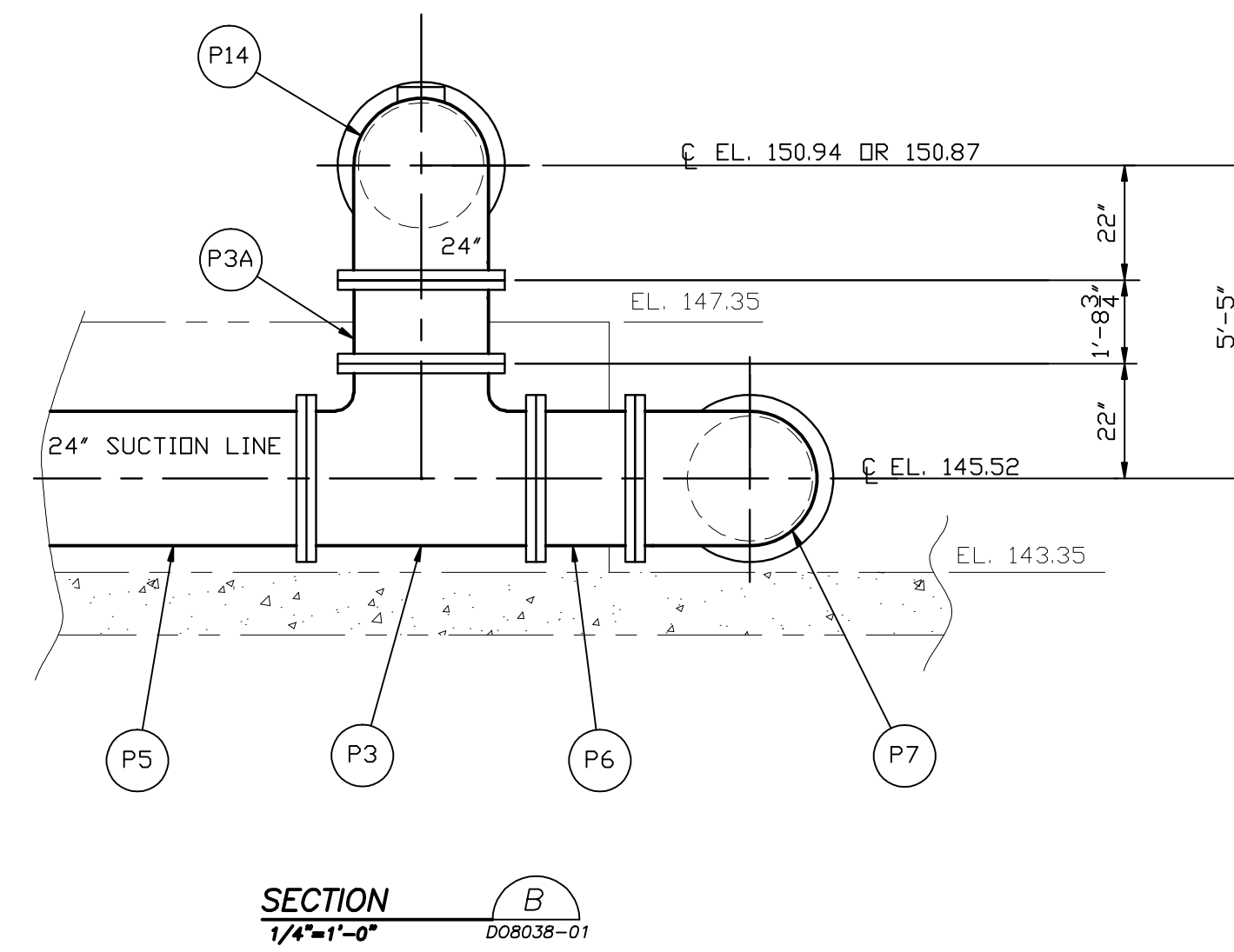
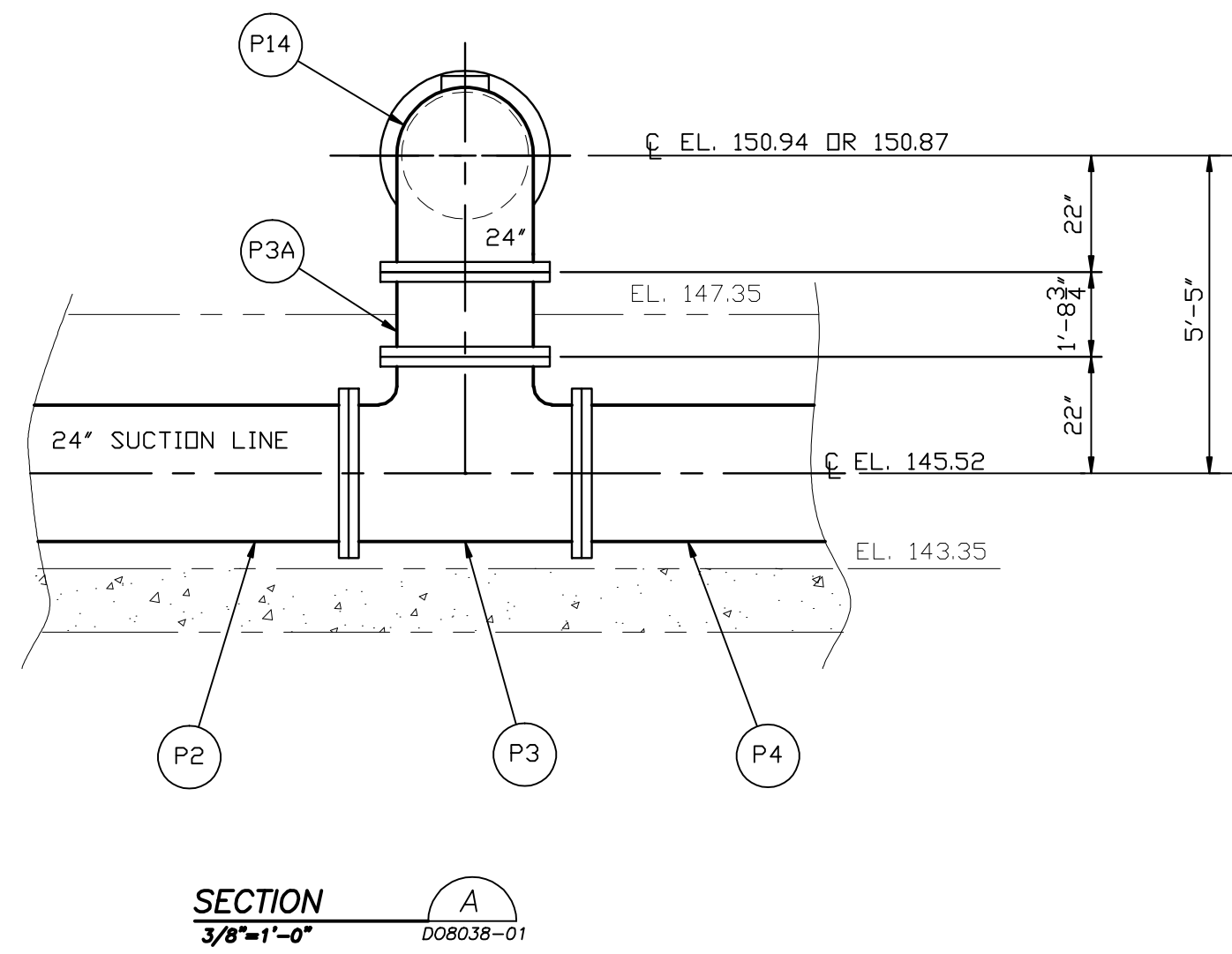
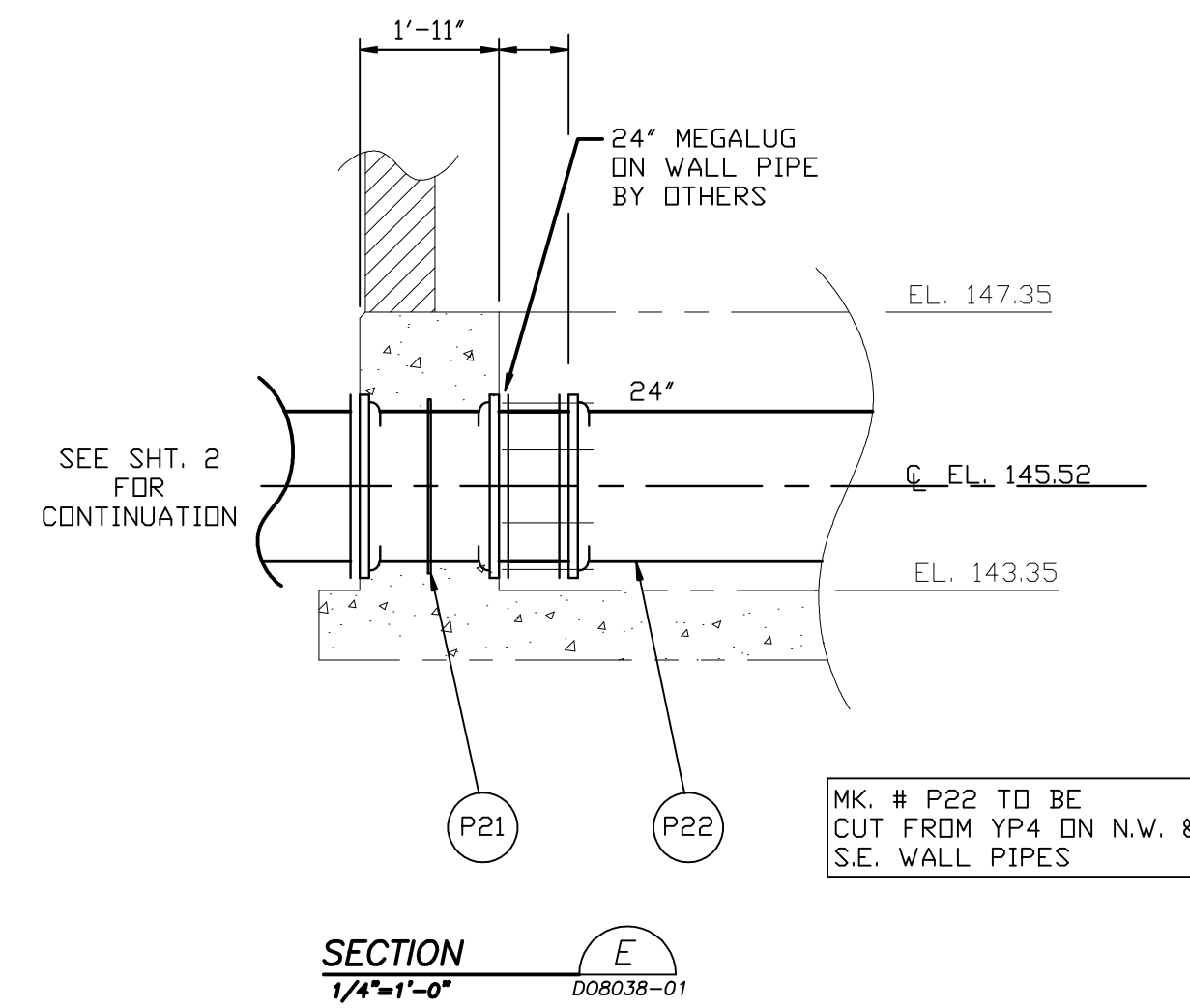
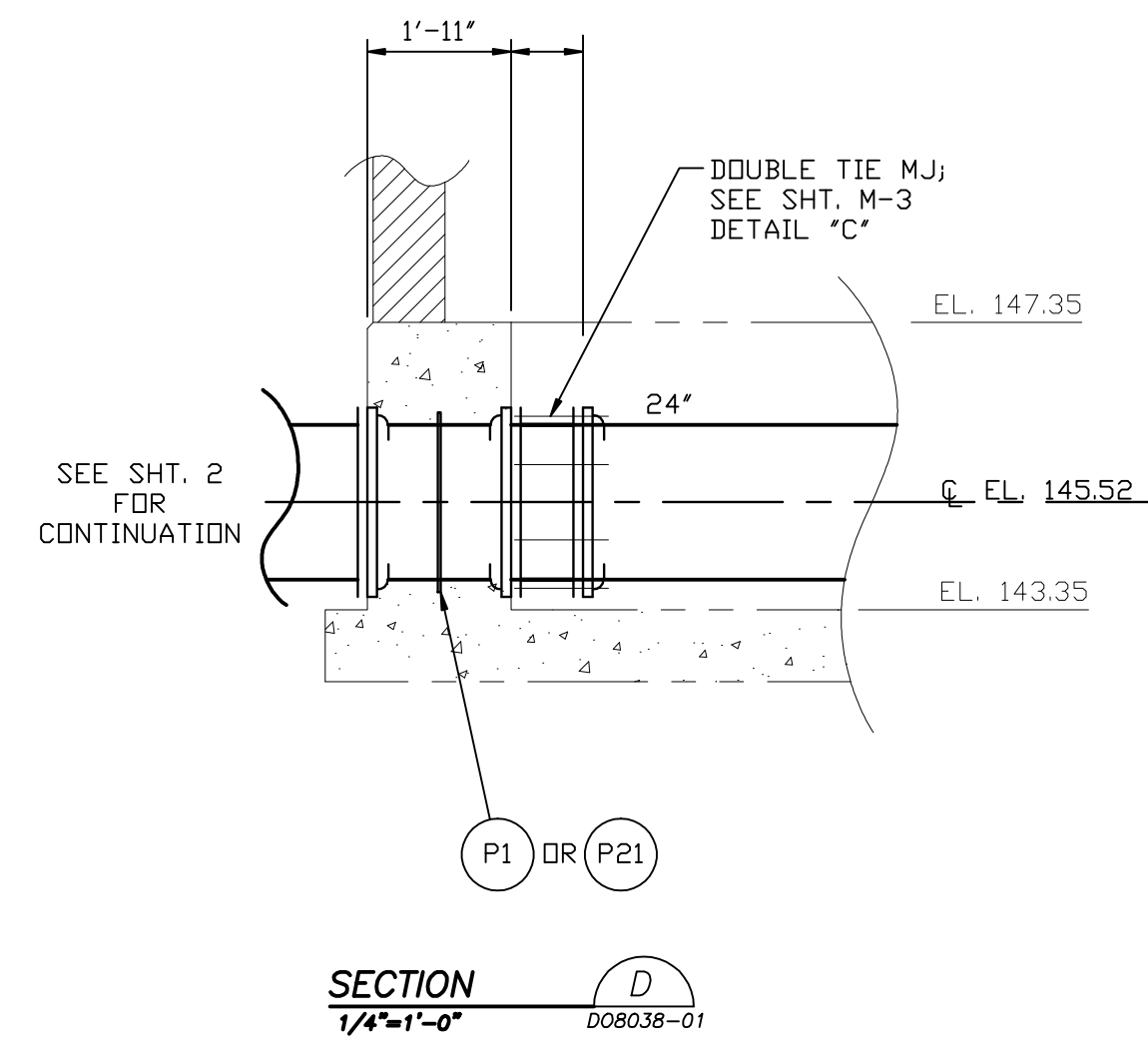
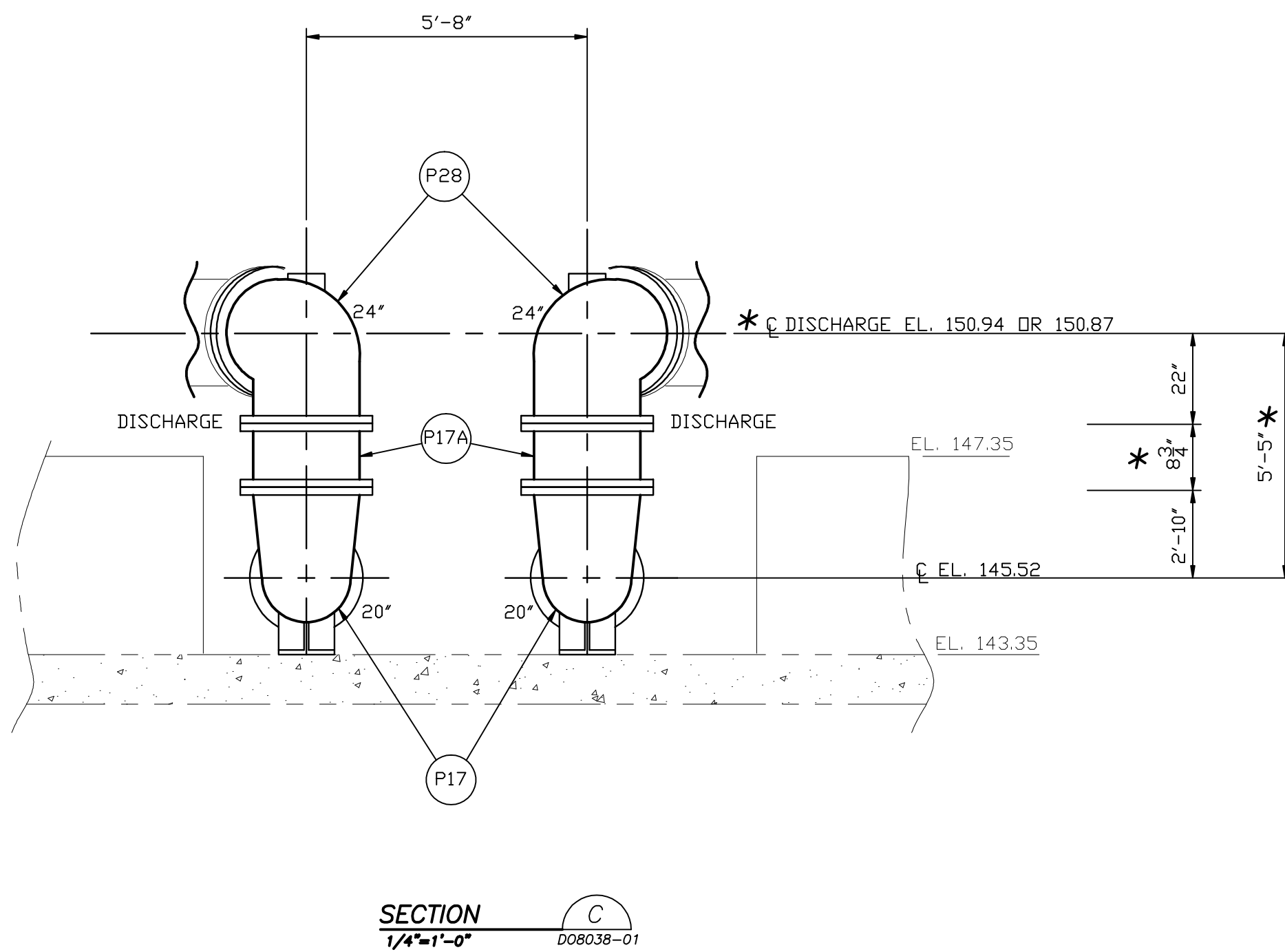


**STANDARD ABBREVIATIONS
USED BY C & B PIPING**

- B&T - Bore & Tapped
- B/M - Bill of Material
- CL - Class
- CT&P - Cut to Suit In Field
- DI - Ductile Iron
- FLG - Flange
- FOB - Face Of Bell
- FOF - Face Of Flange
- GPL - Gauge Full Length
- GRV - Grooved
- JT - Joint
- LEB - Large End Bell
- LL - Lay Length
- MJ - Mechanical Joint
- NOM - Nominal Length
- NPT - National Pipe Thread
- OA - Over All Length
- PE - Plain End
- PETR - TR Flex Plain End (not standard)
- POJ - Push On Joint
- R&D - Restored
- RJ - Restricted Joint
- SEB - Small End Bell
- TC - Thrust Collar
- TEFG - Tapped Flange
- THK - Thick
- TMJ - Tapped Mechanical Joint
- TOC - Top Of Concrete
- TOP - Top Of Pipe
- TOS - Top Of Slab
- TR - TR Flex
- VGE - Vitrified Groove
- w/ - With
- WC - Wall Collar



ALL DIMENSIONS OR B/M MARKED WITH AN ASTERISK (*) ARE TO BE VERIFIED BY THE CONTRACTOR AND/OR ENGINEER.



ALL DIMENSIONS, ELEVATIONS, PIPE LENGTHS & SIZES, QUANTITIES, COATINGS AND LININGS ARE TO BE CHECKED AND VERIFIED TO BE CORRECT BY CUSTOMER BEFORE ANY ITEM IS ORDERED FROM THIS DRAWING OR BILL OF MATERIAL.

ALLOW 1/8" @ ALL FLANGE JOINTS FOR GASKET THICKNESS.



**DUCTILE IRON PIPE AND FITTINGS
FOR
WATER AND WASTE TREATMENT PLANTS**

LIST OF MATERIAL

MK. NO.	NO. REQ'D	DESCRIPTION	
		DUCTILE IRON PIPE, FITTINGS & SPECIALS SPECIFICATION	
		PIPE: ANSI A21.50 & A21.51	
		MINIMUM CLASSES FOR BURIED SERVICES LISTED IN B/M	
		ALL FLANGE PIPE CLASS S3	
		JOINTS: ANSI A21.15 FLANGE	
		JOINTS: ANSI A21.11 MECHANICAL & PUSH-ON JOINTS	
		FLANGE FITTINGS: ANSI A21.10 FULL BODY	
		MECHANICAL JOINT FITTINGS: ANSI A21.53 COMPACT	
		INSIDE SURFACE PIPE & FITTINGS LINING REQUIREMENTS:	
		PROTECTO 401 LINING	
		OUTSIDE SURFACE PIPE & FITTINGS PRIMER REQUIREMENTS:	
		BURIED SERVICE - STANDARD BITUMINOUS SEAL COAT	
		TNEMEC N140-1211 SERIES - P	
		BOOSTER PUMP STATION	
		12" & 24" SUCTION LINES	
		-PROTECTO 401 LINING-	
P1	1	24" TMJ x WC x TMJ WALL PIPE 1'-11" DA DI	P
		w/ WC @ CTR.	
P2	1	24" FLG. x MJ 10'-0" LL DI CTSIF	P
P3	2	24" FLG. TEE DI	P
P3A	2	24" FLG. x FLG. PIPE 1'-8 3/4" LL DI	P
P4	1	24" FLG. x FLG. PIPE 5'-11 5/8" LL DI	P
P5	1	24" FLG. x FLG. PIPE 17'-6" LL DI	P
P6	1	24" FLG. x FLG. PIPE 1'-6 3/4" LL DI	P
P7	1	24" FLG. 90° BEND DI	P
P8	1	24" FLG. x FLG. PIPE 7'-7" LL DI	P
P9	2	24" x 12" FLG. TEE DI	P
P10	1	24" FLG. x PE PIPE 3'-4" LL DI CTSIF	P
P11	1	24" FLG. x FLG. PIPE 4'-5 3/4" LL DI	P
P12	2	12" FLG. 90° BEND DI	P
P13	1	12" FLG. x FLG. PIPE 2'-9 3/4" LL DI	P
P13A	1	12" FLG. x PE PIPE 3'-6" LL DI CTSIF	P
P14	2	24" FLG. 90° BEND DI	P
		w/ BOSS FOR 4" 125# FLG. D&T AND w/ HOLE FOR 4" PIPE @ POSITION 'V'	
P15	2	24" FLG. x FLG. PIPE 4'-3 1/2" LL DI	P
P16	1	24" FLG. x PE PIPE 5'-5" LL DI CTSIF	P
P16A	1	24" FLG. x PE PIPE 4'-9" LL DI CTSIF	P
		20" & 24" DISCHARGE LINES	
		-PROTECTO 401 LINING-	
P17	2	24" x 20" FLG. LR BASE 90° BEND DI w/ BASE DRILLED	P
P17A	2	24" FLG. x FLG. PIPE 8 3/4" LL DI	P
P18	2	20" FLG. x FLG. PIPE 9'-4 9/16" LL DI	P
P19	2	20" FLG. x PE PIPE 6'-6" LL DI CTSIF	P
P20	4	24" x 20" FLG. CONCENTRIC REDUCER DI	P
P21	2	24" TMJ x WC x TMJ WALL PIPE 1'-11" DA DI	P
		w/ WC @ CTR.	
P22	1	24" P.D.J. PIPE CL 200 7'-7" LL DI	P
P23	1	24" FLG. x MJ ADAPTER PC. 8" LL DI	P
P24	3	24" FLG. TEE DI	P
P25	1	24" FLG. x FLG. PIPE 4'-0 3/4" LL DI	P
P26	1	24" FLG. x FLG. PIPE 14'-6 3/4" LL DI	P
P27	1	24" FLG. x FLG. PIPE 2'-0" LL DI	P
P28	2	24" FLG. 90° BEND DI	P
		w/ BOSS FOR 4" 125# FLG. D&T AND w/ HOLE FOR 4" PIPE @ POSITION 'V'	
P29	1	24" FLG. x PE PIPE 4'-0" LL DI CTSIF	P
P30		NOT USED	
P31	1	20" FLG. 22 1/2° BEND DI	P
P32	2	20" FLG. 45° BEND DI	P
P33	1	24" FLG. x PE PIPE 6'-3" LL DI CTSIF	P

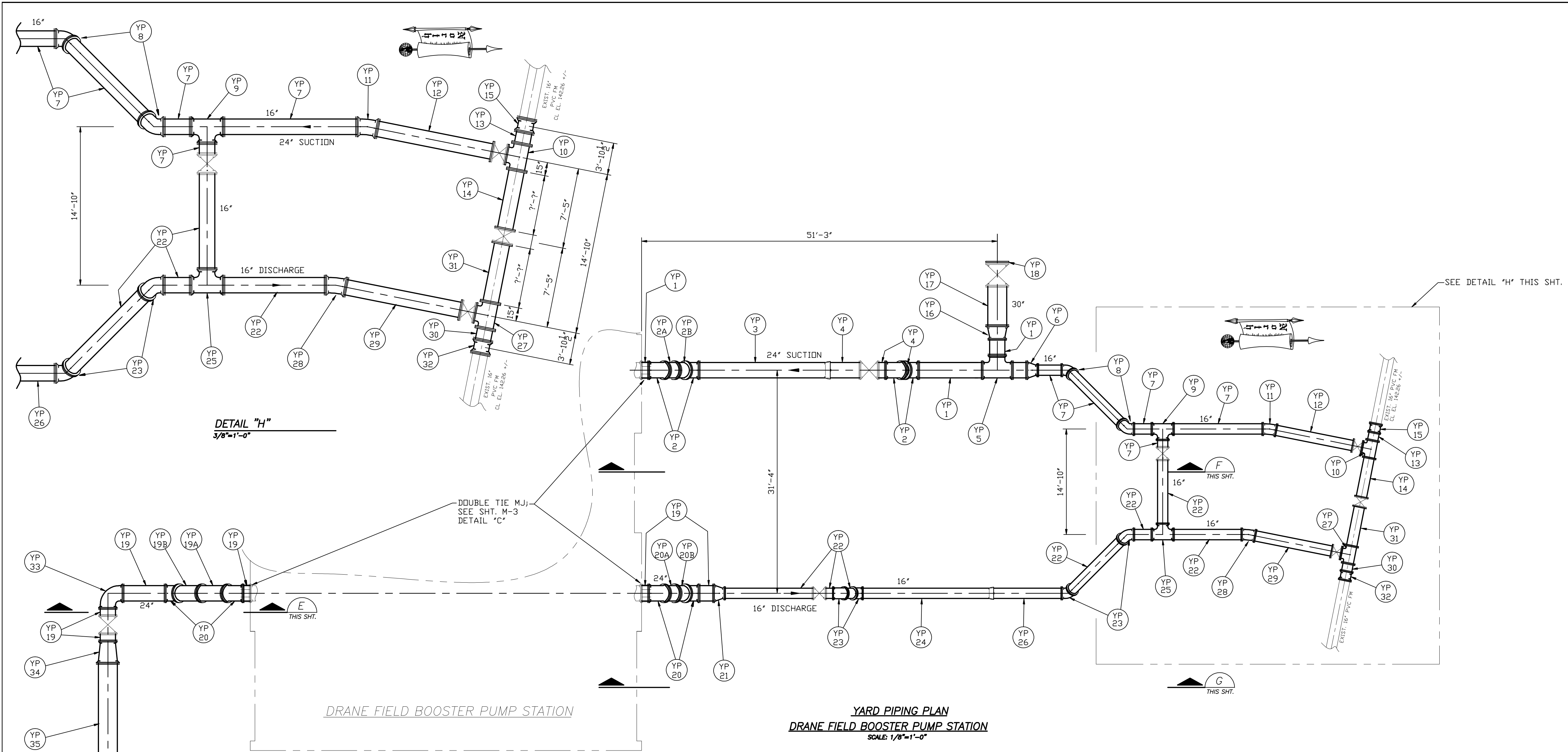
CUSTOMER McDADDE WATERWORKS, INC.
ENGINEER BLACK & VEATCH CORPORATION
PROJECT DRANE FIELD PUMP STATION
LOCATION LAKELAND, FLORIDA

DATE DRAWN	REVISION DATE	SCALE	DRAWING NO.
4/21/08		AS SHOWN	D08038-02
SF = 32		DRAWN BY G. ADAMSON	SHEET 2 of 3

**DUCTILE IRON PIPE AND FITTINGS
FOR
WATER AND WASTE TREATMENT PLANTS**

LIST OF MATERIAL

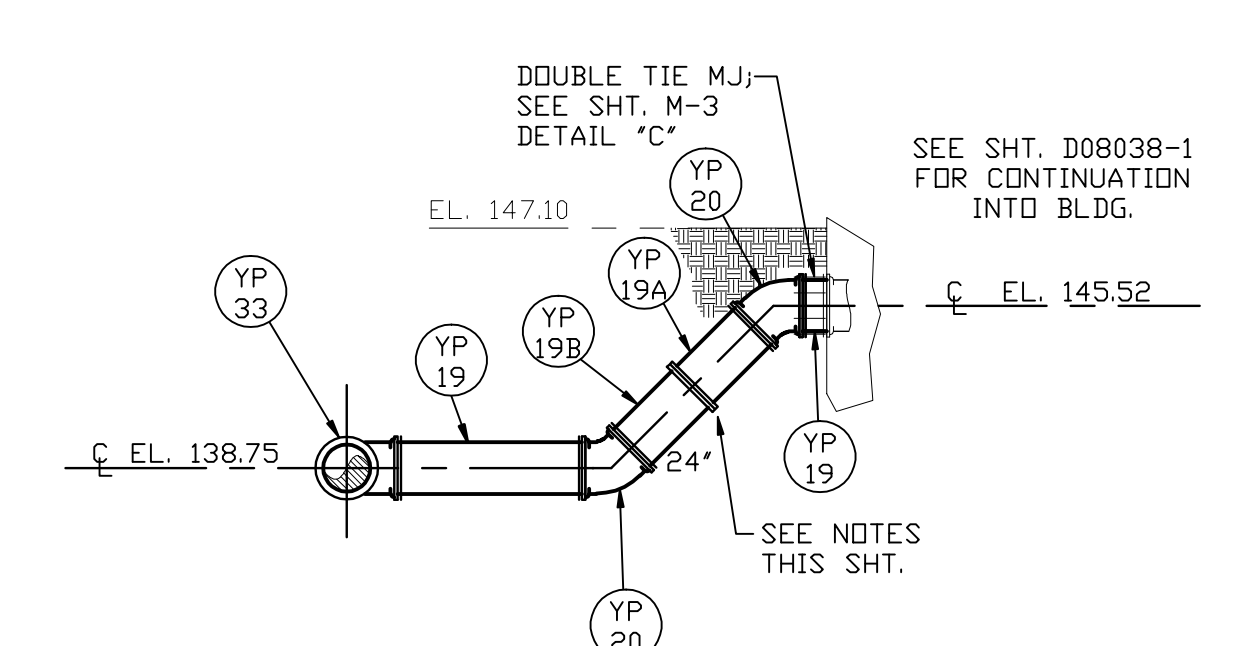
MK. NO.	NO. REQ'D	DESCRIPTION
		DUCTILE IRON PIPE, FITTINGS & SPECIALS SPECIFICATION
		PIPE: ANSI A21.50 & A21.51
		MINIMUM CLASSES FOR BURIED SERVICES LISTED IN B/M
		ALL FLANGE PIPE CLASS 53
		JOINTS: ANSI A21.15 FLANGE
		JOINTS: ANSI A21.11 MECHANICAL & PUSH-ON JOINTS
		FLANGE FITTINGS: ANSI A21.10 FULL BODY
		MECHANICAL JOINT FITTINGS: ANSI A21.53 COMPACT
		INSIDE SURFACE PIPE & FITTINGS LINING REQUIREMENTS: PROTECTO 401 LINING
		OUTSIDE SURFACE PIPE & FITTINGS PRIMER REQUIREMENTS: BURIED SERVICE - STANDARD BITUMINOUS SEAL COAT TNEC N140-1211 SERIES - P
		BOOSTER PUMP STATION
		16', 24' & 30' SUCTION LINES -PROTECTO 401 LINING-
YP1	20'	24" POJ PIPE 20'-0" NOM. CL. 200 DI CTSIF / GFL
YP2	4	24" COMPACT MJ 45° BEND w/ MEGALUGS DI
YP2A	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP2B	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP3	18'	24" TRF/BELL x PE PIPE 18'-0" NOM. CLASS 200 DI
YP4	1	24" TRF/PE x PE PIPE 17'-6" NOM. CLASS 200 DI CTSIF/GFL
YP5	1	24" COMPACT MJ TEE w/ MEGALUGS DI
YP6	1	24" x 16" COMPACT MJ CON. REDUCER w/ MEGALUGS DI
YP7	40'	16" POJ PIPE 20'-0" NOM. CL. 250 DI CTSIF / GFL
YP8	2	16" COMPACT MJ 45° BEND w/ MEGALUGS DI
YP9	1	16" COMPACT MJ TEE w/ MEGALUGS DI
YP10	1	16" FLG. TEE DI
YP11	1	16" COMPACT MJ 11 1/4" BEND w/ MEGALUGS DI
YP12	1	16" FLG. x PE PIPE 10'-0" LL DI CTSIF
YP13	1	16" FLG. x PE PIPE 3'-7" LL DI CTSIF
YP14	1	16" FLG. x FLG. PIPE 5'-6" LL DI
YP15	1	16" COMPACT MJ LONG SLEEVE w/ MEGALUGS DI
-	-	w/ 1 MEGALUG FOR DI & 1 MEGALUG FOR PVC
YP16	1	30" x 24" COMPACT MJ CON. REDUCER w/ MEGALUGS DI
YP17	1	30" POJ PIPE CL. 150 17'-6" LL DI CTSIF / GFL
YP18	1	30" COMPACT MJ PLUG DI
		16', 24' & 30' DISCHARGE LINES -PROTECTO 401 LINING-
YP19	40'	24" POJ PIPE 20'-0" NOM. CL. 200 DI CTSIF / GFL
YP19A	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP19B	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP20	4	24" COMPACT MJ 45° BEND w/ MEGALUGS DI
YP20A	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP20B	1	24" FLG. x PE PIPE 7'-7" LL DI CTSIF / GFL
YP21	1	24" x 16" COMPACT PE x SEMJ CON. REDUCER w/ MEGALUGS DI
YP22	60'	16" POJ PIPE 20'-0" NOM. CL. 250 DI CTSIF / GFL
YP23	4	16" COMPACT MJ 45° BEND w/ MEGALUGS DI
YP24	18'	16" TRF/BELL x PE PIPE 18'-0" NOM. CLASS 250 DI
YP25	1	16" COMPACT MJ TEE w/ MEGALUGS DI
YP26	1	16" TRF/PE x PE PIPE 17'-6" LL CLASS 250 DI CTSIF/GFL
YP27	1	16" FLG. TEE DI
YP28	1	16" COMPACT MJ 11 1/4" BEND w/ MEGALUGS DI
YP29	1	16" FLG. x PE PIPE 10'-0" LL DI CTSIF
YP30	1	16" FLG. x PE PIPE 3'-7" LL DI CTSIF
YP31	1	16" FLG. x FLG. PIPE 5'-6" LL DI
YP32	1	16" COMPACT MJ LONG SLEEVE w/ MEGALUGS DI
-	-	w/ 1 MEGALUG FOR DI & 1 MEGALUG FOR PVC
YP33	1	24" COMPACT MJ 90° BEND w/ MEGALUGS DI
YP34	1	30" x 24" COMPACT MJ CONCENTRIC REDUCER w/ MEGALUGS DI
YP35	18'	30" TRF/BELL x PE PIPE 18'-0" NOM. CLASS 200 DI
YP36	54'	30" TRF/BELL x TRF/PE PIPE 18'-0" NOM. CLASS 150 DI
YP37	1	30" TR FLEX PLUG w/ 2" TAP @ TOP FOR TESTING



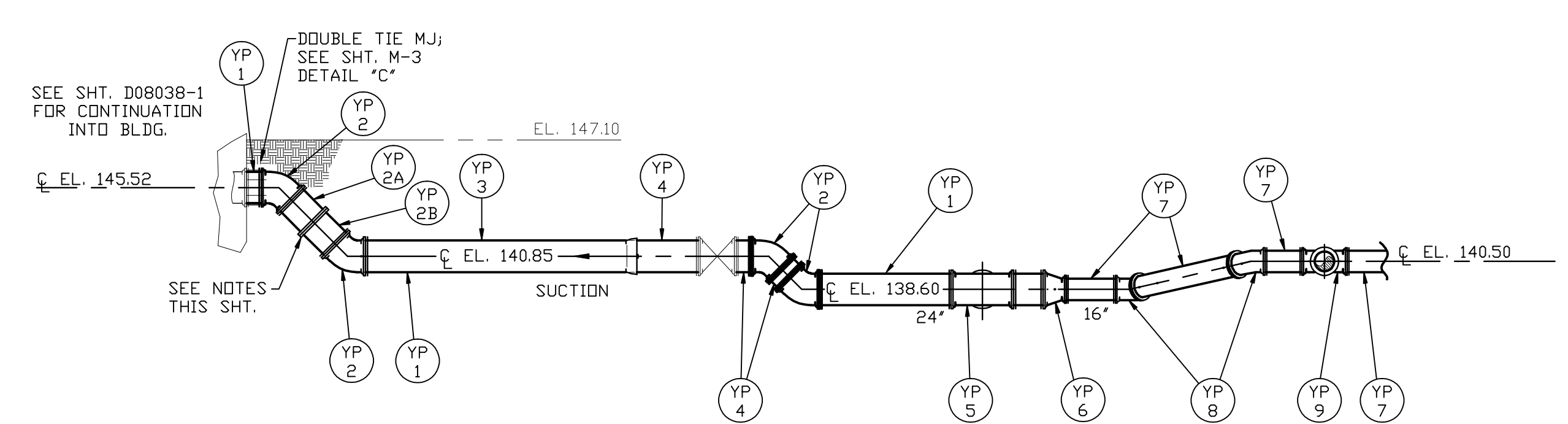
DETAIL "H"
3/8"=1'-0"

DRANE FIELD BOOSTER PUMP STATION

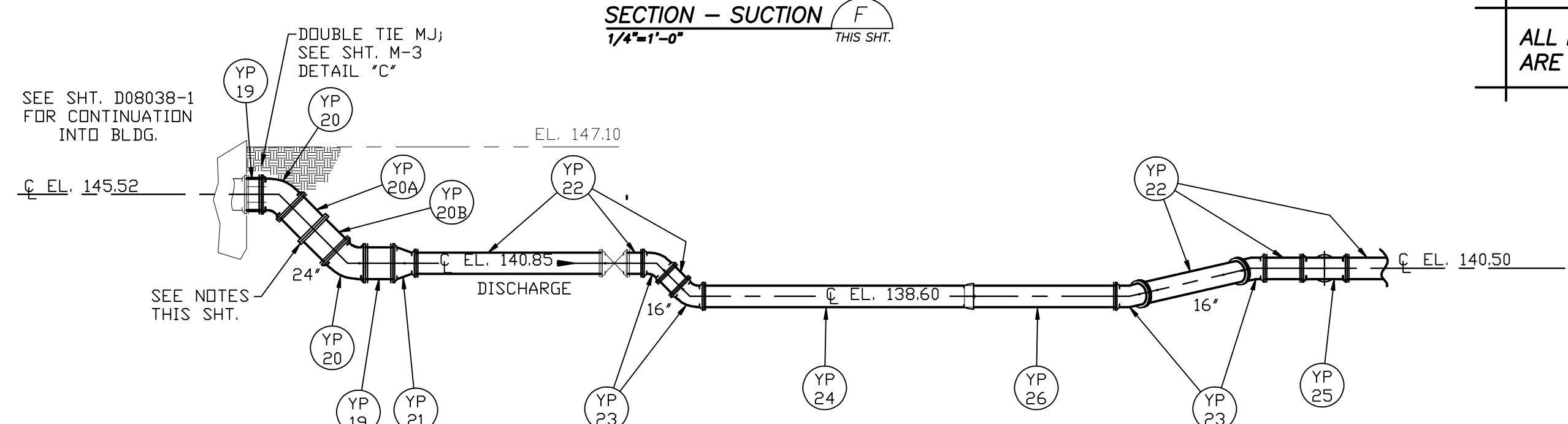
**YARD PIPING PLAN
DRANE FIELD BOOSTER PUMP STATION**
SCALE 1/8"=1'-0"



SECTION - DISCHARGE (E)
1/4"=1'-0"



SECTION - SUCTION (F)
1/4"=1'-0"



SECTION - DISCHARGE (G)
1/4"=1'-0"

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ALLOW 1/8" @ ALL FLANGE JOINTS FOR GASKET THICKNESS.

CUSTOMER McDADE WATERWORKS, INC.
ENGINEER BLACK & VEATCH CORPORATION
PROJECT DRANE FIELD PUMP STATION
LOCATION LAKELAND, FLORIDA

DATE DRAWN	REVISION DATE	SCALE	DRAWING NO.
4/25/08		AS SHOWN	D08038-3
		DRAWN BY	SHEET
SF = 96		G. ADAMSON	3 of 3