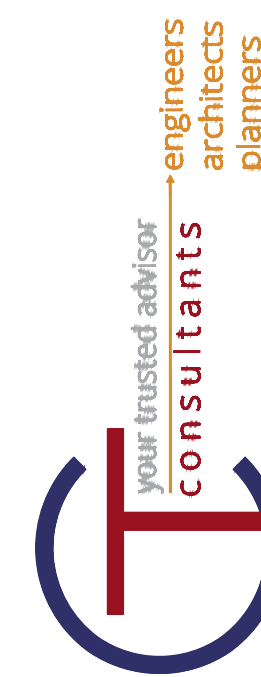
CHEMICAL FEED EQUIPMENT - PROPOSED:

CHEMICAL: ZINC ORTHOPHOSPHATE (36%, S.G. = 1.53)
 (CARUS 3180 DESIGN BASIS)
 PROPOSED PO4 ION FEED: 3.0 mg/l (INITIAL)
 CHEMICAL FEED RATE: 0.51 GPH (BASED ON 700 GPM PLANT RATE) WHILE OPERATING IN MIDDLE THIRD OF PUMP RANGE
 CHEMICAL FEED PUMP: PERISTALTIC TYPE STENNER ECON T SERIES MDL E 2014G. PROVIDE TUBE SIZE TO ASSURE NORMAL OPERATION IN MIDDLE THIRD OF PUMP RANGE.
 OWNER WILL SUPPLY PRODUCT IN 55 GAL CONTAINERS.

CORROSION CONTROL SYSTEM NOTES:

1. ALL MATERIALS SUPPLIED SHALL BE COMPATIBLE FOR USE WITH SPECIFIED CHEMICAL.
2. CHEMICAL FEED PUMP TO BE A PERISTALTIC PUMP. USE OF DIAPHRAGM PUMP IS PROHIBITED.
3. COORDINATE ALL INSTALLATION ACTIVITIES WITH OWNER.
4. CHEMICAL FEED SYSTEM SHALL BE COMPLETE AND FUNCTIONAL.
5. CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORTS TO MOUNT PROPOSED PIPING TO THE WALL. SUPPORTS SHALL BE PLACED TO PROVIDE A NEAT, WORKMAN-LIKE APPEARANCE AND TO PREVENT DEFLECTION OF PIPING.
6. PUMP SHALL BE 120V/1Ø
7. SPILL CONTAINMENT TRAY SHALL BE INSTALLED ON DRUM SCALE TO MINIMIZE OBSTRUCTIONS WITH OTHER COMPONENTS.

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REV	DESCRIPTION	DATE

ISSUED FOR:	REVIEW:	ISSUE DATE:	SCALE:	AS NOTED	DESIGNED BY:	JDZ	DRAWN BY:	RE	CHECKED BY:	DEB
		03/13/2020								

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 FILTER BUILDING - 30 SERIES
 CADIZ, OHIO
 FILTER & CLEAR WELL CHEMICAL STORAGE ROOM

PROJECT NO.	190599
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SHEET	29
OF	46

I. GENERAL/MISCELLANEOUS

- WORK SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS, CONSTRUCTION SPECIFICATIONS AND THE LATEST EDITION OF THE APPLICABLE LOCAL AND STATE BUILDING CODES.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS.
 - THE CONTRACTOR SHALL FIELD VERIFY ANY DIMENSIONS AND ELEVATIONS AS NOTED ON THE DRAWINGS OR AS MAY BE REQUIRED, PRIOR TO CONSTRUCTION, TO MINIMIZE FIELD CHANGES.
 - THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY INCONSISTENCIES BETWEEN THE DRAWINGS AND THE FIELD CONDITIONS THAT COULD AFFECT THE CONSTRUCTION.
 - DIMENSIONS AND ELEVATIONS MARKED "REF" ARE FOR REFERENCE ONLY AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO USING THEM FOR ANY CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE OWNER TO AVOID SYSTEM/OPERATION INTERRUPTIONS.
- DETAILED SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER "FOR REVIEW" PRIOR TO FABRICATION.
- ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS AND REQUIREMENTS, INCLUDING ANY PREPARATION WORK.
- THE CONTRACTOR SHALL AT ALL TIMES KEEP THE WORK AREA AND SURROUNDING PREMISES FREE OF WASTE, SURPLUS MATERIALS, RUBBISH, AND DEBRIS RESULTING FROM THE WORK.
- MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHALL BE STORED AT OWNER DESIGNATED LOCATION(S).
- MATERIAL REMOVED AS PART OF ANY DEMOLITION WORK SHALL BE REMOVED AND DISPOSED OF LEGALLY OFF-SITE, UNLESS DIRECTED OTHERWISE BY THE OWNER.
- THE CONTRACTORS AND SUBCONTRACTORS SHALL FAMILIARIZE THEMSELVES AND THEIR EMPLOYEES WITH ALL THE REGULAR AND SPECIAL SAFETY PRACTICES AND PROCEDURES USED BY THE OWNER.
- DO NOT SCALE DRAWINGS, USE GIVEN DIMENSIONS ONLY. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALE DIMENSIONS AT ALL TIMES. ANY DISCREPANCIES SHOULD BE IDENTIFIED PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL COORDINATE THE STRUCTURAL WORK WITH THE WORK OF OTHER TRADES AND MATERIAL SUPPLIED MANUFACTURERS.
- ANY AND ALL REQUIRED TESTING SHALL BE PERFORMED AT THE EXPENSE OF CONTRACTOR AND PERFORMED BY AN APPROVED TESTING AGENCY OR LABORATORY. TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY WORK THAT IS DAMAGED OR IS NON-COMPLIANT IN ACCORDANCE WITH THE GOVERNING CODE OR AS INDICATED IN THE CONTRACT DOCUMENTS OR AS DEMEANED BY THE BUILDING OFFICIAL, ARCHITECT OR ENGINEER OF RECORD.
- DESIGN IS DEVELOPED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND INSURE THE SAFETY OF THE CONSTRUCTION PERSONNEL, STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, ETC. THAT MAY BE NECESSARY.
- CONTRACTOR SHALL PERFORM CONSTRUCTION ACTIVITIES IN A SEQUENCE THAT IS BASED ON ACCEPTED INDUSTRY STANDARDS THAT RECOGNIZE THE INTERACTION OF THE COMPONENTS THAT COMPRISE THE STRUCTURE, WITHOUT CAUSING DISTRESS, UNANTICIPATED MOVEMENTS OR IRREGULAR LOAD PATHS AS A RESULT OF THE CONSTRUCTION MEANS AND METHODS EMPLOYED.

II. STRUCTURAL

- ALUMINUM COMPONENTS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE PROVISIONS OF THE ALUMINUM DESIGN MANUAL, LATEST EDITION. ALUMINUM SHAPES SHALL MEET THE LATEST EDITION OF THE FOLLOWING REQUIREMENTS:
 - BAR/PLATE ---- ASTM B209 STANDARD SPECIFICATION FOR ALUMINUM-ALLOY 6061-T6 BAR, PLATE & SHEET STOCK
- GRATING SUPPORT STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE PROVISIONS OF THE A.I.S.C. "MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN," LATEST EDITION. SHAPES & PLATE SHALL MEET THE LATEST EDITION OF THE FOLLOWING REQUIREMENTS:
 - PLATE/BAR ---- ASTM A312, STAINLESS STEEL 316L
 - ANGLE ---- ASTM A312, STAINLESS STEEL 316L
- MONORAIL TROLLEY STOP STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE PROVISIONS OF THE A.I.S.C. "MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN," LATEST EDITION. SHAPES SHALL MEET THE LATEST EDITION OF THE FOLLOWING REQUIREMENTS:
 - ANGLE ---- ASTM A36 STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL
- MONORAIL TROLLEY STOPS SHALL BE BOLTED WITH (3/4" DIA) HIGH STRENGTH BOLTS PROVIDING BEARING TYPE CONNECTIONS, UNLESS NOTED OTHERWISE.
 - HIGH STRENGTH BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A325, LATEST EDITION. NUTS SHALL MEET THE REQUIREMENTS OF ASTM A563, GRADE C3 OR DH3. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F436, WEATHERING STEEL, PLAIN FINISH. ALL ASTM SPECIFICATIONS ARE TO BE LATEST EDITION.
- WELDED ALUMINUM CONNECTIONS SHALL BE DONE BY A QUALIFIED WELDER IN ACCORDANCE WITH THE REQUIREMENTS OF THE ANSIAWS D1.2 STRUCTURAL WELDING CODE - ALUMINUM, LATEST EDITION. WELD WIRE/RODS TO BE ER4043, WITH A MINIMUM TENSILE STRENGTH OF 29 KSI, UNLESS NOTED OTHERWISE.
- WELDED STAINLESS STEEL CONNECTIONS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ANSIAWS D1.1 CODE - STEEL, LATEST EDITION. WELD RODS TO BE E316L-XX, WITH A MINIMUM TENSILE STRENGTH OF 70 KSI, UNLESS NOTED OTHERWISE.
 - CARE SHALL BE TAKEN TO PROVIDE SUFFICIENT PREHEAT FOR SOUNDNESS OF THE WELD AS REQUIRED PER AWS/AISC REQUIREMENTS.
 - TO MITIGATE WATER INTRUSION AND POTENTIAL CORROSION WITHIN THE JOINTS, ALL WELD LENGTH INTERRUPTIONS SHALL BE SEAL WELDED WITH 1/8" FILLET WELD.
- STANDARD DRILLED HOLES SHALL BE USED IN ALL BOLTED CONNECTIONS. NO OVERSIZED OR BURNED HOLES WILL BE PERMITTED, UNLESS NOTED OTHERWISE
- IMMEDIATELY FOLLOWING FABRICATION, REMOVE ALL SHARP EDGES AND BURRS FROM FABRICATED MATERIAL/COMPONENTS.

- BEARING GROUT SHALL BE MIXED, APPLIED, INSTALLED AND CURED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND CONFORM WITH THE FOLLOWING:
 - GROUT SHALL BE AN APPROVED NON-SHRINK CEMENTITIOUS MULTIPLE FLUIDITY GROUT CONTAINING NATURAL AGGREGATES DELIVERED TO THE JOB SITE IN FACTORY PREPACKAGED CONTAINERS REQUIRING ONLY THE ADDITION OF WATER; SUCH AS SIKAGROUT® 212 OR APPROVED EQUAL. GROUT SHALL BE CAPABLE OF DEVELOPING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5800 PSI.
 - LEVELLING NUTS MAY BE USED AND REMAIN IN PLACE CONCURRENT WITH THE FOLLOWING PROVISIONS:
 - DIELECTRIC WASHERS (NON-METALLIC, NYLON, NEOPRENE, ETC.) SHALL BE USED TO MITIGATE DIRECT DISSIMILAR METAL CONTACT BETWEEN FAYING SURFACES OF THE LEVELLING NUTS AND BOTTOM SIDE OF THE CAST IRON BASE OF THE MOUNTED SIDE OUTLET PIPE FITTING.
 - NUTS MEET THE REQUIREMENTS OF NOTE III (1) BELOW.
 - NUTS ARE COMPLETELY ENCLOSED WITHIN THE FINISHED GROUT INSTALLATION
- SPlicing OF STRUCTURAL MEMBERS/COMPONENTS IS PROHIBITED.
- TROLLEY STOP ANGLES SHALL BE SHOP PAINTED WITH ONE COAT POLYAMIDE EPOXY PRIMER AND ONE FINISH COAT OF POLYAMIDE EPOXY (305 MILS DFT) FOLLOWED BY ONE FIELD APPLIED COAT OF ALIPHATIC ACRYLIC POLYURETHANE (3 MILS DFT) PAINT. THE FIELD APPLIED FINISH COAT SHALL BE APPLIED TO ALL EXPOSED STEEL SURFACES INCLUDING CONNECTION BOLTS. ALL STEEL SHALL BE PREPARED ACCORDING TO SSPC-SP6/NACE 3 COMMERCIAL BLAST CLEANING (2 TO 2-1/2 MIL PROFILE) PRIOR TO APPLICATION OF PAINT. FIELD APPLIED PAINT SHALL NOT BE APPLIED TO BARE STEEL, BARE STEEL SURFACES SHALL BE PRIMED PRIOR TO FINISH COATS. CLEAN AND DRY ALL SURFACES PRIOR TO APPLICATION OF FIELD APPLIED PAINT.

III. ANCHOR BOLTS

- CAST-IN-PLACE ANCHOR BOLT/ROD MATERIAL SHALL CONFORM WITH THE FOLLOWING, UNLESS NOTED OTHERWISE:
 - HEAVY HEX BOLT **OR** ANCHOR ROD: SS316 CONFORMING TO ASTM A193 Gr B8M-1 (DOUBLE NUTTED).
 - NUTS: SS316 HEAVY HEX CONFORMING TO ASTM A194 GR 8M, SECURED WITH LOCTITE® THREAD LOCKER RED 271™ NUT AND BOLT LOCKER.
 - WASHERS: SS316 STANDARD FLAT WASHER.
- POST-INSTALLED ANCHOR BOLTS SHALL BE HILTI BRAND ADHESIVE ANCHORS FOR INSTALLATION IN SOLID CONCRETE INSTALLED WITH HIT-HY 200 **OR** HIT-RE 500 V3 EPOXY ADHESIVE AS APPLICABLE FOR TEMPERATURE AND HOLE CONDITIONS AND CONFORM WITH THE FOLLOWING:
 - GRATING SUPPORT ANCHORAGE SHALL BE WITH 3/4" DIA. HIT-Z-R 316 SS ANCHOR ROD WITH 6.5" EMBEDMENT.
 - ANCHOR BOLT NUTS SHALL BE SS 316 HEAVY HEX CONFORMING TO ASTM F594 GROUP 2, SECURED WITH LOCTITE® THREADLOCKER RED 271™ NUT AND BOLT LOCKER. A SS 316 FLAT CIRCULAR WASHER SHALL BE USED UNDER THE NUT OF EACH ANCHOR BOLT.
 - ADHESIVE ANCHOR SYSTEMS MUST COMPLY WITH THE LATEST REVISIONS OF ICC-ES ACCEPTANCE CRITERIA AC308 AND HAVE A VALID ICC-ES REPORT IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE.
 - DRILLING SHALL BE PERFORMED WITH A ROTARY HAMMER DRILL AND CARBIDE TIPPED DRILL BIT IN ACCORDANCE WITH INSTRUCTIONS ACCOMPANYING ADHESIVE CARTRIDGES AND APPLICABLE ICC-ESR.
 - NO REBAR SHALL BE CUT FOR INSTALLATION OF THE POST INSTALLED ANCHORS.
 - BORE HOLE CLEANING PROCEDURES MUST COMPLY WITH INSTRUCTIONS ACCOMPANYING THE ADHESIVE CARTRIDGE AND APPLICABLE ICC-ESR IN ORDER TO PRODUCE A DRY, DUST-FREE HOLE.
 - INJECTION OF ADHESIVE SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS ACCOMPANYING PRODUCT AND APPLICABLE ICC-ESR TO PRODUCE AN AIR-VOID FREE INJECTION.
 - ALTERNATE DRILLING METHODS, SUCH AS DIAMOND CORING, MUST BE APPROVED IN ADVANCE BY THE ENGINEER AND COMPLY WITH THE APPLICABLE ICC-ES REPORT.
 - ANCHOR ROD FASTENING ELEMENTS MUST BE CLEAN, DRY AND FREE OF ANY OIL OR CONTAMINANTS.

IV. CAST-IN-PLACE CONCRETE

- CONCRETE WORK SHALL CONFORM WITH THE LATEST EDITION OF THE FOLLOWING ACI CODES:
 - ACI 301 --- SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS
 - ACI 305R --- HOT WEATHER CONCRETING
 - ACI 306 --- COLD WEATHER CONCRETING
 - ACI 318 --- BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - ACI 317 --- STANDARD SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTIONS AND MATERIALS
- CONCRETE MIX SHALL BE PROPORTIONED IN ACCORDANCE WITH ACI 301, SECTION 4 TO PROVIDE A CLASS-D EARLY STRENGTH CONCRETE IN CONJUNCTION WITH THE FOLLOWING:
 - CONCRETE SHALL BE NORMAL WEIGHT
 - 3 DAY COMPRESSIVE STRENGTH: 3,000 PSI
 - 28 DAY COMPRESSIVE STRENGTH: 4,000 PSI
 - CEMENT SHALL BE ASTM C150 PORTLAND CEMENT; TYPE I, II OR III (RESTRICTED TO ONE TYPE)
 - MAXIMUM WATER/CEMENT RATIO OF 0.42 (JOB SITE RETEMPERING IS PROHIBITED)
 - FINE AND COARSE NORMAL WEIGHT AGGREGATE: ASTM C 33; PROVIDE AGGREGATES FROM A SINGLE SOURCE FOR EXPOSED CONCRETE, WITH NOMINAL MAXIMUM AGGREGATE SIZE OF 1 INCH. MATERIALS CONTAINING DELETERIOUS SUBSTANCES ARE NOT ACCEPTABLE.
 - FLY ASH POZZOLAN: ASTM C 618, CLASS F, LIMITED TO 25% OF CEMENT CONTENT BY WEIGHT.
 - AIR ENTRAINMENT: ASTM C260; MASTER BUILDERS MICRO-AIR, OR APPROVED EQUAL. DOSAGE RATE AS REQUIRED TO ENTRAIN 6% ± 1.5% AIR.
 - HIGH RANGE WATER REDUCING ADMIXTURE (HRWR): ASTM C494, TYPE F.
 - WATER SHALL BE CLEAN POTABLE WATER COMPLYING WITH ASTM C94.
 - CONCRETE MIX SHALL CONTAIN XYPEX ADMIX C-500 CEMENTITIOUS CRYSTALLINE CONCRETE WATERPROOFING ADMIXTURE AS MANUFACTURED BY TH XYPEX CHEMICAL CORPORATION (SUBSTITUTIONS NOT PERMITTED). XYPEX ADMIX SHALL BE ADDED TO THE CONCRETE MIX AT THE TIME OF BATCHING AT A RATE OF 2%-3% BY WEIGHT OF CEMENT CONTENT AND BE MIXED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION AND REQUIREMENTS.
 - INITIAL (WATER) SLUMP SHALL BE WITHIN THE RANGE OF 3"-4" AND PLASTICIZED SLUMP SHALL BE RESTRICTED TO 6"

NOTE: CALCIUM CHLORIDE THYOCYANATES OR ADMIXTURES CONTAINING MORE THAN 0.1 PERCENT CHLORIDE IONS ARE NOT PERMITTED.

- MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER "FOR REVIEW" AT LEAST 15 DAYS PRIOR TO START OF

WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED BY ENGINEER.

- EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
- THE FAYING SURFACE WHERE NEW CONCRETE IS PLACED OVER EXISTING CONCRETE SHALL BE PREPARED AS STIPULATED WITHIN SECTION VII, ITEM #1 BELOW, PRIOR TO PLACEMENT OF CONCRETE.
- MINIMUM CONCRETE COVER OF 2" SHALL BE MAINTAINED, UNLESS NOTED OTHERWISE.
- EACH STRUCTURAL ELEMENT SHALL BE PROPERLY MOIST CURED FOR SEVEN (7) DAYS AND AIR DRY FOR A MINIMUM OF THREE (3) DAYS BEFORE PLACING AN ADJACENT ELEMENT.
- USE BLANKETS AS REQUIRED FOR COLD WEATHER CONCRETING; DO NOT USE ACCELERATING ADMIXTURES.

V. REINFORCING STEEL

- REINFORCING STEEL SHALL CONFORM TO ASTM A615 GR 60 (FY=60KSI) DEFORMED BILLET STEEL BARS, UNFINISHED. SIZE AND SPACING SHALL BE IN ACCORDANCE WITH THE DESIGN DRAWINGS.
- REINFORCING BARS SHALL NOT BE SPLICED OR TIED TOGETHER BY TACK WELDING IN THE FIELD.
- REINFORCING BARS SHALL NOT BE BENT IN THE FIELD BY HEATING.
- HOOKS, BENDS, SUPPORTS AND SPACERS SHALL BE IN ACCORDANCE WITH THE ACI DETAILING MANUAL.
- ALL REINFORCING STEEL SHALL HAVE MINIMUM EXTENSION INTO THE SUPPORTS IN ACCORDANCE WITH ACI BUILDING CODE (ACI 318).
- WHERE NOT SPECIFICALLY SHOWN/NOTED, MINIMUM REBAR LAP SPLICE AND ANCHORAGE REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE "MINIMUM LAP SPLICE & ANCHORAGE DIMENSIONS FOR CAST IN PLACE CONCRETE REINFORCING" PER ACI 318, BUT SHALL NOT BE LESS THAN 12", UNLESS OTHERWISE NOTED.
- DOWELS SHALL MATCH VERTICAL BAR SIZE AND SPACING.

VI. REBAR DOWEL INSTALLATION

- POST INSTALLED REBAR SHALL BE INSTALLED WITH HILTI INJECTABLE HIT-HY 200 **OR** HIT-RE 500 V3 EPOXY ADHESIVE AS APPLICABLE FOR TEMPERATURE AND HOLE CONDITIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND REQUIREMENTS. ADHESIVE SHALL BE DISPENSED THROUGH A STATIC MIXING NOZZLE SUPPLIED BY HILTI TO ENSURE THAT ADHESIVE COMPONENTS ARE THOROUGHLY BLENDED. POST INSTALLED REBAR SHALL ONLY BE INSTALLED IN CURED CONCRETE THAT HAS ATTAINED ITS DESIGN STRENGTH.
- INSTALLATION OF ADHESIVE ANCHORAGE SHALL BE PERFORMED BY PERSONNEL CERTIFIED IN THE ACI/CRSI ADHESIVE ANCHOR INSTALLATION PROGRAM. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO COMMENCEMENT OF THE INSTALLATION.
- HOLES SHALL BE DRILLED AND CLEANED IN STRICT ADHERENCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII). MANUFACTURER'S FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF WORK.
- THE REQUIREMENTS OF SECTION III, ITEM #2(b-1) SPECIFIED ABOVE SHALL ALSO APPLY.

VII. SPECIAL REQUIREMENTS

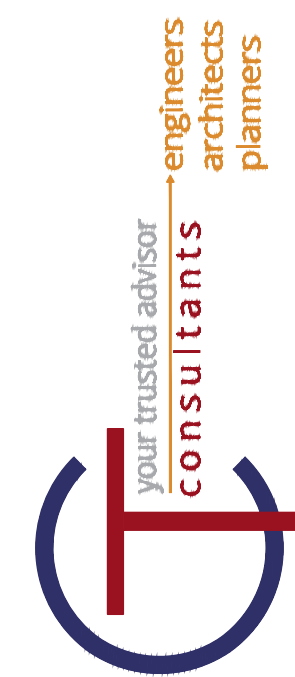
- WHERE NEW CONCRETE IS PLACED ATOP OF EXISTING CONCRETE, THE EXISTING SURFACE SHALL BE ROUGHENED MINIMUM 1/4" AMPLITUDE, THOROUGHLY CLEANED OF ANY LOOSE PARTICLES AND CONCRETE DUST AND COATED WITH AN EPOXY BONDING AGENT (SIKA ARMATEC® 110 EPOCEM OR APPROVED EQUAL) PRIOR TO PLACING THE CONCRETE, UNLESS NOTED OTHERWISE.
 - THE RESULTING CONSTRUCTION JOINT AT THE INTERFACE OF THE FAYING SURFACES SHALL RECEIVE A PREFORMED PLASTIC WATER STOP 1 1/2" CLEAR OF THE CONCRETE SURFACE. WATERSTOP SHALL BE SYNKO-FLEX SF302 1"x1" SQUARE WATERSTOP STRIP WITH SYNKO-FLEX SOLVENT PRIMER SF311 AS MANUFACTURED BY THE HENRY COMPANY, OR APPROVED EQUAL.
- ALUMINUM GRATING PLANKS SHALL BE SECURED TO SUPPORT COMPONENTS VIA REMOVABLE SS 316 GRATING FASTENERS WITH SS 316 SELF-DRILLING SELF-TAPPING SCREWS. MINIMUM OF FOUR (2) GRATING FASTENERS ARE REQUIRED IN EACH PLANK, ONE (1) EACH END.
- DIELECTRIC SPACERS (NON-METALLIC - PVC, NEOPRENE, ETC.) SHALL BE USED TO MITIGATE DIRECT DISSIMILAR METAL CONTACT BETWEEN THE SS ANCHOR BOLTS AND THE CAST IRON BASE OF THE MOUNTED SIDE OUTLET PIPE FITTING.

NOTE:

REFER THE FOLLOWING STRUCTURAL SHEETS IN CONJUNCTION WITH THE FOLLOWING STIPULATIONS AND REQUIREMENTS REGARDING:

- RAW WATER PUMPING FACILITY MONORAIL REQUIREMENTS
- FILTER BUILDING VALVE SUPPORT REQUIREMENTS AT EL 1126.81
- CHEMICAL BUILDING STORAGE FACILITY GRATING REQUIREMENTS AT EL 1152.83

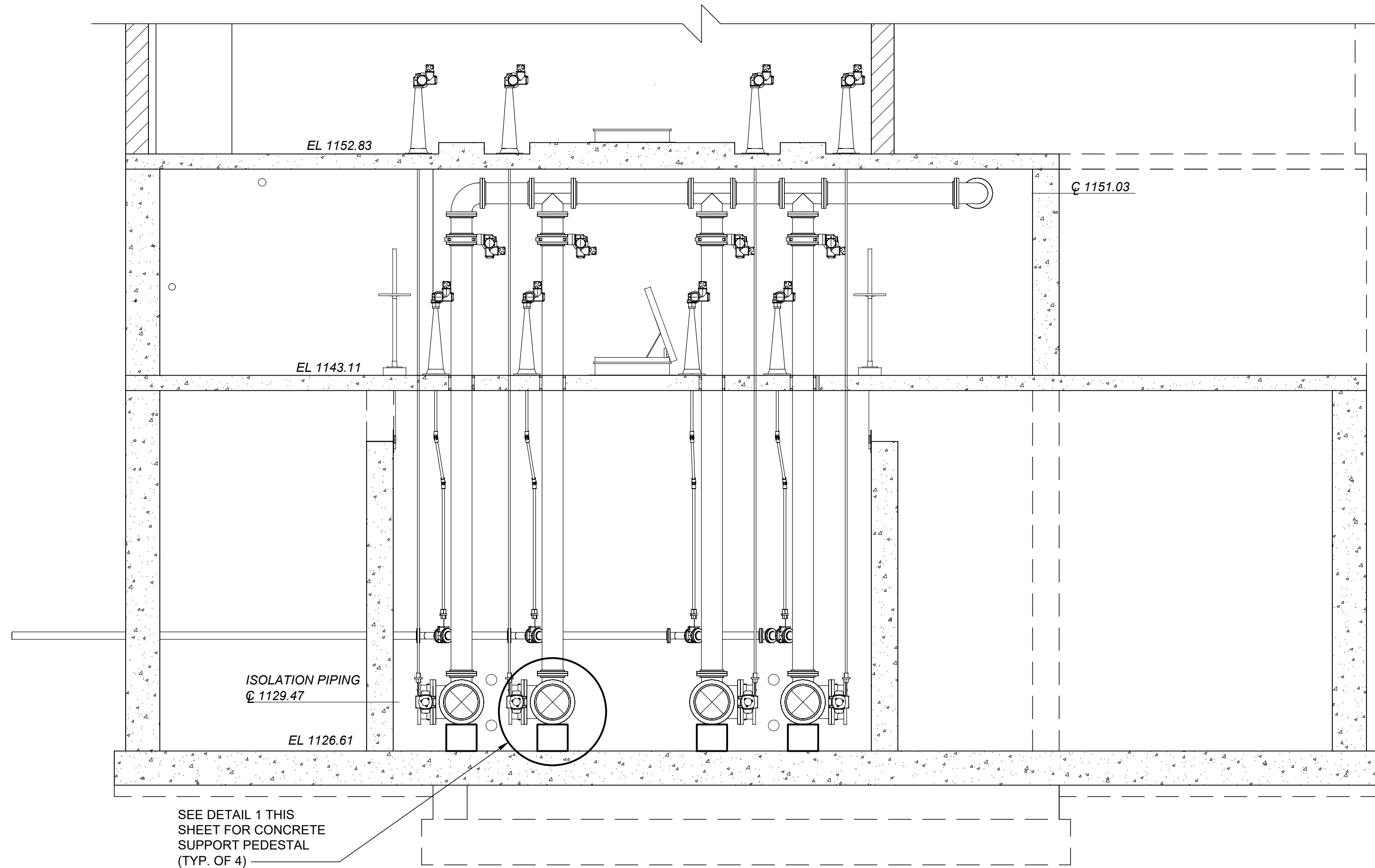
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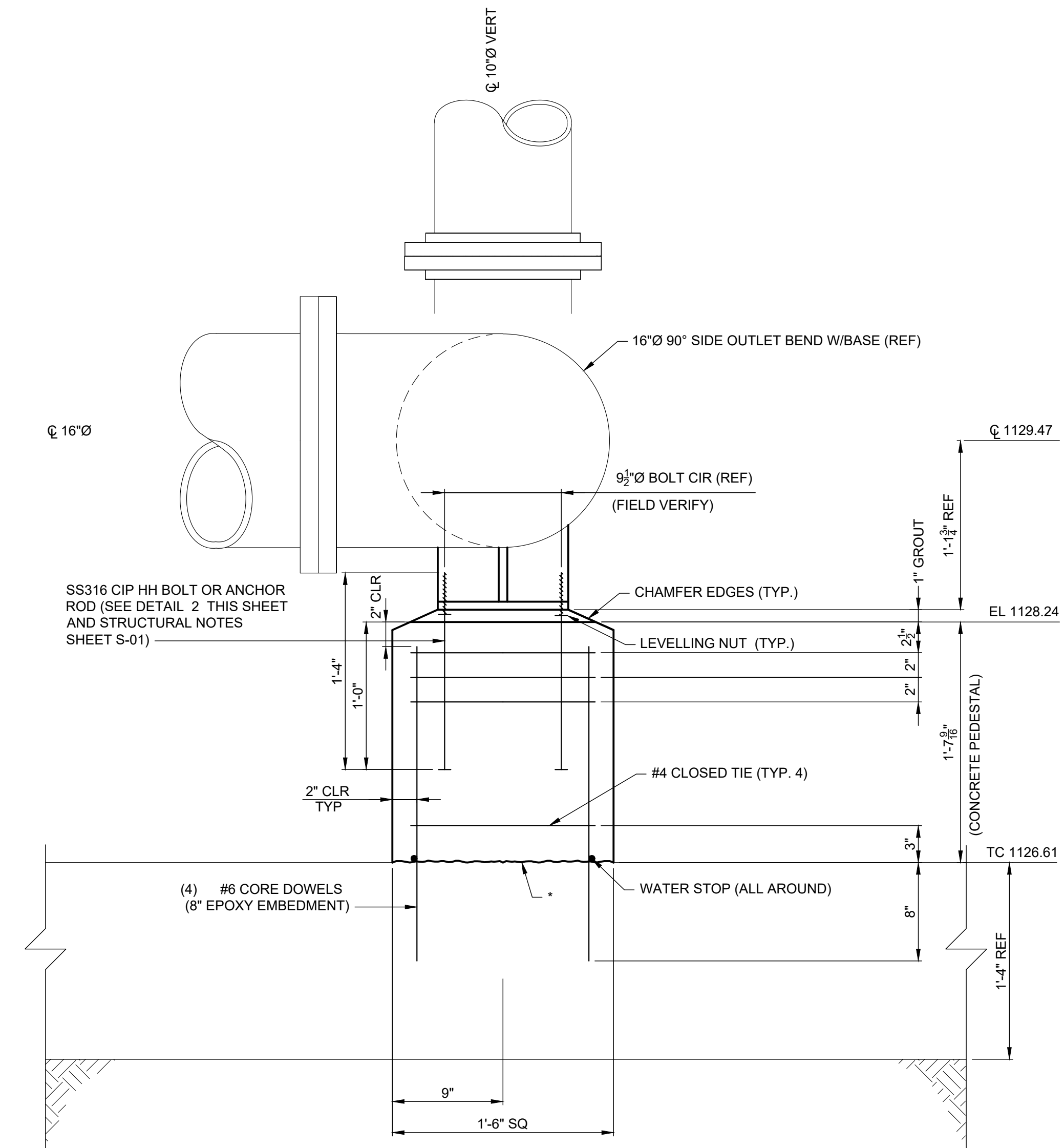
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 STRUCTURAL - S SERIES
 CADIZ, OHIO
STRUCTURAL GENERAL NOTES AND SPECIFICATIONS

PROJECT NO.	
190599	
DISCIPLINE	
STRUCTURAL	
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FILTER BUILDING SECTION VIEW

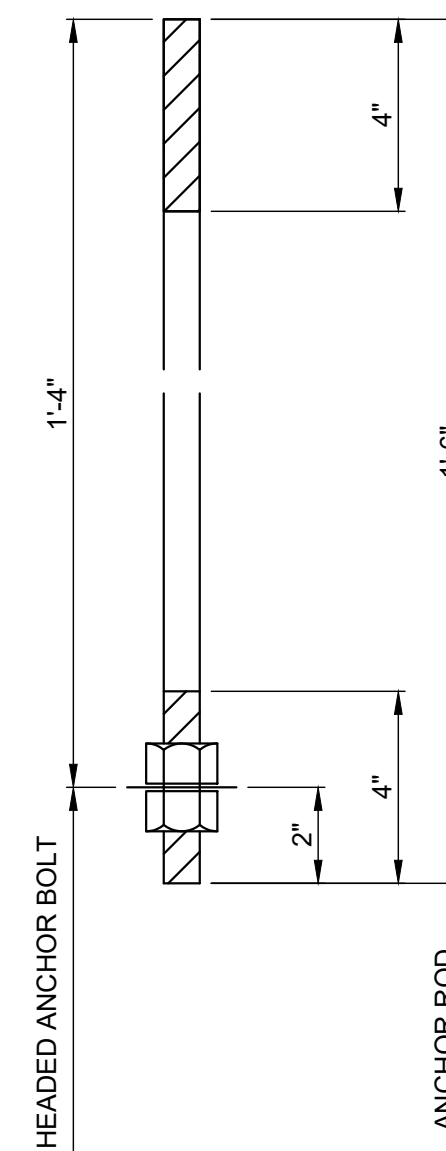
SCALE: 1/4" = 1'-0"



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

* ROUGHEN EXISTING CONCRETE SURFACE MIN. 1/4" AMPLITUDE AND APPLY APPROVED BONDING AGENT PRIOR TO CONCRETE PLACEMENT

NOTE: FIELD COORDINATE TOP OF CONCRETE PEDESTAL LEVATION AND BOLT CIR. DIAMETER WITH ACTUAL DIMENSIONS OF PROCURED SIDE OUTLET BASE, PRIOR TO FABRICATION/ CONSTRUCTION.



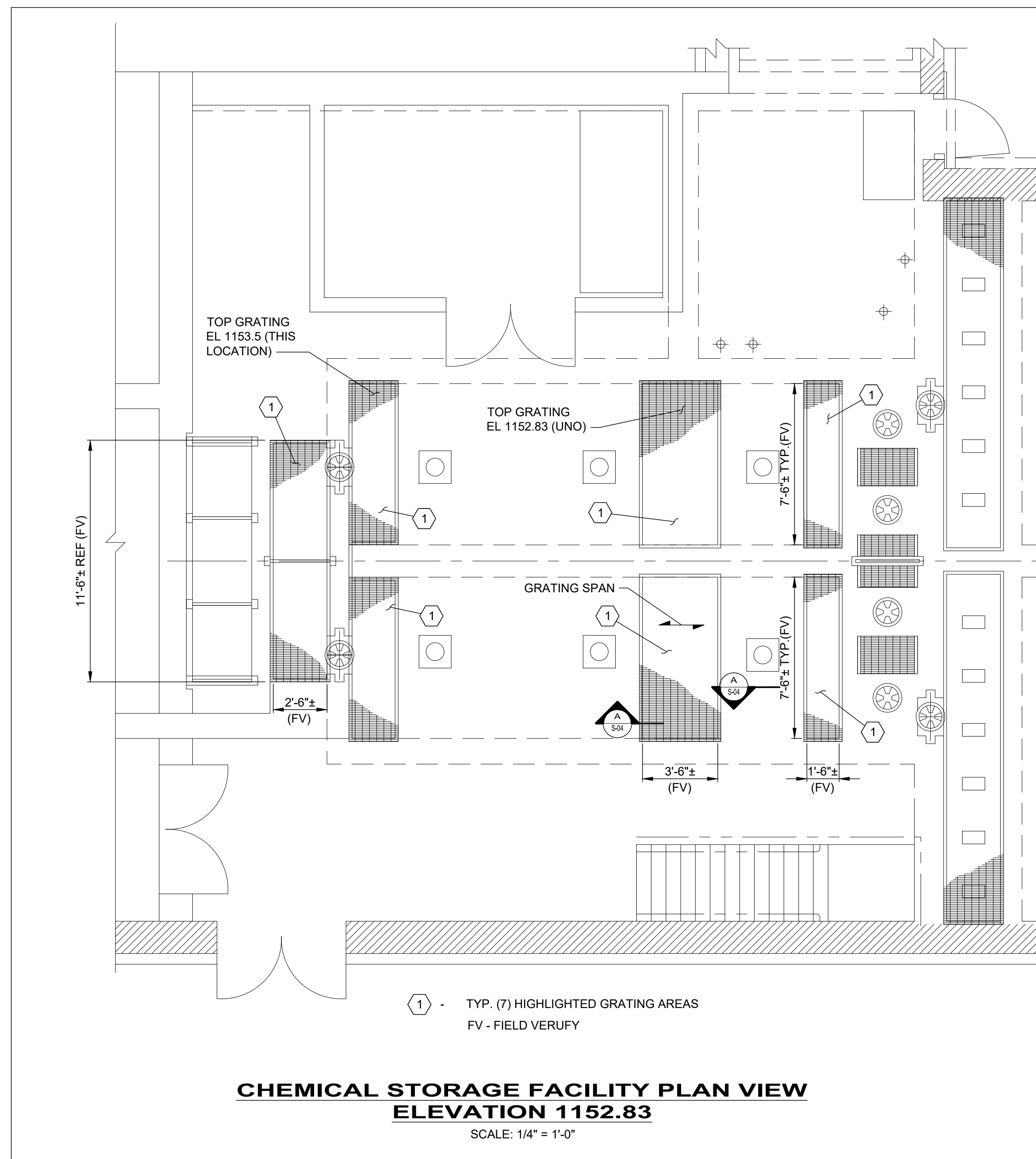
2 DETAIL
SCALE: 3" = 1'-0"

REV.	DESCRIPTION	DATE

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		03/13/2020	AS NOTED	JDZ	RE	DEB

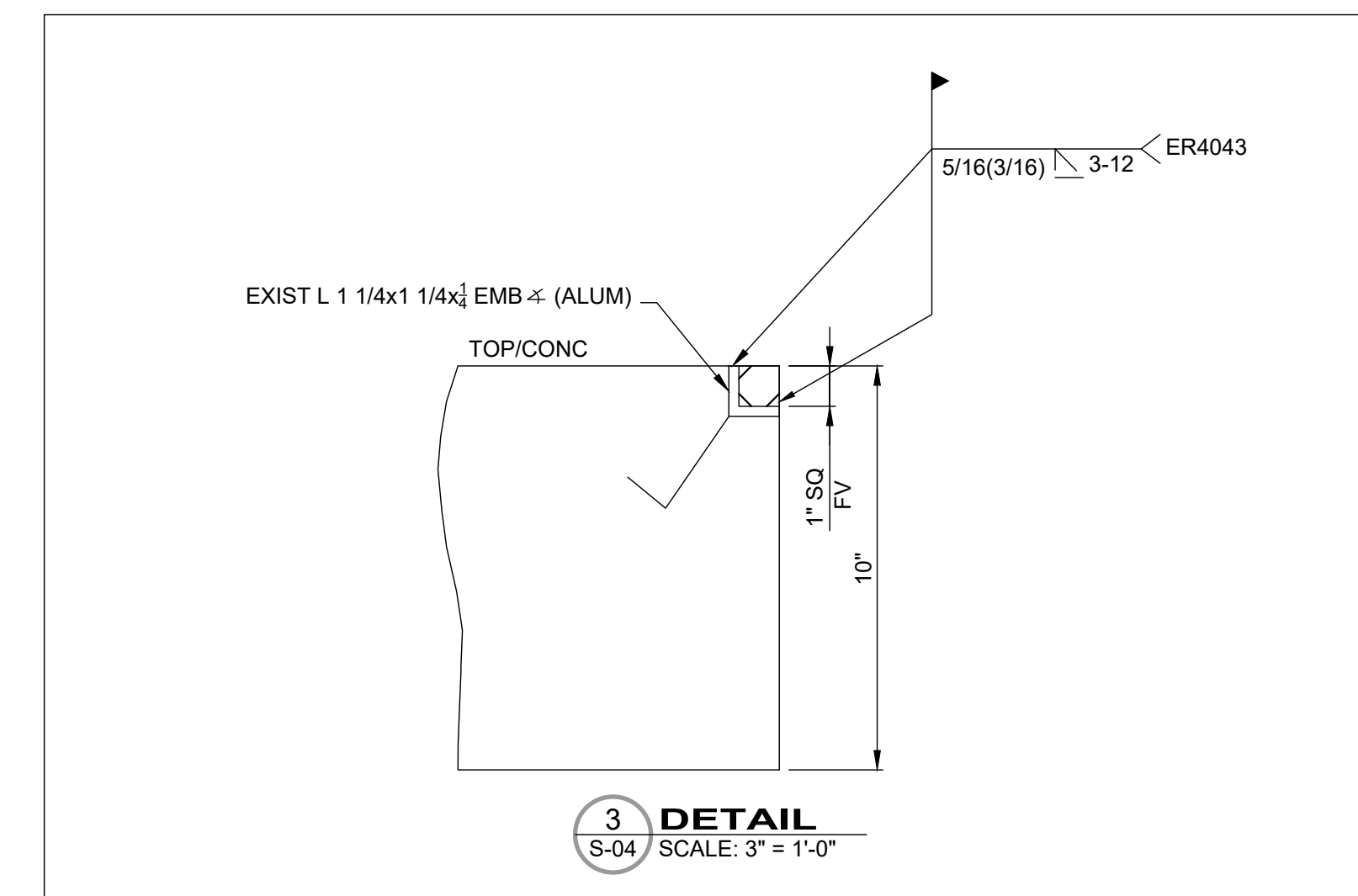
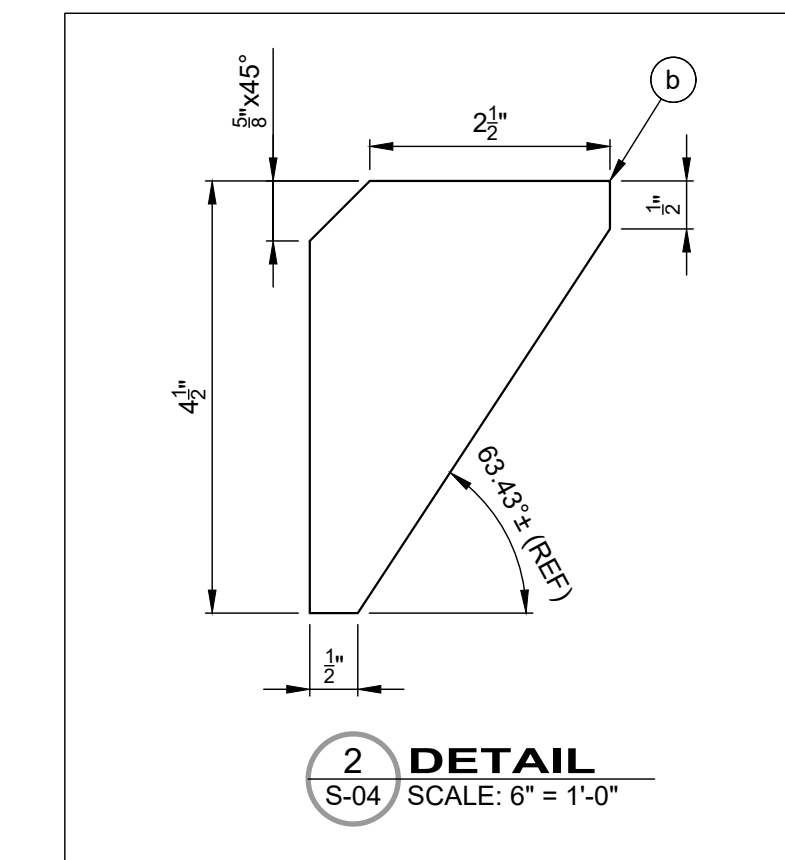
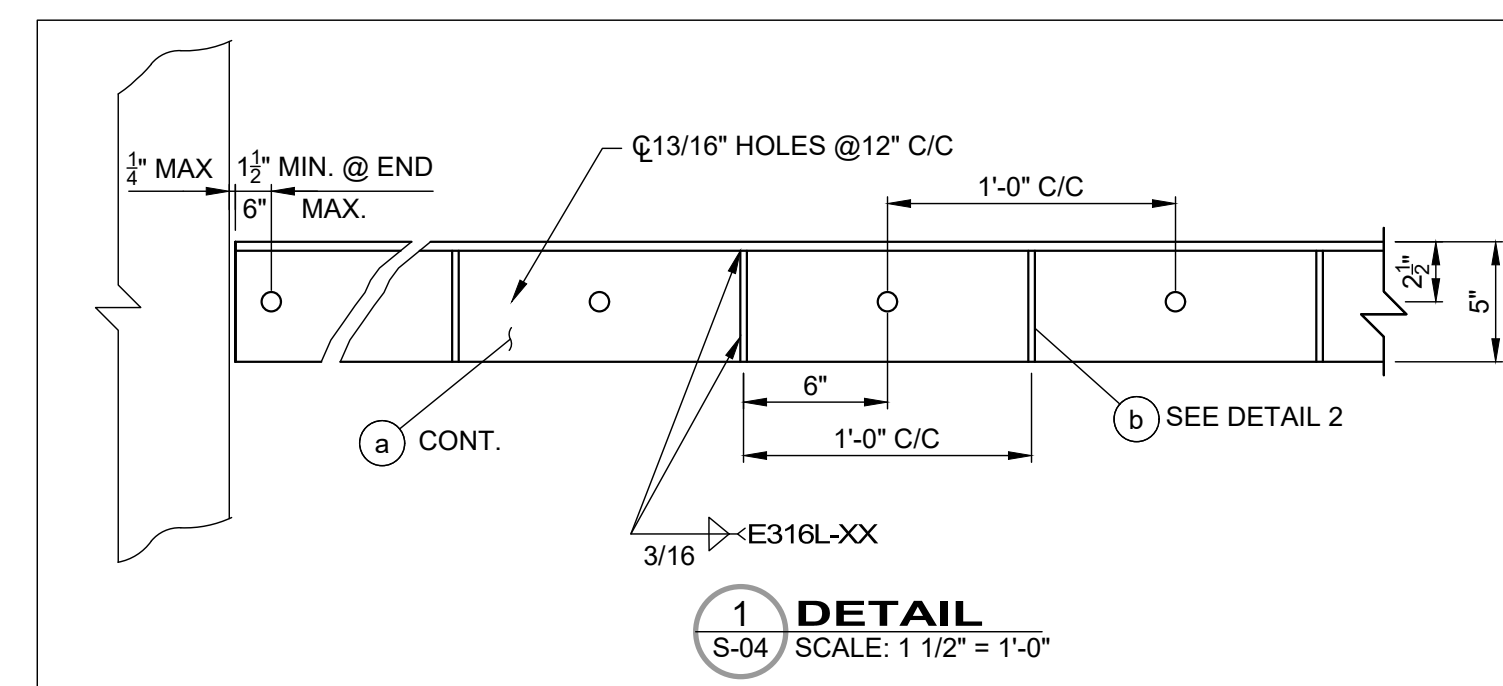
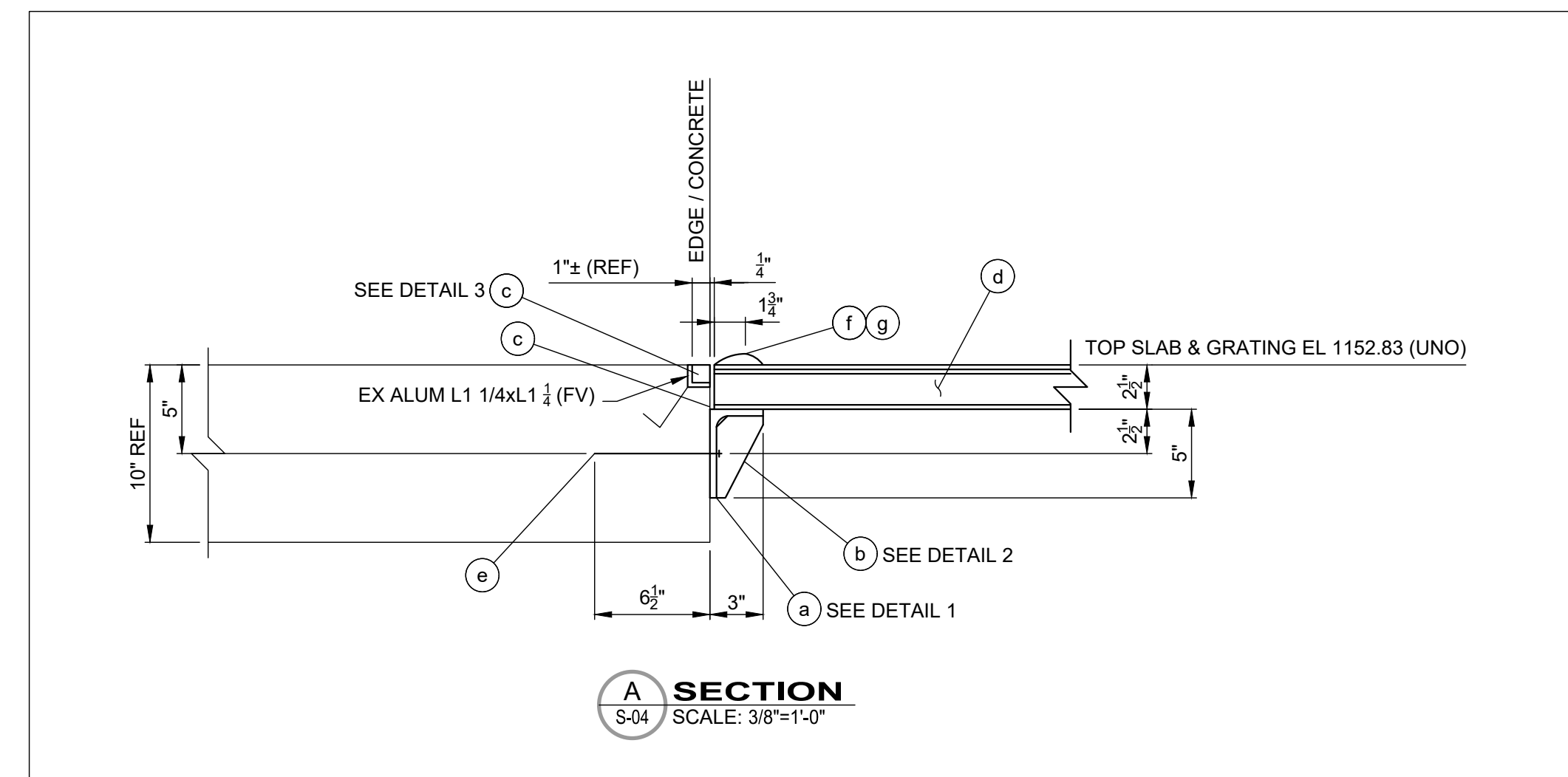
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
STRUCUTURAL - S SERIES
CADIZ, OHIO
FILTER BUILDING VALVE SUPPORT STRUCTURAL DETAILS

PROJECT NO.	190599
DISCIPLINE	STRUCTURAL
SHEET NAME	S-03
SHEET	OF
32	46



ITEM	QNTY	DESCRIPTION AND GENERAL NOTES	MAT'L	FINISH
a	AS REQ'D	SS L5X3X3/8 X LGTH AS REQ'D WITH 13/16" DIA. BOLT HOLES @ 12" C/C SPACING CENTERED IN LONG LEG FOR INSTALLATION ON ITEM (E) BELOW (SEE DETAIL 1)	ASTM A312	SS316L
b	AS REQ'D	SS BAR 3/8" X 2 1/2" X 4 1/2"; CLIP ONE CORNER 5/8" X 45° (SEE DETAIL 2)	ASTM A312	SS316L
c	AS REQ'D	ALUMINUM BAR 1" X 1" X LGTH AS REQ'D; CHAMFER (3) EDGES 5/16 X 45° (SEE DETAIL 3)	ASTM B209	6061-T6
d	AS REQ'D	MCNICHOLES® HEAVY DUTY ALUMINUM EXTRUDED HD-EXT/SOLID PLANK GRATING X LGTH AS REQ'D; 2 1/2" CHANNEL DEPTH, 6" WIDTH, GROOVED SURFACE (LWO), RECTANGULAR VENTED, 37% OPEN AREA, OR APPROVED EQUAL.	-	6063-T6
e	AS REQ'D	HILTI HIT-Z-R 3/4" DIA. X 8 1/2" LG ANCHOR ROD + HIT-HY 200 ADHESIVE (6 1/2" EMBEDMENT). NUTS SHALL BE SS 316 HEAVY HEX CONFORMING TO ASTM F594 SECURED WITH LOCTITE® THREADLOCKER RED 271™ NUT AND BOLT LOCKER. A SS 316 FLAT CIRCULAR WASHER SHALL BE USED UNDER THE NUT OF EACH ANCHOR BOLT.	-	SS 316
f	AS REQ'D	1/4" DIA. X 3" LG HEX HEAD STAINLESS STEEL SELF-DRILLING SCREW FOR USE WITH ITEM (g) TO SECURE ITEM (d) TO (a).	-	SS 316
g	AS REQ'D	HILTI X-FCP-R; SS GRATING HOLD DOWN DISC; MIN. ONE PER EACH END OF 6" WIDE GRATING PLANK (d)	-	SS 316

NOTE: FIELD DETERMINE ALL MATERIAL LENGTHS AND QUANTITIES PRIOR TO PROCUREMENT & FABRICATION



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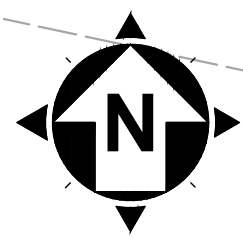
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VILLAGE OF CADIZ, OHIO WATER TREATMENT PLANT HAB IMPROVEMENTS		03/13/2020			JDZ		

HARRISON COUNTY
STRUCTURAL - S SERIES

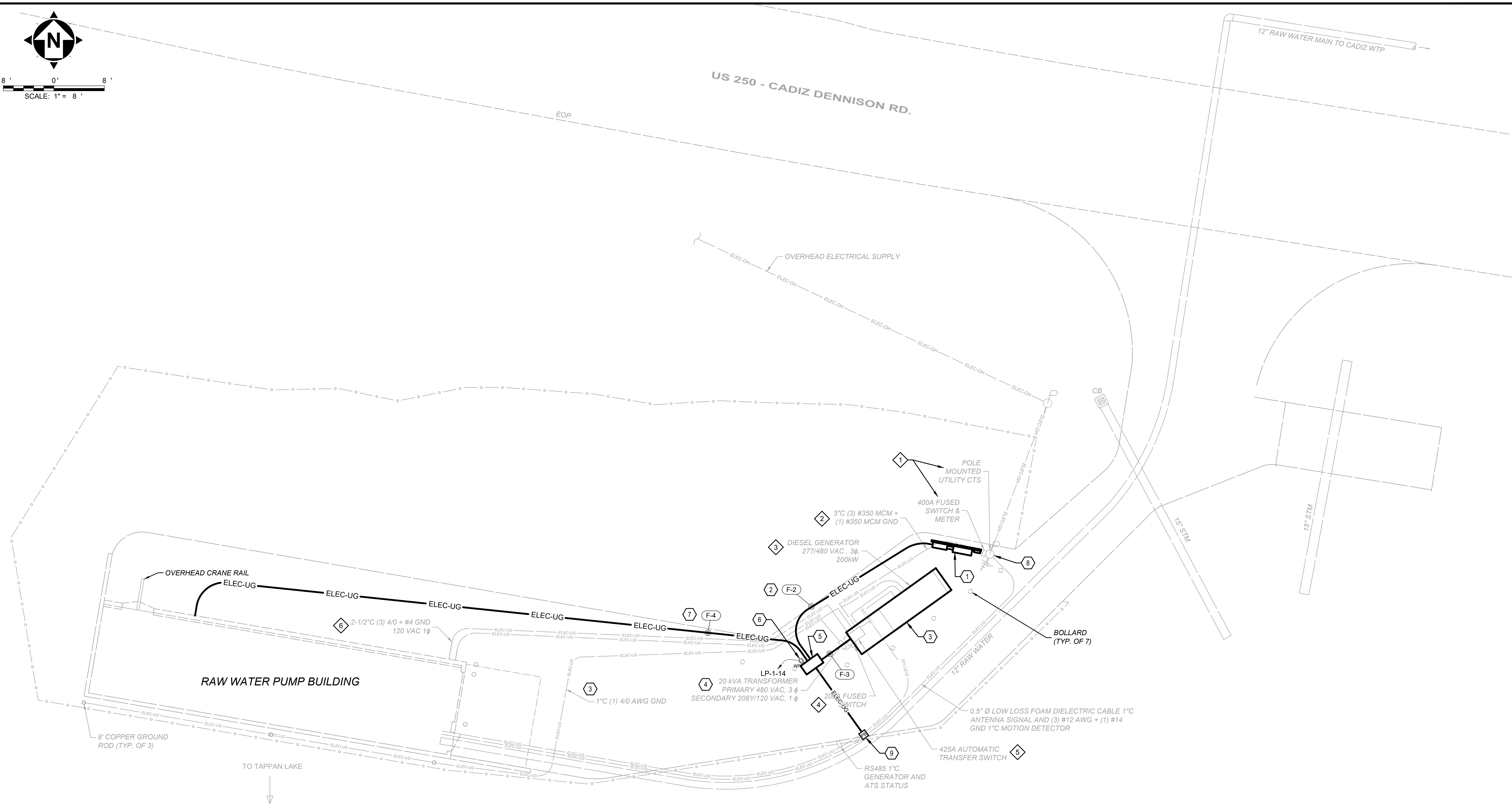
CADIZ, OHIO

PRETREATMENT CHEMICAL STORAGE FACILITY STRUCTURAL DETAILS

PROJECT NO.	190599
DISCIPLINE	STRUCTURAL
SHEET NAME	S-04
SHEET	33
OF	46



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



ELECTRICAL SITE PLAN

(X) CODED NOTES - DEMOLITION:

1. REMOVE EXISTING 400A DISCONNECT, METER BASE, AND POLE MOUNTED CURRENT TRANSFORMERS.
2. REMOVE ALL CONDUCTORS FROM EXISTING CONDUIT. REMOVE / REPLACE CONDUIT AS NEEDED TO INSTALL NEW EQUIPMENT. CAP AND ABANDON IN PLACE REMAINDER.
3. REMOVE EXISTING 200 KW GENERATOR
4. REMOVE 200A FUSED DISCONNECT FEEDING LP-1.
5. REMOVE EXISTING AUTOMATIC TRANSFER SWITCH.
6. REMOVE ALL CONDUCTORS FROM EXISTING CONDUIT. REUSE CONDUIT IF POSSIBLE FOR 120V CIRCUITS IN FIELD. CAP AND ABANDON IN PLACE ANY REMAINDER

GENERAL NOTES:

1. EXISTING EQUIPMENT BASED ON DRAWING SET BY T-K ENGINEERING & DESIGN GROUP, INC. DATED JULY, 2002 AS WELL AS CHANGES NOTED DURING SITE VISITS
2. CAP AND ABANDON IN PLACE ALL UNDERGROUND CONDUIT CONTAINING EXISTING FEEDERS TO BE REMOVED UNLESS OTHERWISE NOTED.
3. ALL PROPOSED UNDERGROUND DUCT BANKS TO UTILIZE 48" SWEEPS, MINIMUM.
4. REUSE EXISTING CONCRETE EQUIPMENT PADS WHERE POSSIBLE. EXPAND OR DEMOLISH AS NEEDED TO ACCOMMODATE NEW DEVICES.

(X) CODED NOTES - PROPOSED:

1. NEW ELECTRICAL BACKBOARD WITH SERVICE EQUIPMENT INCLUDING: CT CABINET, METER SOCKET, AND 600A FUSED DISCONNECT. SEE SHEET #38, E-05 FOR DETAILS.
2. NEW UNDERGROUND DUCT BANK. (2) SETS OF (3) 350 + (1) 350 NEU + (350) GND, EACH. SEE SHEET #38, E-05 FOR DETAILS.
3. REPLACE EXISTING 200 KW DIESEL GENERATOR WITH 250 KW MODEL WITH STATE OF OHIO APPROVED 24-HOUR FUEL TANK. RUN NEW CONDUIT AND CONDUCTORS TO NEW ATS. REMOVE / REPLACE BOLLARDS AS NEEDED. REROUTE EXISTING CONDUIT AND CONDUCTORS TO TIE IN TO EXISTING GROUNDING ELECTRODE CONDUCTOR.
4. RELOCATE EXISTING LIGHTING TRANSFORMER FROM PAD NEAR TRANSFER SWITCH TO INTERIOR OF PUMP STATION. SEE SHEET #37, E-04 FOR DETAILS.
5. REPLACE EXISTING AUTOMATIC TRANSFER SWITCH "ATS" WITH NEW 600A, 4-WIRE MODEL, NEMA 4. CONNECT TO NEW GENERATOR AND BOND EQUIPMENT TO EXISTING GROUNDING ELECTRODE CONDUCTOR. BOND NEUTRAL TO GROUND.
6. REPLACE EXISTING 20A GFCI RECEPTACLE IN KIND WITH WEATHERPROOF IN-USE COVER AND REWIRE TO CIRCUIT LP-1-14.
7. NEW UNDERGROUND DUCT BANK FROM NEW ATS TO MDP. (2) SETS OF (3) 350 + (1) 350 NEU + (350) GND, EACH. SEE SHEET #38, E-05 FOR DETAILS AND SCHEDULE.
8. TIE EXISTING POLE LIGHT INTO LP-1-20.
9. INSERT NEW PULL BOX INTO EXISTING CONDUIT RUNS FOR ATS & GENERATOR SIGNALS AS WELL AS DEVICES ON POWER POLE. REPLACE / REUSE CONDUCTORS AND CABLES AS NEEDED.

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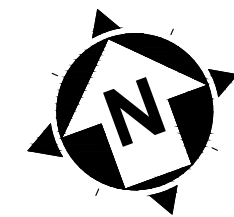
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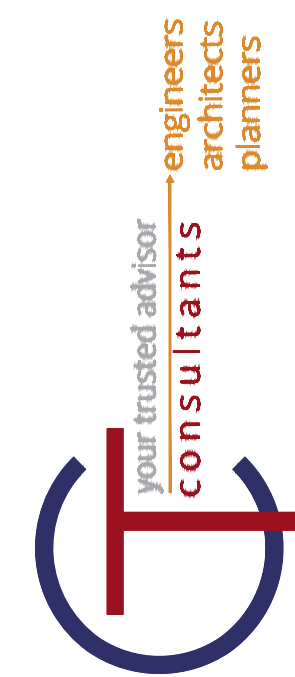
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		03/13/2020	1" = 8'	JPB	JPB	NSS

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
TAPPAN LAKE PUMP STATION
CADIZ, OHIO
ELECTRICAL SITE PLAN

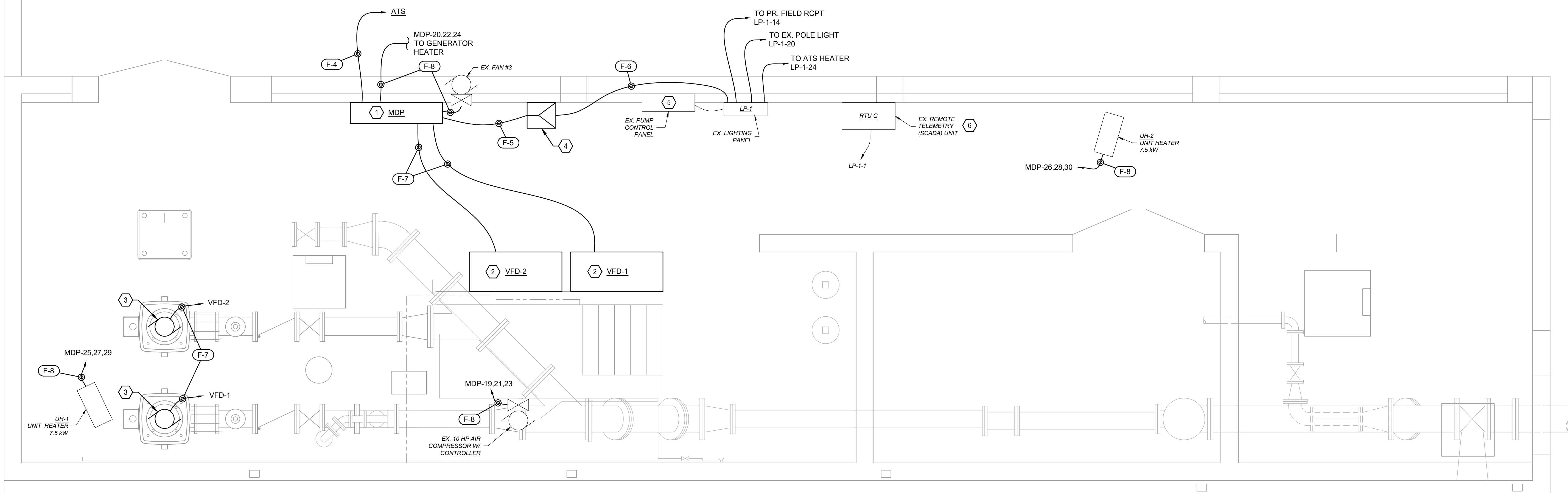
PROJECT NO.	
190599	
DISCIPLINE	
ELECTRICAL	
SHEET NAME	
E-02	
SHEET	OF
35	46



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REVIEW	REV. DESCRIPTION
ISSUE DATE:	DATE
03/13/2020	
SCALE:	
1" = 8'	
DESIGNED BY:	
JPB	
DRAWN BY:	
JPB	
CHECKED BY:	
NSS	



POWER PLAN - PROPOSED
SCALE: 1/2" = 1'-0"

PANELBOARD		MDP							
PANEL TYPE		HCP							
NEMA TYPE		NEMA 12							
VOLTAGE		480V							
OCPD		600A							
MOUNTING		FLOOR							
		PHASE	3						
		WIRE	3						
		BUSS	600A						
LOAD DESCRIPTION	LOAD	BKR.	CKT. NO.	PHASE	CKT. NO.	BKR.	LOAD	LOAD DESCRIPTION	
"XF" LIGHTING TRANSFORMER	25,000	65/2	1	A	2				
			3	B	4	15/3			
			5	C	6				
			7	A	8				
		15/3	9	B	10	15/3			
			11	C	12				
			13	A	14				
		15/3	15	B	16	15/3	1,865	FAN #3	
			17	C	18				
"COMP" AIR COMPRESSOR	9,325	15/3	19	A	20				
			21	B	22	15/3	6,500	GENERATOR BLOCK HEATER	
			23	C	24				
			25	A	26				
"UH-1" UNIT HEATER #1	7,500	15/3	27	B	28	15/3	7,500	"UH-2" UNIT HEATER #2	
			29	C	30				
			31	A	32				
"VFD-1" RAW WATER PUMP #1	149,200	300/3	33	B	34	300/3	149,200	"VFD-2" RAW WATER PUMP #2	
			35	C	36				
		356,090 VA		CONNECTED					
		393,390 VA		DEMAND					
		473.17 A @ 480V, 3P, 3W							

PROPOSED MAIN DISTRIBUTION PANEL SCHEDULE

CODED NOTES - PROPOSED:

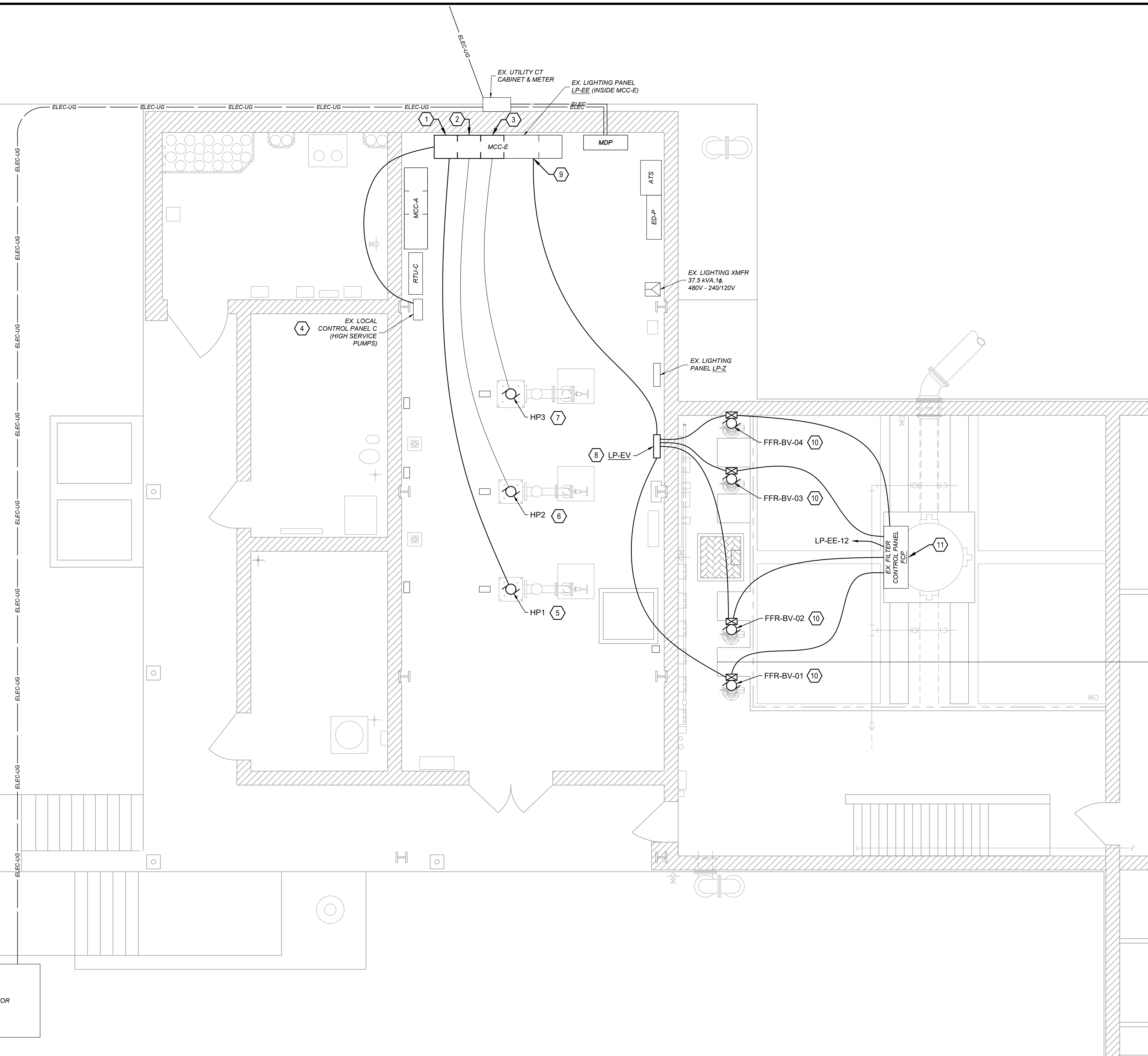
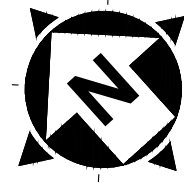
- REPLACE EXISTING DISTRIBUTION PANEL "HDP" WITH MAIN DISTRIBUTION PANEL "MDP", SQUARE-D CAT# HCP18686M OR APPROVED EQUAL. LOCATE THE EXISTING BUILDING GROUNDING ELECTRODE CONDUCTOR AND EXTEND TO THE NEW PANEL GROUND BUS. REUSE EXISTING CONDUIT AS MUCH AS POSSIBLE, DISCONNECT AND RETERMINATE EXISTING 480V CIRCUITS TO NEW CIRCUIT BREAKERS. RUN NEW CONDUCTORS AS NEEDED. SEE SHEET #38, E-05 FOR ONE-LINE DIAGRAM AND FEEDER SCHEDULE.
- REPLACE EXISTING RAW WATER PUMP SOFT STARTERS WITH VARIABLE FREQUENCY DRIVES, 200 HP. LOCATE NEW ENCLOSURES IN ORDER TO REUSE EXISTING EMBEDDED CONDUIT WHERE POSSIBLE. RUN NEW CONDUIT AS NEEDED FOR NEW CONDUCTORS. COORDINATE WITH SYSTEMS INTEGRATOR TO RUN CONTROL WIRING TO MODIFIED OR NEW REMOTE SCADA PANEL "RTU G".
- RAW WATER PUMP MOTORS, 480V / 3 ϕ / 60 Hz / 200 HP. REUSE EXISTING CONDUIT WHERE POSSIBLE, REAM OR REPLACE AS NEEDED.
- LIGHTING TRANSFORMER, 25 kVA, 480-240/120V, 1 ϕ . RELOCATED FROM PAD NEAR EXISTING TRANSFER SWITCH AND SUSPENDED FROM CEILING NEAR NEW MDP. INSTALL IN SUCH A WAY TO MINIMIZE SHADOWS FROM EXISTING LIGHTING AND AT AN ELEVATION WHERE THE BOTTOM OF THE SUPPORT IS NO LOWER THAN THE TOP OF THE EMERGENCY LIGHTING.
- EXISTING PUMP CONTROL PANEL: REMOVE ALL "PUMP #3" MANUAL OPERATORS AND WIRING FROM DOOR BACK TO TERMINAL BLOCKS. REPLACE WITH PLUGS MATCHING DOOR FINISH.
- EXISTING REMOTE SCADA PANEL "RTU G". COORDINATE MODIFICATIONS NEEDED TO ACCOMMODATE NEW PUMP CONTROLS WITH THE PROJECT'S SYSTEMS INTEGRATOR.

GENERAL NOTES:

- EXISTING EQUIPMENT BASED ON DRAWING SET BY T-K ENGINEERING & DESIGN GROUP, INC. DATED JULY, 2002 AS WELL AS CHANGES NOTED DURING SITE VISITS

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 TAPPAN LAKE PUMP STATION
 CADIZ, OHIO
 POWER PLAN - PROPOSED

PROJECT NO.		190599
DISCIPLINE		ELECTRICAL
SHEET NAME		E-04
SHEET	OF	
37	46	



WATER TREATMENT PLANT - PARTIAL PLAN, UPPER LEVEL
SCALE: 1/4" = 1'

- GENERAL NOTES:**
- SEE SHEET #42, ONE-LINE DIAGRAM & INTERCONNECTIONS FOR SCHEDULE OF CONTROL SIGNALS TO BE WIRED TO THE FILTER CONTROL PANEL "FCP"
 - ALL CONDUIT IN FILTER ROOM TO BE SCHEDULE-40 PVC OR NON-METALLIC FLEXIBLE UNLESS OTHERWISE NOTED, ALL OTHER AREAS TO BE RGS
 - MINIMUM SIZE OF CONDUIT IS 3/4"
 - RUN CONDUCTORS OF DIFFERING VOLTAGES IN SEPARATE CONDUIT. VOLTAGE LEVELS ARE AS FOLLOWS:
 - VALVE POWER - 480 VAC, 3φ
 - INSTRUMENT POWER - 120 VAC, 1φ
 - LIGHTS & RECEPTACLES POWER - 120 VAC, 1φ
 - ANALOG CONTROL SIGNALS - 24 VDC
 - DIGITAL CONTROL SIGNALS - MATCH EXISTING SYSTEM VOLTAGE LEVEL AND PHASE
 - ALL PROPOSED CONDUCTORS TO BE THE FOLLOWING:
 - VALVE POWER - (3) #12 + (1) #12 GND
 - ALL 120 VAC WIRING - (2) #12 + (1) #12 GND
 - ALL CONTROL SIGNALS - A SINGLE CAT6 ETHERNET CABLE TO EACH VALVE CONTROLLER, BELDEN #7940A OR EQUAL
 - PROPOSED 20A RECEPTACLES - (2) #12 + (1) #12 GND

- CODED NOTES:**
- REPLACE SIEMENS 50 HP SOFT STARTER WITH 60 HP VFD INSIDE MCC-E.
 - REPLACE SIEMENS 60 HP SOFT STARTER WITH 60 HP VFD INSIDE MCC-E.
 - REPLACE SIEMENS 100 HP SOFT STARTER WITH 100 HP VFD INSIDE MCC-E.
 - RUN CONTROL CONDUCTORS AND CABLES FOR VFDs TO EXISTING LOCAL CONTROL PANEL C. ADD HARDWARE DEVICES AS NEEDED PER EXAMPLE DIAGRAM ON SHEET #42, E-09
 - DISCONNECT WIRING FROM EXISTING 50 HP PUMP MOTOR AND REMOVE ENTIRE RUN FROM MOTOR TO MCC-E. RUN NEW CONDUCTORS FOR 60 HP MOTOR IN EXISTING CONDUIT, TEST INSULATION OF CONDUCTORS AND MOTOR WINDINGS, AND TERMINATE AT MOTOR JUNCTION BOX. (3) #3 + (1) #8 GND
 - DISCONNECT WIRING FROM EXISTING MOTOR. TEST INSULATION OF CONDUCTORS, AND CONNECT TO NEW 60 HP PUMP INSTALLED IN SAME LOCATION.
 - DISCONNECT WIRING FROM EXISTING MOTOR. TEST INSULATION OF CONDUCTORS, AND CONNECT TO NEW 100 HP PUMP INSTALLED IN SAME LOCATION.
 - VALVE ACTUATOR 480V POWER DISTRIBUTION PANEL "LP-EV". SIEMENS P1 SERIES WITH 42 CIRCUITS, CAT# P1-F-42-ML-100-A-T-S OR APPROVED EQUAL. SEE SHEET #43, E-10 FOR PANEL SCHEDULE. ALL CIRCUIT BREAKERS TO BE PROVIDED WITH LOCKOUT PROVISIONS FOR ACTUATOR MAINTENANCE PER NEC.
 - ADD 35A CIRCUIT BREAKER TO SPARE SECTION OF EXISTING MCC-E TO FEED LP-EV WITH (3) #10 + (1) #12 GND IN 3/4" CONDUIT.
 - EFFLUENT VALVE #1,2,3,4; CONDUCTORS:
 - VALVE POWER
 - (4) DIGITAL SIGNALS
 - EXISTING FILTER CONTROL PANEL "FCP". PROVIDE ADDITIONAL HARDWARE AND PLC PROGRAMMING TO PERFORM THE PROPOSED PROCESS CONTROL DESCRIPTION FOUND IN SPECIFICATION SECTION 406196. SEE SHEET #42, E-09 FOR NEW CONTROL WIRING INTERCONNECTIONS.
 - MANUAL OPERATORS & INDICATORS
 - DISCRETE VALVES
 - OPEN-AUTO-CLOSE SELECTOR SWITCH
 - GREEN "OPEN" AND RED "CLOSED" PILOT LIGHTS
 - PROPORTIONAL VALVE
 - HAND-AUTO SELECTOR SWITCH
 - OPEN POSITION POTENTIOMETER, 0 - 100%
 - "% OPEN" 4-DIGIT 7-SEGMENT DISPLAY, 0.0 - 100.0
 - BACKWASH WATER FLOW METER
 - FLOW, 5-DIGIT 7-SEGMENT DISPLAY, 0.0 - 1000.0 GPM

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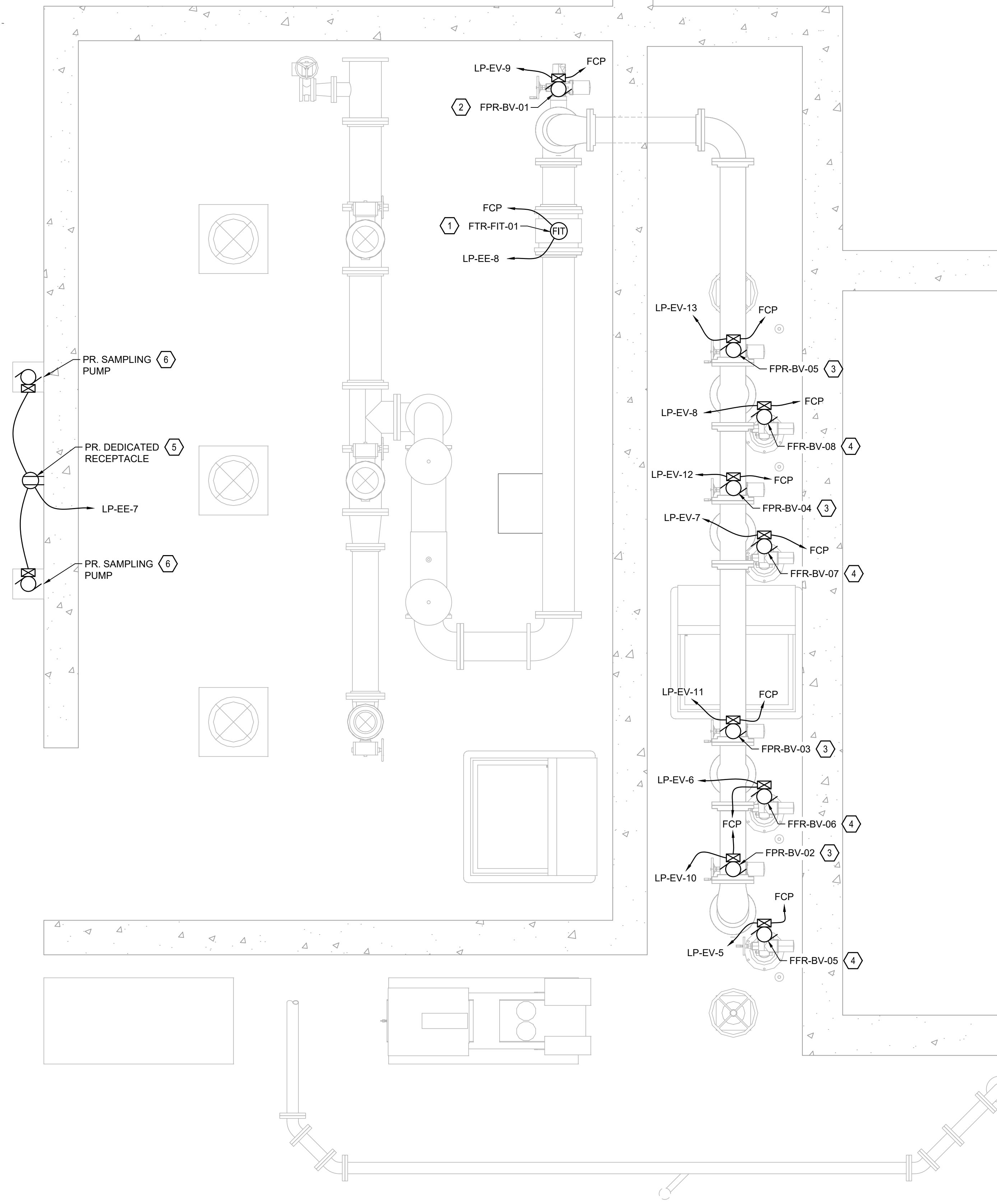
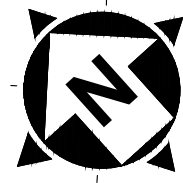
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REV#	DESCRIPTION	DATE	DATE

PROJECT NO.	190599
DISCIPLINE	ELECTRICAL
SHEET NAME	E-06
SHEET	39
OF	46

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB
 IMPROVEMENTS

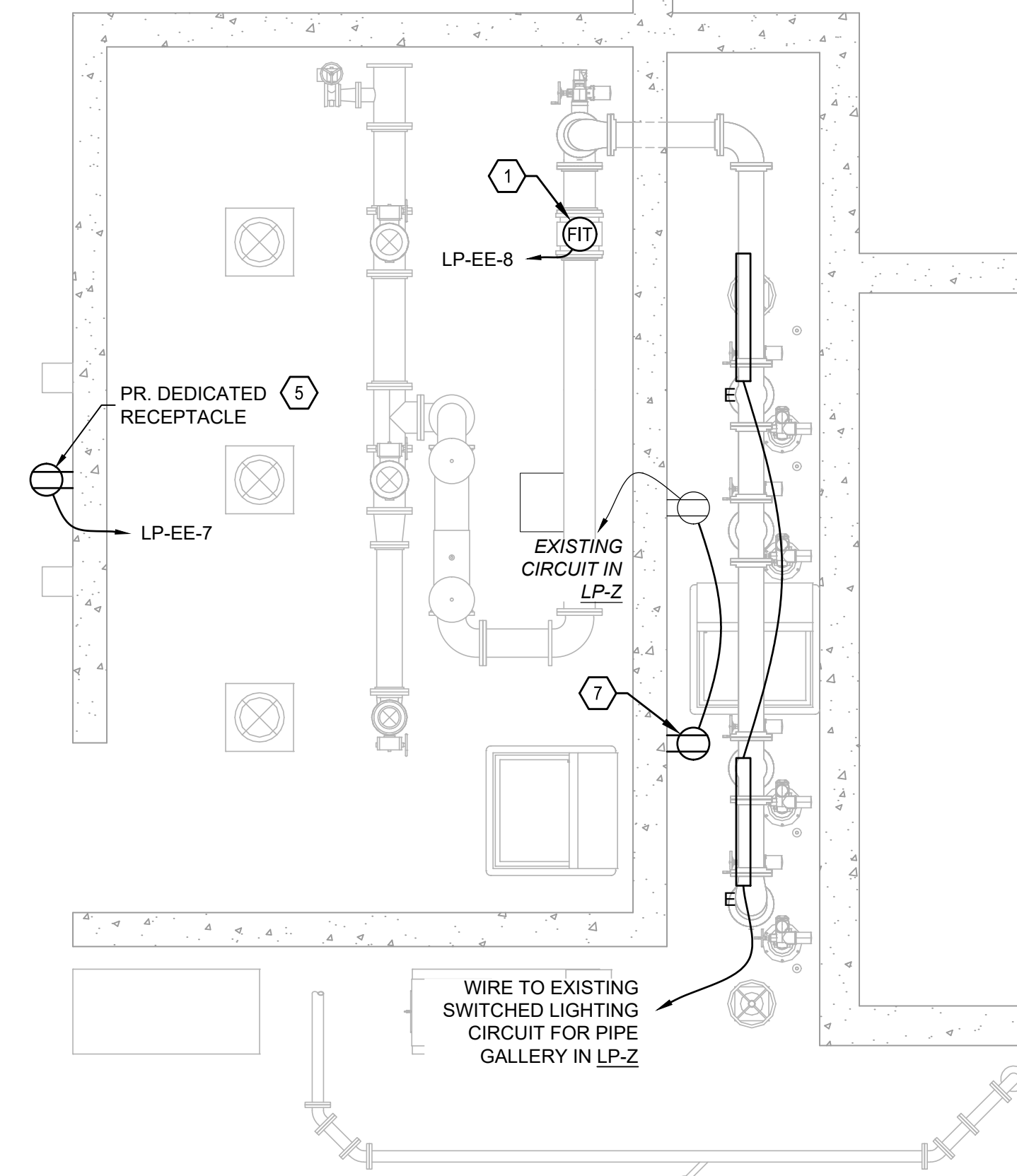
HARRISON COUNTY
 WATER TREATMENT PLANT

CADIZ, OHIO
 POWER & INSTRUMENTATION - UPPER LEVEL



**WATER TREATMENT PLANT, PARTIAL PLAN
PROPOSED INSTRUMENTATION - MIDDLE LEVEL**

SCALE: 1/2" = 1'



**WATER TREATMENT PLANT, PARTIAL PLAN
PROPOSED LIGHTING - MIDDLE LEVEL**

SCALE: 1/4" = 1'

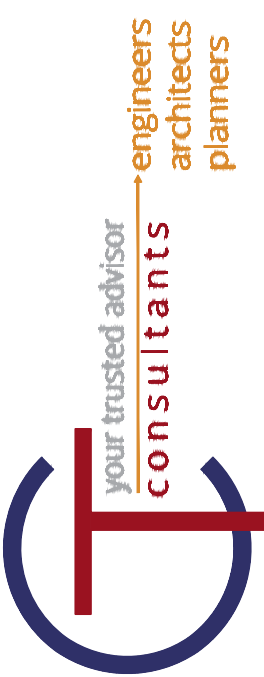
GENERAL NOTES:

1. ALL CONTROL SIGNALS TO BE WIRED TO THE FILTER CONTROL PANEL "FCP". SEE SHEET #42,E-09 FOR WIRING SCHEDULE.
2. ALL CONDUIT TO BE SCHEDULE-40 PVC OR NON-METALLIC FLEXIBLE UNLESS OTHERWISE NOTED; 3/4" MINIMUM
3. RUN CONDUCTORS OF DIFFERING VOLTAGES IN SEPARATE CONDUIT. VOLTAGE LEVELS ARE AS FOLLOWS:
 - 3.1. VALVE POWER - 480 VAC, 3φ
 - 3.2. INSTRUMENT POWER - 120 VAC, 1φ
 - 3.3. LIGHTS & RECEPTACLES POWER - 120 VAC, 1φ
 - 3.4. ANALOG CONTROL SIGNALS - 24 VDC
 - 3.5. DIGITAL CONTROL SIGNALS - MATCH EXISTING SYSTEM VOLTAGE LEVEL AND PHASE
4. ALL PROPOSED CONDUCTORS TO BE THE FOLLOWING:
 - 4.1. VALVE POWER - (3) #12 AWG + (1) #12 GND
 - 4.2. ALL 120 VAC WIRING - (2) #12 AWG + (1) #12 GND
 - 4.3. ALL CONTROL SIGNALS - CAT6 ETHERNET CABLE, BELDEN #7940A OR EQUAL
 - 4.4. PROPOSED 20A RECEPTACLES - (2) #12 AWG + (1) #12 AWG GND

(X) CODED NOTES:

1. FILTERS BACKWASH WATER FLOWMETER, CONDUCTORS:
 - 1.1. (1) INSTRUMENT POWER
 - 1.2. (1) ANALOG SIGNAL
2. FILTERS BACKWASH FLOW CONTROL VALVE, CONDUCTORS:
 - 2.1. (1) VALVE POWER
 - 2.2. (2) ANALOG SIGNALS
 - 2.3. (1) DIGITAL SIGNAL
3. FILTER #1,2,3,4 BACKWASH WATER FLOW VALVE, CONDUCTORS:
 - 3.1. (1) VALVE POWER
 - 3.2. (4) DIGITAL SIGNALS
4. FILTER-TO-WASTE VALVE #1,2,3,4, CONDUCTORS:
 - 4.1. (1) VALVE POWER
 - 4.2. (4) DIGITAL SIGNALS
5. DUPLEX RECEPTACLE, 20A, GFCI, INSTALLED AT LEAST 48" AFF, WIRED TO SPARE 20A CIRCUIT IN LP-EE, DEDICATED TO POWER NEW CLEARWELL SAMPLING PUMPS. MATCH EXISTING MANUFACTURER.
6. CLEARWELL SAMPLING PUMPS WITH FACTORY INSTALLED CABLES, PLUGGED INTO RECEPTACLE (ITEM #5).
7. (3) DUPLEX RECEPTACLES, 20A, GFCI, INSTALLED IN COMMON NEMA 4X GANG BOX ALONG WALL AT HEIGHT ABOVE EXISTING SAMPLING PUMPS. EXTEND CIRCUIT FROM EXISTING RECEPTACLE AND RUN NEW CONDUIT THAT MATCHES EXISTING TYPE. REWORK EXISTING CONDUIT AS NEEDED.

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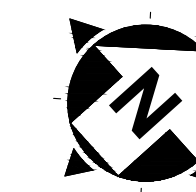


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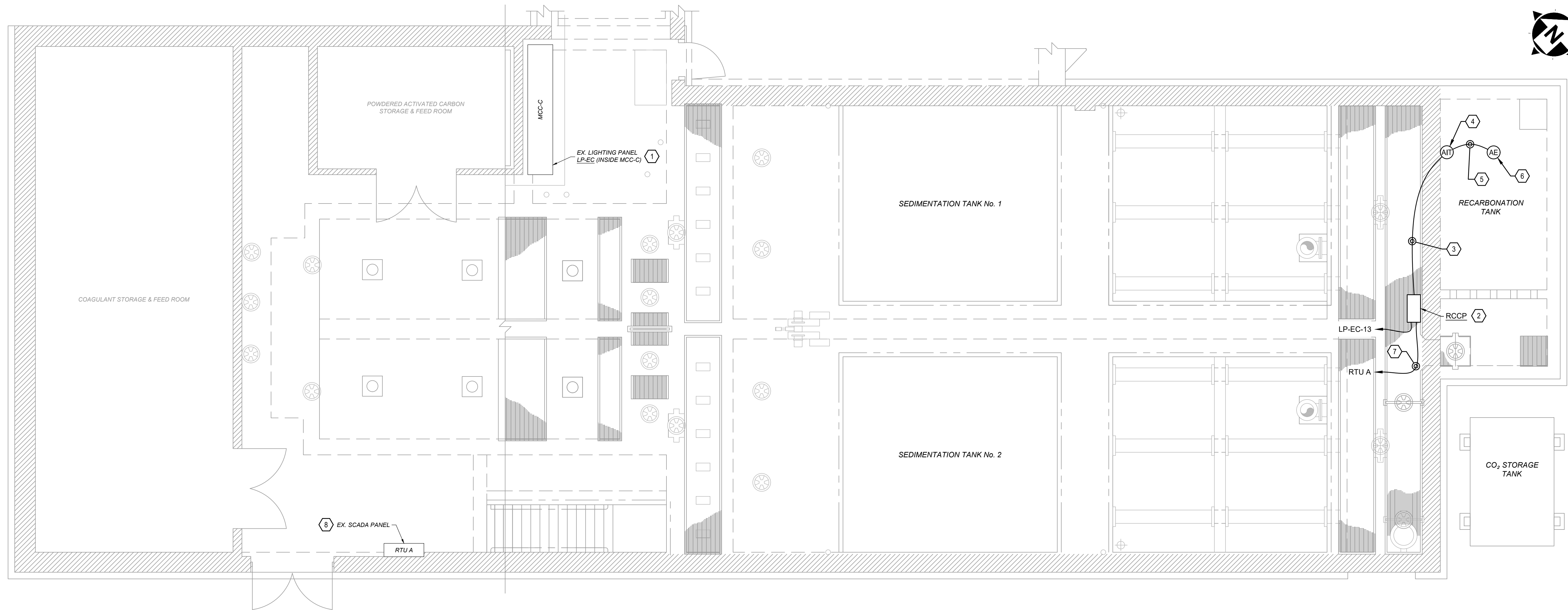
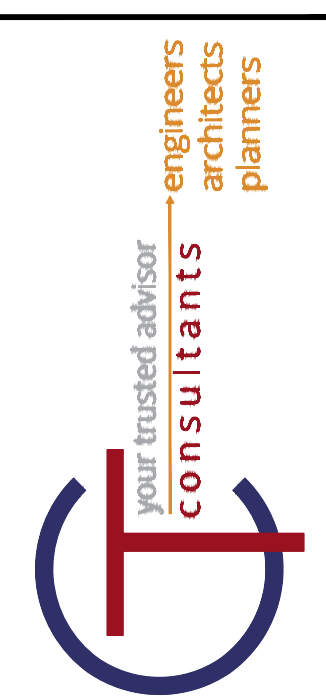
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REV	DESCRIPTION	REV	DESCRIPTION

PROJECT NO.	190599
DISCIPLINE	ELECTRICAL
SHEET NAME	E-07
SHEET	40
OF	46

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 WATER TREATMENT PLANT
 CADIZ, OHIO
POWER, LIGHTING & INSTRUMENTATION - MIDDLE LEVEL



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**WATER TREATMENT PLANT, PARTIAL PLAN
PRE-TREATMENT AREA**

SCALE: 1/4" = 1'

GENERAL NOTES:

1. ALL CONDUIT TO BE PVC COATED RMC UNLESS OTHERWISE NOTED. FLEXIBLE CONDUIT (WHERE NEEDED) TO BE LFMC.

(X) CODED NOTES:

1. WIRE NEW PANEL TO SPARE CIRCUIT IN LP-EC INSIDE MCC-C. (2) #12 + (1) #12 GND IN 3/4" C.
2. RECARBONATION CONTROL PANEL "RCCP". VENDOR SUPPLIED. INSTALLED BY CONTRACTOR ALONG NORTHEAST WALL. MOUNT TO WALL OR GRATING AS REQUIRED.
3. (1) 2-C SHLD CABLE IN 3/4" C. TERMINATE IN RCCP PER VENDOR DRAWINGS
4. pH TRANSMITTER, VENDOR SUPPLIED. INSTALLED BY CONTRACTOR ALONG EXTERIOR WALL NEAR pH PROBE PORT IN RECARBONATION TANK. ROSEMOUNT 1066 OR EQUAL.
5. FACTORY CABLE FOR pH PROBE IN 3/4" C.
6. pH PROBE, VENDOR SUPPLIED, CONTRACTOR INSTALLED. COIL AT LEAST 5 FT OF SPARE CABLE BEFORE ENTRANCE TO CONDUIT. SEAL WITH APPROPRIATELY SIZED CABLE GLAND.
7. CAT. 6 ETHERNET CABLE IN 3/4" C. TO EXISTING SCADA PANEL "RTU A". VERIFY CABLE REQUIREMENTS WITH APPROVED EQUIPMENT SHOP DRAWINGS.
8. EXISTING SCADA PANEL RTU A. SYSTEM INTEGRATOR TO MODIFY PANEL AS REQUIRED TO PROVIDE REMOTE MONITORING AND CONTROL OF THE NEW RCCP.

PANELBOARD	LP-EC	
PANEL TYPE	S3	
NEMA TYPE	NEMA 1	
VOLTAGE	240V/120V	PHASE 1
OCPD	90A	WIRE 3
MOUNTING	INTEGRATED INTO MCC	BUSS 100A

LOAD DESCRIPTION	BKR.	CKT. NO.	PHASE	CKT. NO.	BKR.	LOAD DESCRIPTION
PRE-TREATMENT DWNST LTS	20/1	1	A	2	20/1	PRE-TREATMENT RCPTS
PRE-TREATMENT UPST LTS	20/1	3	B	4	20/1	KmNO4 CONTROL PANEL
OFFICE / LAB LTS	20/1	5	A	6	20/1	DAY TANK CONTROL PANEL & INST
EXTERIOR LTS	20/1	7	B	8	20/1	ALUM PUMP
EXTERIOR LTS	20/1	9	A	10	20/1	ALUM PUMP
SPARE	20/1	11	B	12	20/1	RTU C
RECARB CONTROL PANEL	20/1	13	A	14	20/1	NL BASEMENT
SPARE	20/1	15	B	16	20/1	KmNO4 PUMP
SPARE	20/1	17	A	18	20/1	KmNO4 MIXER
SPARE	20/1	19	B	20	20/1	SPARE
SPARE	20/1	21	A	22	20/1	SPARE
SPARE	20/1	23	B	24	20/1	SPARE
SPARE	20/1	25	A	26	20/1	SPARE
SPARE	20/1	27	B	28	20/1	SPARE
SPARE	20/1	29	A	30	20/1	SPARE

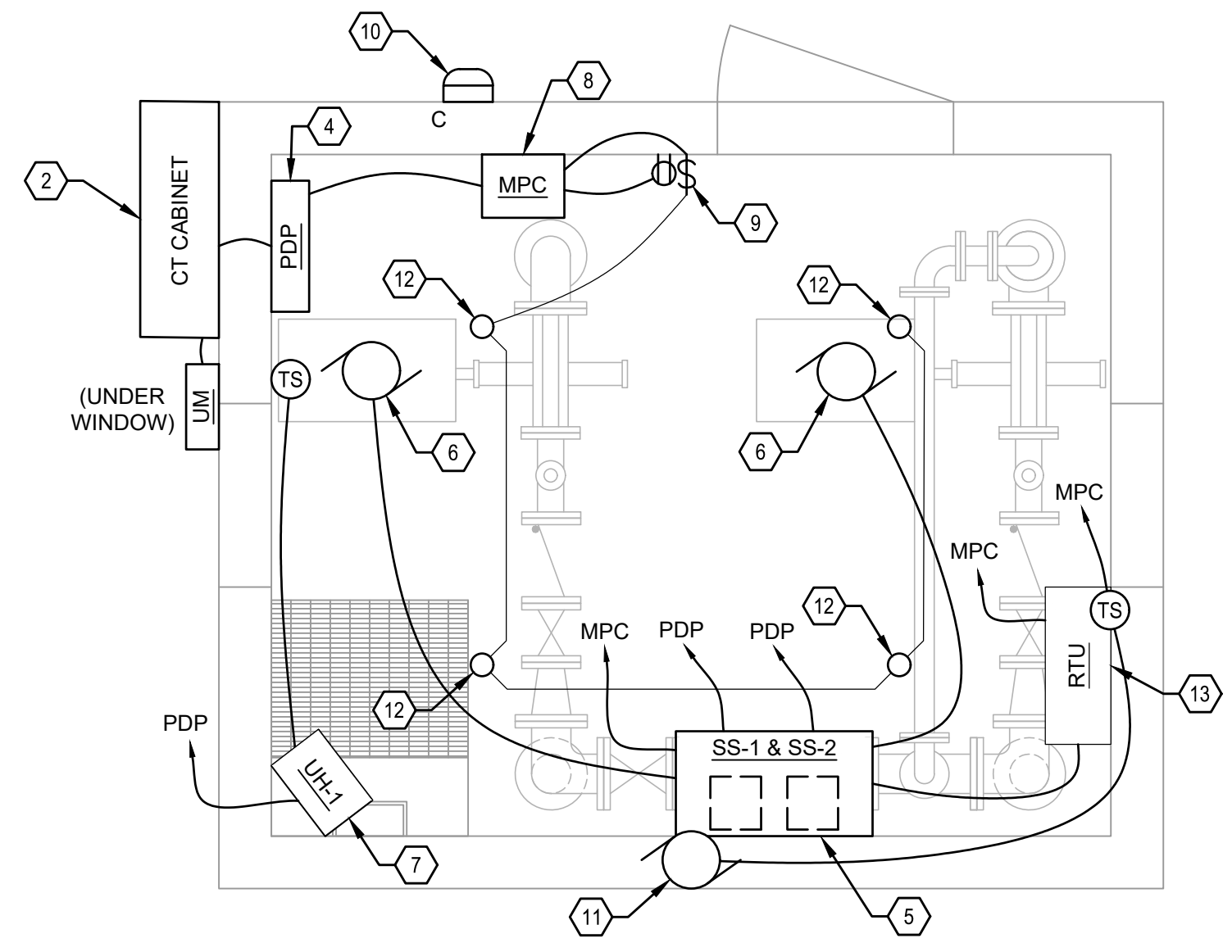
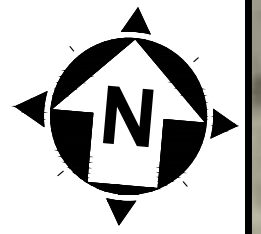
LIGHTING PANEL LP-EC SCHEDULE

NOTE:
NEW EQUIPMENT IN BOLD TYPE.

ISSUED FOR:	REVISIONS	DATE
REVIEW	REV. DESCRIPTION	
ISSUE DATE:		03/13/2020
SCALE:		
DESIGNED BY:		JPB
DRAWN BY:		JPB
CHECKED BY:		NSS

VILLAGE OF CADIZ, OHIO
 WATER TREATMENT PLANT HAB IMPROVEMENTS
 HARRISON COUNTY
 WATER TREATMENT PLANT
 CADIZ, OHIO
 RECARB SYSTEM ADDITIONS

PROJECT NO.	190599
DISCIPLINE	ELECTRICAL
SHEET NAME	E-08
SHEET	41
OF	46

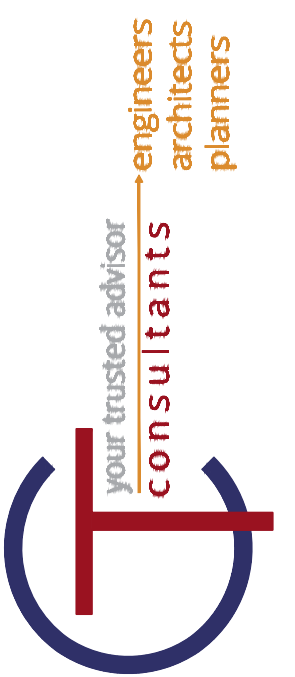


PUMP STATION #2 PLAN
SCALE: 1/2" = 1'

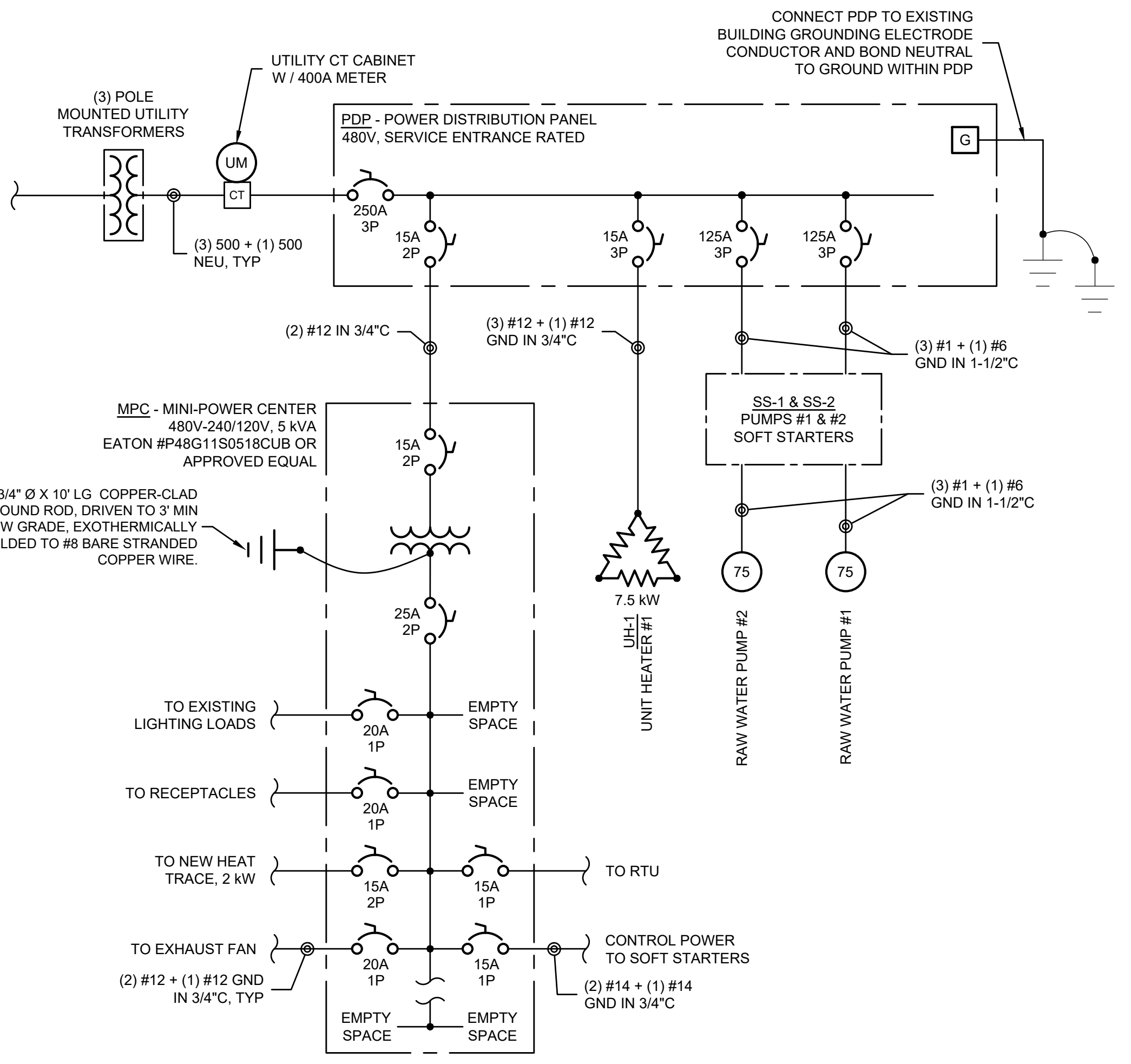


SITE PLAN
SCALE: 1" = 40'

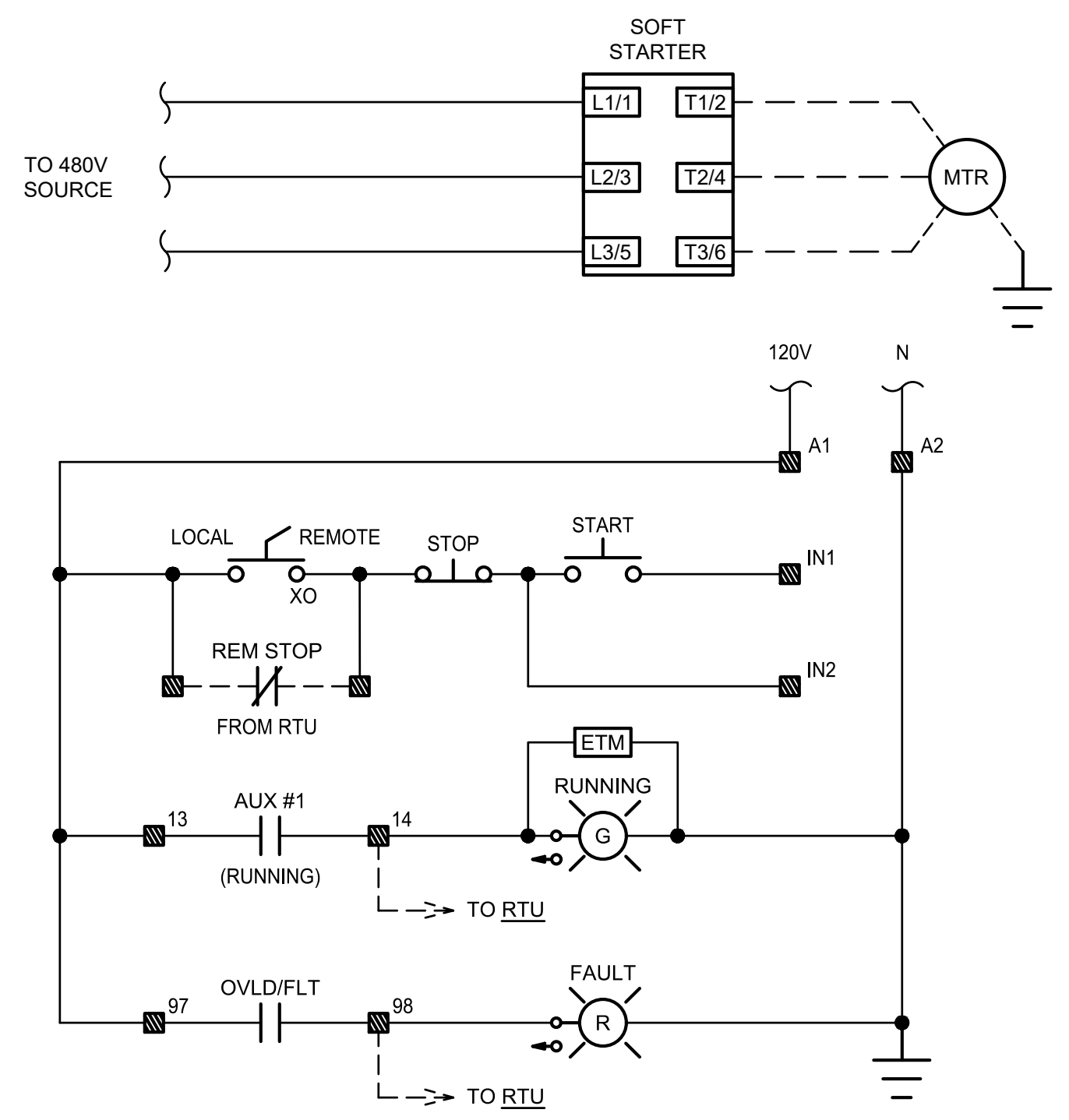
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ISSUED FOR:	REVISION	DATE
REVIEW	DESCRIPTION	
ISSUE DATE:		03/13/2020
SCALE:	1" = 8'	
DESIGNED BY:	JPB	
DRAWN BY:	JPB	
CHECKED BY:	NSS	



PROPOSED ONE-LINE DIAGRAM



SOFT STARTER 3-WIRE MOTOR CONTROL CIRCUIT

NOTE: ■■■ = TERMINALS ON THE SOFT STARTER CONTROLLER
UNDESIGNATED TERMINALS ARE ADDED FOR USE WITH RTU.

GENERAL NOTES:

- EXISTING EQUIPMENT BASED ON DRAWING SET BY WILLIAM D. McCULLOUGH DATED SEPTEMBER, 1990, AS WELL AS CHANGES NOTED DURING SITE VISITS.
- CAP AND ABANDON IN PLACE ALL UNDERGROUND CONDUIT CONTAINING EXISTING FEEDERS TO BE REMOVED UNLESS OTHERWISE NOTED.
- ALL PROPOSED UNDERGROUND DUCT BANKS TO UTILIZE 48" SWEEPS, MINIMUM.
- DEMOLISH ALL EXISTING EQUIPMENT SLATED FOR REPLACEMENT INCLUDING CONDUIT WITHIN PUMP STATION #2. RETAIN SERVICE RISER CONDUIT AND WEATHERHEAD IF POSSIBLE.

CODED NOTES - PROPOSED:

- AMERICAN ELECTRIC POWER (AEP) TO UPGRADE SERVICE TO 400A, 480V, 3φ, 4W
- NEW 400A CT CABINET AND UTILITY METER PER AEP SPECIFICATIONS, MOUNTED TO BUILDING EXTERIOR WITH STAINLESS STEEL FASTENERS. BE SURE TO INSTALL METER SOCKET BELOW WESTERN WINDOW AND GLASS BLOCKS.
- NEW HEAT TRACE AROUND INTAKE PIPE, 240V, 1φ, 8 W / FT. INSTALL FROM UPPER ELBOW AT END OF PIER TO GROUND PENETRATION IN DAM, SPIRAL WRAPPED WITH 16" PITCH. CONTROLLER AND POWER JUNCTION BOX LOCATED AT SOUTH END OF RUN.
- NEW POWER DISTRIBUTION PANEL, 400A, SERVICE ENTRANCE RATED. WIRE TO EXISTING BUILDING GRIDDING AND BOND TO NEUTRAL.
- PUMP MOTORS COMMON SOFT STARTER CONTROL CABINET, WALL MOUNTED, NEMA 12.
 - SOFT STARTERS TO BE ALLEN-BRADLEY SMC-3 MODEL# 150-C135NBD OR APPROVED EQUALS
 - 3-WIRE CONFIGURATION WITH "START" & "STOP" PUSHBUTTONS
 - LOCAL-REMOTE SELECTOR SWITCHES
 - GREEN "RUNNING" AND RED "FAULT" PILOT LIGHTS
 - OVERLOAD DIAL SET TO MOTOR FLA OR LOWEST SETTING POSSIBLE, WHICH EVER IS HIGHER
 - OVERLOAD RESET DOOR EXTENSION WITH PUSHBUTTON
 - ELAPSED TIME MONITOR
 - EXTERIOR WARNING LABEL DECLARING MULTIPLE SOURCES OF POWER FOR EACH PUMP AS WELL AS CONTROL POWER. LABEL TO LIST CIRCUIT DESIGNATIONS FOR EACH SOURCE.
- NEW PUMP MOTORS, 3φ, 480V, 75 HP
- NEW UNIT HEATER, 3φ, 480V, 7.5 kW. WIRE TO NEW REMOTE THERMOSTAT SET FOR 50°F
- NEW MINI-POWER CENTER (MPC), 1φ, 5 kVA 480V-240/120V TRANSFORMER. EATON #P48G11S0518CUB OR APPROVED EQUAL.
- REPLACE EXISTING FIXTURE WITH NEW LED WALL PACK, WIRE TO EXISTING LIGHTING CONTACTOR WITH PHOTOEYE.
- REPLACE EXISTING EXHAUST FAN IN KIND WITH EXISTING THERMOSTAT. SEE ONE-LINE DIAGRAM FOR WIRING DETAILS.
- REPLACE EXISTING LIGHT BULBS WITH NEW LED TYPE, 900 LUMEN OUTPUT EACH, MINIMUM.
- EXISTING REMOTE SCADA CONTROLLER (RTU). WIRE TO REMOTE CONTROL AND MONITORING SIGNALS FOR SOFT STARTERS.

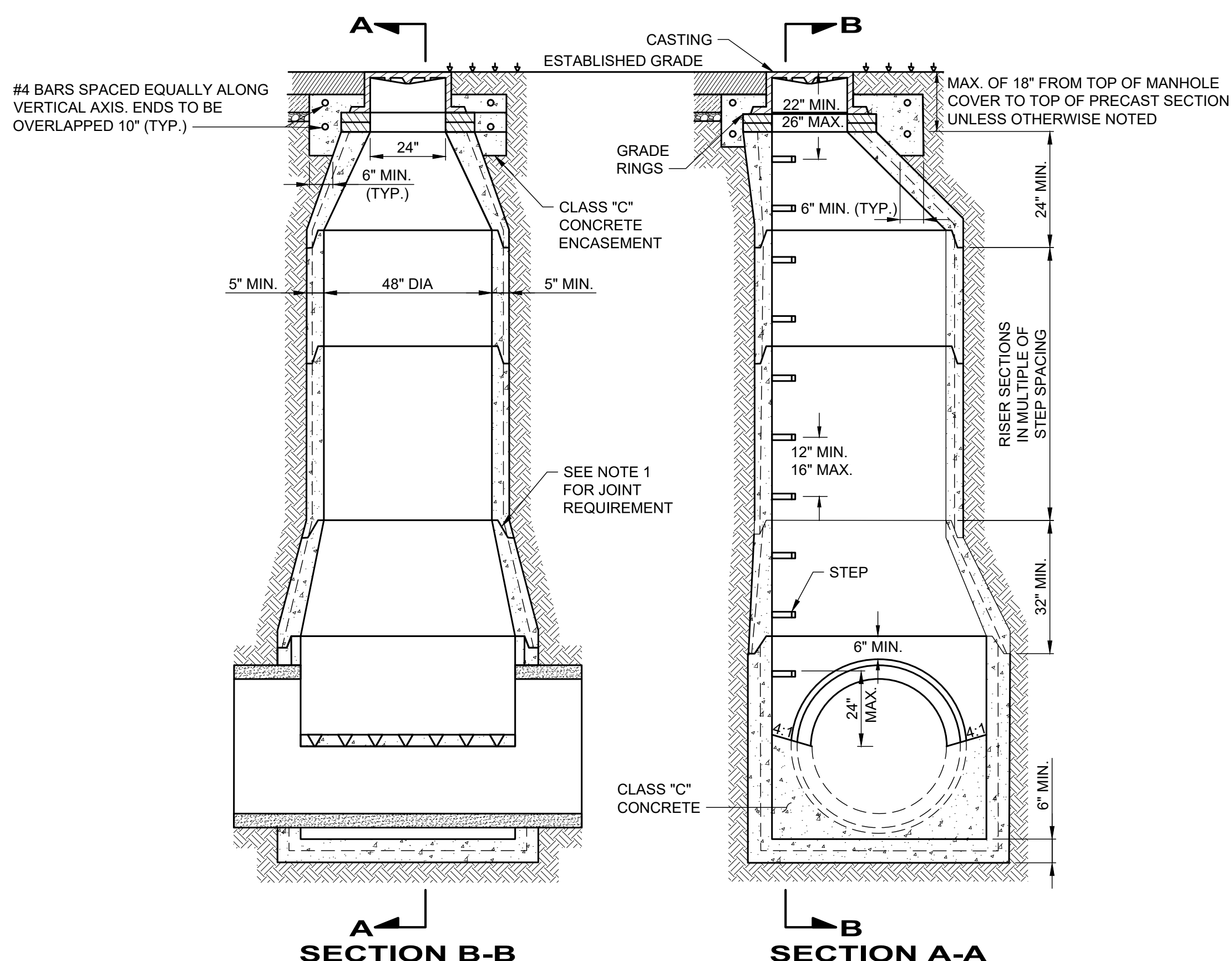
VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
SPARROW RESERVOIR PUMP STATION
CADIZ, OHIO
ELECTRICAL SITE PLAN, DETAILS & DIAGRAMS

PROJECT NO.	190599
DISCIPLINE	ELECTRICAL
SHEET NAME	E-11
SHEET	44
OF	46

ISSUED FOR:	REVISIONS
REVIEW	REV. DESCRIPTION
DATE	
AS NOTED	
DESIGNED BY: JJOZ	
DRAWN BY: RE	
CHECKED BY: DEB	

VILLAGE OF CADIZ, OHIO
WATER TREATMENT PLANT HAB IMPROVEMENTS
HARRISON COUNTY
STANDARD DETAILS - SD SERIES
CADIZ, OHIO
STANDARD DETAILS - 1

PROJECT NO.	190599
DISCIPLINE	CIVIL
SHEET NAME	SD-C-01
SHEET	45
OF	46

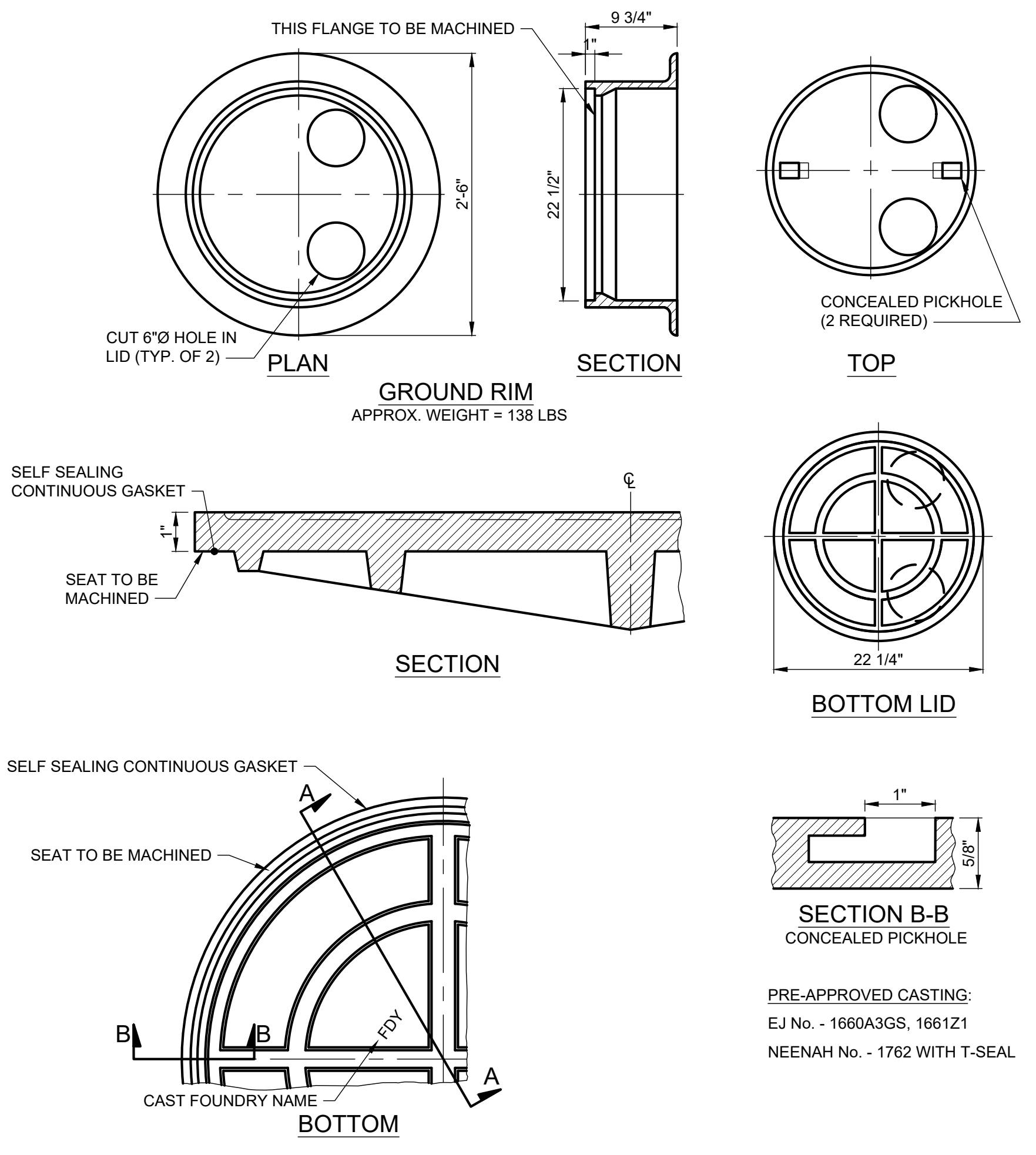


NOTES:

- JOINTS AND CONNECTIONS SHALL BE PER 604.06.
- PRECAST MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
- PRECAST WALLS SHALL BE A MIN. THICKNESS OF 5" AND BE SUFFICIENTLY REINFORCED TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.
- SEE TABLE FOR MANHOLE BASE DIAMETER.
- MANHOLES MUST BE SET ON FOUNDATION OF CRUSHED #57 LIMESTONE, 6" MIN. THICKNESS.
- ONLY SANITARY MANHOLES IN IMPERVIOUS AREAS SHALL REQUIRE A CONCRETE COLLAR, UNLESS OTHERWISE SPECIFIED. SANITARY MANHOLES LOCATED WITHIN PERVIOUS AREAS SHALL REQUIRE A FLEXIBLE CHIMNEY SEAL.

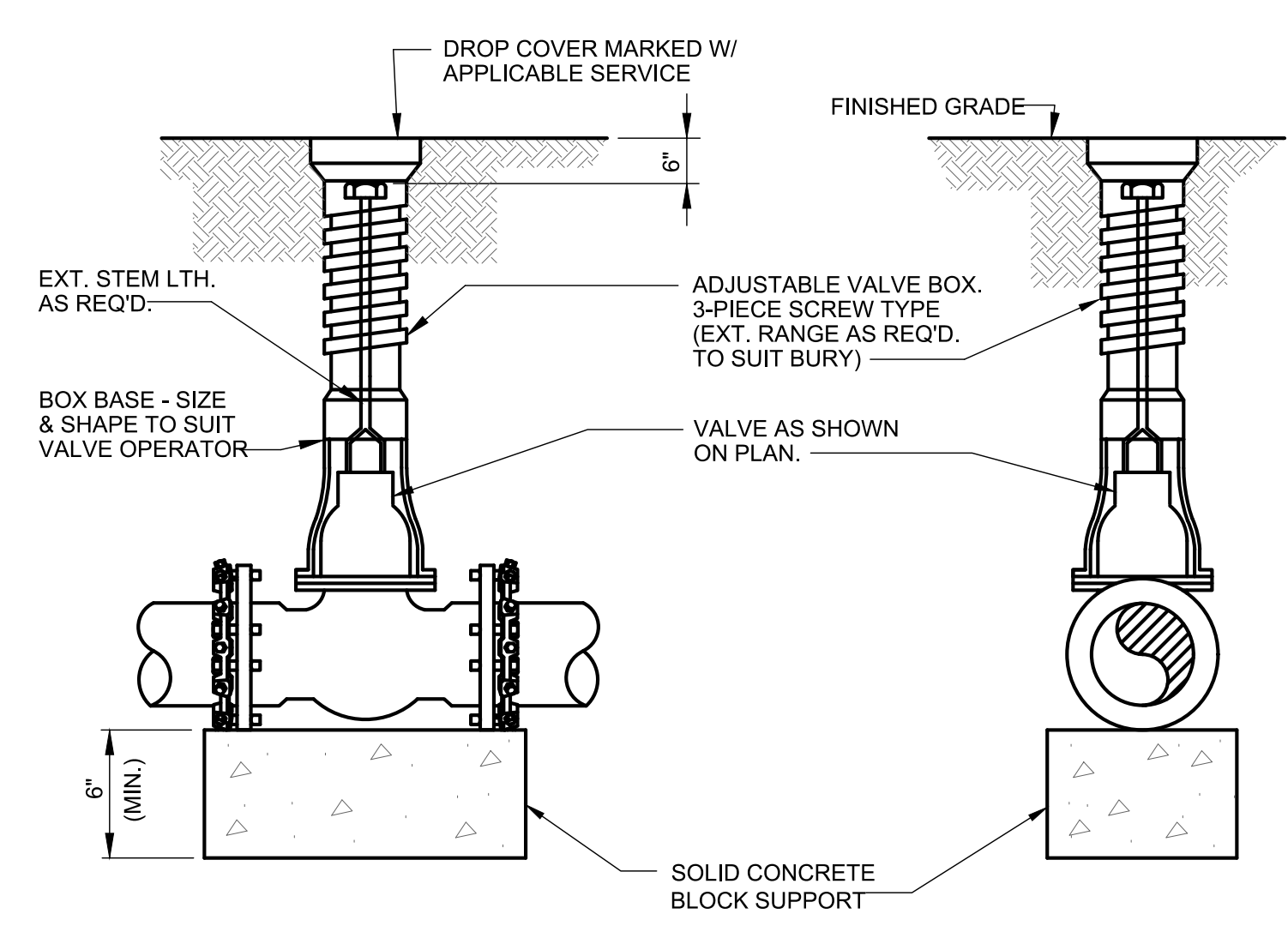
TYPE "C" MANHOLE STANDARD DETAIL
N.T.S.

MANHOLE BASE ID (INCHES)	MAX. PIPE O.D.	
	STRAIGHT PIPE (INCHES)	RIGHT ANGLE (INCHES)
48	31	25
60	42	32
72	51	38
84	-	44
96	-	50



TYPE "C" MANHOLE FRAME AND COVER DETAIL
N.T.S.

PRE-APPROVED CASTING:
EJ No. - 1660A3GS, 1661Z1
NEENAH No. - 1762 WITH T-SEAL

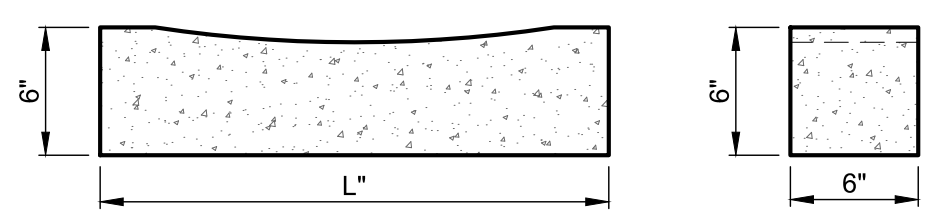


TYPICAL VALVE AND VALVE BOX SETTING
NOT TO SCALE

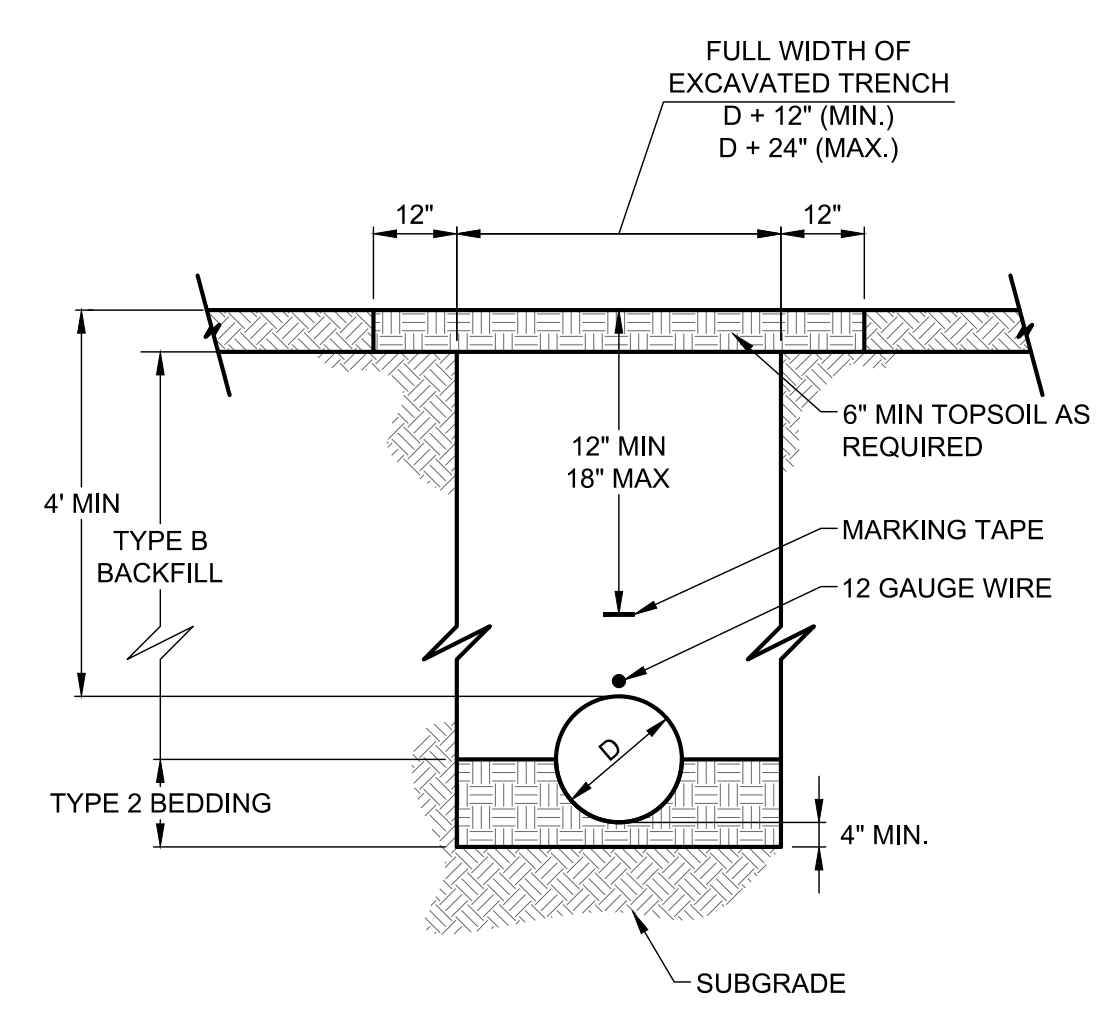
	SIZE	L	V
GATE VALVES	3"	15	0.31
	4"	16	0.33
	6"	17	0.36
	8"	20	0.42
BUTTERFLY VALVES	12"	24	0.50
	14"	28	0.58
	16"	30	0.63
	20"	36	0.75
	24"	42	0.88
	30"	48	1.00

V = VOLUME OF CONCRETE IN CUBIC FEET

- NOTES:
- CONCRETE FOR SUPPORTS SHALL BE ODOT CLASS "QC1".
 - BACKING SHALL BE DESIGNED FOR 300 PSF SOIL BEARING.
 - CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
 - PROVIDE CLEARANCE FOR REMOVAL BOLTS.



CONCRETE VALVE SUPPORTS
NOT TO SCALE



TRENCH DETAIL FOR POLYMER LINE INSTALLED IN NON-PAVED AREAS
NOT TO SCALE

BACKFILL:

- TYPE A, SHALL BE COMPACTED GRANULAR MATERIAL AS SPECIFIED IN ODOT CMS ITEM 304.
- TYPE B SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN 2 INCHES ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH OR FROZEN MATERIAL.
- TYPE C SHALL BE LOW STRENGTH MORTAR AS SPECIFIED IN ODOTCMS ITEM 613.

BEDDING:

- TYPE 1-GRANULAR MATERIAL No. 57,6,67,68 OR 7 PER ODOT CMS TABLE 703.01-1.
- TYPE 2-NATIVE SOIL FREE FROM STONES LARGER THAN 2 INCHES ACROSS THEIR GREATEST DIMENSIONS, TOP SOIL, VEGETATION, DEBRIS, RUBBERISH OR FROZEN MATERIAL.
- TYPE 3-CONCRETE BEDDING, CLASS "QC1" CONCRETE PER ODOT CMS 499.

