

DRAWING DESCRIPTION

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STANDARD UTILITY DETAILS



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DRAWING DESCRIPTION

WATERMAIN

WM-01	TEMPORARY SAMPLE POINT
WM-02	SAMPLE POINT ON FIRE HYDRANT
WM-03	FILLING AND FLUSHING CONNECTIONS
WM-04	GATE VALVE SETTING WITHOUT GEAR OPERATOR
WM-05	BUTTERFLY VALVE SETTING WITH GEAR OPERATOR
WM-06	FIRE HYDRANT (STANDARD)
WM-07	FIRE HYDRANT (PARALLEL)
WM-08	1-INCH SINGLE WATER SERVICE W/ 5/8 X 3/4 METER
WM-09	DUAL SERVICE WITH TWO 1-INCH SINGLE WATER SERVICES W/ 5/8 X 3/4 METERS
WM-10	1-INCH SINGLE WATER SERVICE WITH DUAL METER BOX
WM-11	1-INCH SINGLE WATER SERVICE WITH TWO SINGLE METER BOXES
WM-12	BACKFLOW PREVENTER 1-INCH THROUGH 2-INCH (RPZ TYPE)
WM-13	LARGE USER – FIRE SERVICE BACKFLOW PREVENTER
WM-14	LARGE USER – DOMESTIC AND FIRE SERVICE METER
WM-15	LARGE USER – COMPOUND WATER METER
WM-16	CONCRETE METER VAULT
WM-17	AUTOMATIC WATER MAIN FLUSHING DEVICE

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DRAWING DESCRIPTION

SANITARY SEWER

SAN-01	SANITARY SEWER MANHOLE DEPTH (LESS THAN 6-FT)
SAN-02	SANITARY SEWER MANHOLE DEPTH (GREATER THAN 6-FT)
SAN-03	SANITARY SEWER MANHOLE WITH EXTERIOR DROP
SAN-04	MANHOLE COUPLING
SAN-05	FLEXIBLE MANHOLE COUPLING
SAN-06	WEDGE KORBAND MANHOLE CONNECTOR
SAN-07	FLOW CHANNELS
SAN-08	SERVICE LATERAL WITH RISER
SAN-09	CLEANOUT
SAN-10A	SANITARY SEWER LATERAL CUT-IN
SAN-11A	DOG HOUSE SANITARY SEWER MANHOLE OVER U-LINER
SAN-11B	DOG HOUSE SANITARY SEWER MANHOLE INSTALLATION PROCEDURE

STANDARD UTILITY DETAILS

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DRAWING DESCRIPTION

LIFT STATION

LS-01	NOT USED
LS-02	NOT USED
LS-03	GROUT CORED OR PRECAST OPENING
LS-04	LIFT STATION VENT DETAIL
LS-05	1-INCH BACKFLOW PREVENTER
LS-06	NOT USED
LS-07	PIPE SUPPORT
LS-08	TYPICAL LIFT STATION WATER SERVICE
LS-09	TREMIE KEY WAY
LS-10	PUMP MOUNTING PLATE
LS-11	TYPICAL LIFT STATION FENCE AND GATES
LS-12	REMOVEABLE ALUMINUM SAFETY RAIL
LS-13A	NOT USED
LS-13B	NOT USED
LS-14A	DUPLEX PUMP CONTROL PANEL ELEVATION (240V)
LS-14B	NOT USED
LS-15A	NOT USED
LS-15B	NOT USED
LS-16	NOT USED
LS-17A	CONTROL PANEL & ANTENNA INSTALLATION
LS-17B	NOT USED
LS-18	CABINET CONDUIT PENETRATION
LS-19	CONDUIT TERMINATION (WETWELL)
LS-20	STRAIN RELIEF
LS-21	CGD (COMBUSTIBLE GAS DETECTOR) INSTALLATION
LS-22	GROUND ROD WITH ACCESS
LS-23	CONDUIT LAYOUT PLAN AT CONTROL PANEL
LS-24	CONDUIT LAYOUT PLAN AT WETWELL
LS-25	NOT USED
LS-26A	PUMP OUT DISCHARGE CONNECTION
LS-26B	PUMP OUT DISCHARGE CONNECTION
LS-27	6-INCH CONCRETE SLAB DETAIL
LS-28	PUMP OUT SUCTION
LS-29	CABLE HANGER
LS-30	VALVE VAULT FLOAT

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DRAWING DESCRIPTION

FORCEMAIN

FM-01	FORCEMAIN CUT IN CONNECTION
FM-02	FORCEMAIN CONNECTION TO MANHOLE
FM-03	PLUG VALVE WITH GEAR OPERATOR
FM-04	AUTOMATIC AIR RELEASE REMOTE INSTALLATION TYPE A
FM-05	AUTOMATIC AIR RELEASE (MOUNT ABOVE PIPE)
FM-06	AUTOMATIC AIR RELEASE (DIRECT PIPE MOUNT)

STANDARD UTILITY DETAILS



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DRAWING DESCRIPTION

MISCELLANEOUS

MISC-01	MONITOR WELL
MISC-02	SILT FENCE BARRIER INSTALLATION
MISC-03	SPACING FOR SILT FENCES AND HAY BAILES
MISC-04	HAY BALE BARRIER
MISC-05	INSPECTION AND MONITORING REQUIREMENTS
MISC-06	INSPECTION AND MONITORING REQUIREMENTS
MISC-07	SAND AND GRIT INTERCEPTOR FOR CAR WASH
MISC-08	SIZING GUIDELINES – OIL AND WATER INTERCEPTOR
MISC-09	OIL GREASE INTERCEPTOR
MISC-10	SAND INTERCEPTOR SIZING GUIDELINES
MISC-11	OIL AND GREASE INTERCEPTOR (GREASE TRAP)
MISC-12	OIL AND GREASE INTERCEPTOR GUIDELINES (GREASE TRAP)
MISC-13	LINT INTERCEPTOR DESIGNS FOR COMMERCIAL LAUNDRIES

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DRAWING DESCRIPTION

DESIGN GUIDELINES

- DG-01 TYPICAL LIFT STATION SITE PLAN (WITHOUT ON-SITE GENERATOR)
- DG-02 TYPICAL PLAN AND SECTION (DUPLEX LIFT STATION)
- DG-03A ONE-LINE DIAGRAM 240V WITHOUT ON-SITE GENERATOR
- DG-03B ONE-LINE DIAGRAM 480V WITHOUT ON-SITE GENERATOR
- DG-04 ELECTRICAL RISER CLASS 1, DIV 1 OR 2, GROUP D HAZARDOUS AREA
- DG-05 DESIGN CRITERIA

STANDARD UTILITY DETAILS



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File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\01-General\224-002.00_GENERAL DTLs; Plotted @: 10/4/2017 3:37:39 PM; Milestone: FINAL SUBMITTAL

GENERAL NOTES

- 1) CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT, BROWARD COUNTY HEALTH DEPARTMENT, FLORIDA BUILDING CODE (LATEST EDITION) AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
- 2) PERFORM CONSTRUCTION IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SHALL BE STRICTLY OBSERVED.
- 3) ELEVATIONS ON THE DRAWINGS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
- 4) THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A UTILITY LOCATION SERVICE SUCH AS "SUNSHINE STATE ONE CALL OF FLA, INC." AT (800) 432-4770 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.
- 5) PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE LOCATION AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.
- 6) IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CORAL SPRINGS IMPROVEMENT DISTRICT.
- 7) STANDARD SEPARATION STATEMENT:
 - A. MAINTAIN A MINIMUM THREE (3) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND VACUUM SEWER, STORM SEWER OR RECLAIMED WATER MAINS REGULATED UNDER PART III OF CHAPTER 62-610.
 - B. MAINTAIN A MINIMUM SIX (6) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND GRAVITY SEWER, PRESSURE-TYPE SANITARY SEWER OR RECLAIMED WATER MAINS NOT REGULATED UNDER PART III OF CHAPTER 62-610.

THIS DISTANCE CAN BE REDUCED TO THREE (3) FOOT HORIZONTAL DISTANCE WHEN EITHER PIPE IS ENCLOSED IN A WATERTIGHT CASING OR CONCRETE AND WHEN WATER MAINS ARE LOCATED AT LEAST SIX (6) INCHES ABOVE GRAVITY SEWER MAINS.
 - C. MAINTAIN A MINIMUM TEN (10) FOOT HORIZONTAL DISTANCE BETWEEN WATER MAINS AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS.
 - D. MAINTAIN SIX (6) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
 - E. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS BELOW VACUUM SEWER, GRAVITY SEWER OR STORM SEWER.
 - F. MAINTAIN A TWELVE (12) INCH VERTICAL SEPARATION WHERE WATER MAINS CROSS ABOVE OR BELOW PRESSURE-TYPE SANITARY SEWER, FORCE MAIN OR RECLAIMED WATER MAINS.
- 8) THE CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO LOCATE, EXCAVATE AND PREPARE FOR CONNECTIONS TO THE EXISTING SYSTEMS ALL AS SHOWN ON THE DRAWINGS. THE COST FOR THIS WORK AND FOR THE ACTUAL CONNECTION TO THE EXISTING SYSTEMS SHALL BE INCLUDED IN THE BID PRICE FOR THE PROJECT AND SHALL NOT RESULT IN ANY ADDITIONAL COST TO THE CORAL SPRINGS IMPROVEMENT DISTRICT.
- 9) CONTRACTOR MUST PROVIDE FOR AND MAINTAIN ADEQUATE ACCESS AT ALL TIMES TO ALL BUSINESSES AND RESIDENCES AFFECTED BY PROGRESS OF THE WORK.
- 10) PROJECT SITE SAFETY:
 - A. THE ENGINEER/CORAL SPRINGS IMPROVEMENT DISTRICT OR THEIR EMPLOYEES HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER THE CONTRACTOR, ANY SUB-CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY JOB SITE HEALTH OR SAFETY PRECAUTIONS.
 - B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND WARRANTS THAT THIS INTENT IS MADE EVIDENT BY THE AGREEMENT BETWEEN OWNER AND CONTRACTOR.
 - C. ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS OR ENCOUNTERED THROUGH THE PROGRESSION OF WORK AT THIS PROJECT SITE AREA ARE ASSUMED TO BE LIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS WHEN WORKING AROUND EXISTING OVERHEAD OR UNDERGROUND UTILITIES.
- 11) VALVE BOXES AND MANHOLE RIM ELEVATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL ADJUST VALVE BOX AND MANHOLE RIM ELEVATIONS AS REQUIRED TO MEET FINAL GRADES.

GENERAL NOTES

G-01

STANDARD UTILITY DETAILS

GENERAL NOTES



NO.	DATE	REVISION

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9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-01

PROPOSED UTILITY	MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS									
	POTABLE WATER		RECLAIMED WATER*		SANITARY SEWER FORCE MAIN		SANITARY SEWER GRAVITY MAIN		STORM SEWER OR VACUUM TYPE SANITARY SEWER	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
POTABLE WATER	--	--	3'	12"	6'	12"	6' **	6" ABOVE 12" BELOW	3'	6" ABOVE 12" BELOW
RECLAIMED WATER	3'	12"	--	--	3'	12"	3'	12"	--	--
SANITARY SEWER FORCE MAIN	6'	12"	3'	12"	--	--	--	--	--	--
SANITARY SEWER GRAVITY MAIN	6' **	12" ABOVE 6" BELOW	3'	12"	--	--	--	--	--	--
FIRE HYDRANT W/UNDERGROUND DRAINS	--	--	3'	--	6'	--	6'	--	3'	--
STORM SEWER OR VACUUM TYPE SANITARY SEWER	3'	12" ABOVE 6" BELOW	--	--	--	--	--	--	--	--

- THE TABLE REPRESENTS THE MINIMUM SEPARATION REQUIREMENTS AS DESCRIBED IN F.D.E.P. RULES PER THE FLORIDA ADMINISTRATION CODE (F.A.C.). THESE SEPARATION REQUIREMENTS SHALL APPLY BETWEEN NEWLY PROPOSED UTILITY LINES AND EXISTING OR PROPOSED UTILITY LINES.
- FOR THE PURPOSE OF THIS TABLE RECLAIMED WATER SHALL MEAN UNRESTRICTED PUBLIC ACCESS REUSE WATER AS DEFINED BY F.A.C. 62-610. OTHER TYPES OF RECLAIMED WATER ARE CONSIDERED RAW SEWAGE AND SEPARATION LISTED FOR SANITARY SEWER SHALL APPLY.
- ALL SEPARATION DISTANCES ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
- THE MINIMUM HORIZONTAL SEPARATION BETWEEN POTABLE WATER AND GRAVITY SANITARY SEWER MAY BE REDUCED TO 3 FEET IF THE BOTTOM OF THE WATER MAIN IS LOCATED AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY SEWER.
- AT UTILITY CROSSINGS ONE FULL LENGTH OF WATER MAIN SHALL BE CENTERED ABOVE OR BELOW THE OTHER UTILITY PIPELINE MAXIMIZING THE SEPARATION OF PIPELINE JOINTS. ALTERNATIVELY, WATER MAIN JOINTS MUST BE:
 - AT LEAST 3' FROM ALL JOINTS IN VACUUM TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS OR UNRESTRICTED PUBLIC ACCESS RECLAIMED WATER.
 - AT LEAST 6' FROM ALL JOINTS IN GRAVITY OR PRESSURE SANITARY SEWERS, WASTEWATER FORCE MAINS AND ALL OTHER TYPES OF RECLAIMED WATER.
- NO WATER PIPE SHALL PASS THROUGH OR BE CONSTRUCTED TOUCHING ANY PART OF A SANITARY MANHOLE OR STORM SEWER MANHOLE OR INLET STRUCTURE.
- NEW OR RELOCATED WATER MAINS AND FIRE HYDRANTS WITH UNDERGROUND DRAINS MUST BE AT LEAST 10 FEET FROM ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT SYSTEM" (OSTADS) AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002 F.A.C. EXAMPLES OF OSTADS INCLUDE SEPTIC TANKS, DRAINFIELDS AND GREASE TRAPS.
- THE FOLLOWING ARE ACCEPTABLE ALTERNATIVE CONSTRUCTION VARIANCES WHERE IT IS NOT POSSIBLE TO MEET THE SEPARATION REQUIREMENTS, AND ARE ONLY TO BE IMPLEMENTED UPON RECEIPT OF EXPRESSED WRITTEN CONSENT FROM THE CORAL SPRINGS IMPROVEMENT DISTRICT.
 - WHERE A WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE AND/OR WHERE A WATER MAIN CROSSING HAS LESS THAN THE MINIMUM REQUIRED DISTANCE BETWEEN JOINTS:
 - USE OF PRESSURE RATED PIPE CONFORMING TO AWWA STANDARDS FOR A GRAVITY OR VACUUM TYPE PIPE LINE.
 - USE OF WELDED, FUSED OR OTHERWISE RETRAINED JOINTS FOR EITHER PIPE.
 - USE OF WATERTIGHT CASING PIPE OR CONCRETE ENCASEMENT AT LEAST 4" THICK FOR EITHER PIPE.
 - WHERE A WATER MAIN IS BEING LAID LESS THAN 3 FEET HORIZONTALLY FROM ANOTHER PIPE LINE AND/OR WHERE A WATER MAIN IS BEING LAID WITH LESS THAN THE REQUIRED MINIMUM VERTICAL SEPARATION:
 - USE OF PIPE OR CASING PIPE HAVING HIGH IMPACT STRENGTH (AT LEAST EQUAL TO 0.25" THICK D.I.P.), OR CONCRETE ENCASEMENT AT LEAST 4" THICK FOR THE WATER MAIN AND THE OTHER PIPELINE IF THE OTHER PIPE LINE CONVEYS WASTEWATER OR RECLAIMED WATER.

MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS

MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIREMENTS

G-02

STANDARD UTILITY DETAILS

MINIMUM HORIZONTAL AND VERTICAL SEPARATION REQUIRED



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GENERAL

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G-02

PRESSURE TEST REPORT

DATE: _____

PROJECT NUMBER: _____

PROJECT NAME: _____

FLOW STREAM: _____

LOCATION: _____

INSPECTOR: _____

CONTRACTOR: _____

IN ATTENDANCE: _____

COMPUTATIONS FOR ALLOWABLE LEAKAGE

D=	DIAMETER OF LINE TESTED (INCHES)	D=				
S=	LENGTH OF LINE (FEET)	S=				
P=	AVERAGE TEST PRESSURE (PSI)	P=				
Q=	ALLOWABLE PIPE LEAKAGE (gal/hr)	Q=				
	$Q = \frac{S \times D \times \sqrt{P}}{148,000}$	V=				
V=	ALLOWABLE VALVE LEAKAGE (gal/hr)	TOTAL ALLOWABLE (GAL/HR)				
	0.0078 GAL/HR/INCH OF NOMINAL CLOSED MAIN LINE VALVE SIZE	ACTUAL LEAKAGE				

COMPUTATIONS FOR MEASURED LEAKAGE

REMARKS

TIME START OF TEST: _____

TIME END OF TEST: _____

TOTAL TEST TIME: _____

PRESSURE START OF TEST: _____ PSI

PRESSURE END OF TEST: _____ PSI

AVERAGE TEST PRESSURE: _____ PSI

THE ABOVE TEST (DOES) (DOES NOT) MEET THE SPECIFICATIONS

SHEET _____ OF _____

PRESSURE TEST REPORT

G-03

STANDARD UTILITY DETAILS

PRESSURE TEST REPORT



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GENERAL

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G-03

FORCE MAIN OUTSIDE OF WELLFIELD PROTECTION ZONE

HYDROSTATIC TESTING ALLOWANCE (GAL/HR) PER 1000 FT OF PIPELINE											
AVG. TEST PRESSURE PSI	NOMIAL PIPE DIAMETER – INCHES										
	3	4	6	8	10	12	14	16	18	20	24
200	0.29	0.38	0.57	0.76	0.95	1.15	1.34	1.53	1.72	1.91	2.29
175	0.27	0.36	0.54	0.71	0.89	1.07	1.25	1.43	1.61	1.79	2.14
150	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.65	1.98
125	0.23	0.30	0.45	0.60	0.75	0.91	1.06	1.21	1.36	1.51	1.81
100	0.20	0.27	0.40	0.54	0.67	0.81	0.94	1.08	1.21	1.35	1.62

NOTES:

1. THE MAXIMUM ALLOWABLE WATER LOSS FOR A PIPELINE IS CALCULATED BY MULTIPLYING THE QUANTITY PER HOUR AS OBTAINED FROM THE ABOVE TABLE, BY THE DURATION OF THE TEST IN HOURS, AND BY THE TOTAL LENGTH OF THE LINE BEING TESTED DIVIDED BY 1,000. IF THE LINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE MAXIMUM QUANTITY ADDED WILL BE THE SUM OF THE COMPUTED QUANTITIES FOR EACH SIZE.
2. MAXIMUM TEST LENGTH = 2,000 FEET PER SECTION.
3. THIS STANDARD SHALL REFLECT ANY REVISION OF A.W.W.A. C-600 OR B.C.H.D.
4. STANDARD TEST PRESSURE = 150 P.S.I.
5. FORMULA BASIS:
$$L = \frac{(S) \times (D) \times \sqrt{(P)}}{148,000}$$

L = MAXIMUM QUANTITY OF WATER LOSS ALLOWABLE (GALLONS PER HOUR)
S = LENGTH OF PIPE TESTED (FEET)
D = DIAMETER OF PIPE (INCHES)
P = TEST PRESSURE (PSI)
6. PRESSURE TEST DURATION TO BE MINIMUM 2 HOURS.
7. MAXIMUM ALLOWABLE PRESSURE DROP SHALL NOT EXCEED 5 PSI DURING THE TEST.

FORCE MAIN AND GRAVITY WASTEWATER MAIN WITHIN WELLFIELD PROTECTION ZONE.

NOTES:

1. PRESSURE TEST PROCEDURE TO FOLLOW THE CURRENT AWWA C-600 STANDARD (150 PSI, (2) HOUR DURATION).
2. THERE SHALL BE NO PRESSURE DROP IN THE PIPE DURING THE TEST ("ZERO" FILL-UP TOLERANCE).

WASTEWATER PRESSURE TEST CRITERIA

G-04

STANDARD UTILITY DETAILS

WASTEWATER PRESSURE TEST CRITERIA



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GENERAL

DETAIL NUMBER

G-04

HYDROSTATIC TESTING ALLOWANCE (GAL/HR) PER 1000 FT OF PIPELINE											
AVG. TEST PRESSURE PSI	NOMIANAL PIPE DIAMETER – INCHES										
	3	4	6	8	10	12	14	16	18	20	24
200	0.29	0.38	0.57	0.76	0.95	1.15	1.34	1.53	1.72	1.91	2.29
175	0.27	0.36	0.54	0.71	0.89	1.07	1.25	1.43	1.61	1.79	2.14
150	0.25	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.65	1.98
125	0.23	0.30	0.45	0.60	0.75	0.91	1.06	1.21	1.36	1.51	1.81
100	0.20	0.27	0.40	0.54	0.67	0.81	0.94	1.08	1.21	1.35	1.62

NOTES:

1. THE MAXIMUM ALLOWABLE WATER LOSS FOR A PIPELINE IS CALCULATED BY MULTIPLYING THE QUANTITY PER HOUR AS OBTAINED FROM THE ABOVE TABLE, BY THE DURATION OF THE TEST IN HOURS, AND BY THE TOTAL LENGTH OF THE LINE BEING TESTED DIVIDED BY 1,000. IF THE LINE UNDER TEST CONTAINS SECTIONS OF VARIOUS DIAMETERS, THE MAXIMUM QUANTITY ADDED WILL BE THE SUM OF THE COMPUTED QUANTITIES FOR EACH SIZE.
2. MAXIMUM TEST LENGTH = 2,000 FEET PER SECTION.
3. THIS STANDARD SHALL REFLECT ANY REVISION OF A.W.W.A. C-600 OR B.C.H.D.
4. STANDARD TEST PRESSURE = 150 P.S.I.
5. FORMULA BASIS:
$$L = \frac{(S) \times (D) \times \sqrt{P}}{148,000}$$

L = MAXIMUM QUANTITY OF WATER TO BE ADDED (GALLONS PER HOUR)
S = LENGTH OF PIPE TESTED (FEET)
D = DIAMETER OF PIPE (INCHES)
P = TEST PRESSURE (P.S.I.)
6. PRESSURE TEST DURATION TO BE MIN. 2 HOURS.
7. MAXIMUM ALLOWABLE PRESSURE DROP SHALL NOT EXCEED 5 PSI DURING TEST.

POTABLE WATER PRESSURE TEST CRITERIA

G-05

STANDARD UTILITY DETAILS

POTABLE WATER PRESSURE TEST CRITERIA



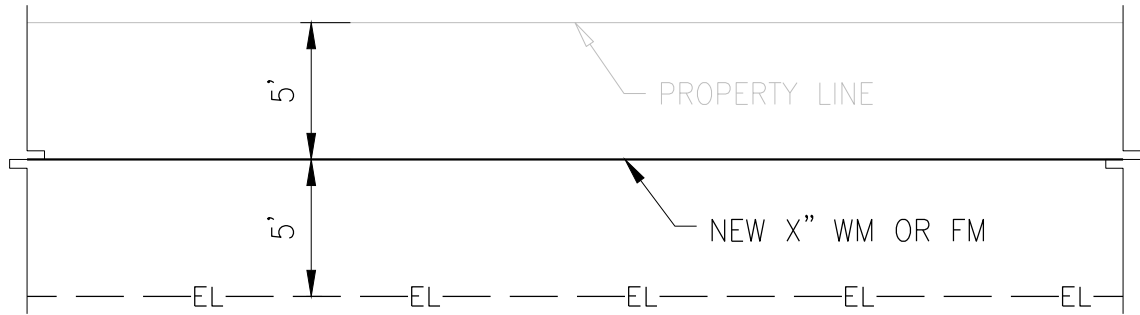
NO.	DATE

REVISION

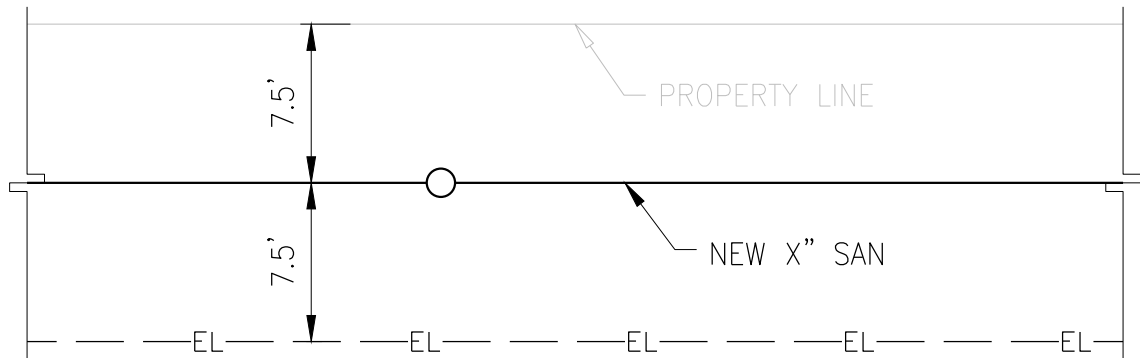
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GROUP GENERAL

DETAIL NUMBER G-05

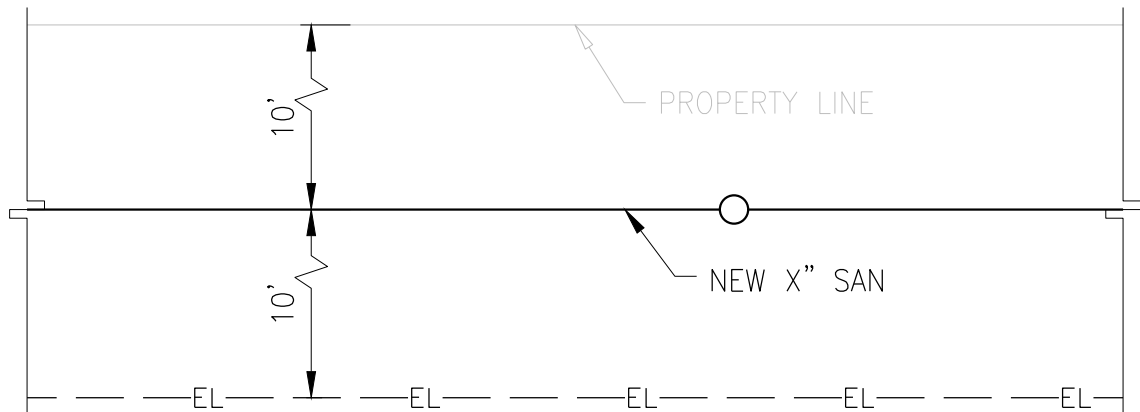
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WATER MAIN OR FORCEMAIN



GRAVITY SEWER LINES <8' DEEP



GRAVITY SEWER LINES >8' DEEP

GENERAL EASEMENT PARAMETERS

G-06

STANDARD UTILITY DETAILS

GENERAL EASEMENT PARAMETERS

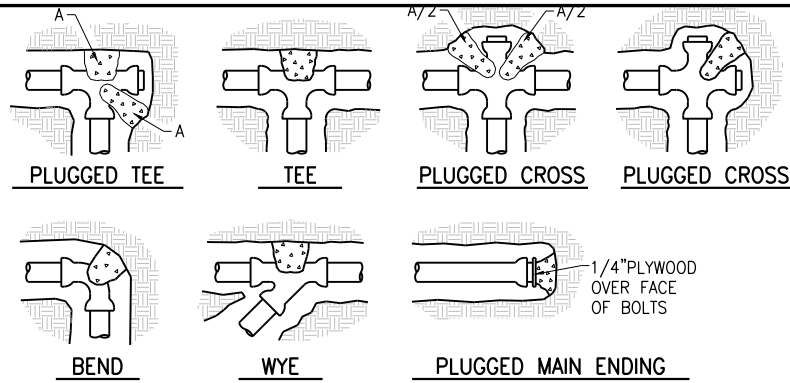


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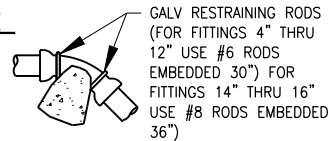
DATE APPROVED
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GROUP
GENERAL

DETAIL NUMBER
G-06



ONLY ALLOWED AT LOCATIONS
APPROVED BY THE CORAL
SPRINGS IMPROVEMENT DISTRICT

PROFILE



THRUST BLOCK NOTES

- 1) REQUIRED VOLUMES OR BEARING AREAS INDICATED AT FITTINGS ARE BASED UPON TEST PRESSURES OF 150 PSIG, 2,000 LBS/SF ALLOWABLE SOIL BEARING STRESS AND THE WEIGHT OF CONCRETE EQUAL TO 4050 LBS/CY.
- 2) BEARING AREAS OF THRUST BLOCKS SHALL NOT BE LESS THAN 1.0 SF.
- 3) KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES AND WRAP THE FITTING WITH VISQUEEN PRIOR TO PLACING CONCRETE.
- 4) BEARING AREAS, VOLUMES AND SPECIAL BLOCKING DETAILS SHOWN ON DRAWINGS SHALL TAKE PRECEDENCE OVER THIS STANDARD.
- 5) THRUST BLOCKS FOR VERTICAL BENDS HAVING DOWNWARD RESULTANT THRUSTS SHALL BE THE SAME AS HORIZONTAL BENDS.
- 6) COMPUTE BEARING AREAS FOR HORIZONTAL BEND THRUST BLOCKS AT DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES WITH THE FOLLOWING EQUATION:

$$\text{BEARING AREA} = (\text{REQD TEST PRESSURE}/150 \times (2,000/\text{ACTUAL SOIL BEARING STRESS})) \times (\text{TABLE VALUE}).$$
- 7) COMPUTE VOLUMES OF CONCRETE FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS AT DIFFERENT TEST PRESSURES WITH THE FOLLOWING EQUATION:

$$\text{VOLUME} = (\text{REQUIRED TEST PRESSURE}/150) \times (\text{TABLE VALUE}).$$

VOLUME OF THRUST BLOCKS FOR VERTICAL BENDS IN CUBIC YARDS			
FITTING SIZE	B E N D S		
	11-1/4°	22-1/2°	45°
4"	0.2	0.4	1.1
6"	0.4	1.0	2.7
8"	0.6	1.5	4.0
10"	0.9	2.3	6.0
12"	1.3	3.2	8.5
14"	1.8	4.3	11.5
16"	2.3	5.6	14.8

BEARING AREA OF THRUST BLOCKS IN SQARE FEET (HORIZONTAL FITTINGS)							
FITTING SIZE	B E N D S			TEE, WYE PLUG OR CAP	TEE (PLUGGED RUN)		90° BEND OR PLUGGED CROSS
	11-1/4°	22-1/2°	45°		A1	A2	
4"			1.0	1.0	1.9	1.4	1.4
6"		1.0	1.6	2.1	4.3	3.0	3.0
8"	1.0	1.5	2.9	3.8	7.6	5.4	5.3
10"	1.2	2.4	4.6	5.9	11.8	8.4	8.4
12"	1.7	3.4	6.6	8.5	17.0	12.0	12.0
14"	2.3	4.6	8.9	11.5	23.0	16.3	16.3
16"	3.0	6.0	11.6	15.0	30.0	21.3	21.3
18"	3.8	7.6	14.6	19.0	38.0	27.0	27.0
20"	4.7	9.4	18.1	23.5	47.0		
24"	6.8	13.6	26.2	34.0	68.0		
30"	-	-	-	-	-		

THRUST BLOCK NOTES AND DETAILS

G-07

STANDARD UTILITY DETAILS

THRUST BLOCK NOTES AND DETAILS



NO.	DATE

	REVISION

DATE APPROVED	
9/28/17	
GROUP	
GENERAL	

DETAIL NUMBER	
G-07	

		MINIMUM LENGTH TO BE RESTRAINED (FT) PER PIPE DIAMETER						
FITTING TYPE		4"	6"	8"	10"	12"	16"	20"
90° HORIZ BEND		15	21	27	32	37	46	55
45° HORIZ BEND		6	9	11	13	15	19	23
22-1/2° HORIZ BEND		3	4	5	6	7	9	11
11-1/4° HORIZ BEND		1	2	3	3	4	5	5
45° VERT OFFSET	UPPER BEND	13	18	24	28	33	43	51
	LOWER BEND	7	6	7	9	10	13	16
22-1/2° VERT OFFSET	UPPER BEND	6	8	11	14	16	20	25
	LOWER BEND	4	3	3	4	5	6	8
PLUG (DEAD END)		31	44	57	69	81	103	124
VALVE		31	44	57	69	81	103	124
4" X 6" TEE	RUN	5						
	BRANCH	9						
6" X 8" TEE	RUN	5	5					
	BRANCH	1	21					
8" X 10" TEE	RUN	5	5	5				
	BRANCH	1	14	34				
10" X 12" TEE	RUN	5	5	5	5			
	BRANCH	1	5	28	45			
12" X 16" TEE	RUN	5	5	5	5	5		
	BRANCH	1	1	21	40	57		
16" X 20" TEE	RUN	5	5	5	5	5	5	
	BRANCH	1	1	7	29	48	78	
20" X 24" TEE	RUN	5	5	5	5	5	5	5
	BRANCH	1	1	1	17	37	71	99
6" X 8" REDUCER	LARGE SIDE	23						
8" X 10" REDUCER	LARGE SIDE	41	24					
10" X 12" REDUCER	LARGE SIDE	56	42	23				
12" X 16" REDUCER	LARGE SIDE	70	59	43	40			
16" X 20" REDUCER	LARGE SIDE	95	87	75	73	44		
20" X 24" REDUCER	LARGE SIDE	118	111	102	100	78	44	

NOTES

- 1) RESTRAINT INFORMATION FOR DUCTILE IRON PIPE INSTALLATION.
- 2) MINIMUM LENGTH TO BE RESTRAINED BASED ON MINIMUM 2'-6" OF COVER, MAXIMUM TEST PRESSURE OF 150 PSI AND A SAFETY FACTOR OF 2. NOTIFY ENGINEER OF ANY DISCREPANCY THAT REQUIRES CLARIFICATION.
- 3) MINIMUM NUMBER OF JOINTS TO BE RESTRAINED SHALL BE ALL JOINTS WITHIN MINIMUM LENGTH GIVEN BY TABLE.
- 4) MINIMUM LENGTH TO BE RESTRAINED IS MEASURED IN FEET FROM FITTING OR VALVE.
- 5) ALL JOINTS BETWEEN UPPER AND LOWER OFFSET BENDS SHALL BE RESTRAINED.
- 6) ALL JOINTS BETWEEN LOWER BENDS OF CONFLICT CROSSINGS SHALL BE RESTRAINED.
- 7) RESTRAINED LENGTHS FOR REDUCERS ARE ON LARGE DIAMETER SIDE.
- 8) RUN RESTRAINT FOR TEES IS UPSTREAM AND DOWNSTREAM.
- 9) RESTRAINT LENGTHS FOR VALVES ARE REQUIRED UPSTREAM AND DOWNSTREAM.
- 10) NOTIFY THE ENGINEER IF ATTACHED LENGTH OF PIPE IN EACH DIRECTION ALONG THE RUN OF THE TEE IS SIGNIFICANTLY GREATER THAN 5.0' (LENGTH SHALL NOT BE LESS THAN 5.0'). THE MINIMUM LENGTH OF A BRANCH OF A TEE TO BE RESTRAINED AS SHOWN IN THE ABOVE TABLE IS CALCULATED ASSUMING THE LENGTH OF ATTACHED PIPE ALONG THE RUN OF TEE IN EACH DIRECTION IS 5.0'.
- 11) JOINT RESTRAINTS SHALL BE AS SPECIFIED.
- 12) COMPUTE LENGTHS TO BE RESTRAINED AT TEST PRESSURES OTHER THAN 150 PSI WITH THE FOLLOWING EQUATION:

LENGTH = (REQUIRED TEST PRESSURE/150) x (TABLE VALUE)
- 13) IF DEPTH OF COVER IS LESS THAN 2'-6" RESTRAIN ALL JOINTS PER SPECIFICATIONS.
- 14) IN CASES WHERE RESTRAINT REQUIREMENTS OVER LAP LONGEST REQUIREMENT SHALL GOVERN.

DUCTILE IRON THRUST RESTRAINT TABLE

G-08

STANDARD UTILITY DETAILS

DUCTILE IRON THRUST RESTRAINT TABLE



NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-08

FITTING TYPE		MINIMUM LENGTH TO BE RESTRAINED (FT) PER PIPE DIAMETER				
		4"	6"	8"	10"	12"
90° HORIZ BEND		11	16	33	26	30
45° HORIZ BEND		5	7	9	11	13
22-1/2° HORIZ BEND		2	3	4	5	6
11-1/4° HORIZ BEND		1	2	2	3	3
45° VERT OFFSET	UPPER BEND	13	25	33	40	47
	LOWER BEND	3	7	10	11	14
22-1/2° VERT OFFSET	UPPER BEND	6	12	16	19	23
	LOWER BEND	2	4	5	6	7
PLUG (DEAD END)		32	47	62	74	88
VALVE		32	47	62	74	88
4" X 8" TEE	RUN	5	-	-	-	-
	BRANCH	5	-	-	-	-
6" X 8" TEE	RUN	5	5	-	-	-
	BRANCH	1	17	-	-	-
8" X 8" TEE	RUN	5	5	5	-	-
	BRANCH	1	8	31	-	-
10" X 8" TEE	RUN	5	5	5	5	-
	BRANCH	1	1	23	42	-
12" X 8" TEE	RUN	5	5	5	5	5
	BRANCH	1	1	16	36	35
6" X 8" REDUCER	LARGE SIDE	23	-	-	-	-
8" X 8" REDUCER	LARGE SIDE	42	26	-	-	-
10" X 8" REDUCER	LARGE SIDE	57	46	25	-	-
12" X 8" REDUCER	LARGE SIDE	72	64	47	43	-

NOTES

- 1) RESTRAINT INFORMATION FOR AWWA C-900 PVC PIPE INSTALLATION.
- 2) MINIMUM LENGTH TO BE RESTRAINED BASED ON 3'-0" OF COVER MAXIMUM TEST PRESSURE OF 150 PSI, AND A SAFETY FACTOR OF 1.5. NOTIFY ENGINEER OF ANY DISCREPANCY THAT REQUIRES CLARIFICATION.
- 3) MINIMUM NUMBER OF JOINTS TO BE RESTRAINED SHALL BE ALL JOINTS WITHIN MINIMUM LENGTH GIVEN BY TABLE.
- 4) MINIMUM LENGTH TO BE RESTRAINED IS MEASURED IN FEET FROM FITTING OR VALVE.
- 5) ALL JOINTS BETWEEN UPPER AND LOWER OFFSET BENDS SHALL BE RESTRAINED.
- 6) ALL JOINTS BETWEEN LOWER BENDS OF CONFLICT CROSSINGS SHALL BE RESTRAINED.
- 7) RESTRAINED LENGTHS FOR REDUCERS ARE ON LARGE DIAMETER SIDE.
- 8) RUN RESTRAINT FOR TEES IS UPSTREAM AND DOWNSTREAM.
- 9) RESTRAINT LENGTHS FOR VALVES ARE REQUIRED UPSTREAM AND DOWNSTREAM.
- 10) JOINT RESTRAINTS SHALL BE AS SPECIFIED.
- 11) COMPUTE LENGTHS TO BE RESTRAINED AT TEST PRESSURES OTHER THAN 150 PSI WITH THE FOLLOWING EQUATION: LENGTH = (REQUIRED TEST PRESSURE/150) x (TABLE VALUE)
- 12) IF DEPTH OF COVER IS LESS THAN 3'-0" RESTRAIN ALL JOINTS.
- 13) IN CASES WHERE RESTRAINT REQUIREMENTS OVER LAP LONGEST REQUIREMENT SHALL GOVERN.

PVC THRUST RESTRAINT TABLE

G-09

STANDARD UTILITY DETAILS

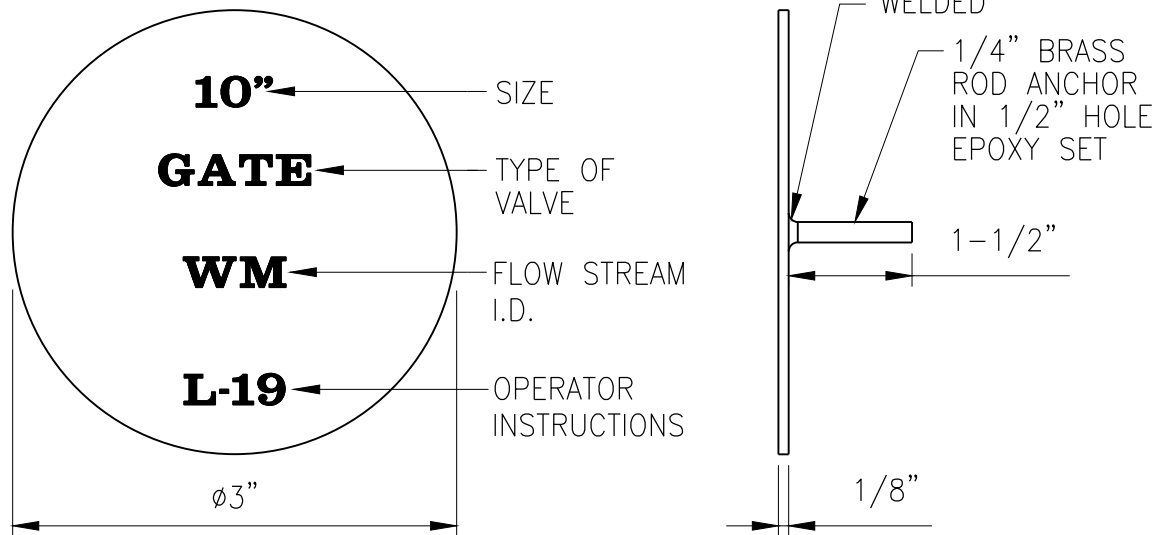
PVC THRUST RESTRAINT TABLE



NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-09



NOTES:

- 1) TOP OF BRASS MARKER MUST BE FLUSH WITH SURROUNDING SURFACE AND NOT CREATE MORE THAN A 1/8" TRIPPING HAZARD.
- 2) FLOW STREAM I.D.'S: WM = WATER MAIN
FM = FORCE MAIN
RW = RECLAIMED WATER MAIN

VALVE MARKER

G-10

STANDARD UTILITY DETAILS

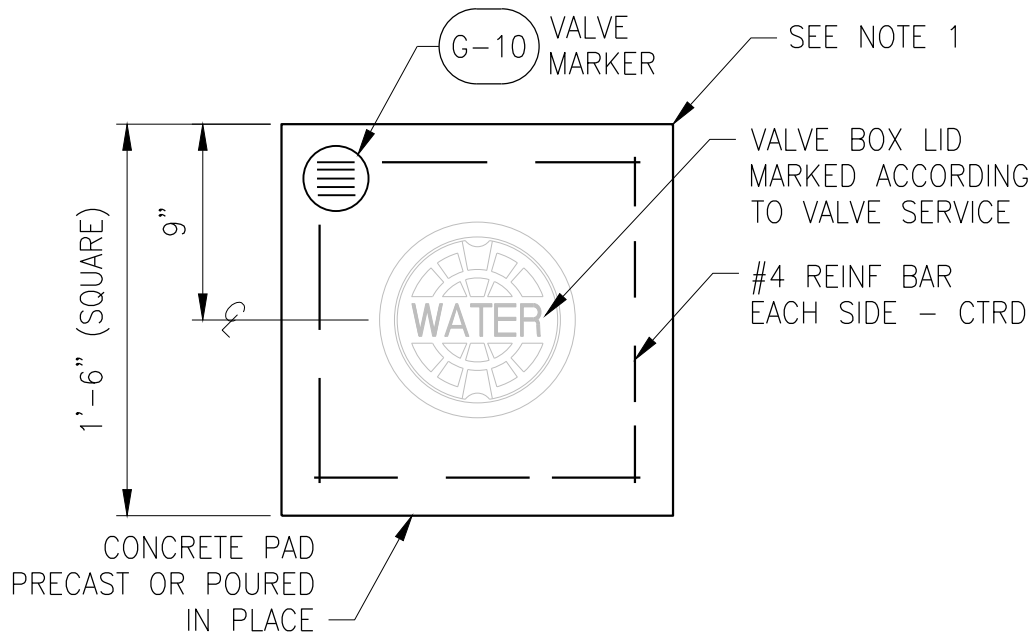
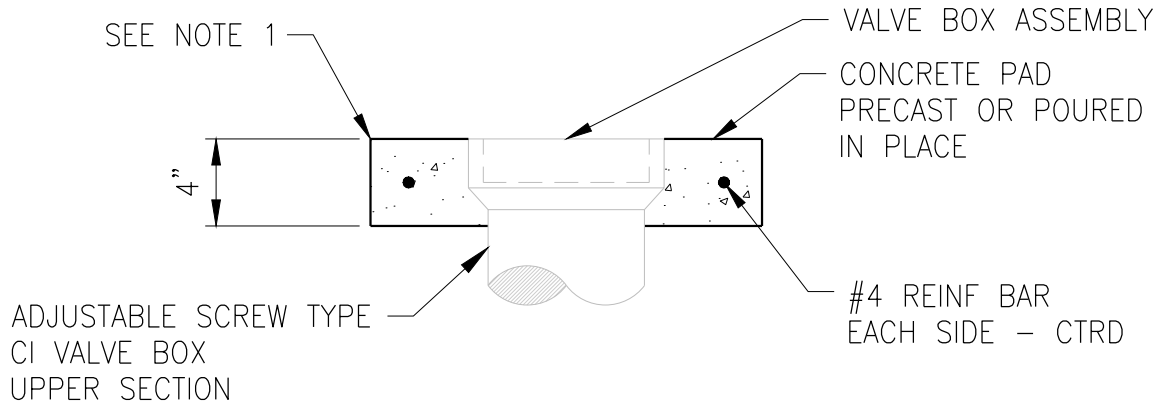
VALVE MARKER



NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-10



NOTES:

1. UTILIZE 3/8" RADIUS TOOLED EDGES IF PAD IS LOCATED IN UNPAVED AREAS.

CONCRETE VALVE BOX PAD

G-11

STANDARD UTILITY DETAILS

CONCRETE VALVE BOX PAD



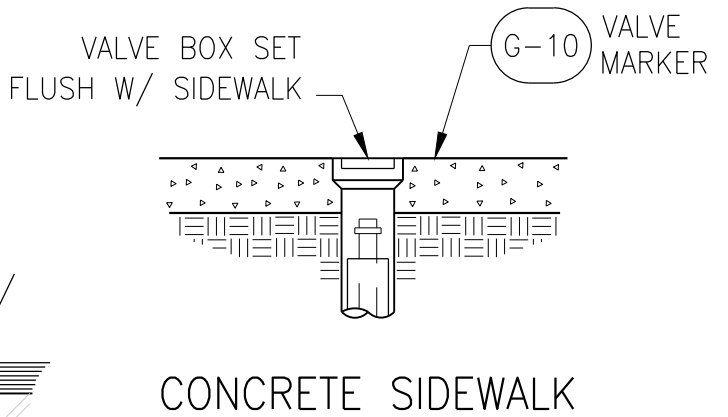
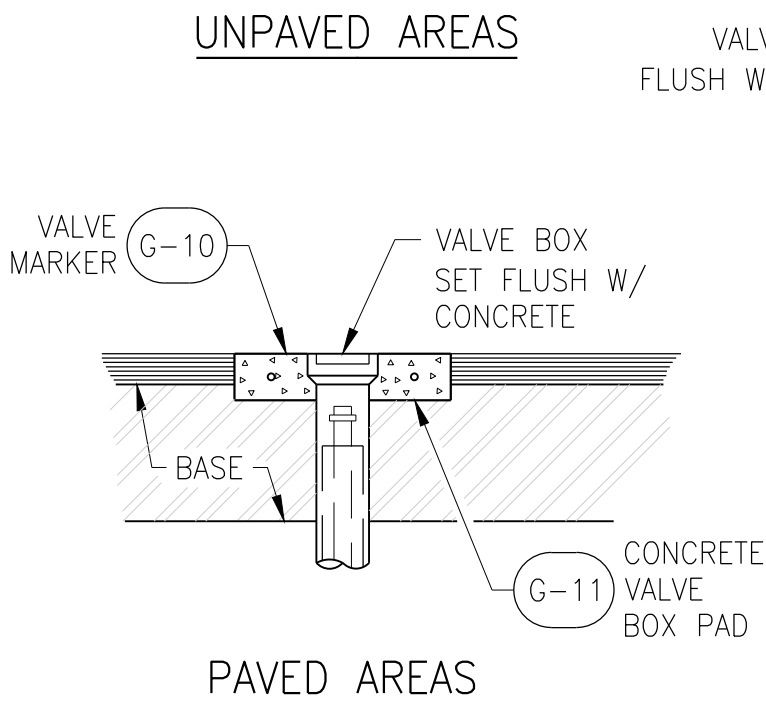
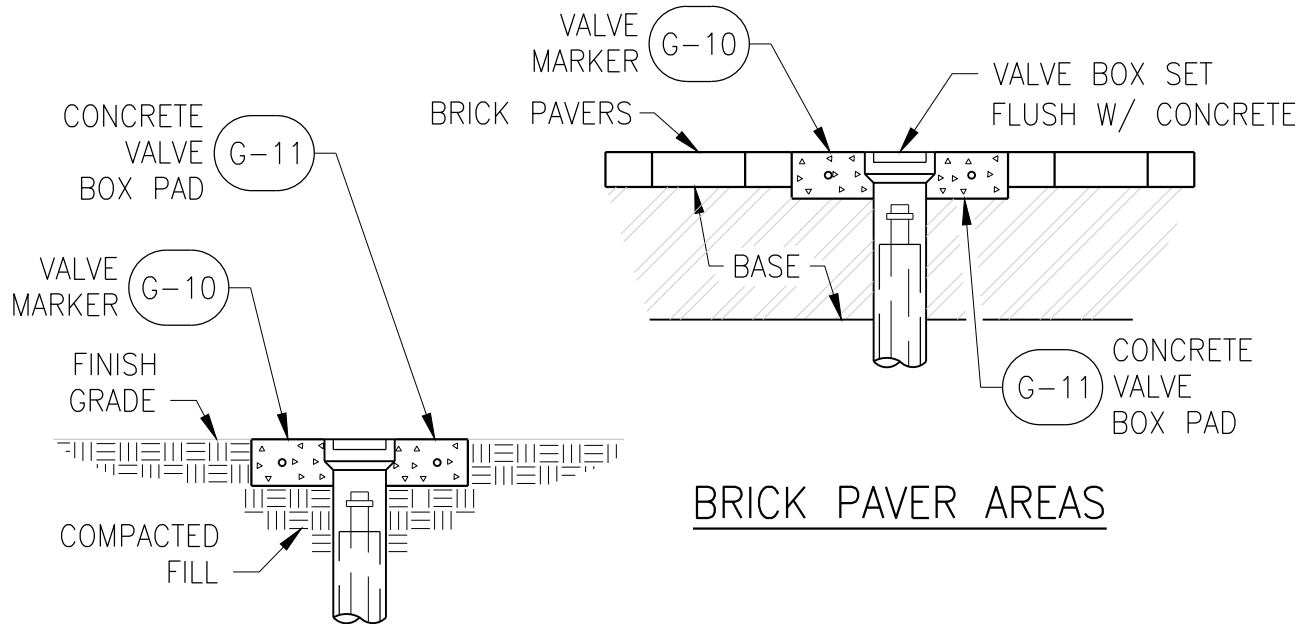
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DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-11

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VALVE BOX SETTINGS

G-12

STANDARD UTILITY DETAILS

VALVE BOX SETTING



NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-12

NOTES:

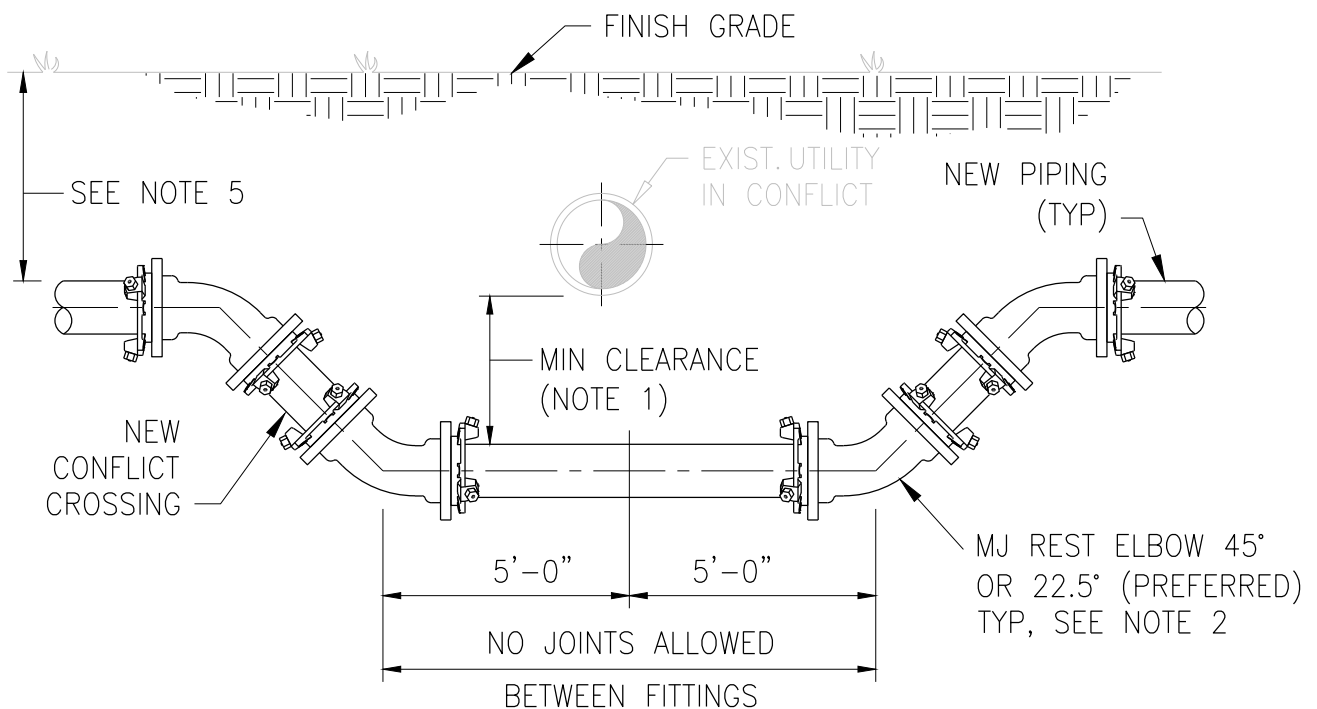
1. PREPARE BASE SECTION, SAW CUT EXISTING PAVEMENT AS APPLICABLE. PRIME COAT, TACK COAT AND PLACE ASPHALT PATCH IMMEDIATELY FOLLOWING PIPE INSTALLATION.
BASE MATERIAL SHALL BE TWICE THE THICKNESS OF EXISTING BASE MATERIAL, BUT IN NO CASE BE LESS THAN 12\".
2. FILL PLACED IN 8\".
3. FILL COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.
4. NATURAL TOP SOIL GRADED TO 1\".
5. FILL PLACED IN 12\".
6. EXCAVATIONS SHALL BE DEWATERED WHERE APPLICABLE TO ENABLE PIPE AND APPURTENANCES TO BE INSTALLED FREE OF WATER.
7. BEDDING AND BACKFILL MATERIAL SHALL BE AS SPECIFIED.
8. LIMEROCK BASE SHALL BE AS SPECIFIED.
9. TYPE S-III ASPHALTIC CONCRETE SHALL BE AS SPECIFIED. PAVEMENT PATCH THICKNESS TO MATCH EXISTING PAVEMENT THICKNESS, BUT IN NO CASE LESS THAN 1-1/2\".
10. OUTLINE OF TRENCH EXCAVATION IS FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL TRENCH WIDTH AND SHAPE WILL VARY WITH SOIL CONDITIONS. TRENCH EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH THE "FLORIDA TRENCH SAFETY ACT" AND OSHA TRENCH EXCAVATION STANDARDS.
11. BEDDING MATERIAL FOR TYPICAL GRAVITY PIPE INSTALLATION AND ANY PIPE INSTALLATION WHERE UNSUITABLE TRENCH BOTTOM CONDITIONS ARE FOUND SHALL BE CRUSHED LIMEROCK (MAXIMUM SIZE 3/4\").

STANDARD UTILITY DETAILS			TYPICAL UTILITY TRENCH BACKFILL AND BEDDING		
				DATE APPROVED	DETAIL NUMBER
				9/28/17	
	NO.	DATE	REVISION	GROUP GENERAL	
UTILITY TRENCH BACKFILL AND BEDDING					G-13

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NOTES:

1. MINIMUM VERTICAL CLEARANCES SHALL BE IN ACCORDANCE WITH STANDARD SEPARATION STATEMENT. SEE DETAILS #G-01 AND #G-02.
2. ALL JOINTS OF CROSSING SHALL BE RESTRAINED PER JOINT RESTRAINT DETAILS. SEE DETAIL #G-08.
3. PIPE JOINTS MAY BE DEFLECTED AS AN ALTERNATIVE TO FITTINGS AT CONTRACTORS DISCRETION WITH CORAL SPRINGS IMPROVEMENT DISTRICT APPROVAL. DO NOT EXCEED PIPE MANUFACTURERS SPECIFIED MAXIMUM DEFLECTION.
4. DETAIL MAY BE MODIFIED IN FIELD WHERE TWO (2) OR MORE UTILITY CONFLICTS ARE IN CLOSE PROXIMITY WITH EACH OTHER. COORDINATE IN FIELD WITH THE CORAL SPRINGS IMPROVEMENT DISTRICT AND ENGINEER.
5. MINIMUM COVER SHALL BE 3'-0" FOR PVC AND 2'-6" FOR DIP.



UTILITY CROSSING

G-14

STANDARD UTILITY DETAILS

UTILITY CROSSING



NO.	DATE

	REVISION

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-14



NO.	DATE

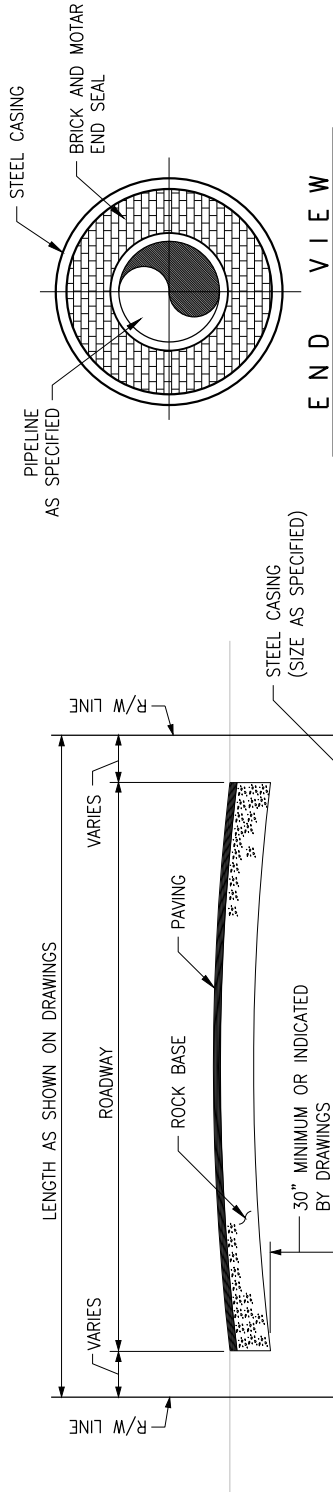
REVISION

DATE APPROVED 9/28/17
GROUP GENERAL

DETAIL NUMBER G-15

STANDARD UTILITY DETAILS

JACK AND BORE CASING INSTALLATION



END VIEW

CARRIER PIPE SIZE	STEEL CASING INSIDE DIA (MIN)	MINIMUM WALL THICKNESS
4"	12"	.250
6"	16"	.250
8"	18"	.250
10"	20"	.250
12"	24"	.250
14"	24"	.250
16"	30"	.250
18"	30"	.250
20"	36"	.250
24"	42"	.312
30"	48"	.375
36"	54"	.450
42"	60"	.500
48"	72"	.500

NOTES:

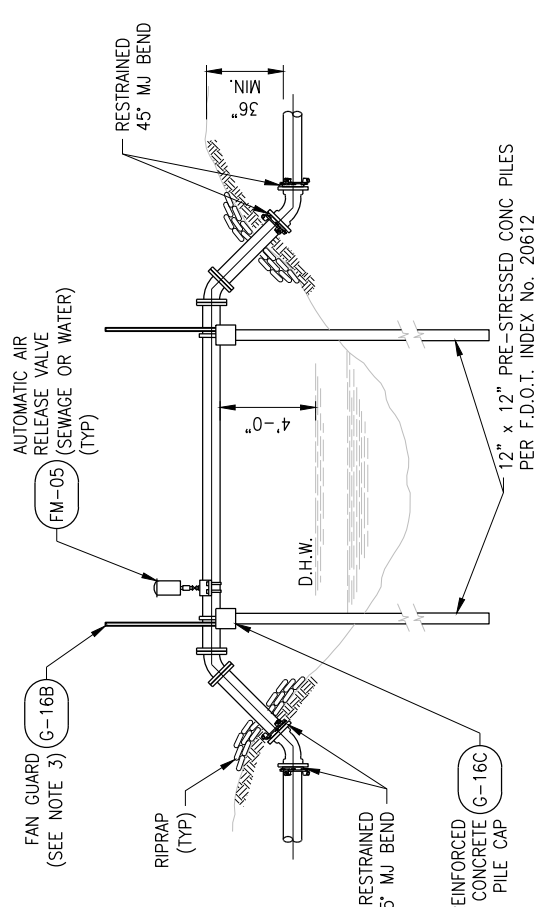
- 1) CARRIER PIPE JOINTS SHALL BE RESTRAINED JOINTS AS SPECIFIED. RESTRAINED JOINT REQUIREMENT SHALL ALSO INCLUDE ALL PIPE JOINTS WITHIN 20 FEET OF THE END SEAL (TYP).
- 2) JACK AND BORE CASING AND ACCESSORIES SHALL BE AS SPECIFIED.
- 3) INSTALLATION OF JACK AND BORE CASING ONLY ALLOWED PER CORAL SPRINGS IMPROVEMENT DISTRICT AND ENGINEER'S APPROVAL.

PROFILE

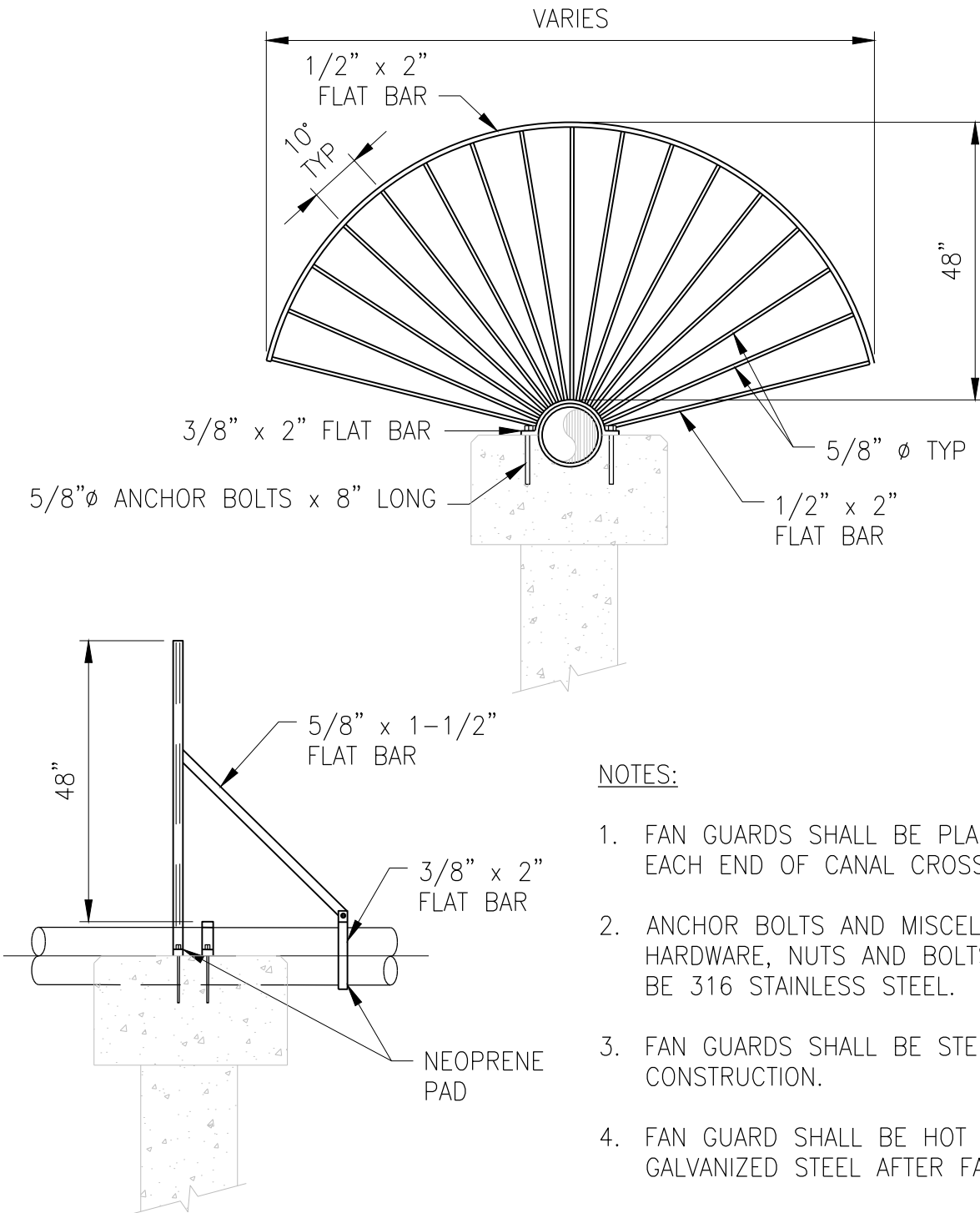
JACK AND BORE CASING INSTALLATION

G-15

			STANDARD UTILITY DETAILS			AERIAL - CANAL CROSSING			DATE APPROVED 9/28/17 GROUP GENERAL		DETAIL NUMBER G-16A	
NO.			DATE			REVISION						

		NOTES: 1) ALL EXPOSED PIPE SHALL BE DUCTILE IRON OR PREFABRICATED STEEL WITH FLANGED FITTINGS. RETAINER GLANDS AND UNIFLANGE TYPE FITTINGS ARE NOT TO BE SUBSTITUTED FOR FLANGED FITTINGS. 2) SPAN LENGTHS AS REQUIRED BY PERMITTING AGENCY. 3) FAN GUARDS ARE REQUIRED (SEE DETAIL). 4) ALL EXPOSED PIPING SHALL BE PAINTED AS SPECIFIED. 5) PIPE SHALL BE CRADLED ON FELT (80 LB MIN) OR NEOPRENE. 6) TIE-DOWN STRAPS MUST PROPERLY FIT AND SECURE PIPE IN CRADLE. 7) PIPE CRADLE IN CAP SHALL CONTACT 1/2" CIRCUMFERENCE OF PIPE (SEE FAN GUARD DETAIL). 8) THREADED AREAS OF BRASS FITTINGS SHALL BE SPIRAL WRAPPED WITH TWO WRAPS OF TEFLON TAPE. 9) D.H.W. = DESIGN HIGH WATER PER CANAL R/W AUTHORITY.		AERIAL CANAL CROSSING		G-16A	
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NOTES:

1. FAN GUARDS SHALL BE PLACED AT EACH END OF CANAL CROSSING.
2. ANCHOR BOLTS AND MISCELLANEOUS HARDWARE, NUTS AND BOLTS SHALL BE 316 STAINLESS STEEL.
3. FAN GUARDS SHALL BE STEEL CONSTRUCTION.
4. FAN GUARD SHALL BE HOT DIPPED GALVANIZED STEEL AFTER FABRICATION.

AERIAL - FAN GUARD TYPICAL

G-16B

STANDARD UTILITY DETAILS

AERIAL - FAN GUARD TYPICAL



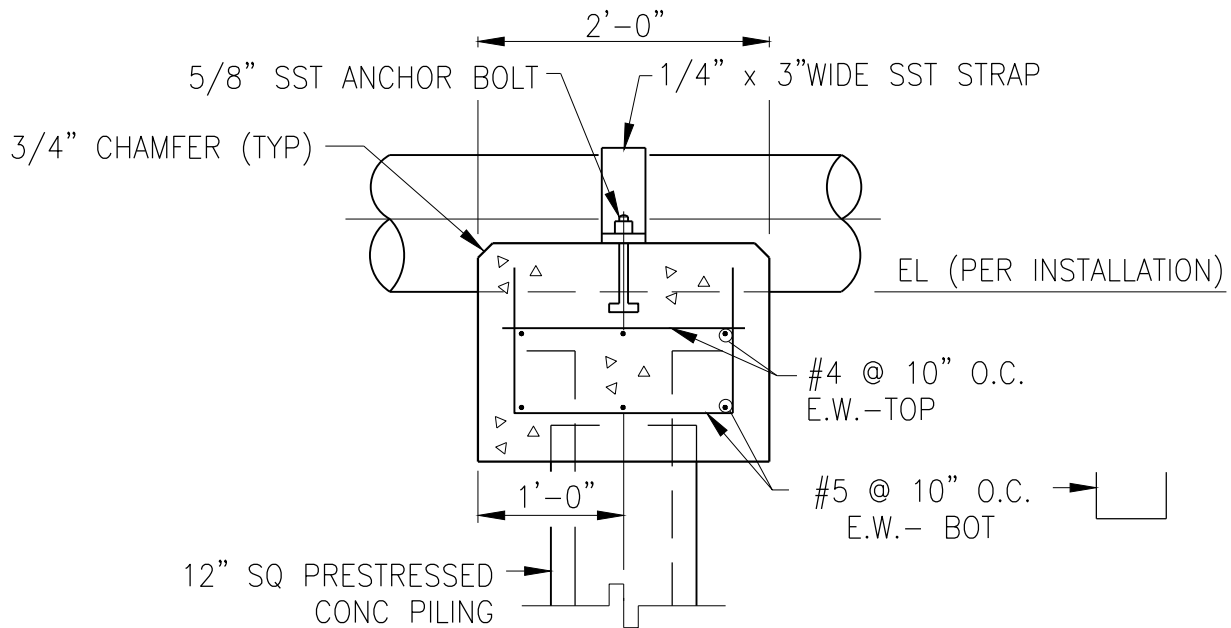
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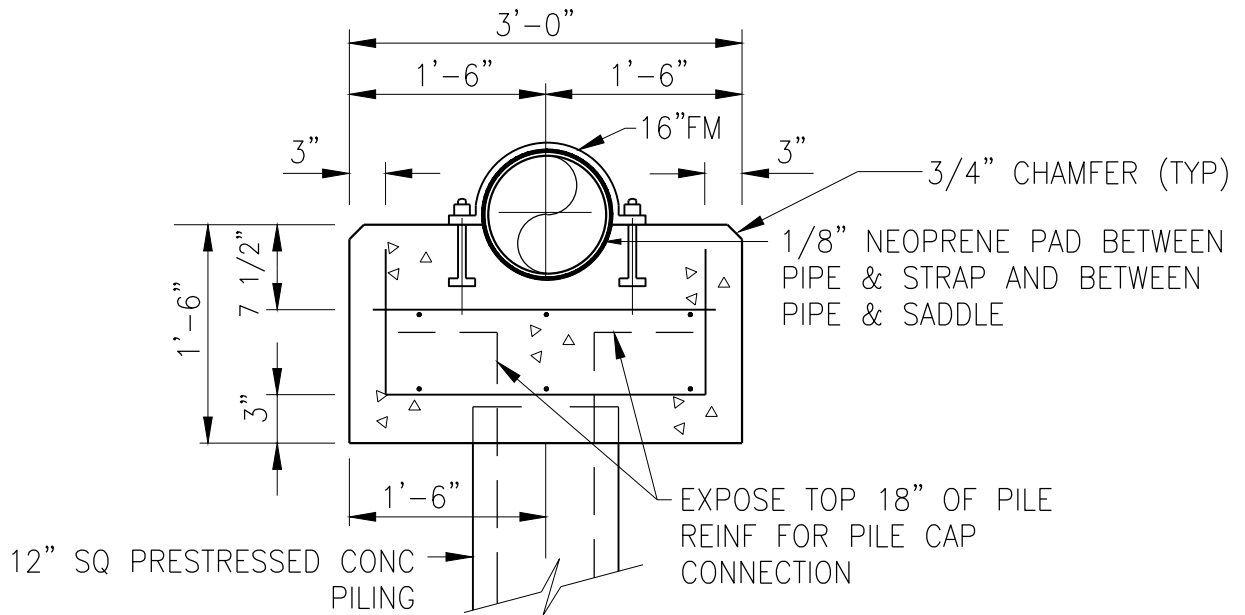
DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-16B

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E L E V A T I O N



S E C T I O N

AERIAL - REINFORCED CONCRETE PILE CAP

G-16C

STANDARD UTILITY DETAILS

AERIAL - REINFORCED CONCRETE PILE CAP

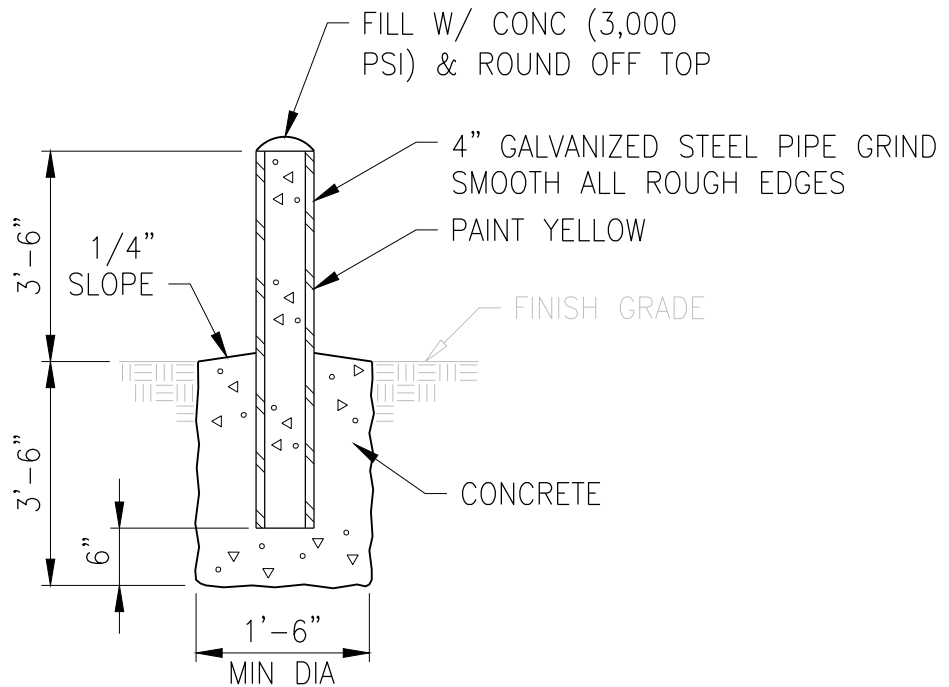


NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-16C



PIPE BOLLARD

G-17

STANDARD UTILITY DETAILS

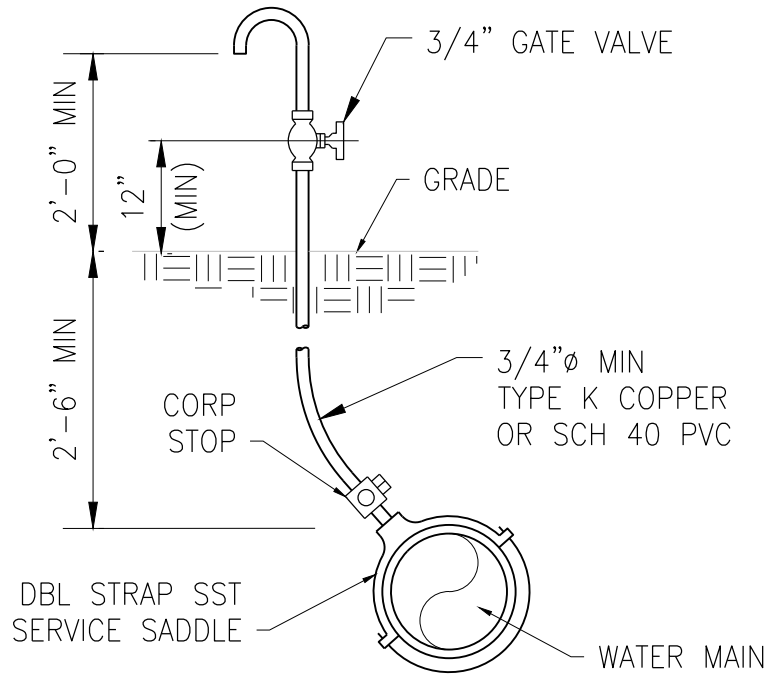
PIPE BOLLARD



NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
GENERAL

DETAIL NUMBER
G-17



TEMPORARY SAMPLE POINT

WM-01

STANDARD UTILITY DETAILS

TEMPORARY SAMPLE POINT

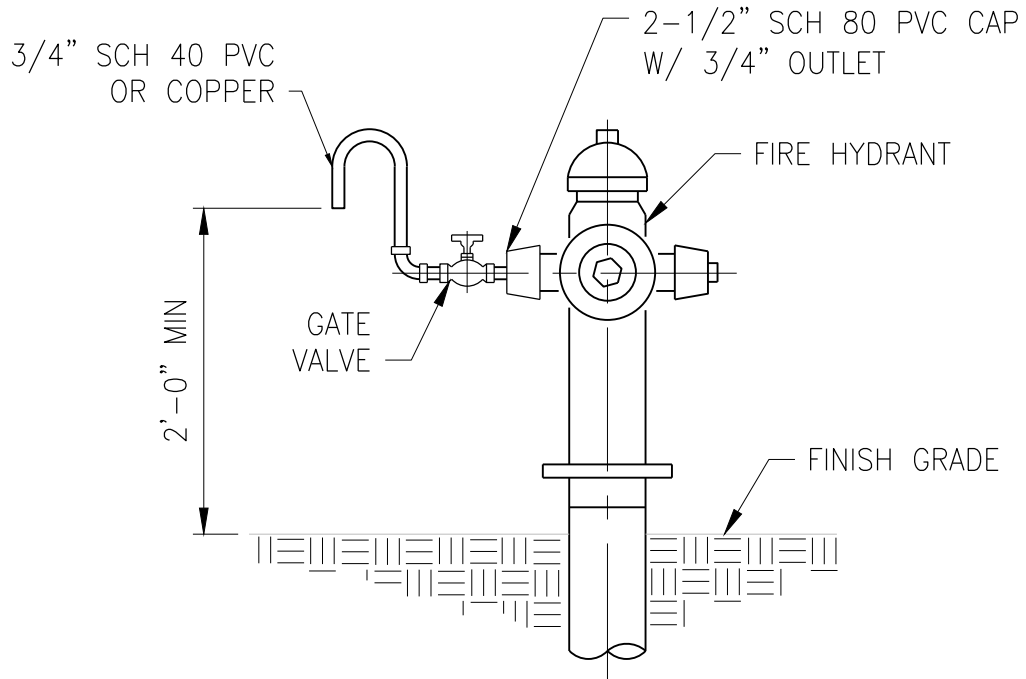


NO.	DATE

DATE APPROVED	9/28/17
GROUP	WATERMAIN

DETAIL NUMBER	WM-01
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SAMPLE POINT ON FIRE HYDRANT

WM-02

STANDARD UTILITY DETAILS

SAMPLE POINT ON FIRE HYDRANT

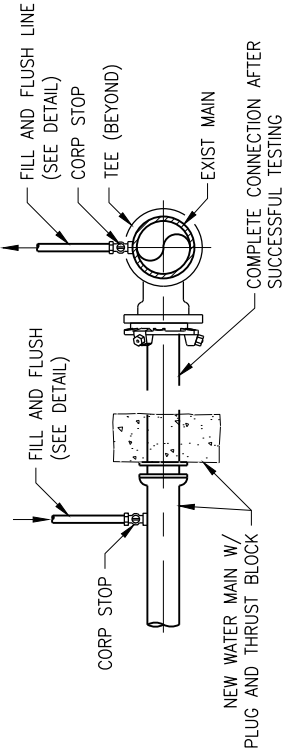
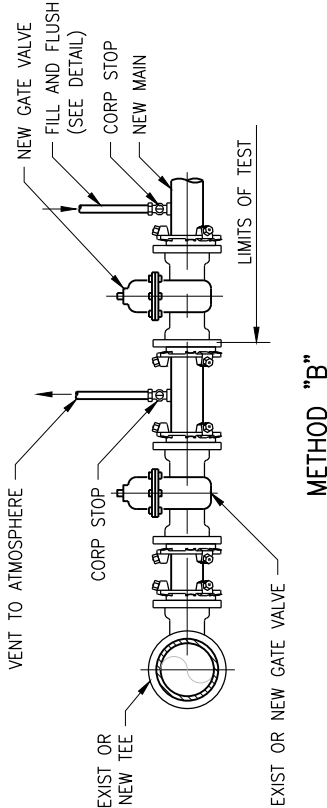
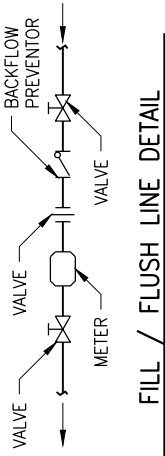


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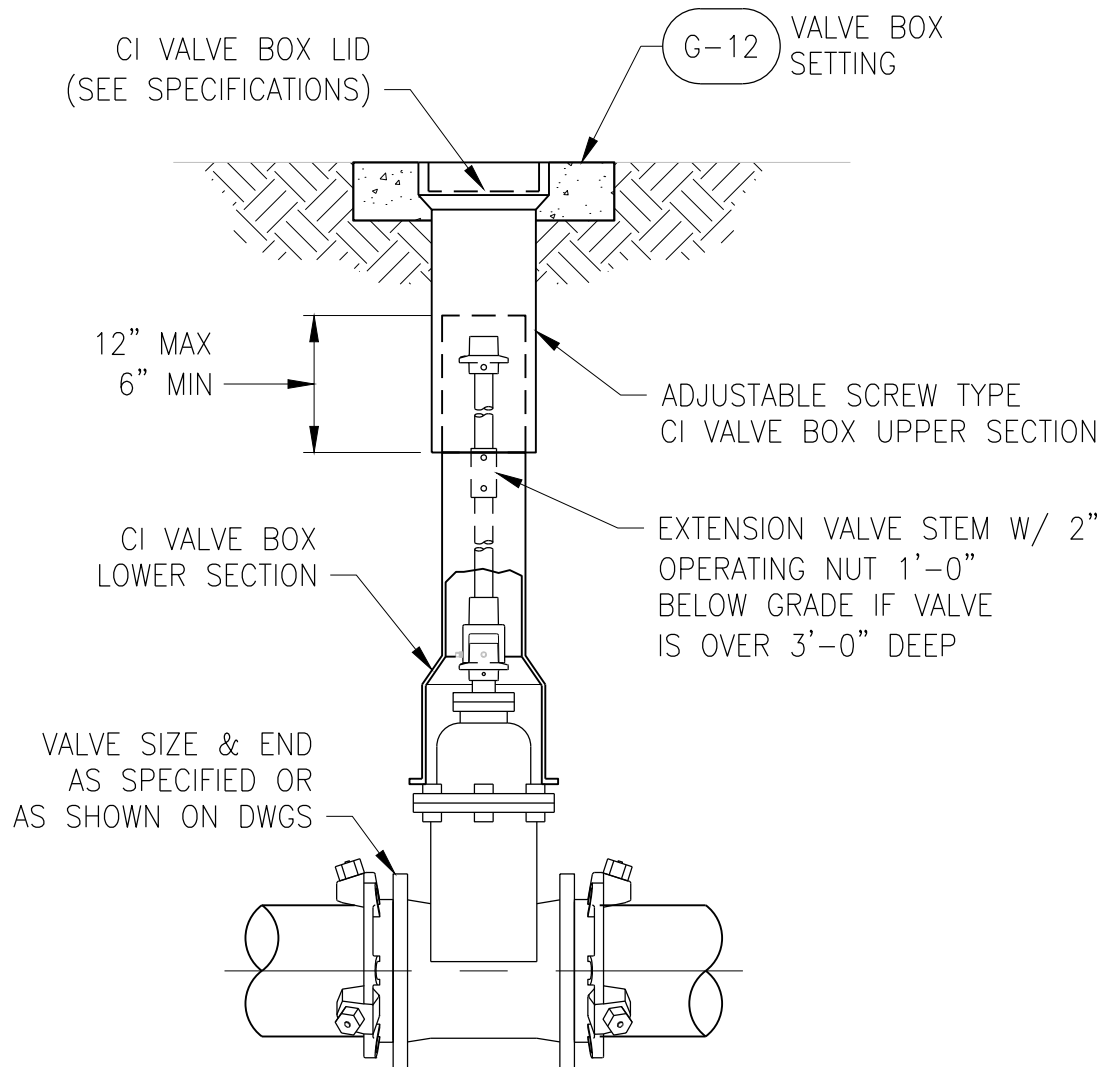
REVISION

DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-02

STANDARD UTILITY DETAILS				FILLING AND FLUSHING CONNECTIONS			
						DATE APPROVED	DETAIL NUMBER
						9/28/17	
						GROUP	
	NO.	DATE		REVISION		WATERMAIN	
							
				NOTES 1) REMOVE TEMPORARY CONNECTION AT CORP STOP ON EXIST MAIN AFTER FILLING AND FLUSHING NEW LINE. 2) DO NOT REMOVE TEMPORARY CONNECTION AT CORP STOP ON NEW MAIN UNTIL ALL TESTS ARE COMPLETE. 3) COMPLY WITH ALL BROWARD COUNTY HEALTH DEPARTMENT REGULATIONS. 4) PROVIDE ALL NECESSARY THRUST BLOCKS OR OTHER RESTRAINTS.			
FILLING AND FLUSHING CONNECTIONS						WM-03	

File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\02-Water\224-002.00_WATER DTLs; Plotted @ 10/4/2017 3:38:10 PM; Milestone: FINAL SUBMITTAL



GATE VALVE SETTING WITHOUT GEAR OPERATOR

WM-04

STANDARD UTILITY DETAILS

GATE VALVE SETTING WITHOUT GEAR OPERATOR



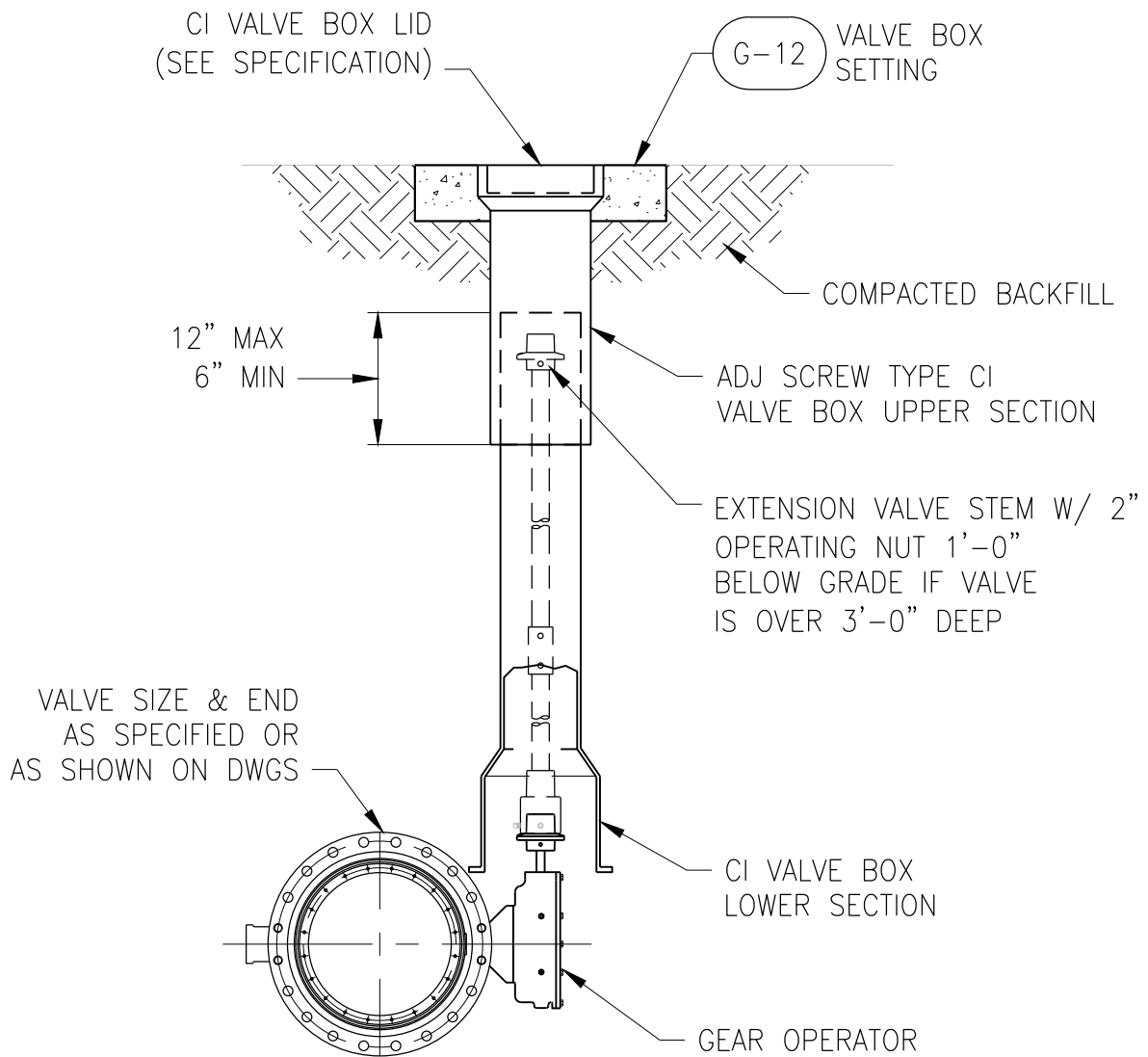
NO.	DATE

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DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-04

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BUTTERFLY VALVE SETTING WITH GEAR OPERATOR

WM-05

STANDARD UTILITY DETAILS

BUTTERFLY VALVE SETTING WITH GEAR OPERATOR



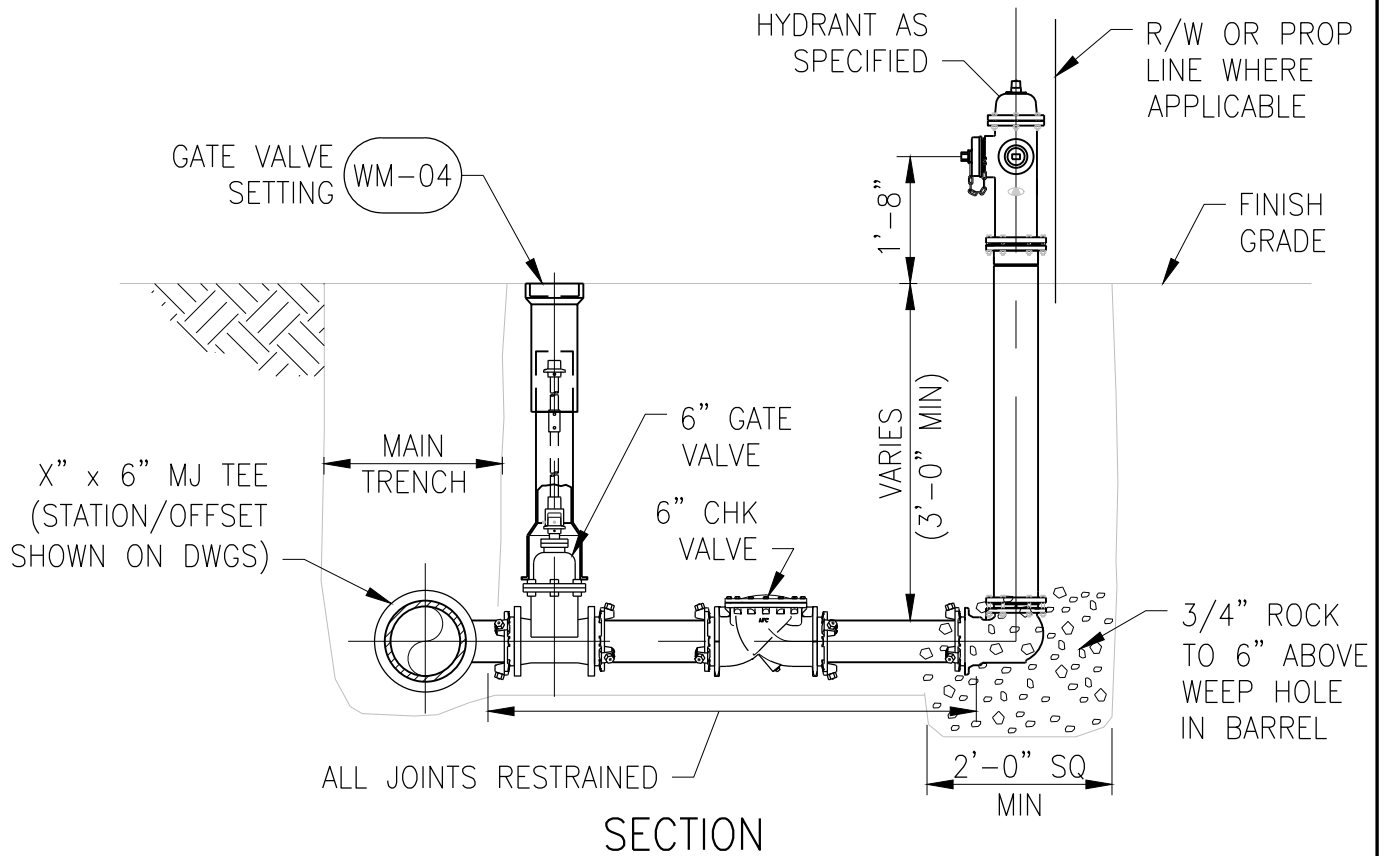
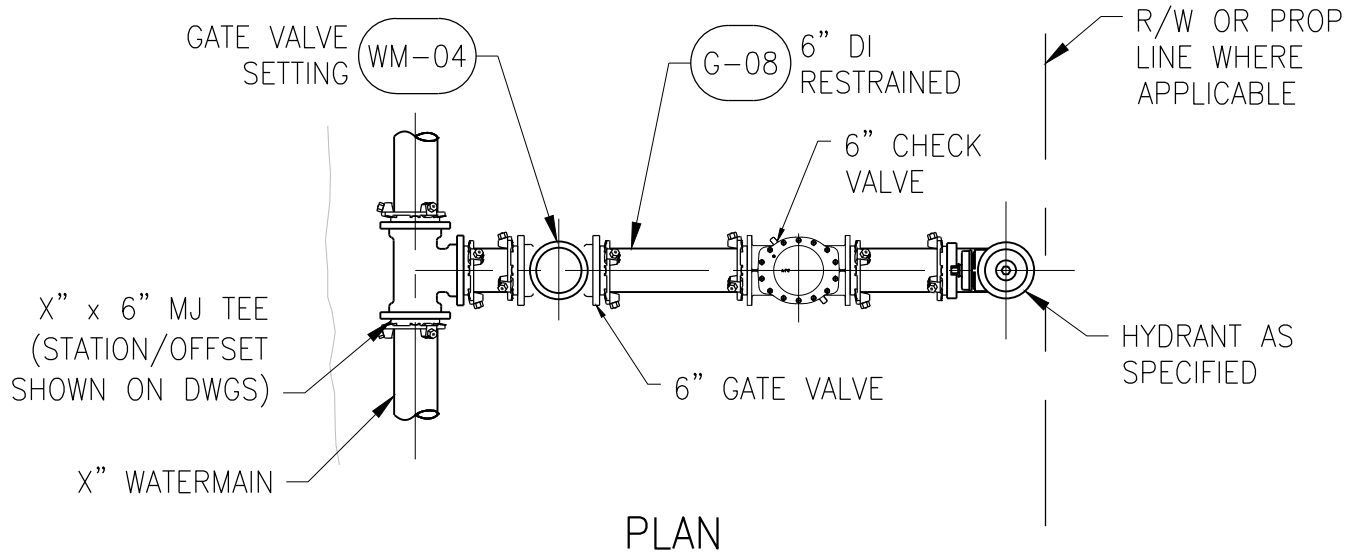
NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-05

File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\02-Water\224-002.00_WATER DTLs; Plotted @ 10/4/2017 3:38:12 PM; Milestone: FINAL SUBMITTAL



FIRE HYDRANT (STANDARD)

WM-06

STANDARD UTILITY DETAILS

FIRE HYDRANT (STANDARD)

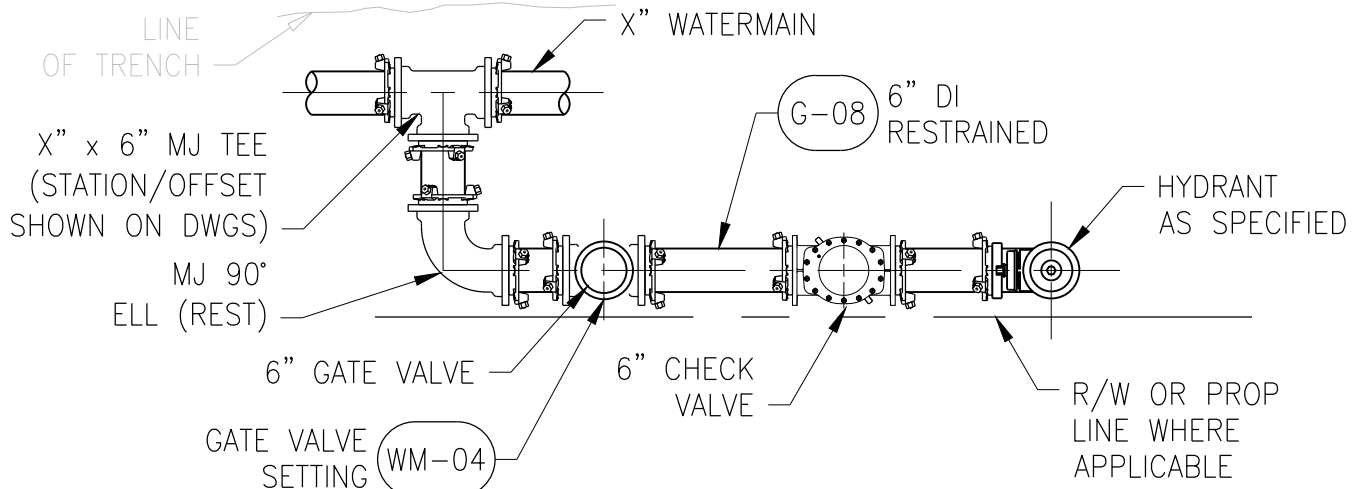


NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-06

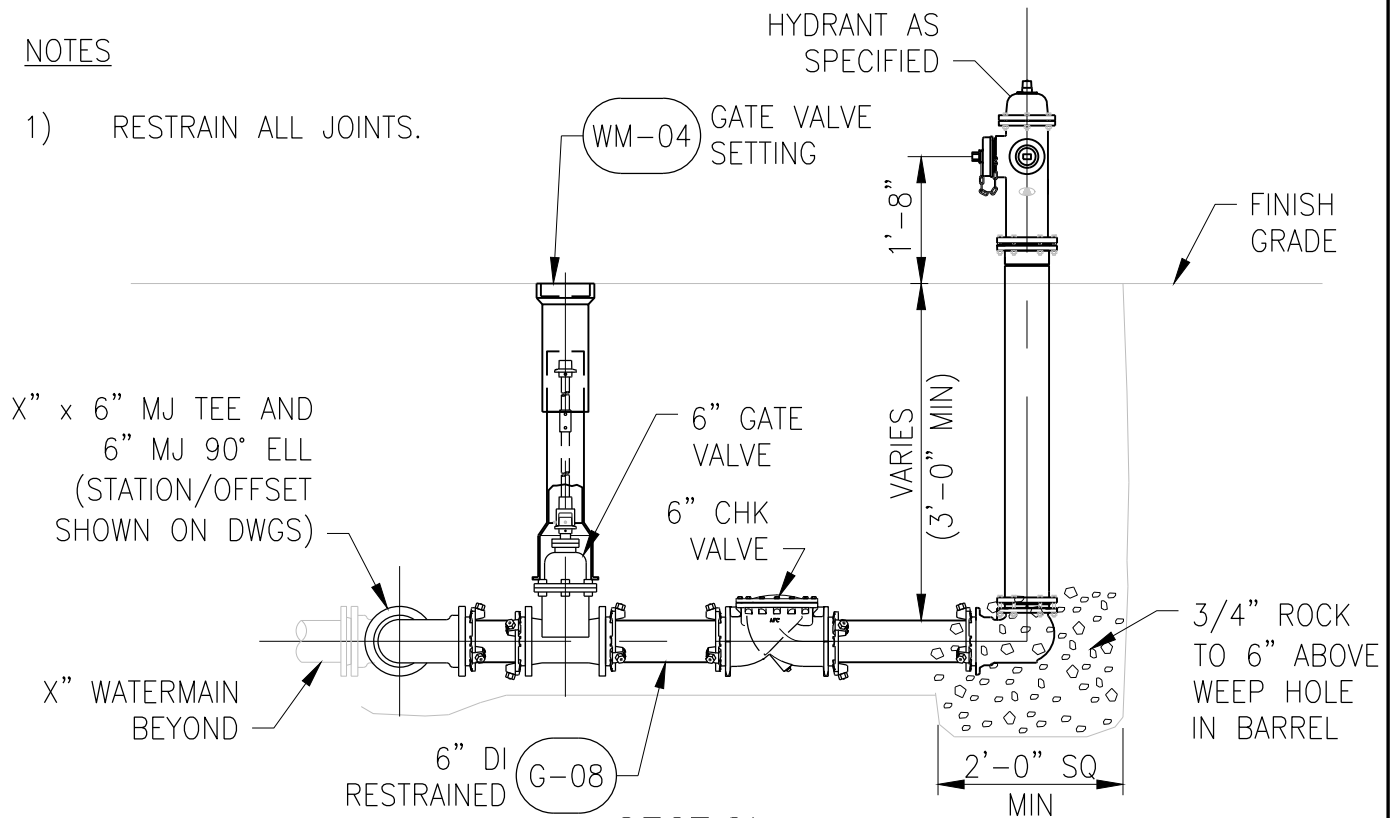
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PLAN

NOTES

- 1) RESTRAIN ALL JOINTS.



SECTION

FIRE HYDRANT (PARALLEL)

WM-07

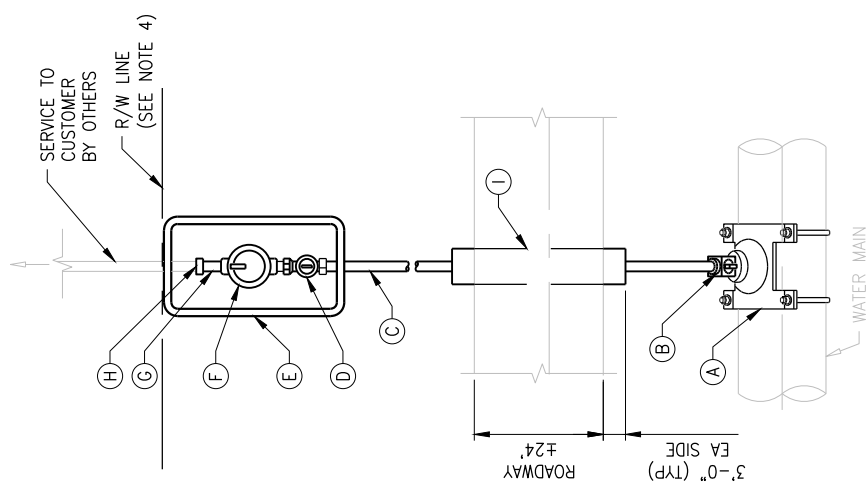
STANDARD UTILITY DETAILS

FIRE HYDRANT (PARALLEL)

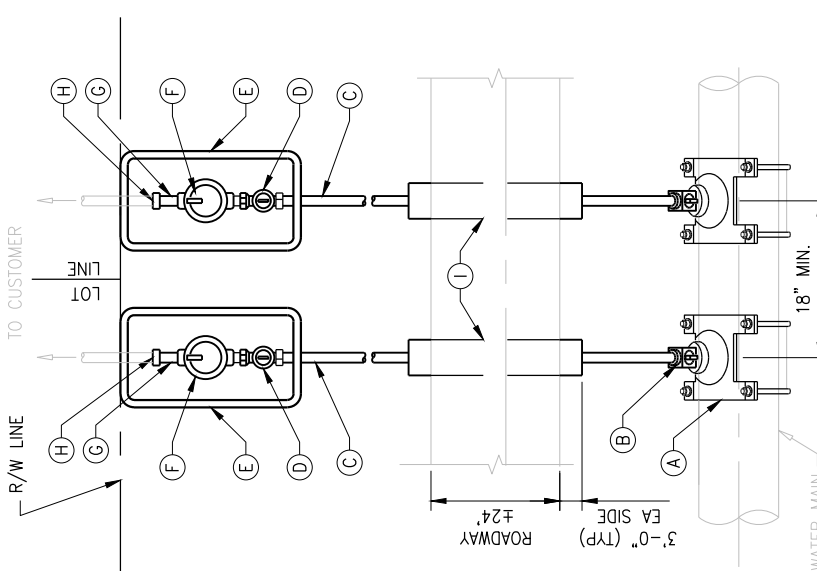


NO.	DATE	REVISION	DATE APPROVED	DETAIL NUMBER
			9/28/17	
			GROUP	
			WATERMAIN	

WM-07

		<table><tr><th>NO.</th><th>DATE</th><th>REVISION</th></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></table>		NO.	DATE	REVISION										<table><tr><th>DATE APPROVED</th><th rowspan="2">DETAIL NUMBER</th></tr><tr><td>9/28/17</td></tr><tr><th>GROUP</th><td rowspan="2">WM-08</td></tr><tr><td>WATERMAIN</td></tr></table>		DATE APPROVED	DETAIL NUMBER	9/28/17	GROUP	WM-08	WATERMAIN
NO.	DATE	REVISION																					
DATE APPROVED	DETAIL NUMBER																						
9/28/17																							
GROUP	WM-08																						
WATERMAIN																							
STANDARD UTILITY DETAILS		1-INCH SINGLE WATER SERVICE W/ 5/8" X 3/4" METER																					
		LEGEND (A) 1" TAPPING SADDLE FORD 202B-(MAIN)-IPX OR EQUAL MAIN = CATALOG NUMBER BY MAIN SIZE X = FIP THREAD (B) 1" CORPORATION STOP (PACK JT x MNPT), FORD F1100, OR EQUAL (C) 1" HDPE, SDR 9, 200 PSI (D) 1" x 5/8" METER STOP (PACK JT x METER SWIVEL NUT), FORD B43 OR EQUAL (E) POLYPLASTIC SINGLE METER BOX W/ PLASTIC READER, CARSON INDUSTRIES MODEL 1015-5 (SEE NOTE 6) (F) 5/8" x 3/4" METER, NEPTUNE T-10, WITH PROREAD ENCODER REGISTER AND MINI PIT PAD WITH 6' OF WIRE (G) 3/4" x 1" DUAL CHECK VALVE (METER SWIVEL x MNPT), WILKINS MODEL 700 OR EQUAL (H) 1" x 1" PACK JT COUPLING (FNPT x PACK JT), FORD C14 OR EQUAL (I) 2" SCH 40 PVC CASING (SEE NOTE 5)																					
NOTES: 1. CONTRACTOR SHALL SET METER BOX. METER BOX TO BE SET IN GRASSY AREAS UNLESS OTHERWISE APPROVED BY THE CORAL SPRINGS IMPROVEMENT DISTRICT. 2. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE 18" CENTERS (MIN). 3. MINIMUM COVER FOR SERVICE LINES SHALL BE 2'-0". 4. CONTRACTOR'S SURVEYOR SHALL CONFIRM LOCATION OF R/W LINE BEFORE SETTING METER BOX. 5. 2" SCH 40 PVC CASINGS REQD FOR ALL SERVICE LINES CROSSING ROADWAYS, SIDEWALKS OR OTHER PAVED SURFACES. 6. CONTRACTOR SHALL INSTALL AUTOMATIC METER READER (AMR) IN LID OF METER BOX. COORDINATE HOLE DIAMETER WITH AMR SUPPLIER. 7. ALL BRASS COMPONENTS THAT COME IN CONTACT WITH POTABLE WATER SHALL MEET NSF/ANSI STANDARD 61, ANNEX G AND/OR NSF/ANSI STANDARD 372 AS APPLICABLE. BRASS ALLOY SHALL NOT CONTAIN MORE THAN 0.25% LEAD BY WEIGHT.		1" SINGLE WATER SERVICE W/ 5/8" X 3/4" METER																					
				WM-08																			

STANDARD UTILITY DETAILS			DUAL SERVICE WITH TWO 1" SINGLE WATER SERVICES W/ 5/8" X 3/4" METERS		WM-09	
	NO.	DATE	REVISION	DATE APPROVED 9/28/17 GROUP WATERMAIN	DETAIL NUMBER WM-09	



LEGEND

(A) 1" TAPPING SADDLE
FORD 202B-(MAIN)-IPX OR EQUAL
MAIN = CATALOG NUMBER BY MAIN SIZE
X = FIP THREAD

(B) 1" CORPORATION STOP
(PACK JT x MNPT), FORD F1100 OR EQUAL

(C) 1" HDPE, SDR 9, 200 PSI

(D) 1" x 5/8" METER STOP
(PACK JT x METER SWIVEL NUT), FORD B43 OR EQUAL

(E) POLYPLASTIC SINGLE METER BOX W/ PLASTIC READER, CARSON INDUSTRIES MODEL 1015-5 (SEE NOTE 6)

(F) 5/8" x 3/4" METER, NEPTUNE T-10, WITH PROREAD ENCODER REGISTER AND MINI PIT PAD WITH 6" OF WIRE

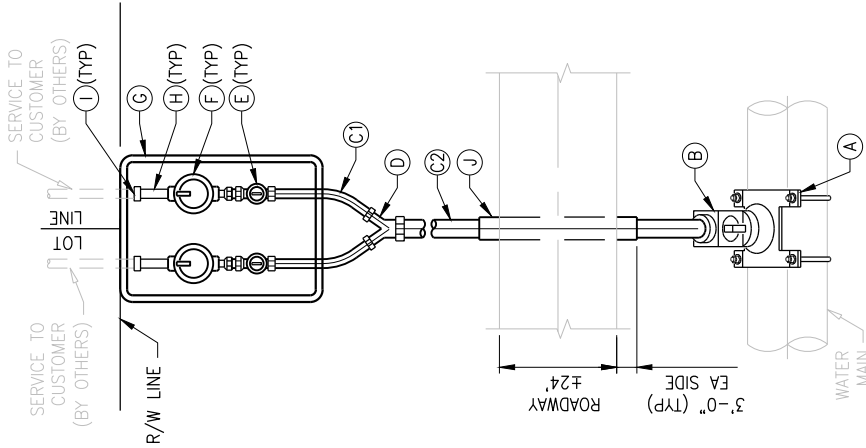
(G) 3/4" x 1" DUAL CHECK VALVE (METER SWIVEL x MNPT), WILKINS MODEL 700 OR EQUAL

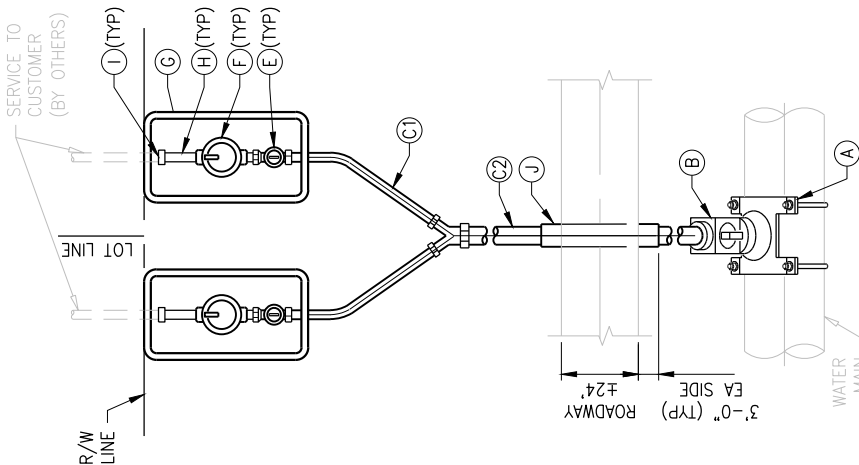
(H) 1" x 1" PACK JT COUPLING (FNPT x PACK JT), FORD C14 OR EQUAL

(I) 2" SCH 40 PVC CASING (SEE NOTE 5)

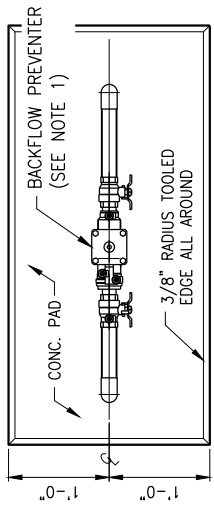
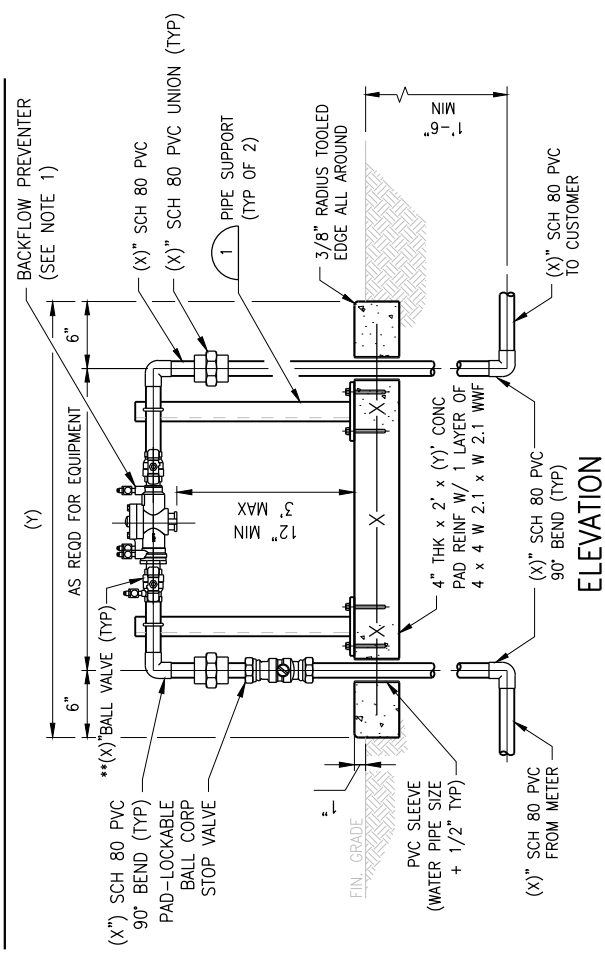
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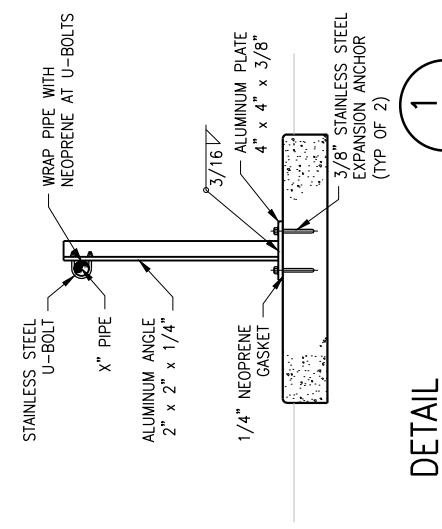
- CONTRACTOR SHALL SET METER BOX. METER BOX TO BE SET IN GRASSY AREAS UNLESS OTHERWISE APPROVED BY THE CORAL SPRINGS IMPROVEMENT DISTRICT.
- SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE 18" CENTERS (MIN).
- MINIMUM COVER FOR SERVICE LINES SHALL BE 2'-0".
- CONTRACTORS SURVEYOR SHALL CONFIRM LOCATION OF R/W LINE BEFORE SETTING METER BOX.
- 2" SCH 40 PVC CASINGS REQD FOR ALL SERVICE LINES CROSSING ROADWAYS, SIDEWALKS OR OTHER PAVED SURFACES.
- CONTRACTOR SHALL INSTALL AUTOMATIC METER READER (AMR) IN LID OF METER BOX. COORDINATE HOLE DIAMETER WITH AMR SUPPLIER.
- ALL BRASS COMPONENTS THAT COME IN CONTACT WITH POTABLE WATER SHALL MEET NSF/ANSI STANDARD 61, ANNEX G AND/OR NSF/ANSI STANDARD 372 AS APPLICABLE. BRASS ALLOY SHALL NOT CONTAIN MORE THAN 0.25% LEAD BY WEIGHT.

							
NO.		DATE		REVISION			
STANDARD UTILITY DETAILS				1-INCH SINGLE WATER SERVICE WITH DUAL METER BOX			
				DATE APPROVED 9/28/17		DETAIL NUMBER	
				GROUP WATERMAIN		WM-10	

					
LEGEND (A) 1" TAPPING SADDLE FORD 202B-(MAIN)-IPX OR EQUAL MAIN = CATALOG NUMBER BY MAIN SIZE X = FIP THREAD (B) 1" CORPORATION STOP (PACK JT x MNPT), FORD FB1101 OR EQUAL (C1) 1" HDPE, SDR 9, 200 PSI (C2) 1" HDPE, SDR 9, 200 PSI (D) 1" (IN) x 1" (OUT) PACK JT "Y", FORD Y44 OR EQUAL (E) 1" x 5/8" METER STOP (PACK JT x METER SWIVEL NUT), FORD B43 OR EQUAL (F) 5/8" x 3/4" METER, NEPTUNE T-10, WITH PROREAD ENCODER REGISTER AND MINI PIT PAD WITH 6' OF WIRE (G) POLYPLASTIC JUMBO METER BOX W/ PLASTIC READER, CARSON INDUSTRIES MODEL 012-5 (SEE NOTE 6) (H) 3/4" x 1" DUAL CHECK VALVE (METER SWIVEL x MNPT), WILKINS MODEL 700 OR EQUAL (I) 1" x 1" PACK JT COUPLING (FNPT x PACK JT), FORD C14 OR EQUAL (J) 2" SCH 40 PVC CASING (SEE NOTE 5)					
NOTES: 1. CONTRACTOR SHALL SET METER BOX. METER BOX TO BE SET IN GRASSY AREAS UNLESS OTHERWISE APPROVED BY THE CORAL SPRINGS IMPROVEMENT DISTRICT. 2. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE 18" CENTERS (MIN). 3. MINIMUM COVER FOR SERVICE LINES SHALL BE 2'-0". 4. CONTRACTOR'S SURVEYOR SHALL CONFIRM LOCATION OF R/W LINE BEFORE SETTING METER BOX. 5. 2" SCH 40 PVC CASINGS REQD FOR ALL SERVICE LINES CROSSING ROADWAYS, SIDEWALKS OR OTHER PAVED SURFACES. 6. CONTRACTOR SHALL INSTALL AUTOMATIC METER READER (AMR) IN LID OF METER BOX. COORDINATE HOLE DIAMETER WITH AMR SUPPLIER. 7. ALL BRASS COMPONENTS THAT COME IN CONTACT WITH POTABLE WATER SHALL MEET NSF/ANSI STANDARD 61, ANNEX G AND/OR NSF/ANSI STANDARD 372 AS APPLICABLE. BRASS ALLOY SHALL NOT CONTAIN MORE THAN 0.25% LEAD BY WEIGHT.					
1" SINGLE WATER SERVICE WITH TWO SINGLE METER BOXES			WM-11		
STANDARD UTILITY DETAILS			1-INCH SINGLE WATER SERVICE WITH TWO SINGLE METER BOXES		
			DATE APPROVED 9/28/17		DETAIL NUMBER WM-11
NO.	DATE	REVISION	GROUP WATERMAIN		

STANDARD UTILITY DETAILS			BACKFLOW PREVENTER 1-INCH THROUGH 2-INCH (RPZ TYPE)		
				DATE APPROVED	DETAIL NUMBER
				9/28/17	
				GROUP	
	NO.	DATE	REVISION	WATERMAIN	

			
PLAN		ELEVATION	

	
DETAIL	
SCALE: NTS	
NOTES:	
1. BACKFLOW PREVENTER SHALL BE RPZ TYPE AS SPECIFIED AND USC APPROVED.	
2. ** PROVIDED BY BACKFLOW MANUFACTURER.	
3. (X'') = SERVICE SIZE 1" THROUGH 2".	
4. EXPOSED PVC PIPE SHALL BE PAINTED PER STANDARD SPECIFICATIONS.	
5. CONTRACTOR TO SECURE PLUMBING PERMIT WITH THE CITY OF CORAL SPRINGS BUILDING DEPARTMENT.	

BACKFLOW PREVENTER 1" - 2" (R.P.Z. TYPE)		WM-12
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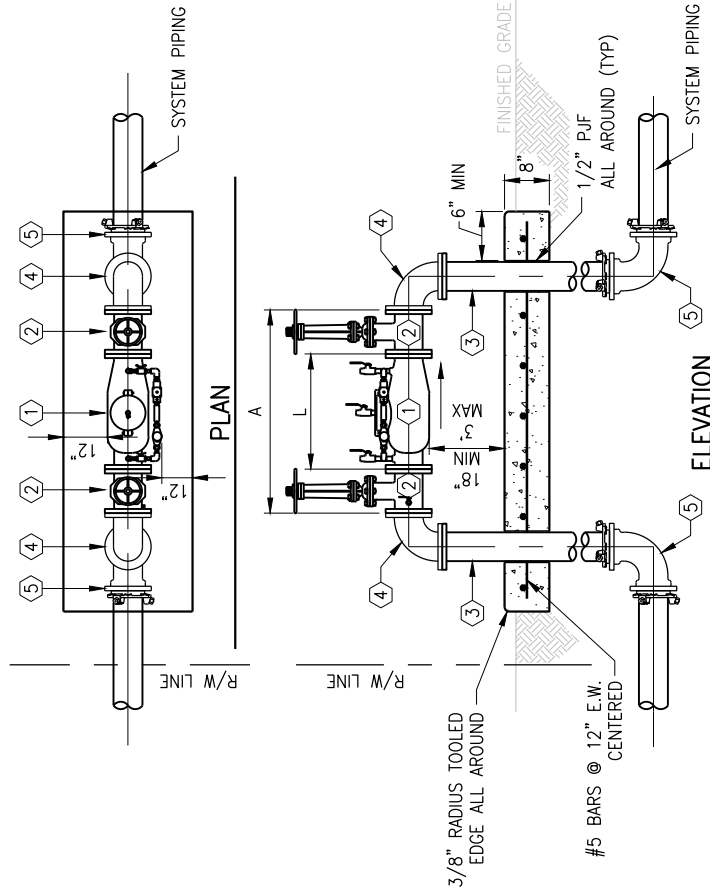
NO.	DATE	REVISION

STANDARD UTILITY DETAILS

LARGE USER - FIRE SERVICE BACKFLOW PREVENTER

DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-13



LIST OF MATERIALS

- ① DUAL CHECK DETECTOR BFP
- ② RESILIENT SEATED OS&Y GATE VALVE
- ③ DI FLG x PE PIPE (LENGTH AS REQD)
- ④ DI FLG JOINT 90° BEND
- ⑤ DI MJ 90° BEND (SEE NOTE 2)

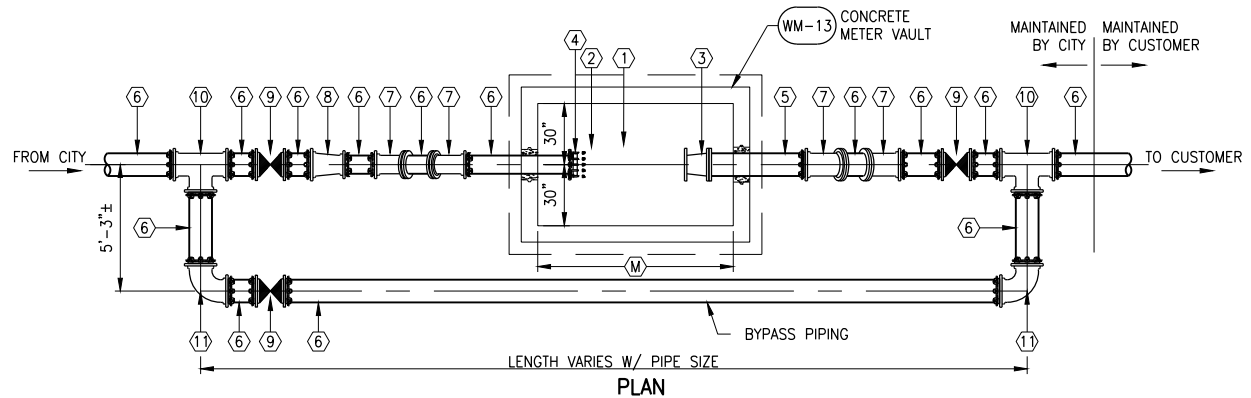
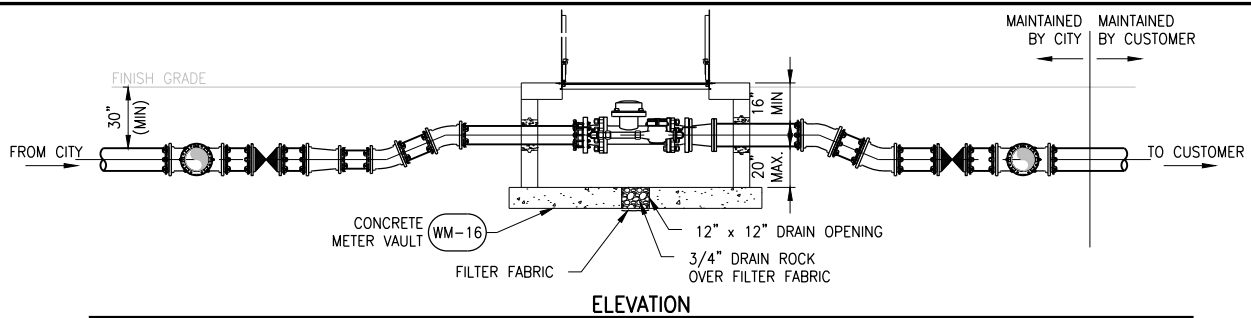
BACKFLOW PREVENTER DIMENSIONS	A	L
4"	40"	22"
6"	48-1/2"	27-1/2"
8"	52-1/2"	29-1/2"
10"	55-1/2"	29-1/2"
12"	57-1/2"	29-1/2"

NOTES

- 1) BACKFLOW PREVENTER TO MATCH SIZE OF SYSTEM PIPING.
- 2) ALL MECHANICAL JOINTS TO BE RESTRAINED TYPE, MEGALUGS OR EQUAL ALTERNATE ACCEPTABLE.
- 3) EXPOSED PIPING AND VALVES TO BE PAINTED RED PER STANDARD SPECIFICATIONS.

LARGE USER - FIRE SERVICE BACKFLOW PREVENTER

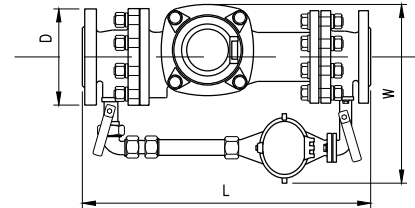
WM-13



DIMENSIONS

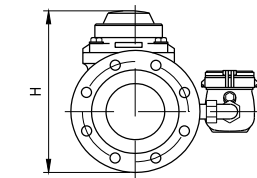
(RG3 METER)

	CM 20	CM 30	CM 40	CM 60	CM 80
PIPE SIZE (INCHES)	2"	3"	4"	6"	8"
① LENGTH	15-1/4"	17"	20"	24"	30-7/8"
② WIDTH	13"	15"	15-1/2"	19-1/2"	25-1/2"
③ HEIGHT MECHANICAL REGISTER	9-1/2"	9-7/8"	10-3/4"	13-1/4"	14-1/4"
④ HEIGHT TESLA REGISTER	12"	12-3/8"	13-1/2"	15-3/4"	16-3/4"
⑤ OUTSIDE DIAMETER	6"	7-1/2"	9"	11"	13-1/2"
WEIGHT (POUNDS)	54 LBS	66 LBS	125 LBS	171.6 LBS	320 LBS



MATERIALS AND SIZES (PER METER SIZE)

① METER ASSEMBLY	4"	6"	8"	10"	10"
② STRAINER ASSEMBLY	4"	6"	8"	10"	10"
③ DI FLG x FLG CONC RED	6"x4"	8"x6"	10"x8"	12"x10"	12"x10"
④ FLANGE ADAPTER	4"	6"	8"	10"	10"
⑤ DI PIPE, FLG x PE (LENGTH TO SUIT)	6"	8"	10"	12"	12"
⑥ DI PIPE, PE x PE (LENGTH TO SUIT)	4"	6"	8"	10"	10"
⑦ DI MJ 22-1/2" ELL (REST)	4"	6"	8"	10"	10"
⑧ DI MJ CONC RED (REST)	6"x4"	8"x6"	10"x8"	12"x10"	12"x10"
⑨ RESILIENT SEAT MJ GATE VALVE (REST)	6"	8"	10"	12"	12"
⑩ DI MJ TEE (REST)	6"	8"	10"	12"	12"
⑪ DI MJ 90° ELL (REST)	6"	8"	10"	12"	12"



RG3 METER & STRAINER

NOTES

- 1) PROVIDE FOUR (4) PIPE DIAMETERS OF STRAIGHT RUN PIPE UPSTREAM OF METER/STRAINER ASSEMBLY.
- 2) (REST) = RESTRAINED JOINT MEGALUG OR EQUAL.
- 3) BACKFLOW PREVENTER PER DETAIL #WM-13 SHALL BE INSTALLED DOWN STREAM OF METER.

LARGE USER - DOMESTIC AND FIRE SERVICE METER

WM-14

STANDARD UTILITY DETAILS

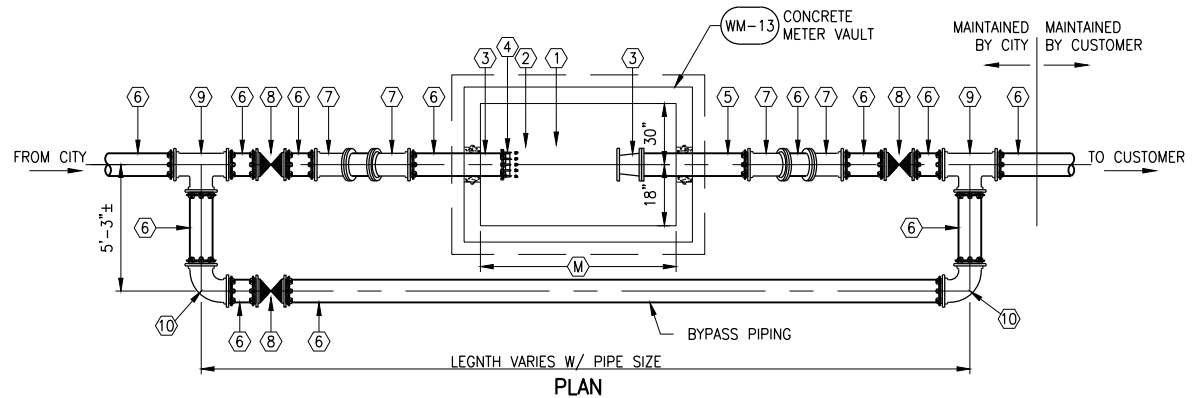
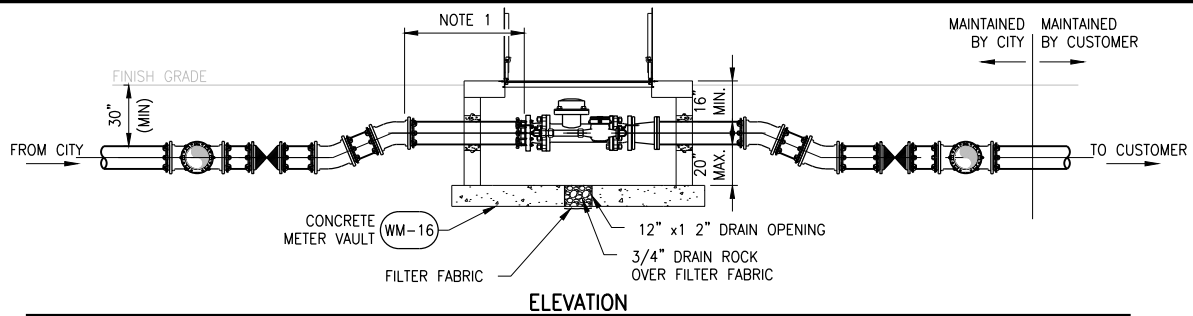
LARGE USER - DOMESTIC AND FIRE SERVICE METER



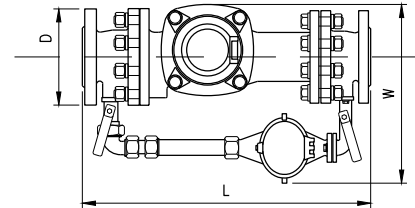
NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
WATERMAIN

DETAIL NUMBER
WM-14

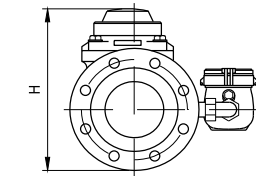


DIMENSIONS (RG3 METER)					
	CM 20	CM 30	CM 40	CM 60	CM 80
PIPE SIZE (INCHES)	2"	3"	4"	6"	8"
① LENGHT	15-1/4"	17"	20"	24"	30-7/8"
② WIDTH	13"	15"	15-1/2"	19-1/2"	25-1/2"
③ HEIGHT MECHANICAL REGISTER	9-1/2"	9-7/8"	10-3/4"	13-1/4"	14-1/4"
④ HEIGHT TESLA REGISTER	12"	12-3/8"	13-1/2"	15-3/4"	16-3/4"
⑤ OUTSIDE DIAMETER	6"	7-1/2"	9"	11"	13-1/2"
WEIGHT (POUNDS)	54 LBS	66 LBS	125 LBS	171.6 LBS	320 LBS



MATERIALS AND SIZES (PER METER SIZE)

① METER ASSEMBLY	3"	4"	6"	6"x8"
② STRAINER ASSEMBLY	3"	4"	6"	6"
③ DI FLG x FLG CONC RED	4"x3"	6"x4"	8"x6"	-
④ FLANGE ADAPTER	3"	4"	6"	8"
⑤ DI PIPE, FLG x PE (LENGTH TO SUIT)	4"	6"	8"	8"
⑥ DI PIPE, PE x PE (LENGTH TO SUIT)	4"	6"	8"	8"
⑦ DI MJ 22-1/2" ELL (REST)	4"	6"	8"	8"
⑧ RESILIENT SEAT MJ GATE VALVE (REST)	4"	6"	8"	8"
⑨ DI MJ TEE (REST)	4"	6"	8"	8"
⑩ DI MJ 90° ELL (REST)	4"	6"	8"	8"



RG3 METER & STRAINER

NOTES

- 1) PROVIDE FOUR (4) PIPE DIAMETERS OF STRAIGHT RUN PIPE UPSTREAM OF METER/STRAINER ASSEMBLY.
- 2) (REST) = RESTRAINED JOINT MEGALUG OR EQUAL.
- 3) BACKFLOW PREVENTER PER DETAIL #WM-13 SHALL BE INSTALLED DOWNSTREAM OF METER.

LARGE USER - COMPOUND WATER METER

WM-15

STANDARD UTILITY DETAILS

LARGE USER - COMPOUND WATER METER



NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
WATERMAIN

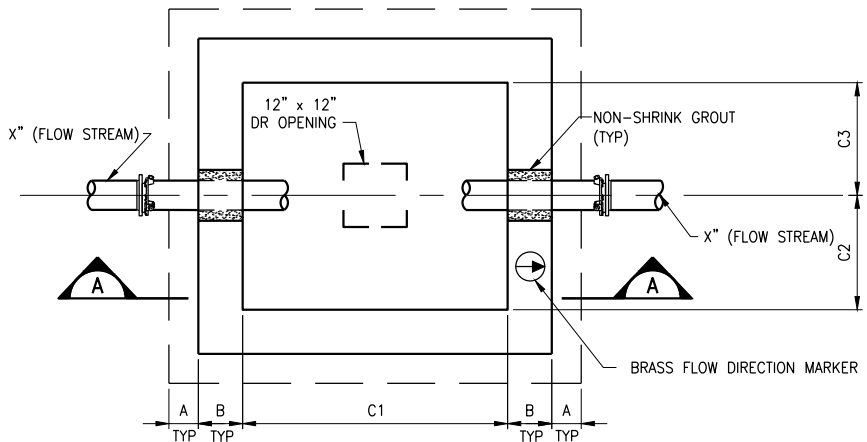
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WM-15

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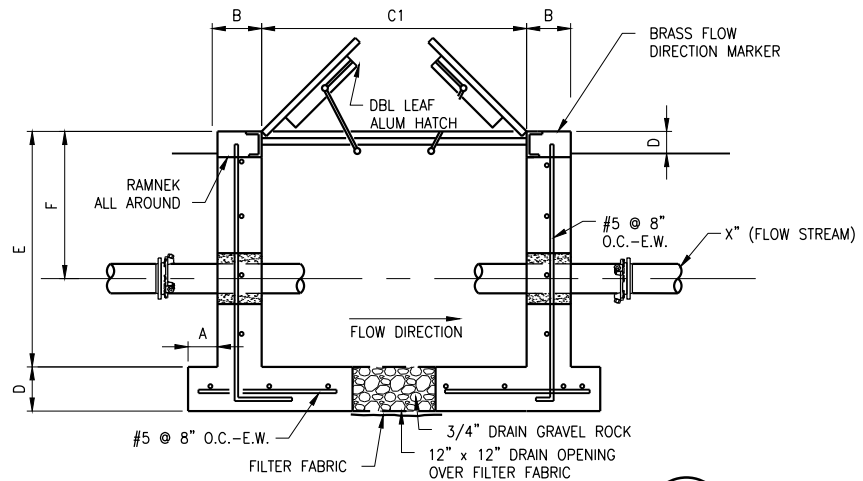
DIMENSIONS SCHEDULE

METER SIZE/DETAIL #	PIPING DIMENSIONS X	VAULT DIMENSIONS							
		A	B	C1	C2	C3	D	E	F
4" / WM-14	4"	4"	8"	6'-0"	30"	30"	8"	36" MAX.	16" MIN.
6" / WM-14	6"	4"	8"	7'-6"	30"	30"	8"	36" MAX.	16" MIN.
8" / WM-14	8"	4"	8"	8'-0"	30"	30"	8"	36" MAX.	16" MIN.
10" / WM-14	10"	4"	8"	9'-6"	30"	30"	8"	36" MAX.	16" MIN.
3" / WM-15	4"	4"	8"	5'-0"	18"	30"	8"	36" MAX.	16" MIN.
4" / WM-15	4"	4"	8"	5'-6"	18"	30"	8"	36" MAX.	16" MIN.
6" / WM-15	8"	4"	8"	6'-6"	18"	30"	8"	36" MAX.	16" MIN.
6"x8" / WM-15	8"	4"	8"	8'-6"	18"	30"	8"	36" MAX.	16" MIN.

1. CONFIRM VAULT DIMENSIONS WITH CORAL SPRINGS IMPROVEMENT DISTRICT AND ENGINEER.
2. COMPRESSIVE STRENGTH OF PRECAST CONCRETE SHALL BE 4000 PSI AT 28 DAYS.
3. HATCH SHALL BE CENTERED OVER METER. HATCH SPECS SHALL BE AS FOLLOWS:
TRAFFIC RATED = U.S.F. ADH (H-20)
NON TRAFFIC = U.S.F. APD (300)
HATCH DIMENSIONS PER METER REMOVAL REQUIREMENTS.
4. EXTERIOR OF VAULT SHALL BE COATED WITH TWO (2) COATS OF COAL TAR EPOXY, 16 MILS PER COAT.
5. METER NOT SHOWN FOR CLARITY. SEE DETAILS #WM-14 AND #WM-15.
6. VAULT SHALL BE CONSTRUCTED PER ASTM C-478.



PLAN



SECTION

CONCRETE METER VAULT

WM-16

STANDARD UTILITY DETAILS

CONCRETE METER VAULT



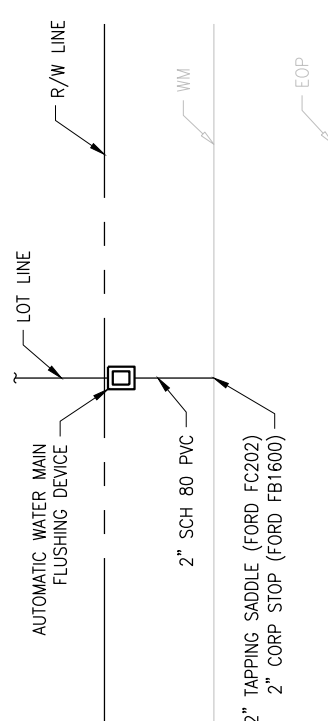
NO.	DATE	REVISION

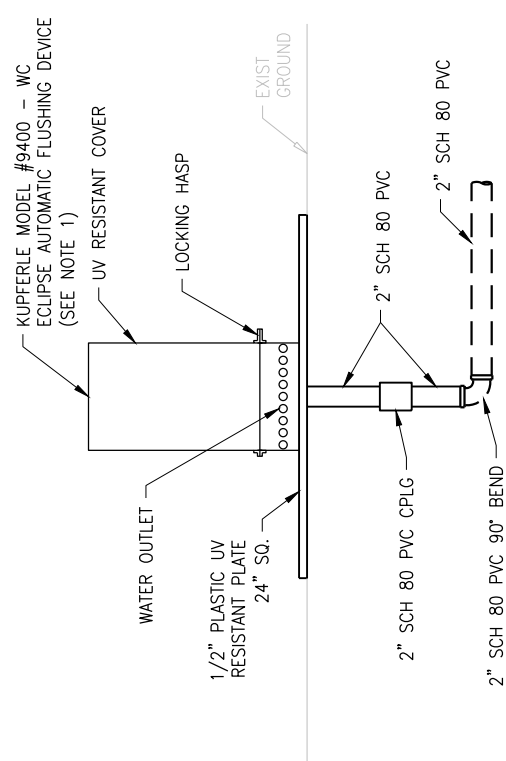
STANDARD UTILITY DETAILS		AUTOMATIC WATER MAIN FLUSHING DEVICE			
				DATE APPROVED	DETAIL NUMBER
				9/28/17	
	NO.	DATE		REVISION	GROUP
				WATERMAIN	

NOTES:

1) AUTOMATIC FLUSHING DEVICE SHALL HAVE A 2" BRASS MIP INLET, LEADING VERTICALLY THROUGH A UV RESISTANT GROUND PLATE, A MOUNTING FLANGE AND ATTACHING TO A PLASTIC SCH 80 TRAFFIC BREAK-AWAY COUPLING. A 2" ALUMINUM QUICK DISCONNECT DEVICE SHALL BE LOCATED ABOVE THE TRAFFIC COUPLING, LEADING INTO THE 2" AUTOMATIC VALVE. AUTOMATIC SOLENOID VALVE SHALL BE LOCATED ABOVE GROUND FOR EASY ACCESS, HAVE INTERNAL SELF-CLEANING DEBRIS SCREEN AND HAVE A 220 PSI RATING. VALVE CONTROLLER WILL NOT REQUIRE A SECOND HANDHELD DEVICE FOR PROGRAMMING, MUST HAVE A MINIMUM OF 9 POSSIBLE FLUSHING CYCLES PER DAY, SHALL BE SUBMERSIBLE TO 12 FEET, OPERATE WITH A 9 VOLT BATTERY, HAVE RESIN-SEALED ELECTRICAL COMPONENTS, AND SHALL BE LOCATED ABOVE WATER FLOW. SOLENOID SHALL HAVE NO LOOSE PARTS WHEN REMOVED FROM VALVE. VALVE, SOLENOID AND CONTROLLER SHALL HAVE RUBBER CAPS FOR ADDED PROTECTION. EACH UNIT SHALL HAVE A DOUBLE-VALVE, ALL BRASS SAMPLING POINT. WATER SHALL EXIT UNIT HORIZONTALLY THROUGH HOLES LOCATED NEAR GROUND LINE. ALL ABOVE-GROUND COMPONENTS SHALL BE CONTAINED WITHIN A UV-RESISTANT LOCKING DOMED COVER, AS MANUFACTURED BY KUPFERLE FOUNDRY COMPANY, ST. LOUIS, MO, 1-800-231-3990 OR EQUAL, APPROVED BY THE CORAL SPRINGS IMPROVEMENT DISTRICT.

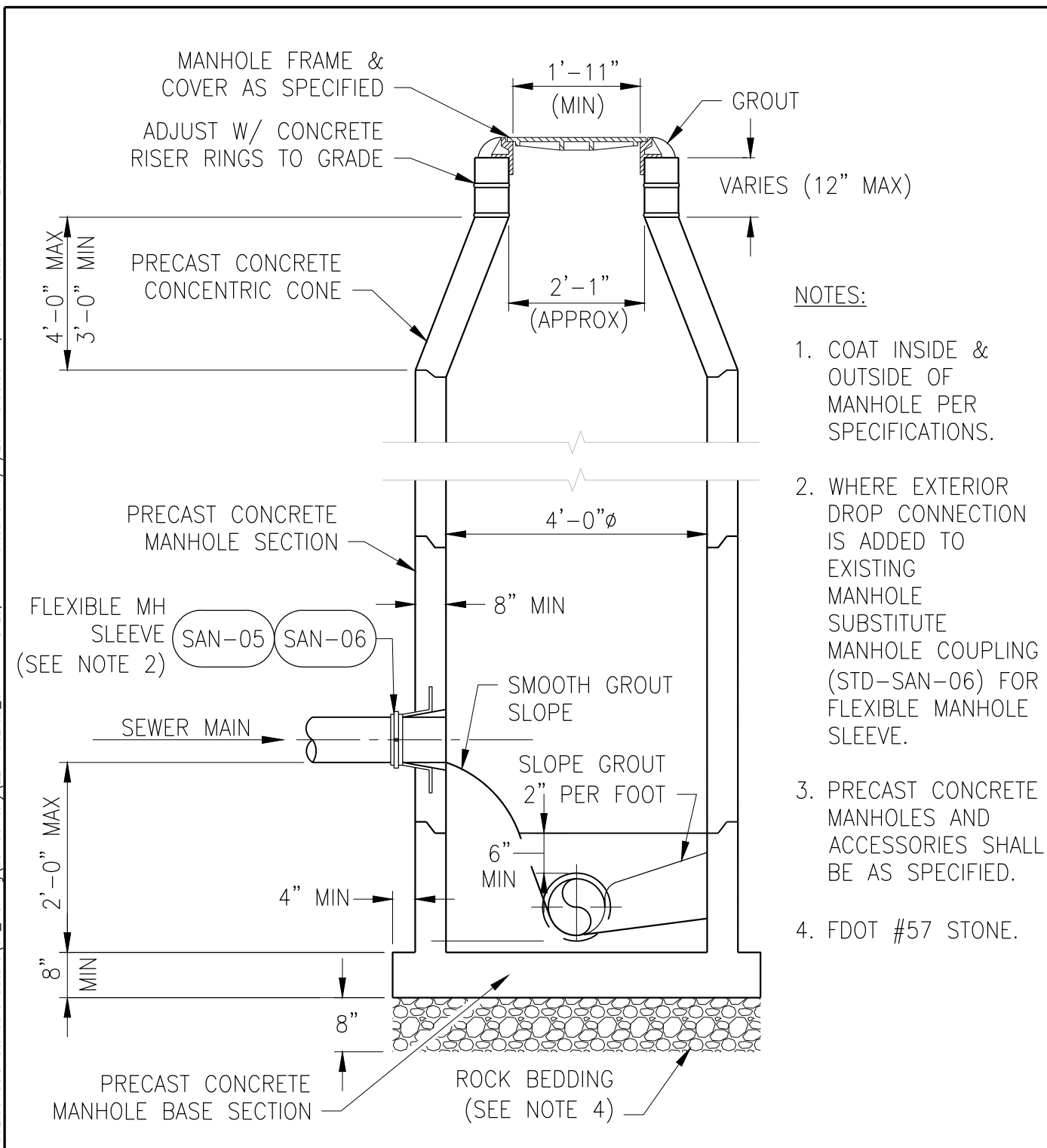
2) CONFIRM LOCATION IN FIELD WITH CORAL SPRINGS IMPROVEMENT DISTRICT.





AUTOMATIC WATER MAIN FLUSHING DEVICE

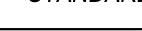
WM-17



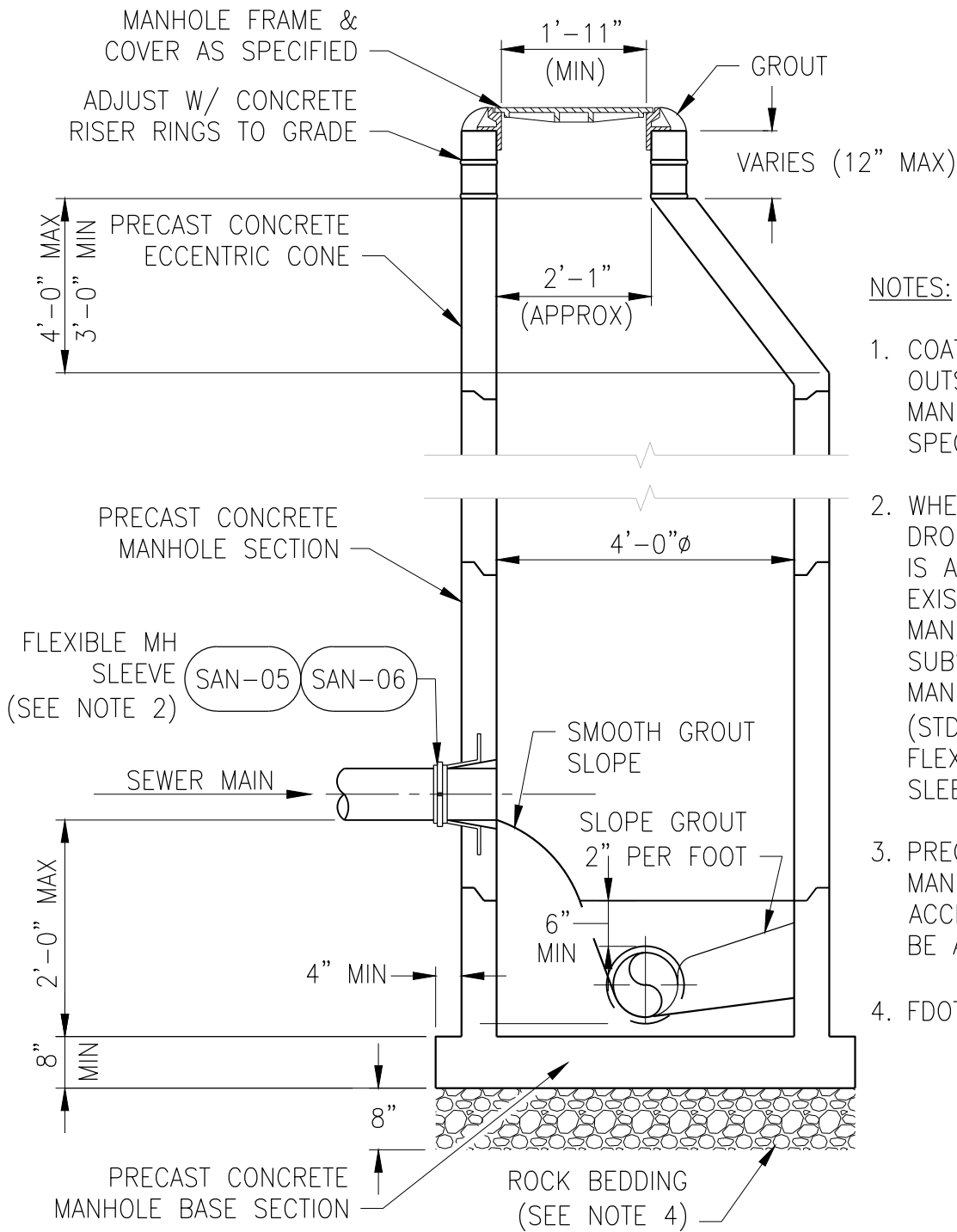
- NOTES:
1. COAT INSIDE & OUTSIDE OF MANHOLE PER SPECIFICATIONS.
 2. WHERE EXTERIOR DROP CONNECTION IS ADDED TO EXISTING MANHOLE SUBSTITUTE MANHOLE COUPLING (STD-SAN-06) FOR FLEXIBLE MANHOLE SLEEVE.
 3. PRECAST CONCRETE MANHOLES AND ACCESSORIES SHALL BE AS SPECIFIED.
 4. FDOT #57 STONE.

SANITARY SEWER MANHOLE DEPTH < 6-FT

SAN-01

STANDARD UTILITY DETAILS			SANITARY SEWER MANHOLE DEPTH (LESS THAN 6-FT)		
				DATE APPROVED	DETAIL NUMBER SAN-01
				9/28/17	
				GROUP	
	NO.	DATE	REVISION	SANITARY SEWER	

File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\03-Sanitary\224-002.00_SANITARY DTLs; Plotted @: 10/4/2017 3:38:39 PM; Milestone: FINAL SUBMITTAL



SANITARY SEWER MANHOLE DEPTH $\geq$ 6-FT

SAN-02

STANDARD UTILITY DETAILS

SANITARY SEWER MANHOLE DEPTH (GREATER THAN 6-FT)



NO.	DATE

	REVISION

DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-02

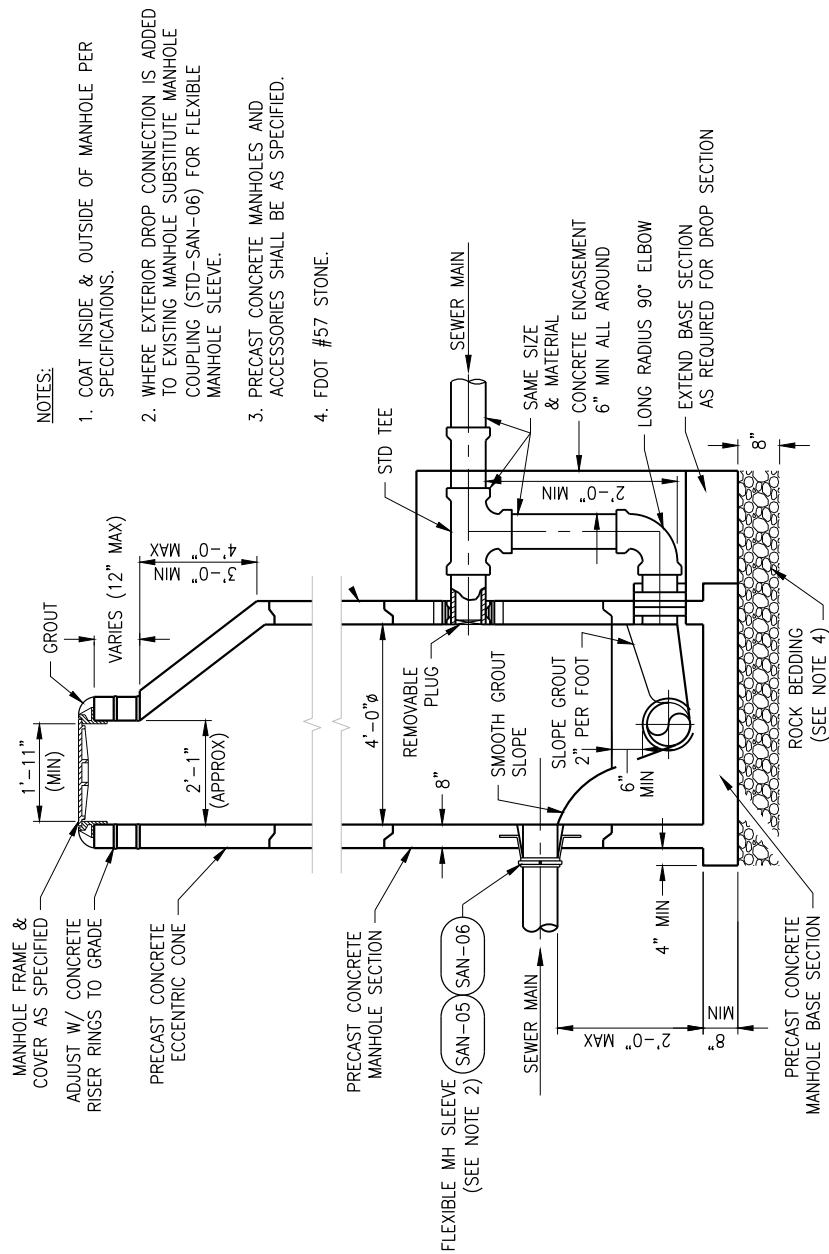


NO.	DATE	REVISION

DATE APPROVED	DETAIL NUMBER
9/28/17	SAN-03
GROUP	
SANITARY SEWER	

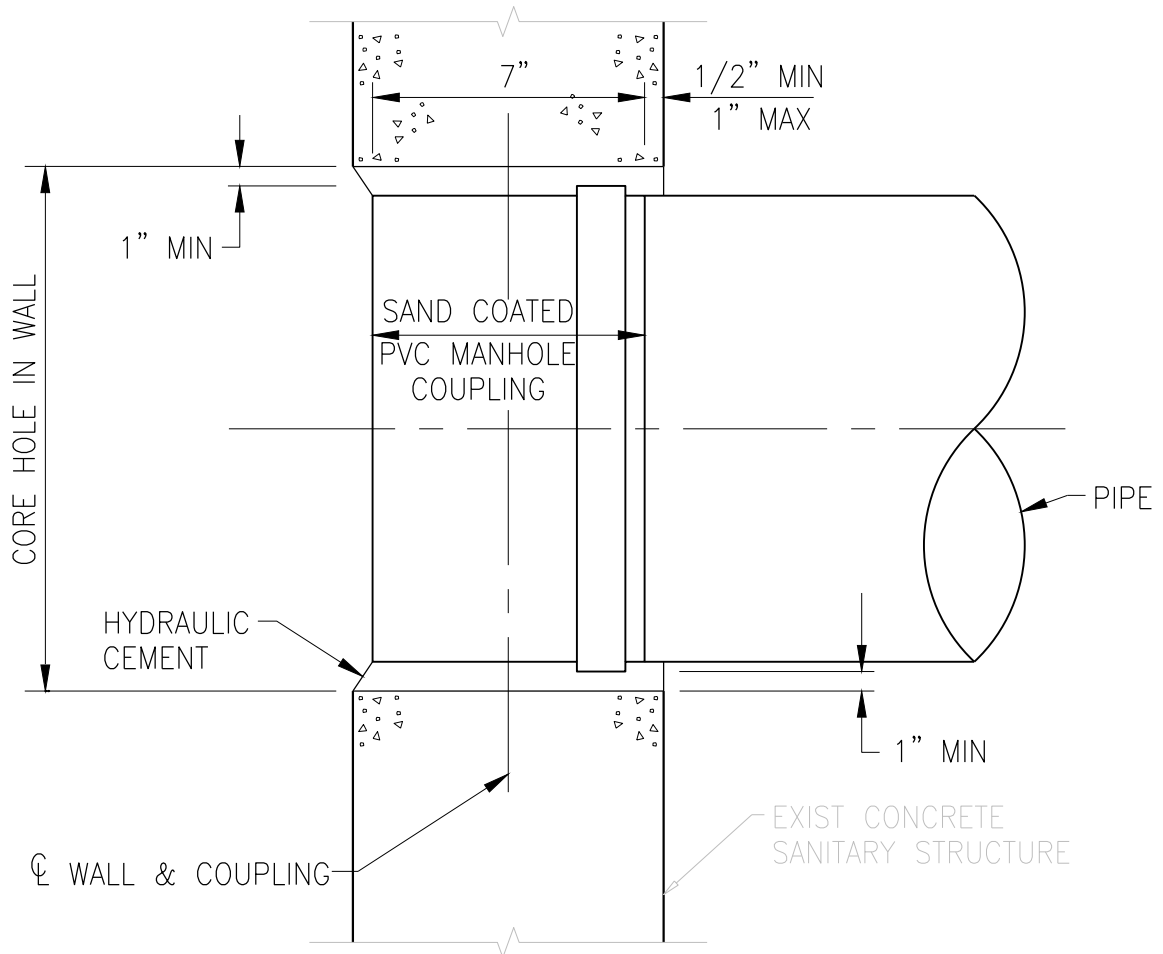
STANDARD UTILITY DETAILS

SANITARY SEWER MANHOLE WITH EXTERIOR DROP



SANITARY SEWER MANHOLE WITH EXTERIOR DROP

SAN-03



NOTES:

- 1) THIS DETAIL SHALL BE USED FOR CONNECTIONS TO EXISTING MANHOLES.

MANHOLE COUPLING

SAN-04

STANDARD UTILITY DETAILS

MANHOLE COUPLING

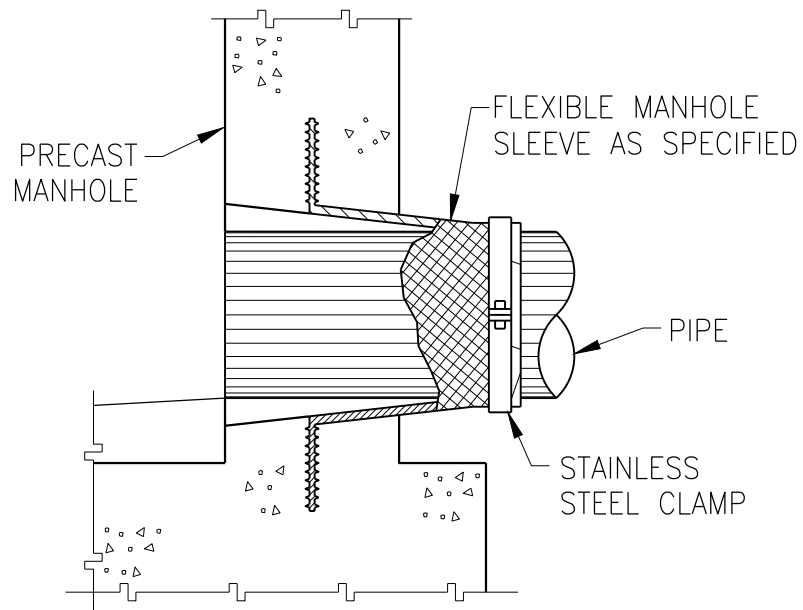


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REVISION

DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-04



FLEXIBLE MANHOLE COUPLING

SAN-05

STANDARD UTILITY DETAILS

FLEXIBLE MANHOLE COUPLING



NO.	DATE

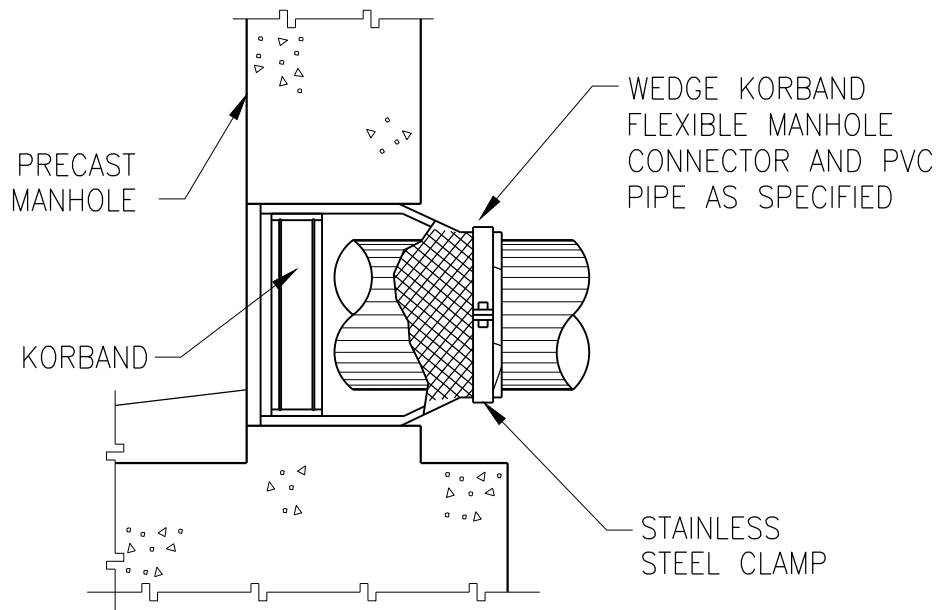
REVISION

DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-05

NOTES:

- 1) CONNECTOR SHALL MEET ASTM STANDARDS D1784, D2241, D2321 AND D3034.
- 2) MINIMUM SDR 35



WEDGE KORBAND MANHOLE CONNECTOR

SAN-06

STANDARD UTILITY DETAILS

WEDGE KORBAND MANHOLE CONNECTOR



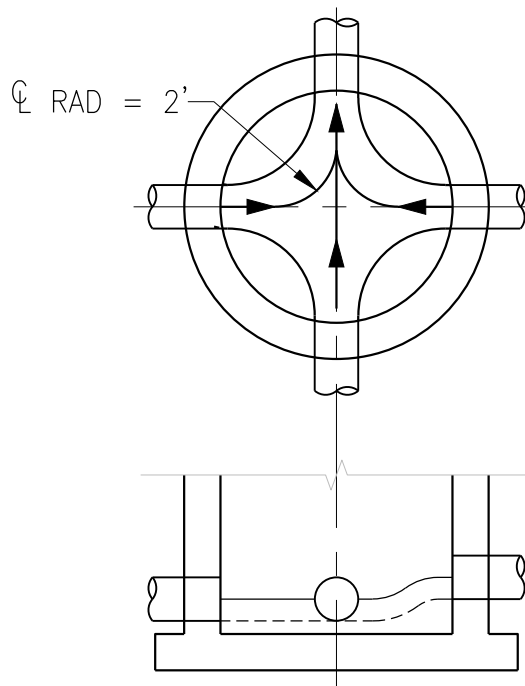
NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-06

NOTES:

- 1) ALL INVERT CHANNELS ARE TO BE CONSTRUCTED FOR SMOOTH CHANNEL FLOW WITHOUT OBSTRUCTION OR TURBULENCE. FORM INVERT USING PVC LONG RADIUS ELBOW PIPE.
- 2) PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.
- 3) SERVICE LATERALS SHALL NOT ENTER MANHOLES.
- 4) BRICK IS PERMITTED AS FLOW CHANNEL BUILDUP MATERIAL.



FLOW CHANNELS

SAN-07

STANDARD UTILITY DETAILS

FLOW CHANNELS

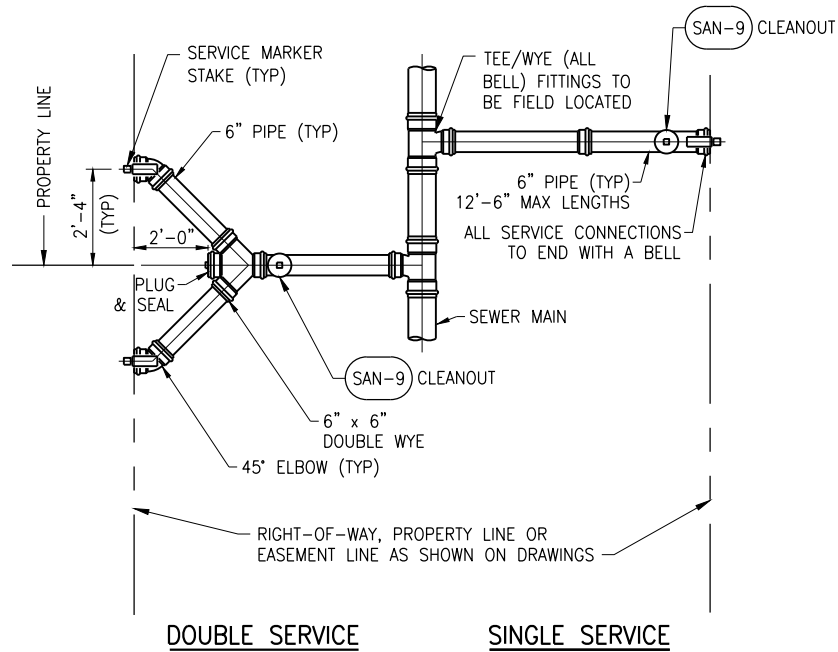


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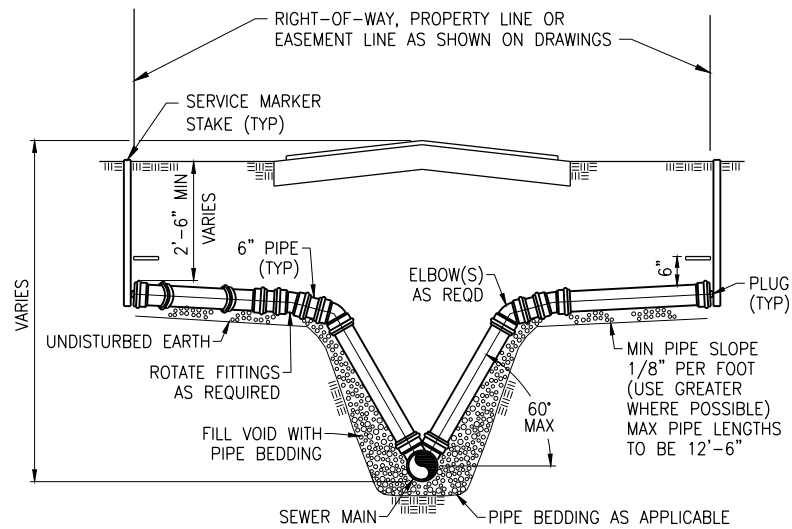
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DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-07



PLAN



ELEVATION

SERVICE LATERAL WITH RISER

SAN-08

STANDARD UTILITY DETAILS

SERVICE LATERAL WITH RISER



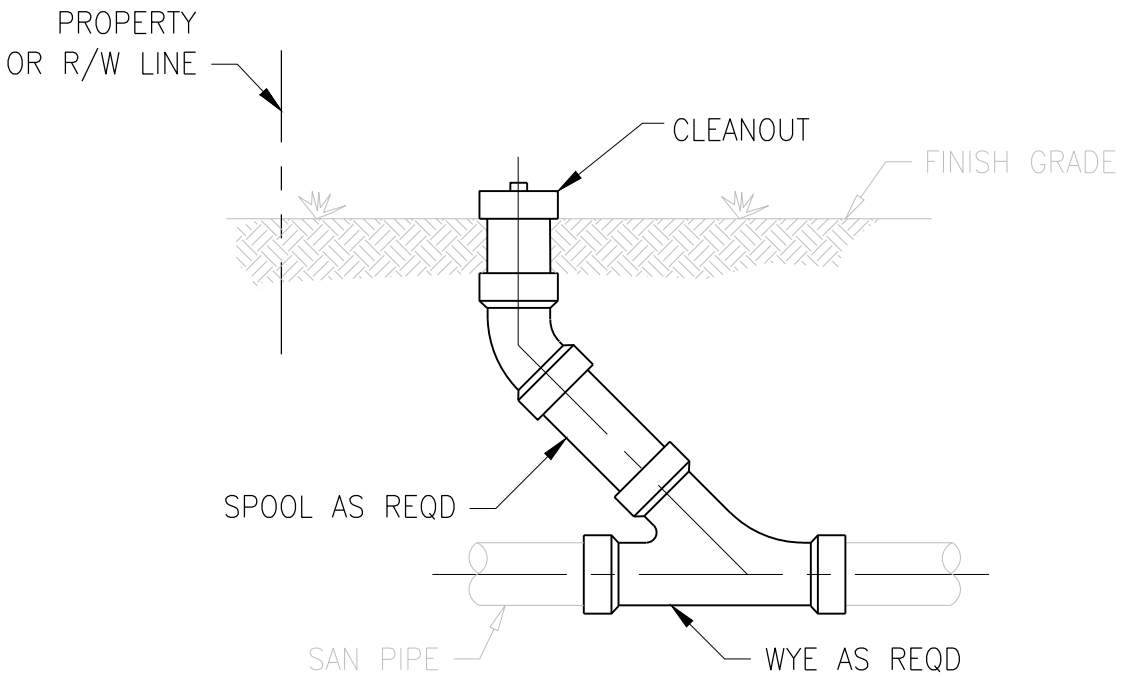
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DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-08

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NOTES:

1. PIPING, CLEANOUT CAP AND FITTINGS SHALL BE PVC SDR-35.
2. 4-INCH MINIMUM SIZE.

CLEANOUT

SAN-09

STANDARD UTILITY DETAILS

CLEANOUT

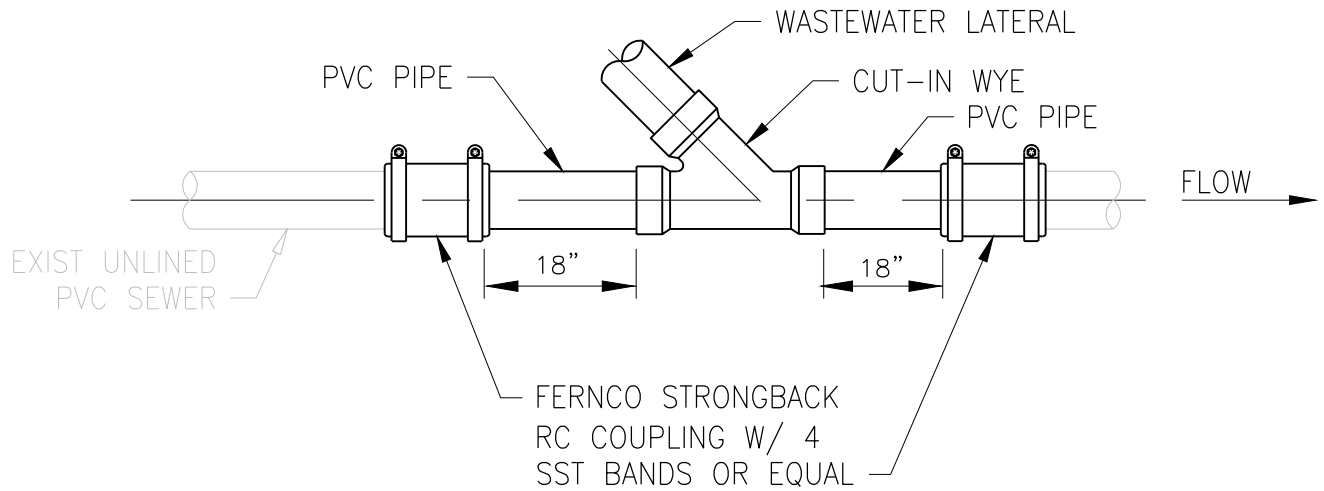


NO.	DATE	REVISION	

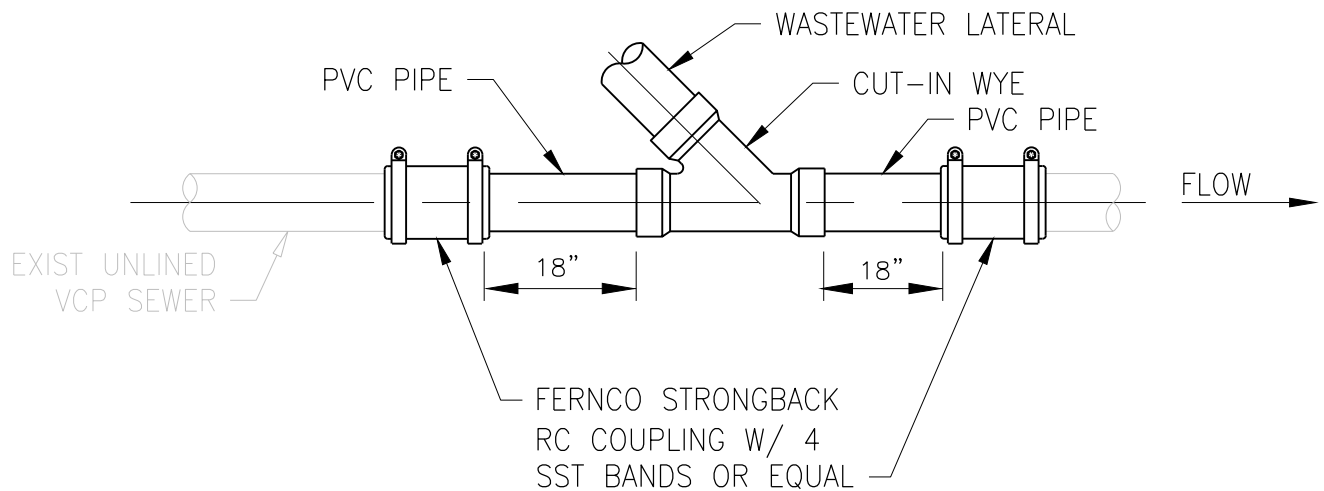
DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-09

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LATERAL CUT-IN (EXISTING UNLINED PVC)



LATERAL CUT-IN (EXISTING UNLINED VCP)

SANITARY SEWER LATERAL CUT-IN

SAN-10A

STANDARD UTILITY DETAILS

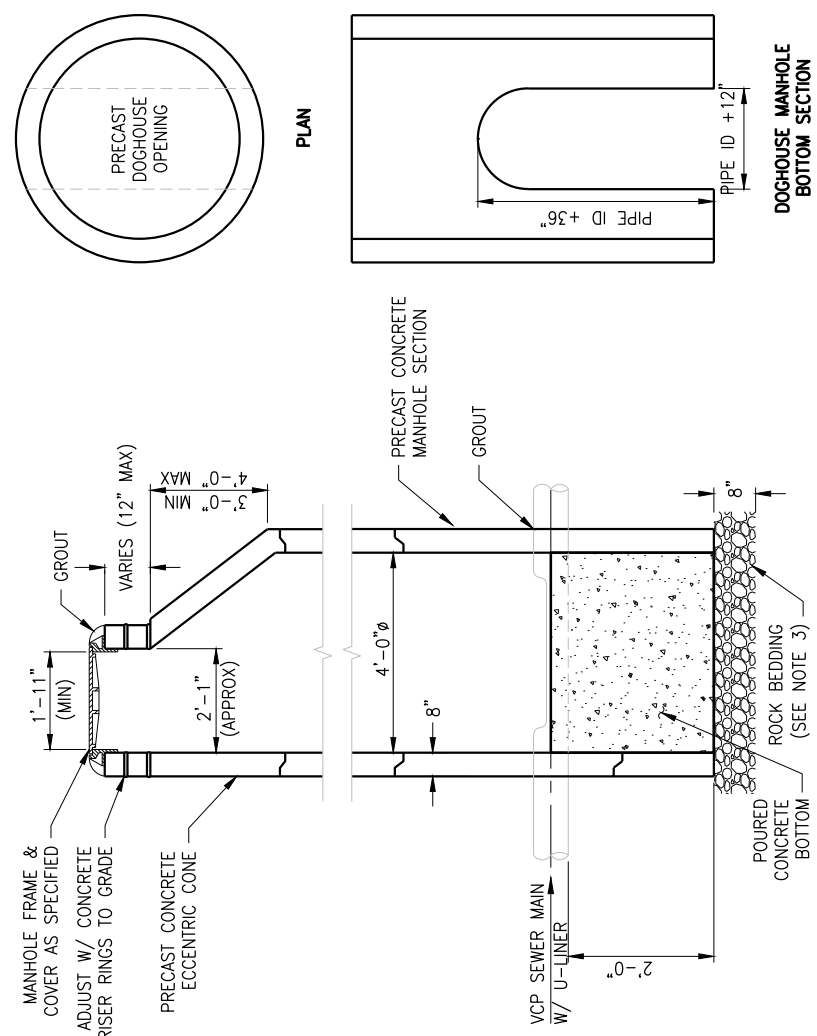
SANITARY SEWER LATERAL CUT-IN

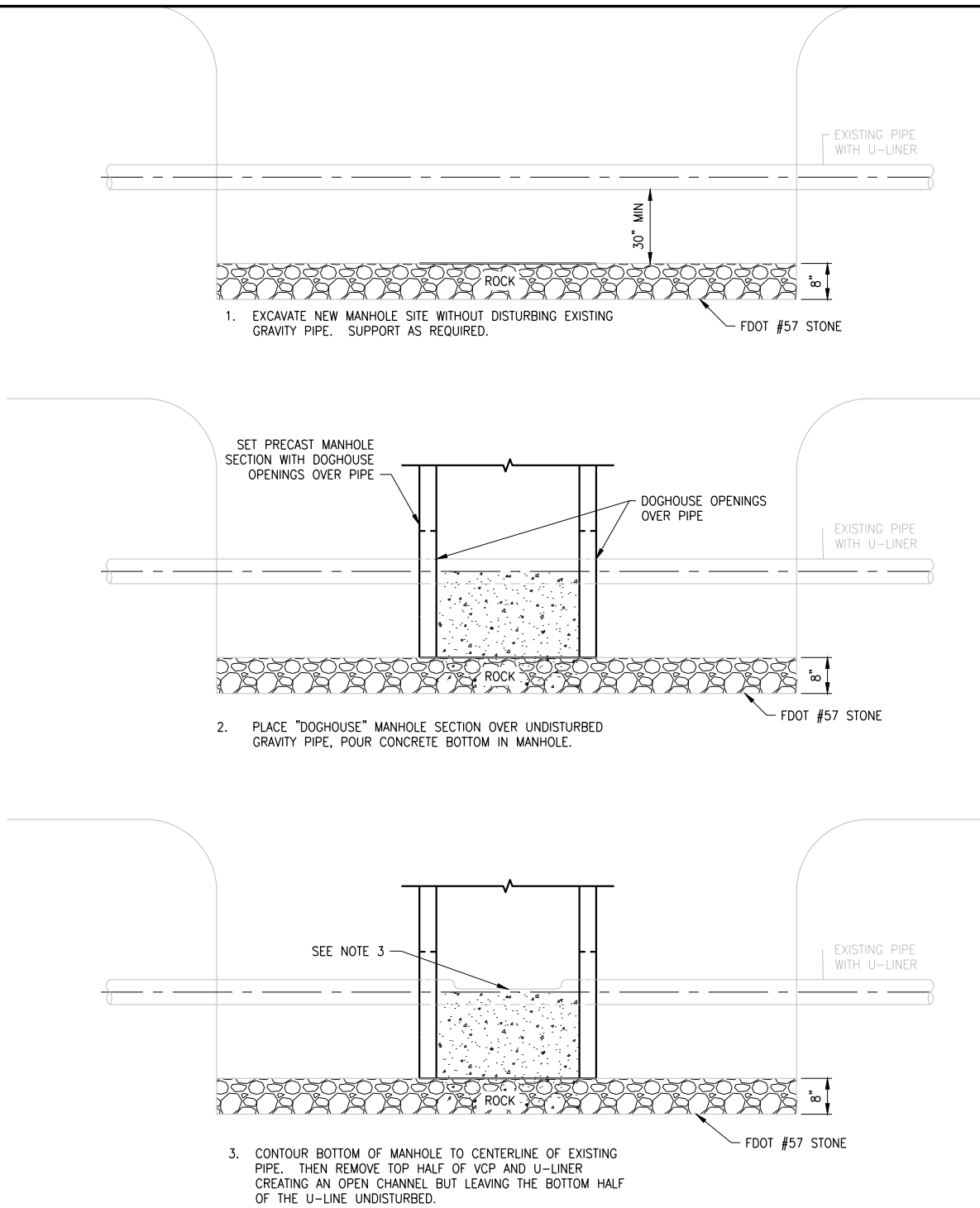


NO.	DATE	REVISION	

DATE APPROVED	9/28/17
GROUP	SANITARY SEWER

DETAIL NUMBER
SAN-10A

STANDARD UTILITY DETAILS		DOG HOUSE SANITARY SEWER MANHOLE OVER U-LINED PIPES	
			DATE APPROVED 9/28/17
			GROUP SANITARY SEWER
	NO.	DATE	REVISION
		NOTES: 1. COAT INSIDE & OUTSIDE OF MANHOLE PER SPECIFICATIONS. 2. PRECAST CONCRETE MANHOLES AND ACCESSORIES SHALL BE AS SPECIFIED. 3. FDOT #57 STONE.	
DOG HOUSE SANITARY SEWER MANHOLE OVER U-LINED PIPES			SAN-11A



DOG HOUSE SANITARY SEWER MANHOLE INSTALLATION PROCEDURE **SAN-11B**

STANDARD UTILITY DETAILS

DOG HOUSE SANITARY SEWER MANHOLE INSTALLATION PROCEDURE



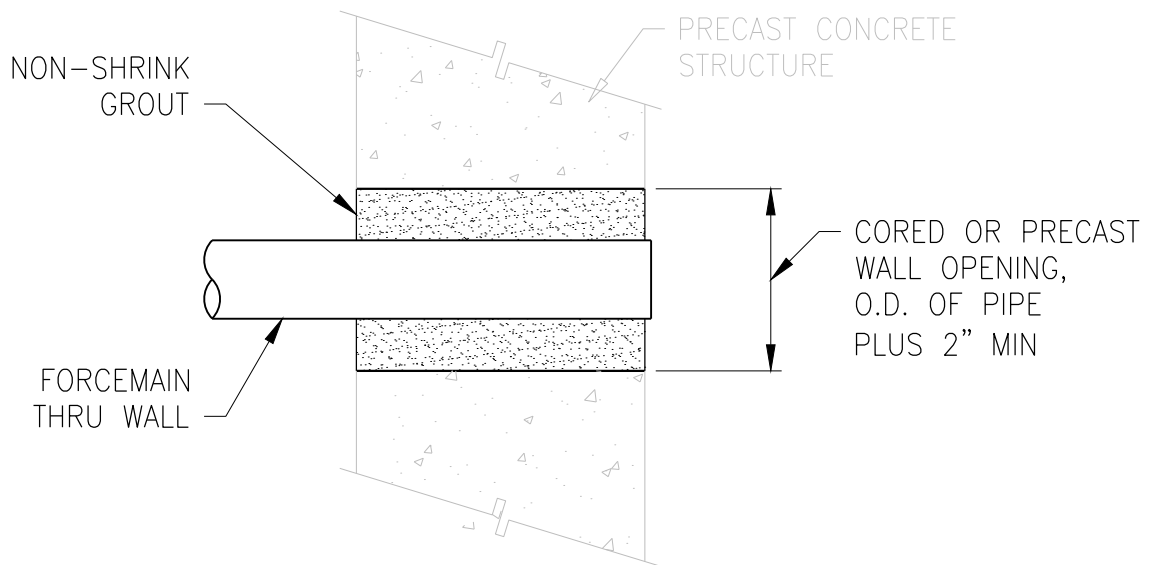
NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
SANITARY SEWER

DETAIL NUMBER
SAN-11B

File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\04-Liftstation\224-002.00_LIFTSTATION DTLs; Plotted @: 10/4/2017 3:39:00 PM; Milestone: FINAL SUBMITTAL



GROUT CORED OR PRECAST OPENING

LS-03

STANDARD UTILITY DETAILS

GROUT CORED OR PRECAST OPENING



NO.	DATE	REVISION

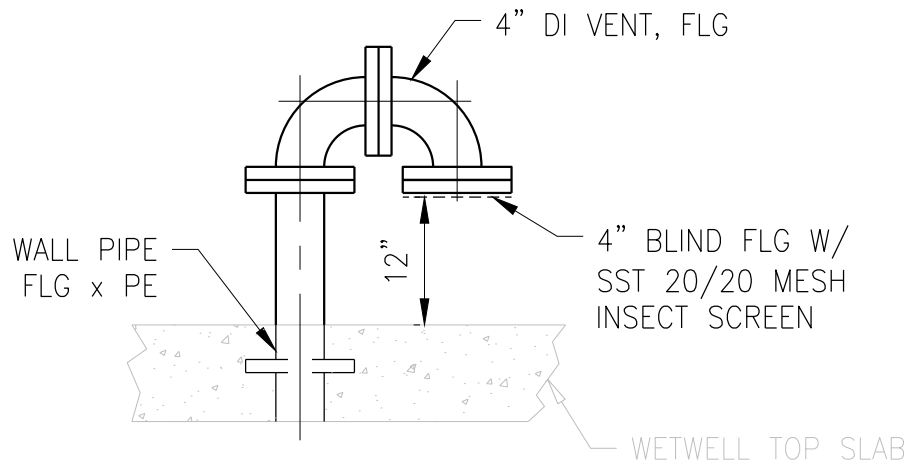
DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-03

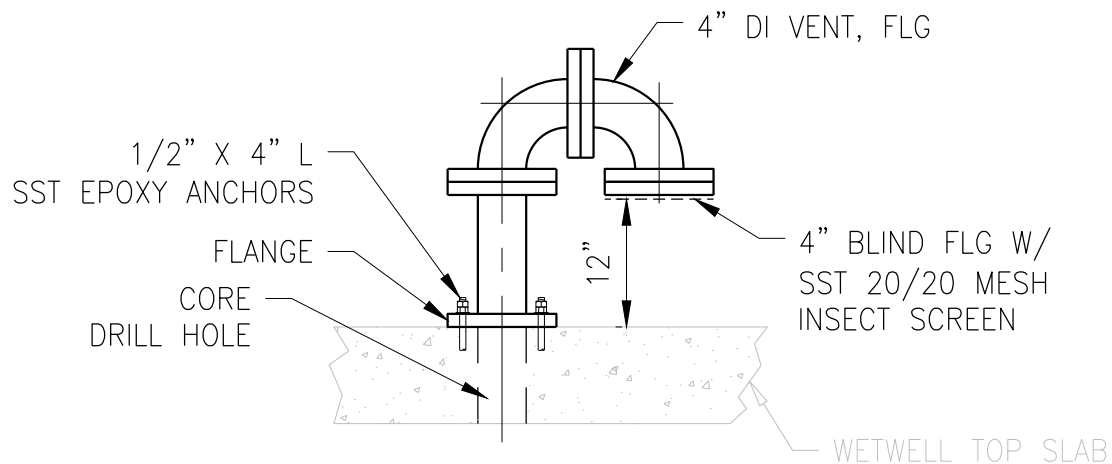
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NOTES:

1. ALL BOLTS AND NUTS SHALL BE SST PER SPECIFICATIONS.
2. VENT PIPE SHALL BE PAINTED PER SPECIFICATIONS.



PRECAST



EXISTING CORE DRILL

LIFT STATION VENT DETAIL

LS-04

STANDARD UTILITY DETAILS

LIFT STATION VENT DETAIL

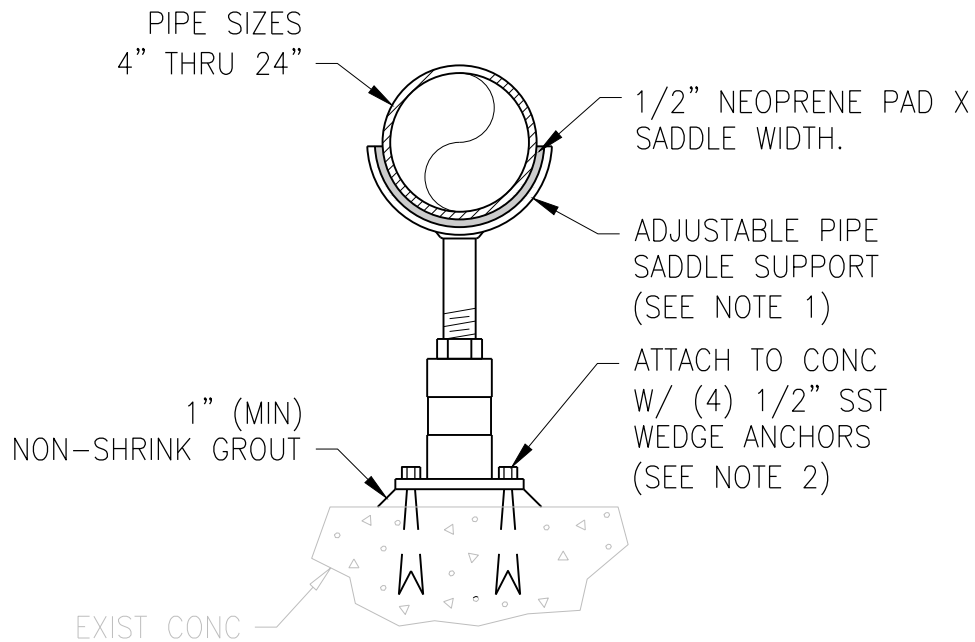


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LIFT STATION

DETAIL NUMBER
LS-04



NOTES

- 1) PIPE SUPPORT SHALL BE STANDON MODEL S92 SADDLE SUPPORT, 100% 304L SST CONSTRUCTION OR EQUAL.
- 2) 3-INCH MINIMUM EMBED DEPTH.

PIPE SUPPORT

LS-07

STANDARD UTILITY DETAILS

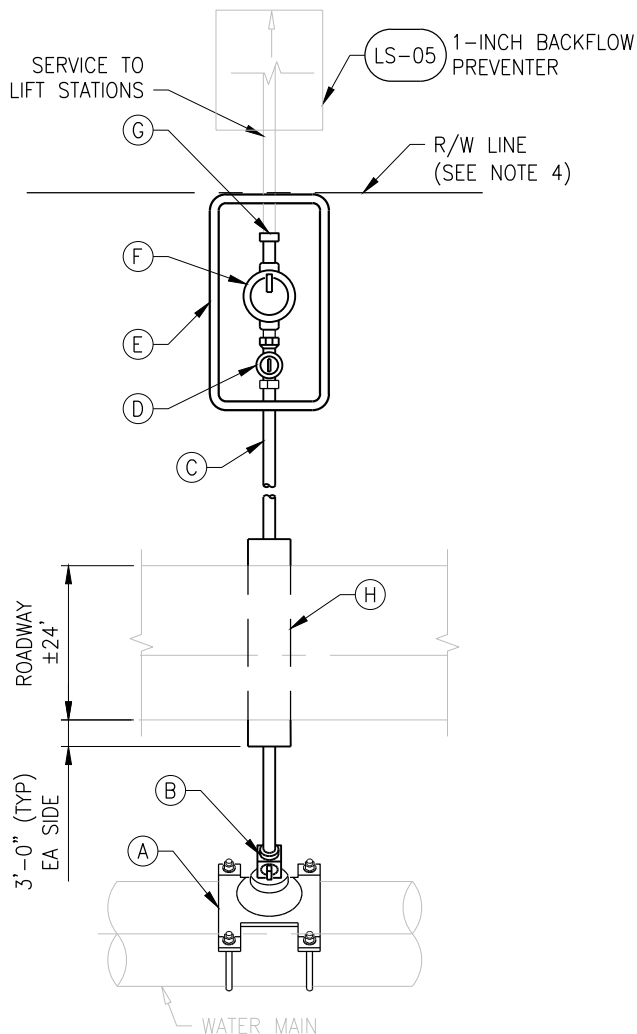
PIPE SUPPORT



NO.	DATE	REVISION	

DATE APPROVED
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GROUP
LIFT STATION

DETAIL NUMBER
LS-07



LEGEND

- (A) 1" TAPPING SADDLE
FORD 202B-(MAIN)-IPX OR EQUAL
MAIN = CATALOG NUMBER BY MAIN SIZE
X = FIP THREAD
- (B) 1" CORPORATION STOP
(PACK JT x MNPT), FORD F1100, OR EQUAL
- (C) 1" HDPE, SDR 9, 200 PSI
- (D) 1" x 5/8" METER STOP
(PACK JT x METER SWIVEL NUT), FORD B43 OR EQUAL
- (E) POLYPLASTIC SINGLE METER BOX W/ PLASTIC READER, CARSON INDUSTRIES MODEL 1015-5 (SEE NOTE 6)
- (F) 5/8" x 3/4" METER, NEPTUNE T-10, WITH PROREAD ENCODER REGISTER AND MINI PIT PAD WITH 6' OF WIRE
- (G) 1" x 1" PACK JT COUPLING (FNPT x PACK JT), FORD C14 OR EQUAL
- (H) 2" SCH 40 PVC CASING (SEE NOTE 5)

NOTES:

1. CONTRACTOR SHALL SET METER BOX. METER BOX TO BE SET IN GRASSY AREAS UNLESS OTHERWISE APPROVED BY THE CSID.
2. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE 18" CENTERS (MIN).
3. MINIMUM COVER FOR SERVICE LINES SHALL BE 2'-0".
4. CONTRACTOR'S SURVEYOR SHALL CONFIRM LOCATION OF R/W LINE BEFORE SETTING METER BOX.
5. 2" SCH 40 PVC CASINGS REQD FOR ALL SERVICE LINES CROSSING ROADWAYS, SIDEWALKS OR OTHER PAVED SURFACES.
6. CONTRACTOR SHALL INSTALL AUTOMATIC METER READER (AMR) IN LID OF METER BOX. COORDINATE HOLE DIAMETER WITH AMR SUPPLIER.
7. ALL BRASS COMPONENTS THAT COME IN CONTACT WITH POTABLE WATER SHALL MEET NSF/ANSI STANDARD 61, ANNEX G AND/OR NSF/ANSI STANDARD 372 AS APPLICABLE. BRASS ALLOY SHALL NOT CONTAIN MORE THAN 0.25% LEAD BY WEIGHT.

TYPICAL LIFT STATION WATER SERVICE

LS-08

STANDARD UTILITY DETAILS

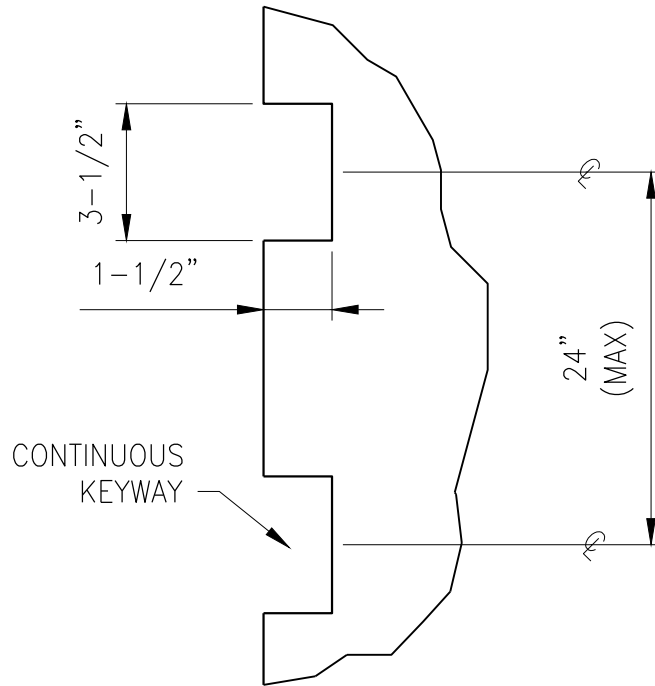
TYPICAL LIFT STATION WATER SERVICE



NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-08



NOTES:

- 1) MINIMUM OF TWO (2) KEYWAYS PER PRECAST CONCRETE WETWELL SECTION AT MAXIMUM SPACING OF 24"

TREMIE KEY WAY

LS-09

STANDARD UTILITY DETAILS

TREMIE KEY WAY

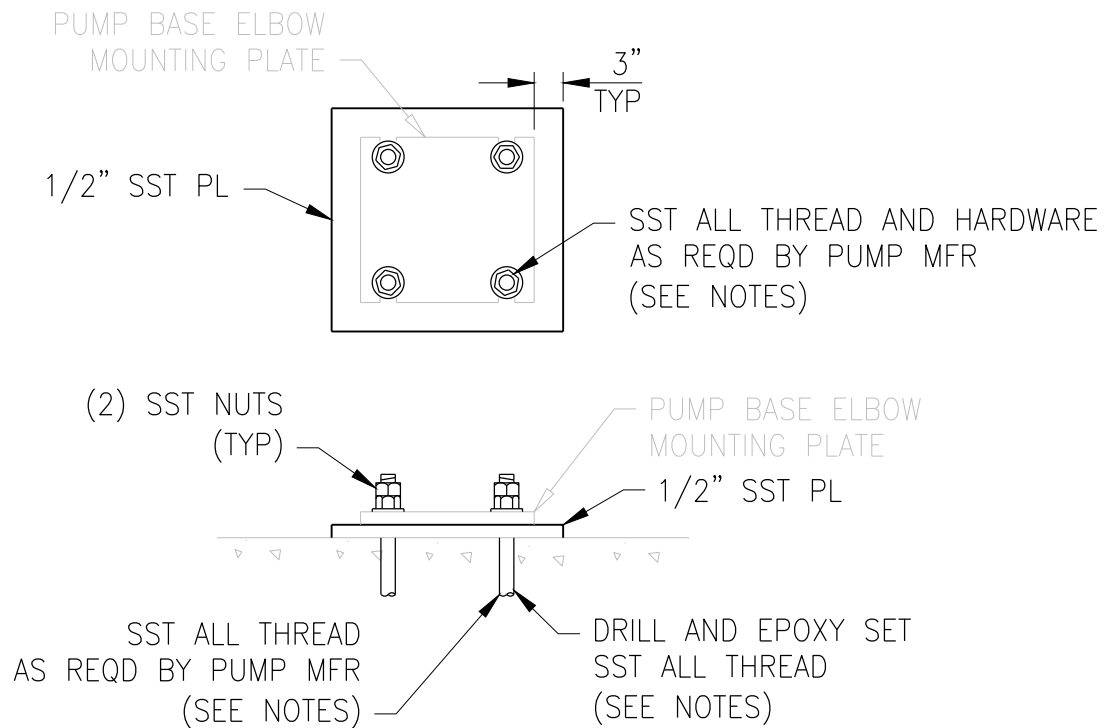


NO.	DATE

REVISION

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9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-09



NOTES:

- 1) TYPE 316 SST ALL THREAD ROD, DIAMETER PER PUMP MANUFACTURER.
- 2) MINIMUM LENGTH SHALL BE 2" PROJECTION + THICKNESS OF BASE ELBOW AND MOUNTING PLATE + 1/2" SST PLATE + 6" EMBEDMENT.
- 3) EPOXY SHALL BE ULTRA BOND 1 AS MANUFACTURED BY US ANCHOR CORP. OR EQUAL.
- 4) BASE ELBOW NOT SHOWN FOR CLARITY.

PUMP MOUNTING PLATE

LS-10

STANDARD UTILITY DETAILS

PUMP MOUNTING PLATE

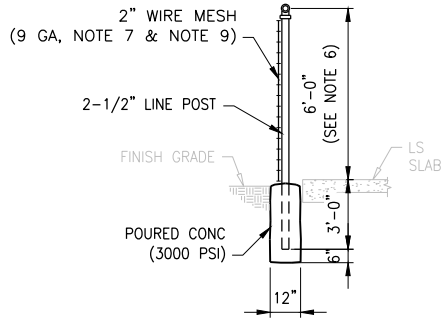


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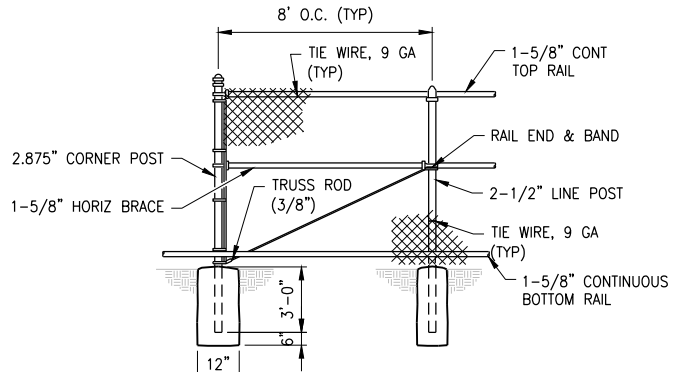
REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

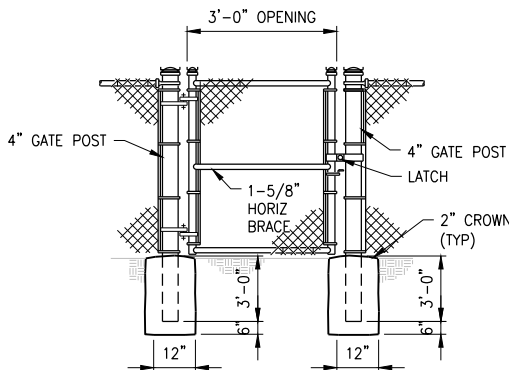
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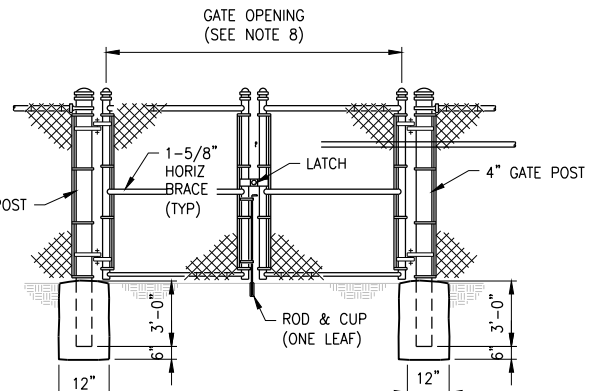
TYPICAL LINE POST



TYPICAL FENCE AT CORNER



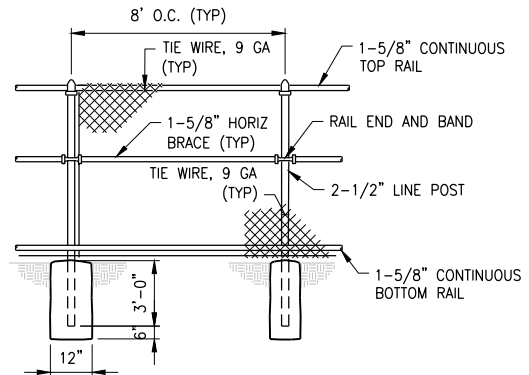
SINGLE LEAF GATE



DOUBLE LEAF GATE

NOTES:

1. MATERIALS MEET OR EXCEED BUILDING CODE REQUIREMENTS.
2. MATERIALS SHALL BE AS SPECIFIED.
3. HORIZONTAL BRACE SHALL BE PROVIDED BETWEEN ALL LINE POSTS IN ADDITION TO CORNER/END POSTS.
4. OPENING AS NOTED ON DRAWINGS
5. GATE LATCHES, STOPS AND KEEPERS SHALL BE PROVIDED FOR ALL GATES.
6. FENCE HEIGHT SHALL BE 6'-0" ABOVE LIFT STATION SLAB GRADE.
7. BLACK THERMAL FUSED VINYL COATED.
8. OPENING WIDTH PER DRAWINGS (MIN 12').
9. MESH TO BE KNUCKLED AT THE TOP AND BOTTOM.



TYPICAL FENCE AT LINE POST(S)

TYPICAL LIFT STATION FENCE AND GATE(S)

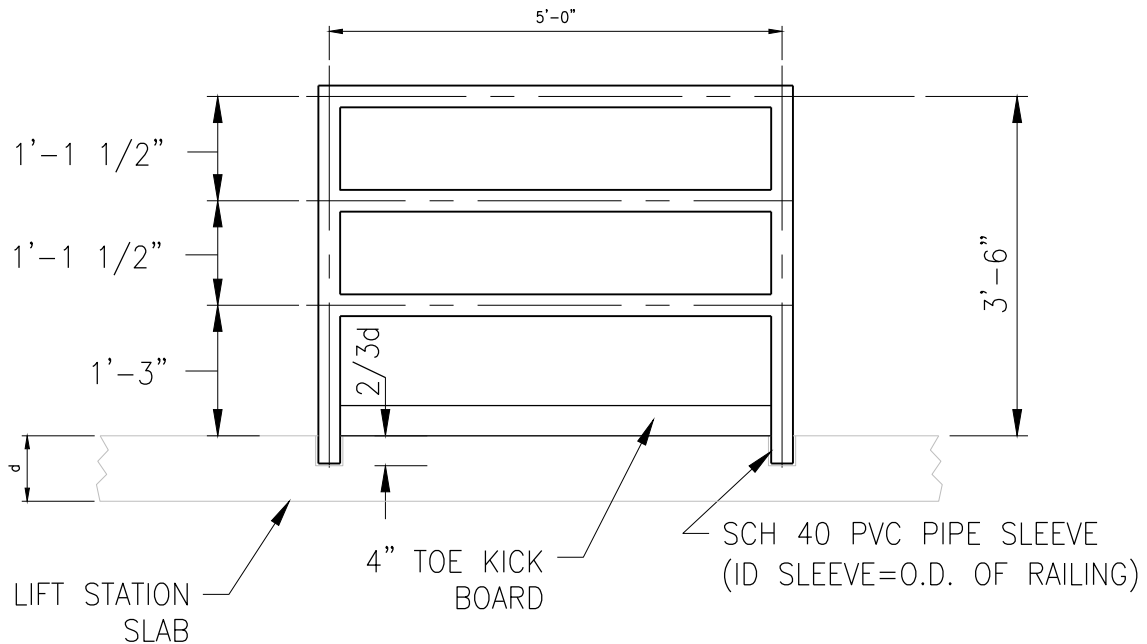
LS-11

STANDARD UTILITY DETAILS

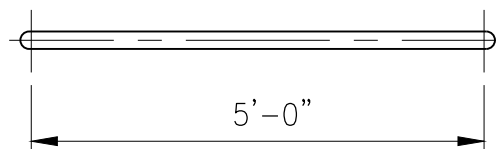
TYPICAL LIFT STATION FENCE AND GATES



NO.	DATE	REVISION



E L E V A T I O N



P L A N

NOTES

1. ALUMINUM PREFABRICATED RAILING SHALL BE AS MANUFACTURED BY TUTTLE ALUMINUM AND BRONZE, INC., THOMPSON FABRICATING COMPANY, INC., ALPHA ENTERPRISES, OR EQUAL.
2. ALUMINUM EXTRUDED ALLOY 6061 TEMPER T6, SCHEDULE 40, 1-1/2-INCH IPS (1.90-INCH OUTSIDE DIAMETER, 0.145-INCH WALL THICKNESS) MINIMUM.
3. STANDARD MILL FINISH ON ALL ALUMINUM SURFACES.

REMOVABLE ALUMINUM SAFETY RAIL

LS-12

STANDARD UTILITY DETAILS

REMOVEABLE ALUMINUM SAFETY RAIL



NO.	DATE

REVISION

DATE APPROVED
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GROUP
LIFT STATION

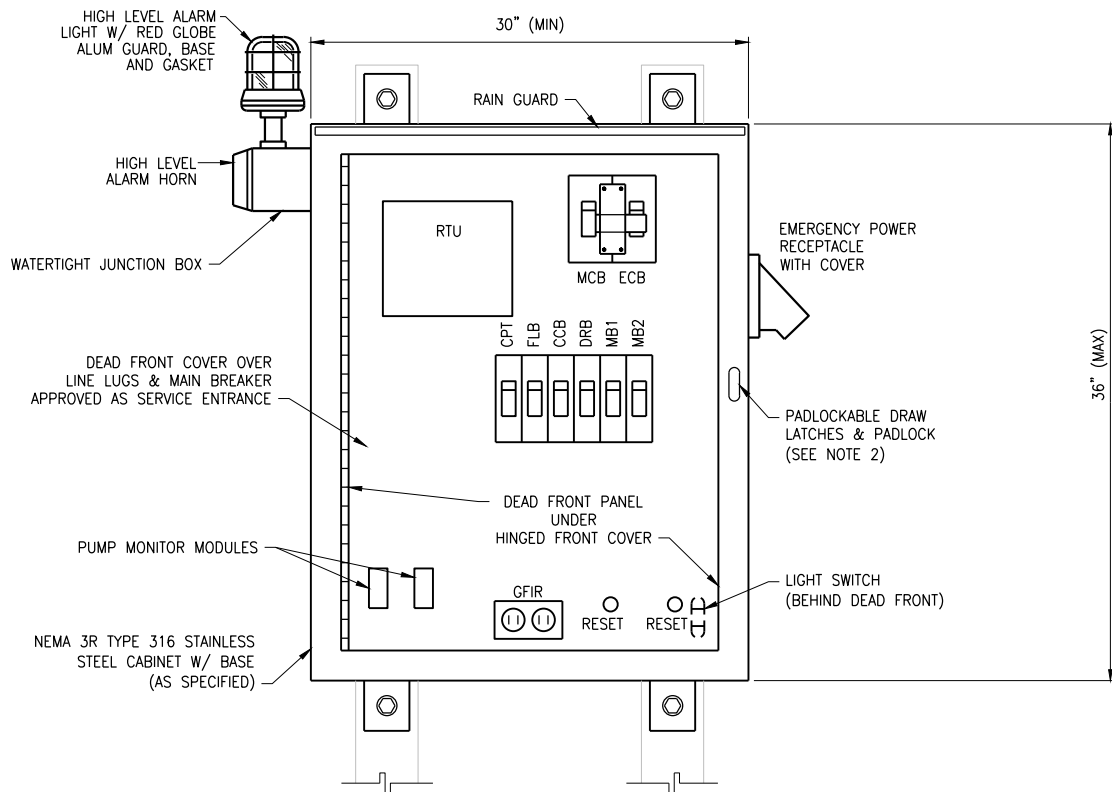
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NOTES

- PADLOCK SHALL BE PROVIDED BY OWNER.
- NOTIFY ENGINEER OF ANY DISCREPANCIES.
- MOTOR BREAKERS AS SPECIFIED HAVE ADJUSTABLE SETTINGS.
- SEE SPECIFICATIONS FOR COMPONENTS.
- ALL WIRING TERMINALS ON DEAD FRONT SHALL BE FINGER SAFE OR SHIELDED WITH PLEXI-GLASS FOR INCIDENTAL CONTACT PREVENTION.
- ALL WIRING TO AND FROM PCU AND RTU SHALL BE SHIELDED, MINIMUM 16 AWG.
- DESIGN WIND PRESSURES PER FOLLOWING TABLE:
- FINAL PANEL DIMENSIONS PER REQUIREMENTS OF UL-508 AND/OR UL-698.
- NUMBER/SIZE OF BREAKERS SHALL BE PER REQUIREMENTS OF PUMP CONTROL PANEL SCHEMATIC.

DESIGN WIND PRESSURES	
DESCRIPTION	VALUE
BASIC WIND SPEED	180 MPH, (3-SECOND GUSTS)
RISK CATEGORY	III
EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT	+/- 0.18
DIRECTIONALITY FACTOR	0.85
DERIVED FROM ASCE 7-10 PER FBC SECTION 1609	



PUMP CONTROL PANEL ELEVATION

LS-14A

STANDARD UTILITY DETAILS

PUMP CONTROL PANEL ELEVATION



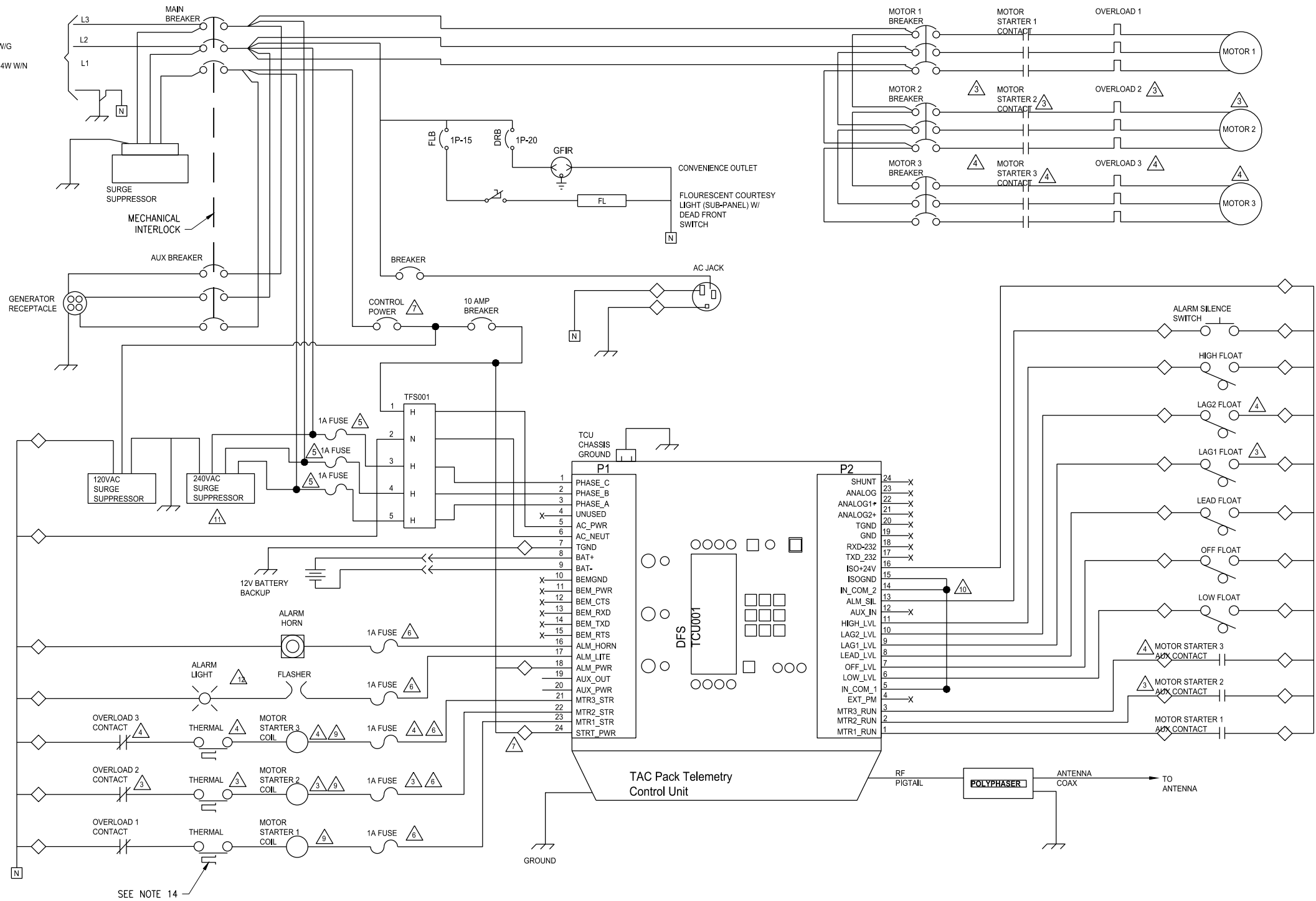
NO.	DATE
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REVISION

DATE APPROVED 9/28/17
GROUP LIFT STATION

DETAIL NUMBER LS-14A

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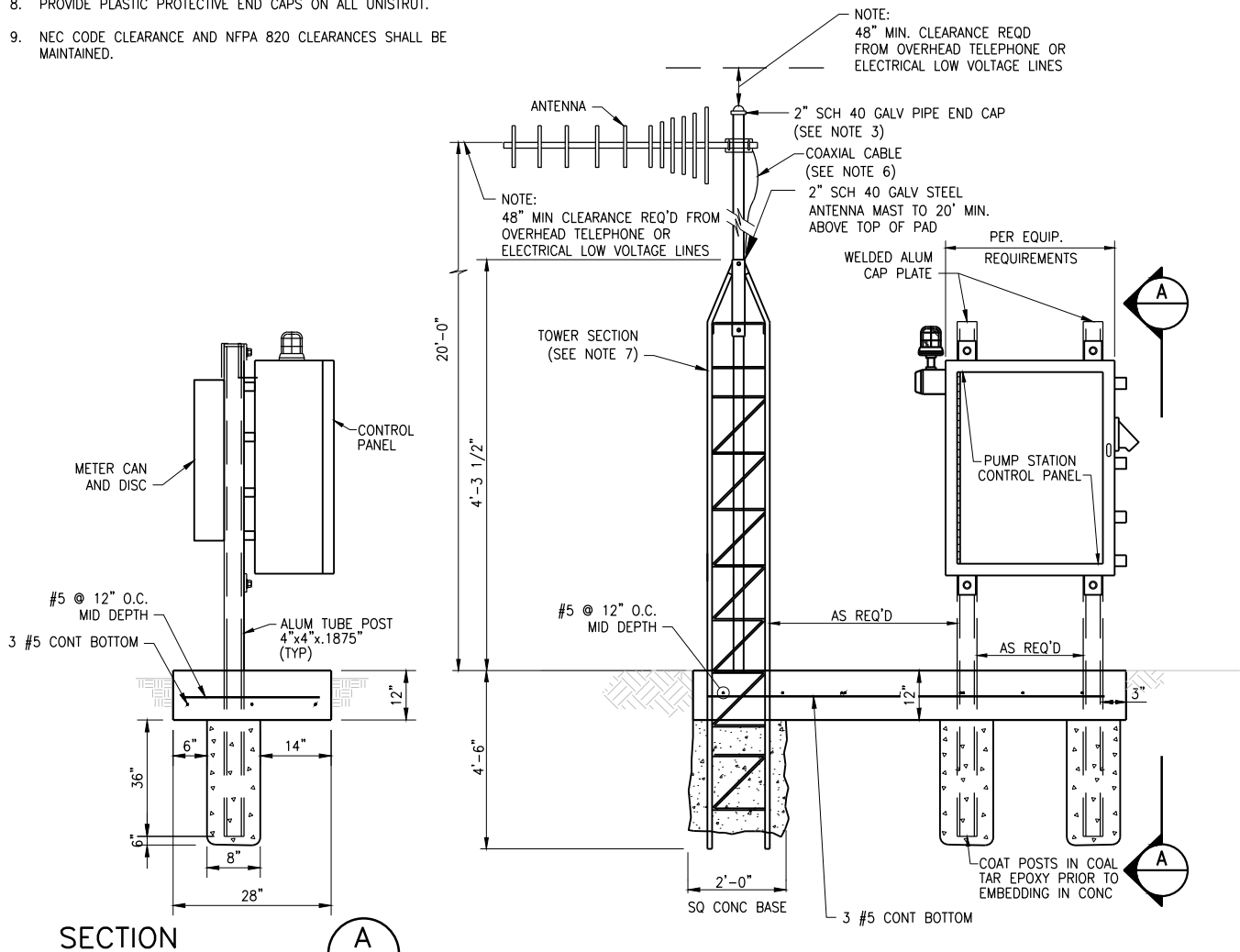
- NOTES**
1. TRIPLEX WIRING STATION SHOWN
 2. UNLESS OTHERWISE NOTED, ALL FUSES ARE SLOW BLOW.
 3. OMIT THESE COMPONENTS FOR SIMPLEX STATION.
 4. OMIT THESE COMPONENTS FOR SIMPLEX AND DUPLEX STATIONS.
 5. FUSES ON THE THREE-PHASE POWER MUST BE LOCATED AS CLOSE AS POSSIBLE TO THE MAIN CIRCUIT BREAKER.
 6. FUSES ON THE TCU OUTPUT PINS MUST BE LOCATED AS CLOSE AS POSSIBLE TO THE TCU.
 7. STARTER POWER AND AC POWER MUST BOTH BE POWERED FROM THE SAME STATION CONTROL BREAKER.
 8. WIRE ACCORDING TO NATIONAL, STATE, AND LOCAL CODES.
 9. INSTALL INTERPOSING RELAYS FOR STARTER OUTPUTS OF NEMA SIZE 3 OR LARGER.
 10. TERMINATE 'IN_COM_1' TO 'IN_COM_2' ONLY WHEN USING 'ISO+24V' TO BIAS ALL CONTACTS. IF USING DIFFERENT BIAS FOR MOTOR STARTER CONTACTS OR EXTERNAL PHASE MONITOR, SEE FIG. 6-10 'MOTOR RUN MONITORING SIGNAL (4-WIRE TRANSFORMER)' OR FIG. 6-11 'MOTOR RUN MONITORING SIGNAL (3-WIRE TRANSFORMER)' IN TAC PACK TCU INSTALLATION AND OPERATIONS MANUAL.
 11. 480VAC THREE-PHASE POWER REQUIRES USE OF 480VAC SURGE SUPPRESSOR, 600VAC RATED FUSES AND 100K-OHM RESISTOR ON 'PHASE_C (P1-1) AND PHASE_B (P1-2) INPUTS.
 12. OUTPUT IS UL RATED AT 0.5 AMP AC AND 1 AMP DC. USE INTERPOSING RELAY WITH EITHER A SNUBBER (FOR AC RELAY) OR A DIODE (FOR DC RELAY) TO DRIVE DEVICE THAT EXCEEDS THESE SPECIFICATIONS.
 13. PROVIDE INTRINSICALLY SAFE BARRIER RELAYS FOR ALL FLOATS.
 14. PROVIDE PUMP MONITORING MODULE (MINICAS) FOR EACH PUMP.
 15. PROVIDE LOOP POWER SUPPLY, BREAKER, WIRING AND SIGNAL WIRING FOR CGD.

PUMP CONTROL PANEL SCHEMATIC

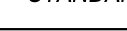
LS-16

STANDARD UTILITY DETAILS			PUMP CONTROL PANEL SCHEMATIC				
						DATE APPROVED	DETAIL NUMBER
						9/28/17	
						GROUP	
	NO.	DATE	REVISION			11X17	

1. FINAL ASSEMBLY DIMENSIONS SHALL BE COORDINATED WITH MOUNTED EQUIPMENT SHOP DRAWINGS AND SPACING REQUIREMENTS PER CODE.
2. ALL EQUIPMENT SHALL BE GROUNDED PER DRAWINGS AND APPLICABLE CODE REQUIREMENT
3. SHOP DRAWINGS REQUIRED FOR ELECTRICAL EQUIPMENT RACK LAYOUT.
4. EQUIPMENT DIMENSIONS VARY.
5. PROVIDE VERTICAL & HORIZONTAL MEMBERS AS MAY BE REQ'D.
6. DRESS COAX NEATLY DOWN PIPE, TIE WRAP 1'-0" O.C. WITH BLACK U/V SAFE TIE WRAPS.
7. TOWER SHALL BE ROHN, TOP SECTION 25AG5 OR EQUAL. TOWER SHALL HAVE (2) SETS OF (3) SET SCREWS SPACED AT 120 DEG. O.C. SET SCREWS FOR ANTENNA SHALL BE SST HEX BOLTS AND NUTS.
8. PROVIDE PLASTIC PROTECTIVE END CAPS ON ALL UNISTRUT.
9. NEC CODE CLEARANCE AND NFPA 820 CLEARANCES SHALL BE MAINTAINED.

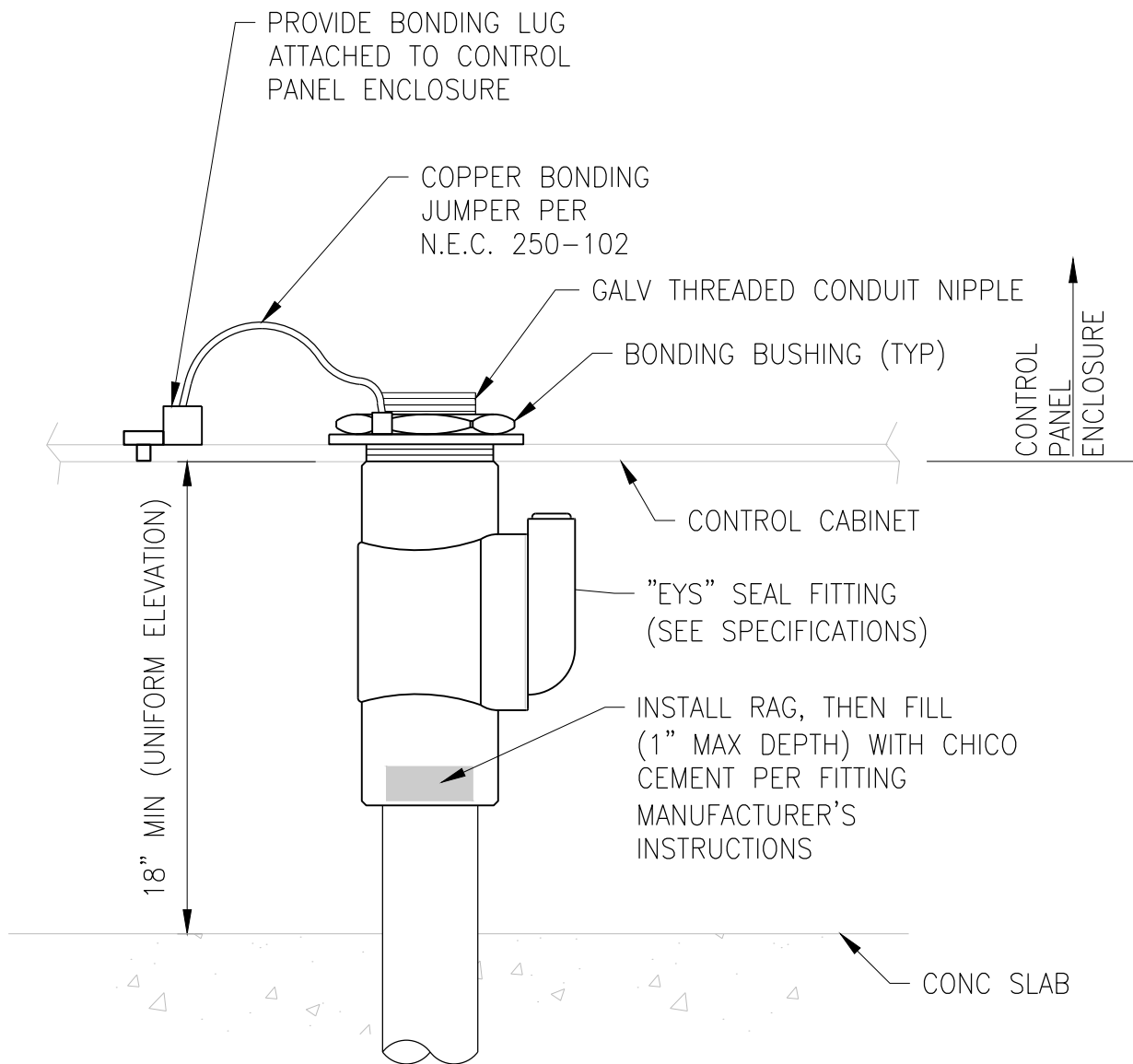


LS-17A

STANDARD UTILITY DETAILS			CONTROL PANEL & ANTENNA INSTALLATION		
				DATE APPROVED	DETAIL NUMBER LS-17A
				9/28/17	
				GROUP	
	NO.	DATE	REVISION	LIFT STATION	

File name: C:\Civil 3D Projects\224-002.00 CSD Standard Details\01_Working\04-Liftstation\224-002.00_LIFTSTATION DTLs; Plotted @: 10/4/2017 3:39:13 PM; Milestone: FINAL SUBMITTAL

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CABINET CONDUIT PENETRATION

LS-18

STANDARD UTILITY DETAILS

CABINET CONDUIT PENETRATION

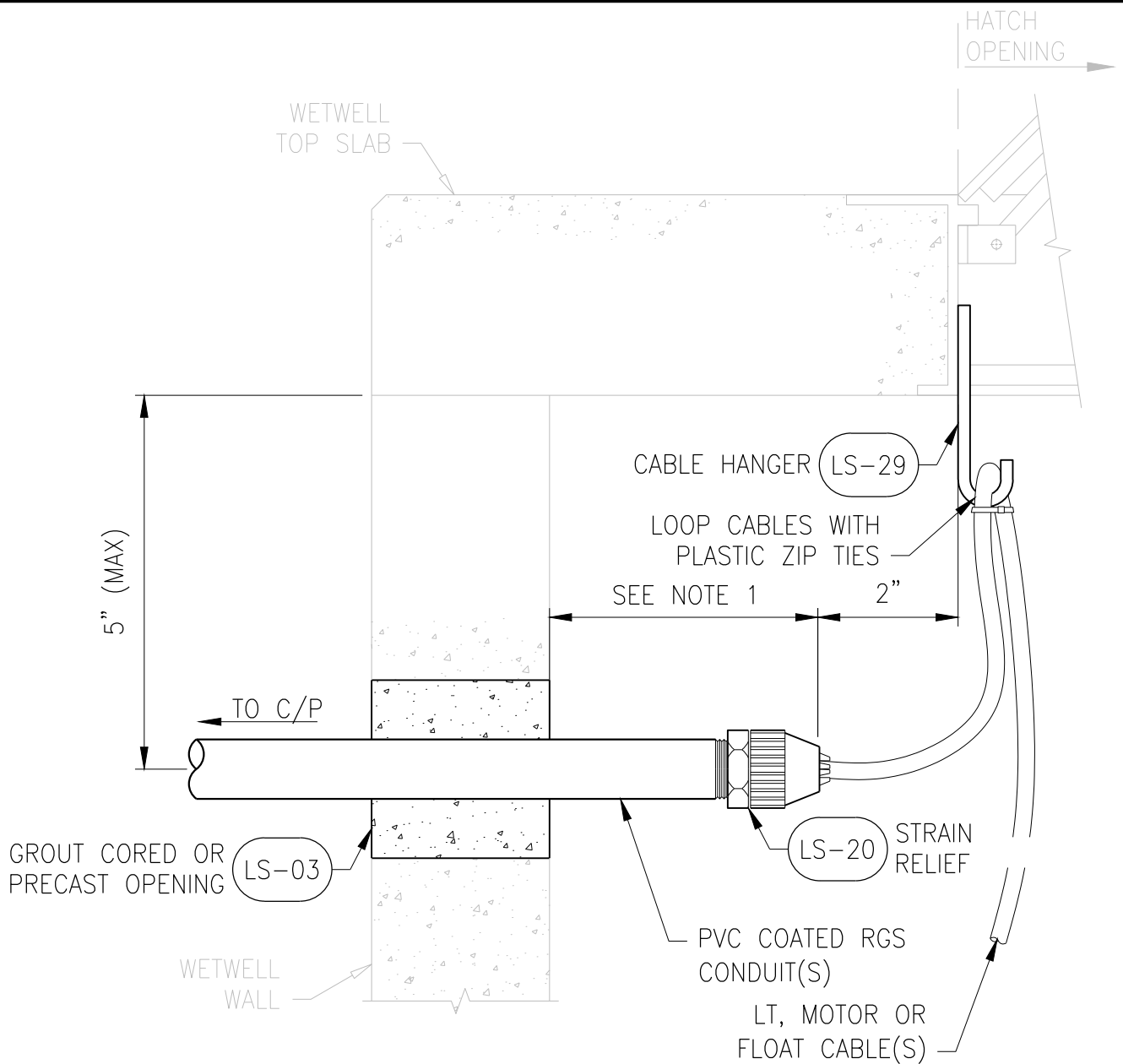


NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-18



NOTES:

1. LENGTH FIELD VERIFIED TO TERMINATE UNIFORMLY 2" FROM OPEN HATCH.
2. ALL CABLES LOOPED ONTO CABLE HANGER.

CONDUIT TERMINATION (WETWELL)

LS-19

STANDARD UTILITY DETAILS

CONDUIT TERMINATION (WETWELL)

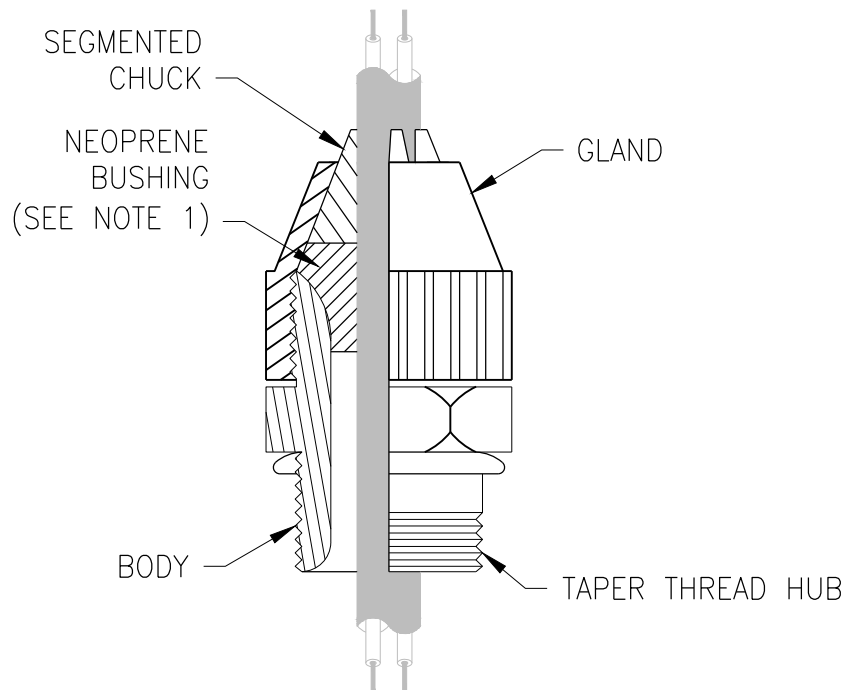


NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-19



NOTES:

1. BUSHING SELECTION BASED ON BEST FIT FOR FIELD MEASURED CORD DIAMETER, ONE CORD PER CONNECTOR.
2. HUB AND THROAT DIAMETER SELECTION BASED ON CORD RANGE SELECTED IN NOTE 1.
3. THOMAS & BETTS BLACK BEAUTY SERIES, STRAIGHT LIQUID TIGHT CORD CONNECTORS OR EQUAL.
4. SEE DRAWINGS AND DETAILS FOR INSTALLATION LOCATIONS.

STRAIN RELIEF

LS-20

STANDARD UTILITY DETAILS

STRAIN RELIEF



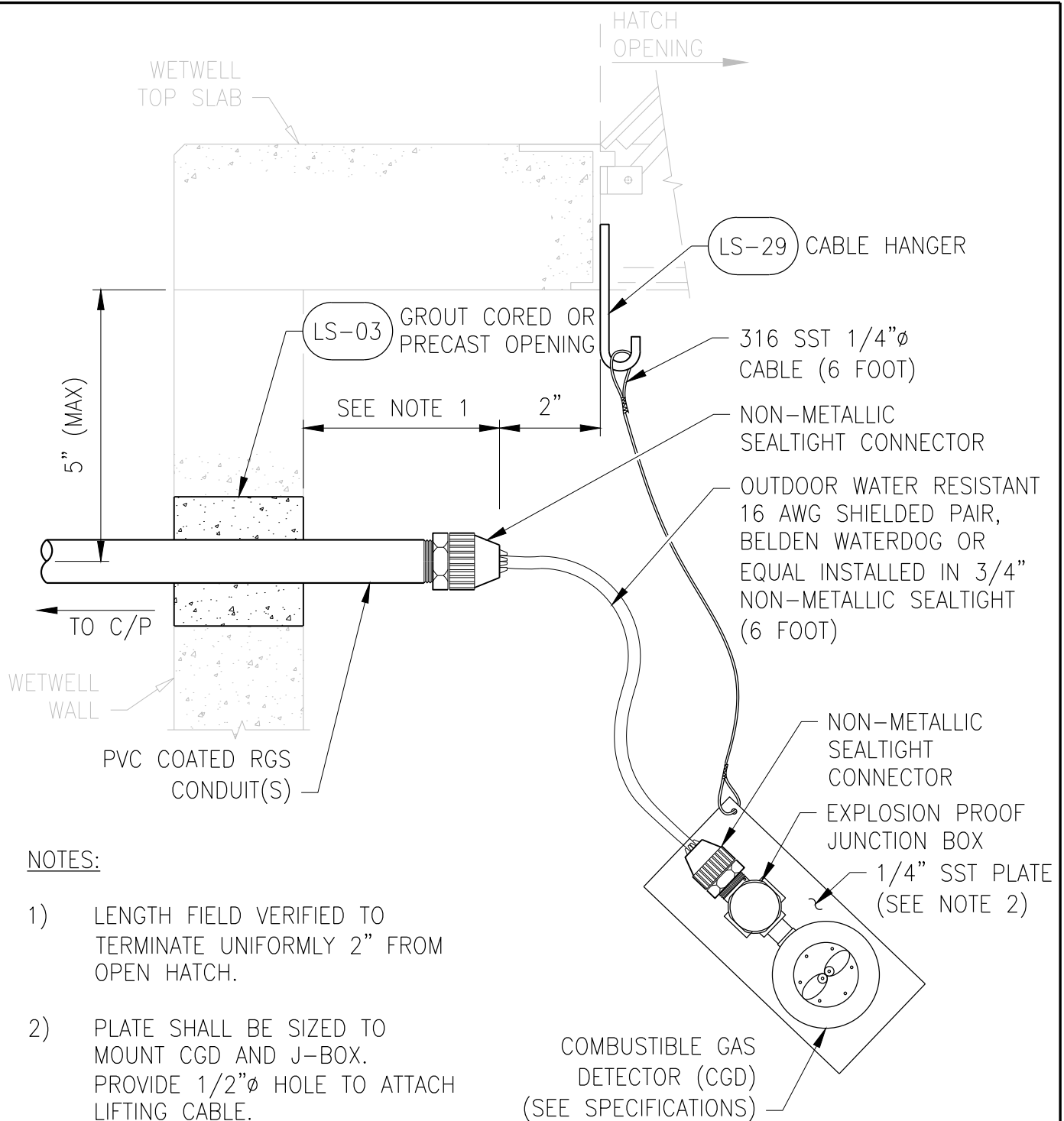
NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-20

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CGD (COMBUSTIBLE GAS DETECTOR) INSTALLATION LS-21

STANDARD UTILITY DETAILS

CGD (COMBUSTIBLE GAS DETECTOR) INSTALLATION



NO.	DATE

	REVISION

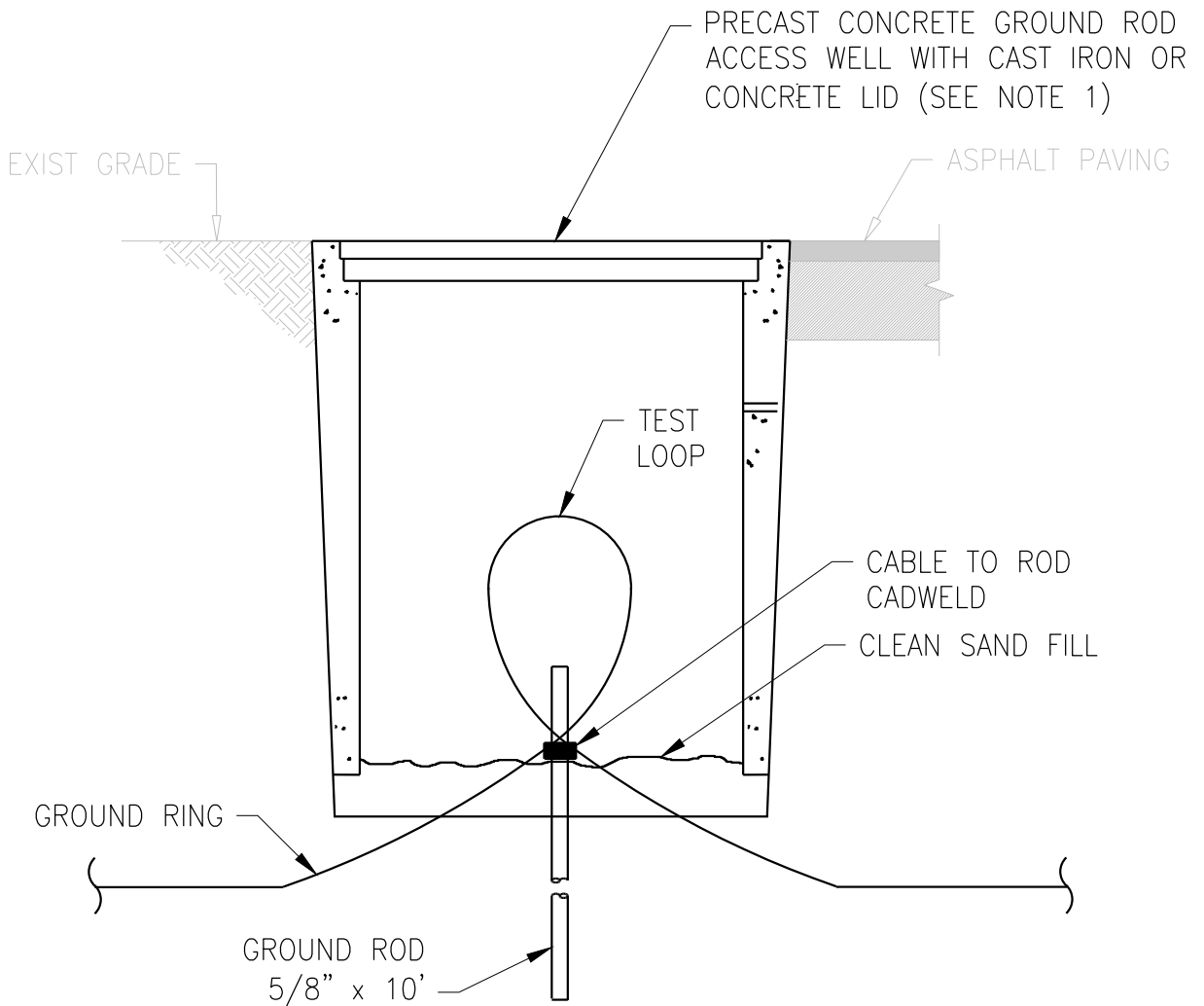
DATE APPROVED	9/28/17
GROUP	
LIFT STATION	

DETAIL NUMBER	LS-21
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NOTES:

1. MINIMUM DIAMETER IS 8-1/2" BY MINIMUM 11-3/4" DEEP.
MANUFACTURED BY OLD CASTLE PRECAST, INC., OR EQUAL.



GROUND ROD WITH ACCESS

LS-22

STANDARD UTILITY DETAILS

GROUND ROD WITH ACCESS



NO.	DATE

REVISION

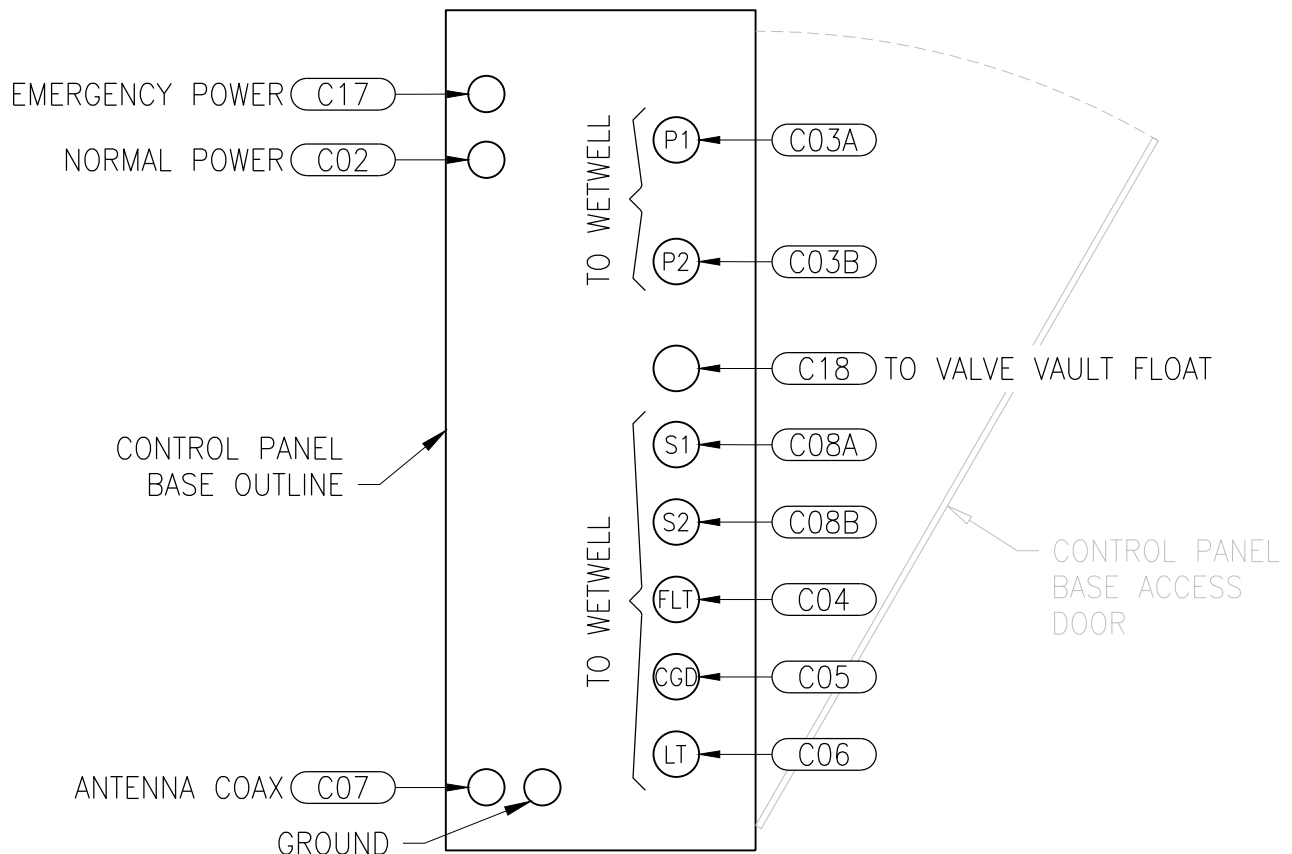
DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-22

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NOTES:

1. LAYOUT IS SCHEMATIC, CONTRACTOR TO FIELD VERIFY TO PROPERLY FIT SEAL OFF FITTINGS.
2. COORDINATE CONDUIT SIZES WITH DETAIL #DG-04.
3. CONDUITS S1 AND S2 SHALL INCLUDE SEAL FAILURE AND THERMAL WIRES FROM EACH PUMP.



CONDUIT LAYOUT PLAN AT CONTROL PANEL

LS-23

STANDARD UTILITY DETAILS

CONDUIT LAYOUT PLAT AT CONTROL PANEL



NO.	DATE
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REVISION

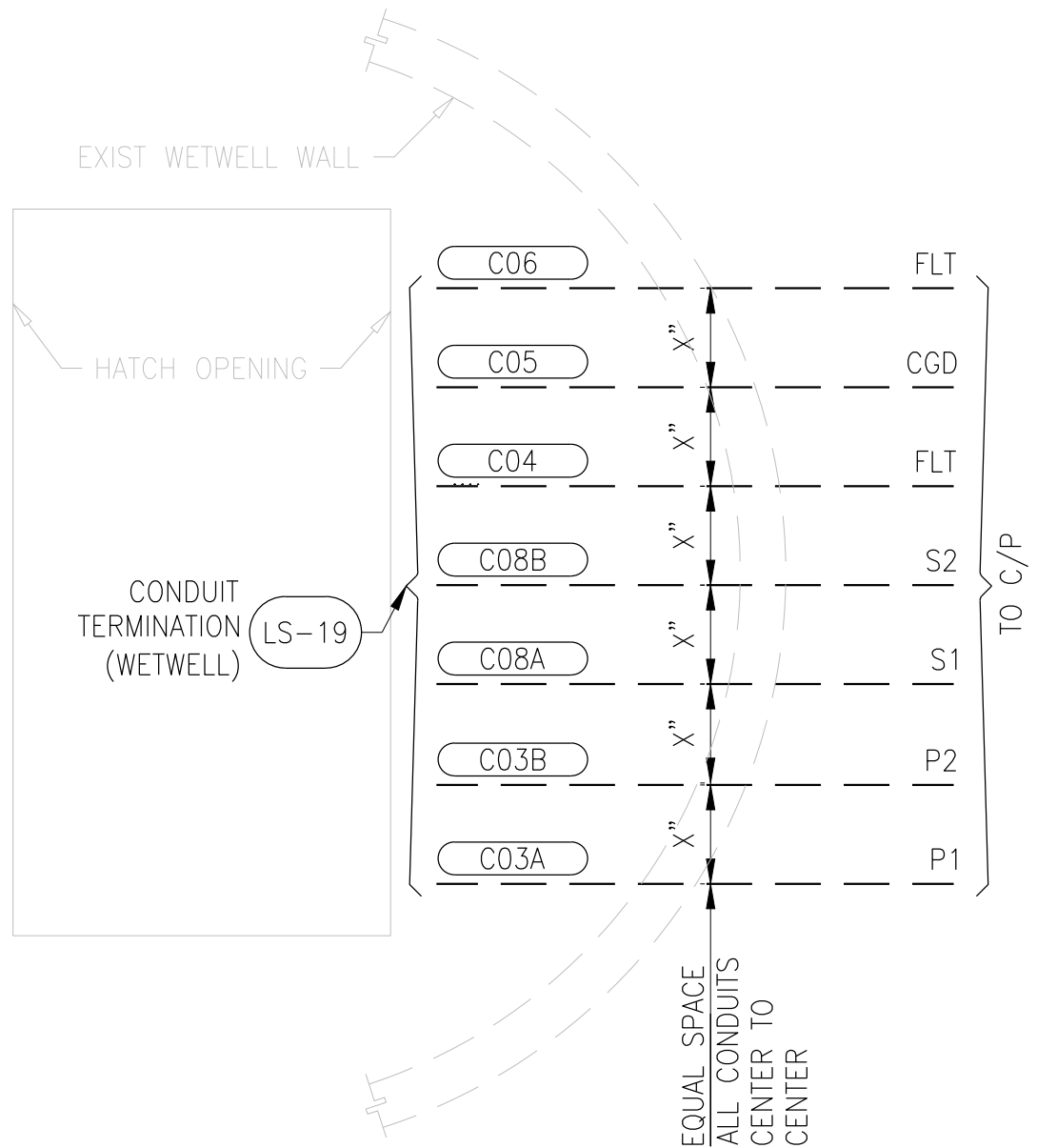
DATE APPROVED 9/28/17
GROUP LIFT STATION

DETAIL NUMBER LS-23

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NOTES:

1. LAYOUT IS SCHEMATIC, CONTRACTOR TO FIELD VERIFY TO PROPERLY FIT STRAIN RELIEF FITTINGS.
2. COORDINATE CONDUIT SIZES WITH DETAIL #DG-04.



CONDUIT LAYOUT PLAN AT WETWELL

LS-24

STANDARD UTILITY DETAILS

CONDUIT LAYOUT PLAN AT WETWELL



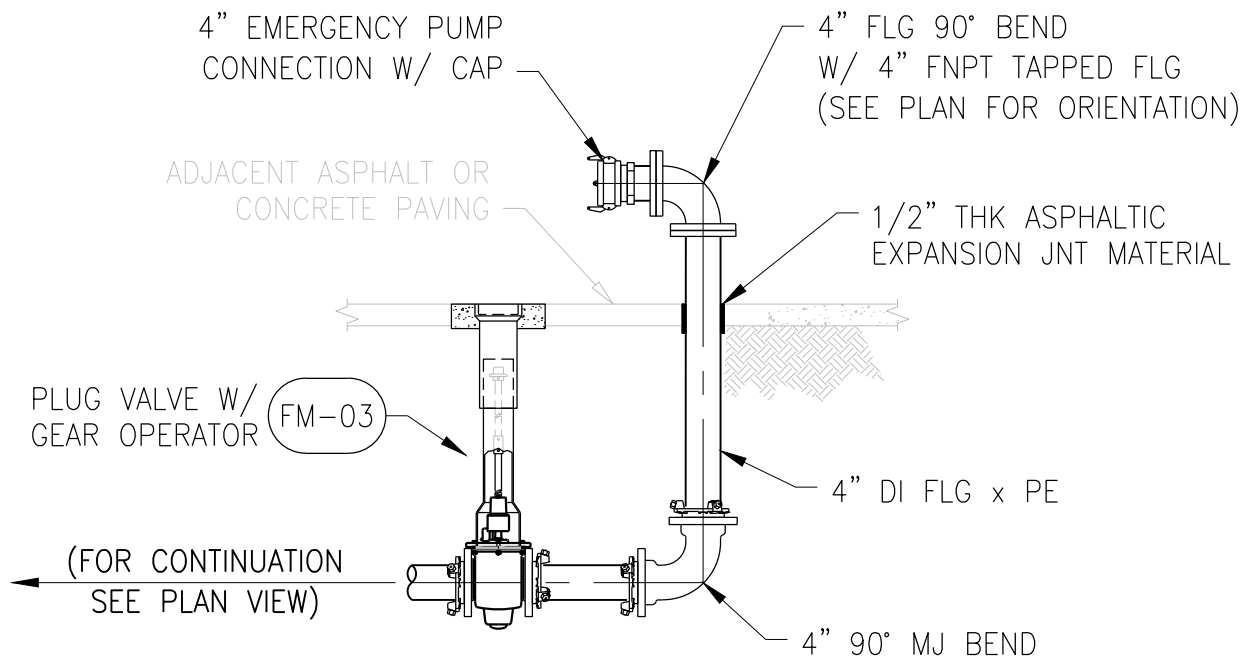
NO.	DATE
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REVISION

DATE APPROVED 9/28/17
GROUP LIFT STATION

DETAIL NUMBER LS-24

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PUMP OUT DISCHARGE CONNECTION

LS-26A

STANDARD UTILITY DETAILS

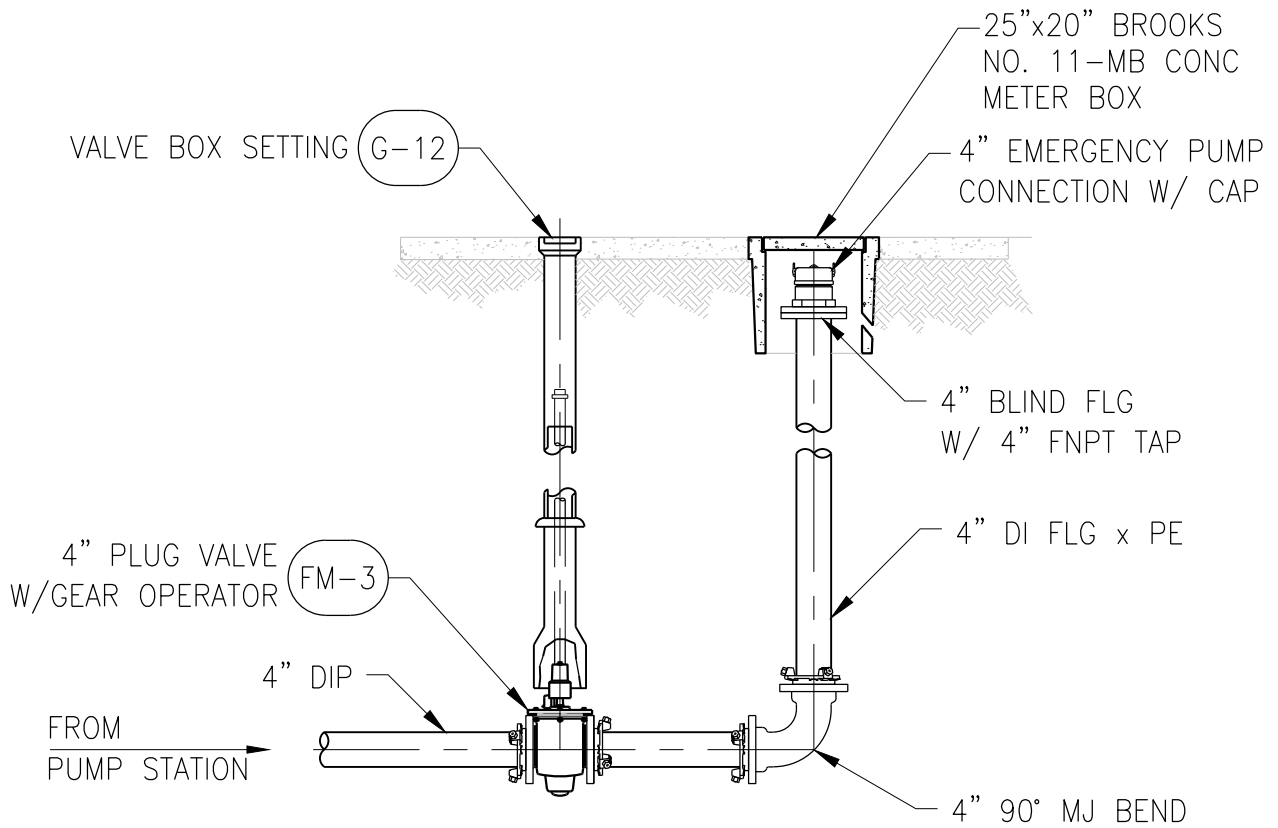
PUMP OUT DISCHARGE CONNECTION



NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-26A



PUMP OUT DISCHARGE CONNECTION

LS-26B

STANDARD UTILITY DETAILS

PUMP OUT DISCHARGE CONNECTION



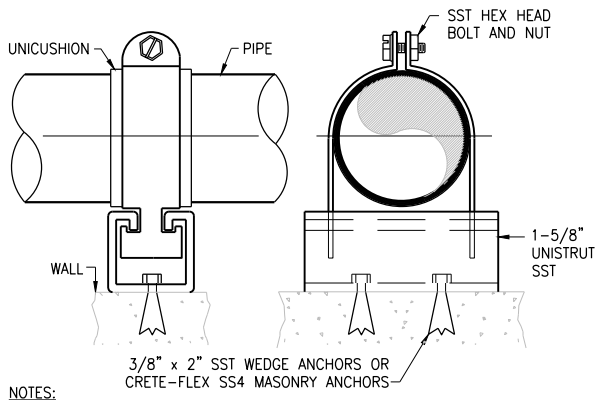
NO.	DATE	REVISION	

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-26B

					
				DATE APPROVED	
				9/28/17	
				GROUP	
NO.		DATE		LIFT STATION	
		REVISION			

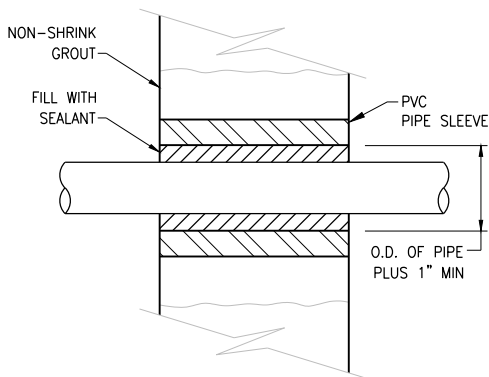
STANDARD UTILITY DETAILS		6-INCH CONCRETE SLAB DETAIL	



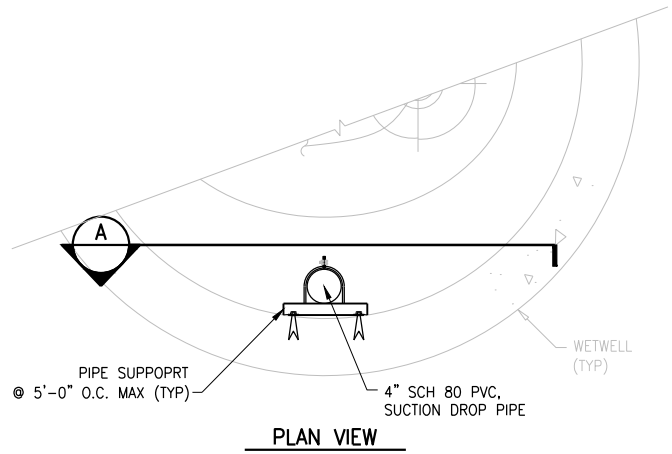
NOTES:

- 1) PIPING SUPPORTS SHALL BE AS SPECIFIED.

PIPE SUPPORT



PIPE SLEEVE



NOTES:

- 1) ALL FASTENING HARDWARE SHALL BE TYPE 316 SST.
- 2) SST PIPE STRUT AND CLAMPS SHALL BE AS SPECIFIED.
- 3) MINIMUM 12" ABOVE INVERT PIPE.

ELEVATION

PUMP OUT SUCTION

LS-28

STANDARD UTILITY DETAILS

PUMP OUT SUCTION

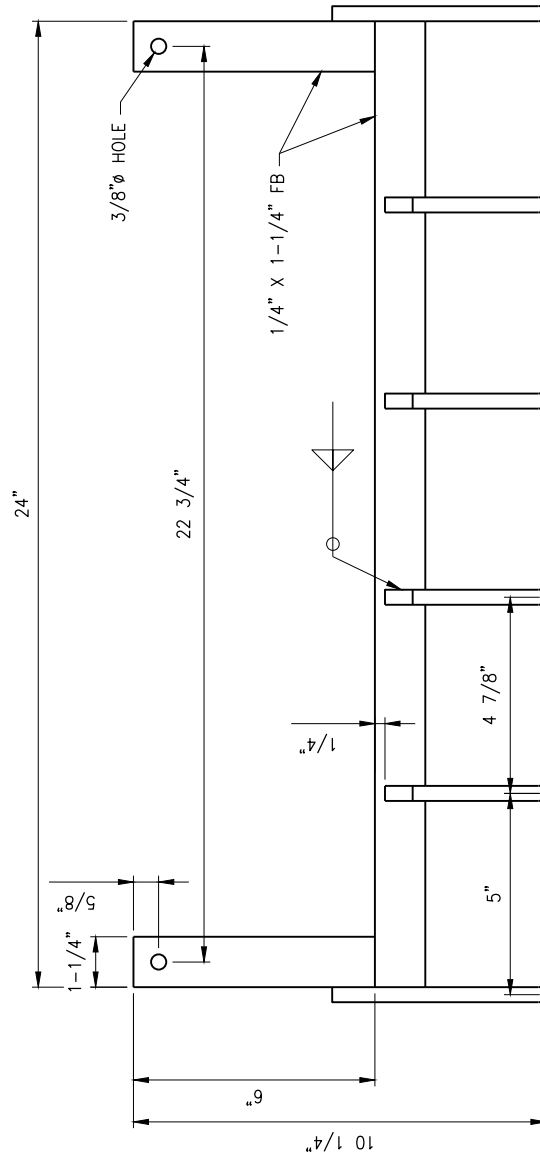


NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-28



NOTES:

- 1) MATERIAL: 316 STAINLESS STEEL
- 2) PROVIDED BY PUMP SUPPLIER.

MIDDLE HOOKS (TYP OF 4)

END HOOKS (TYP OF 4)

CABLE HANGER

LS-29

STANDARD UTILITY DETAILS

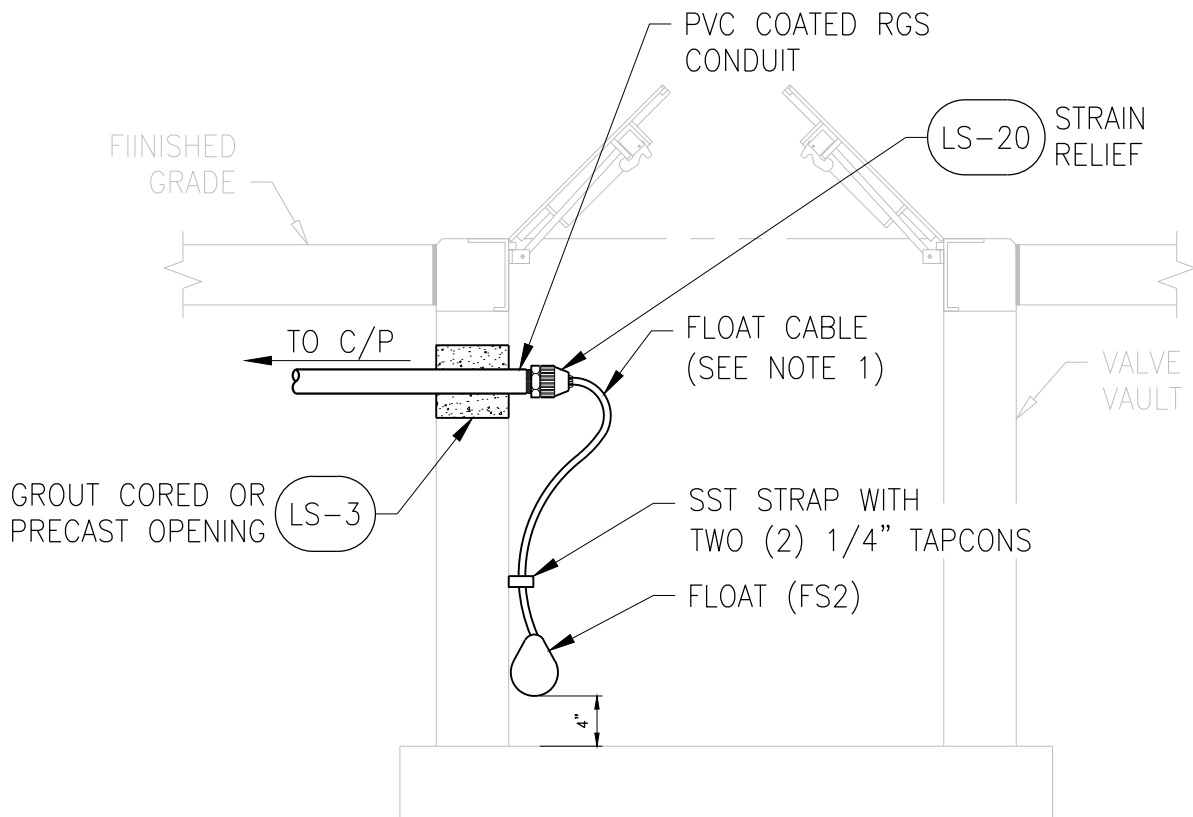
CABLE HANGER



NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

DETAIL NUMBER
LS-29



NOTES:

- 1) INSTALL CABLE HANGER (LS-29) ADJACENT TO THE STRAIN RELIEF. FIELD VERIFY EXACT LOCATION WITH CITY PERSONNEL. LOOP CABLES AROUND CABLE HANGER AND SECURE WITH ZIP TIES, THEN SECURE FLOAT CABLE BEHIND SST STRAP. FLOAT TO BE 4" FROM FLOOR.

VALVE VAULT FLOAT

LS-30

STANDARD UTILITY DETAILS

VALVE VAULT FLOAT

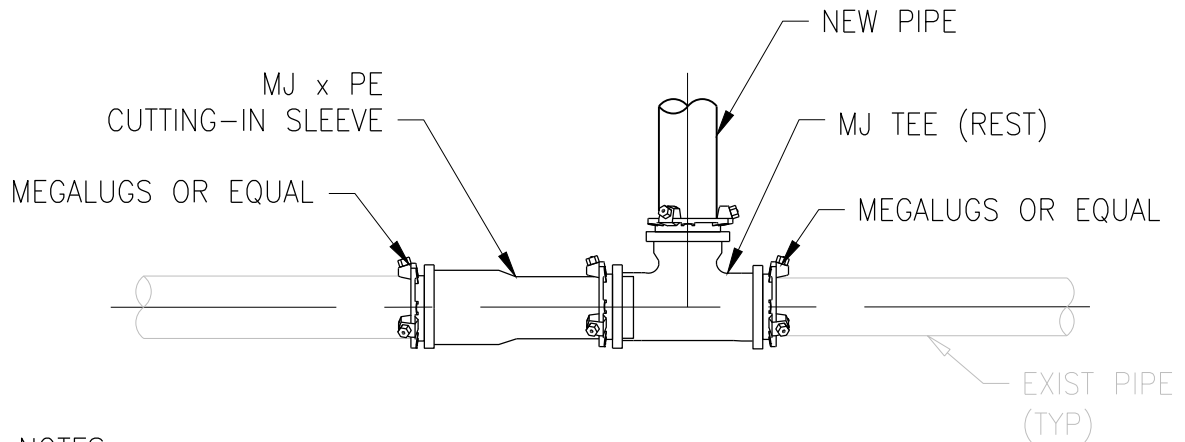


NO.	DATE

	REVISION

DATE APPROVED
9/28/17
GROUP
LIFT STATION

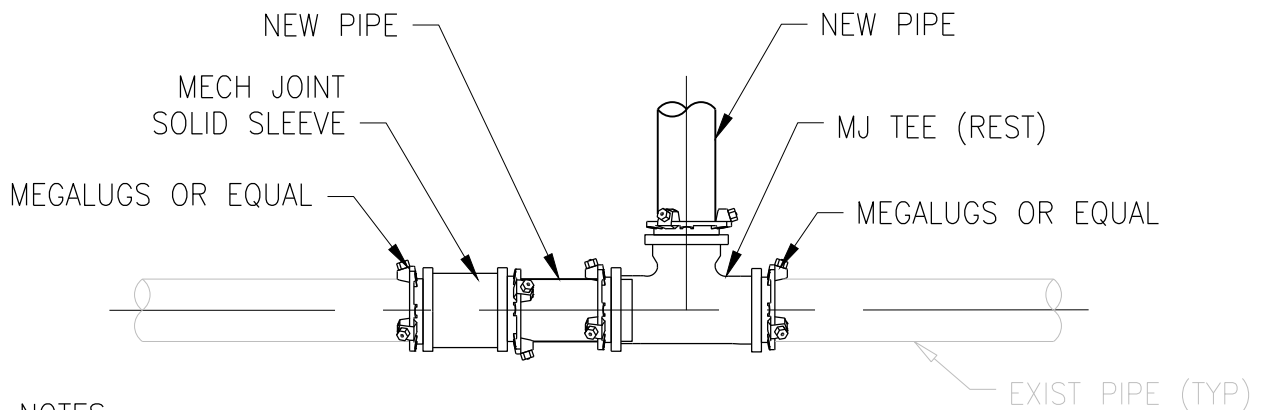
DETAIL NUMBER
LS-30



NOTES:

- 1) MEGALUGS OR EQUAL ARE REQUIRED THROUGHOUT THE ASSEMBLY.

FORCE MAIN CUT-IN (DUCTILE IRON MJ < 12")



NOTES:

- 1) MEGALUGS OR EQUAL ARE REQUIRED THROUGHOUT THE ASSEMBLY.

FORCE MAIN CUT-IN (DUCTILE IRON MJ > 14")

FORCEMAIN CUT IN CONNECTION

FM-01

STANDARD UTILITY DETAILS

FORCEMAIN CUT IN CONNECTION



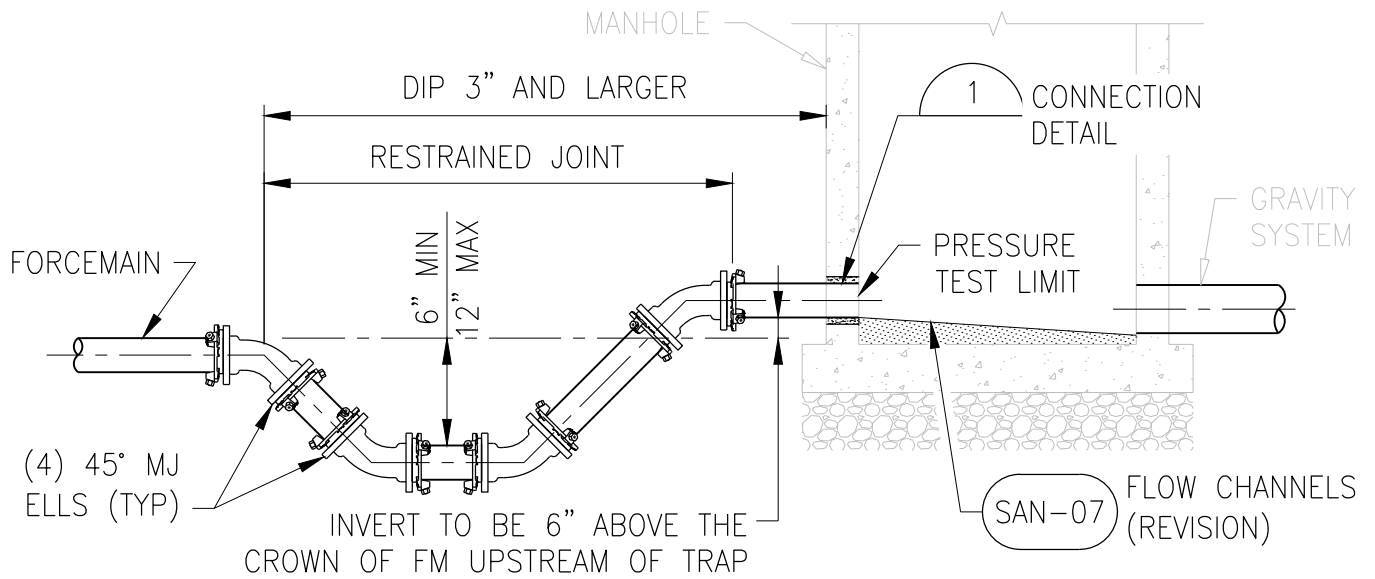
NO.	DATE

REVISION

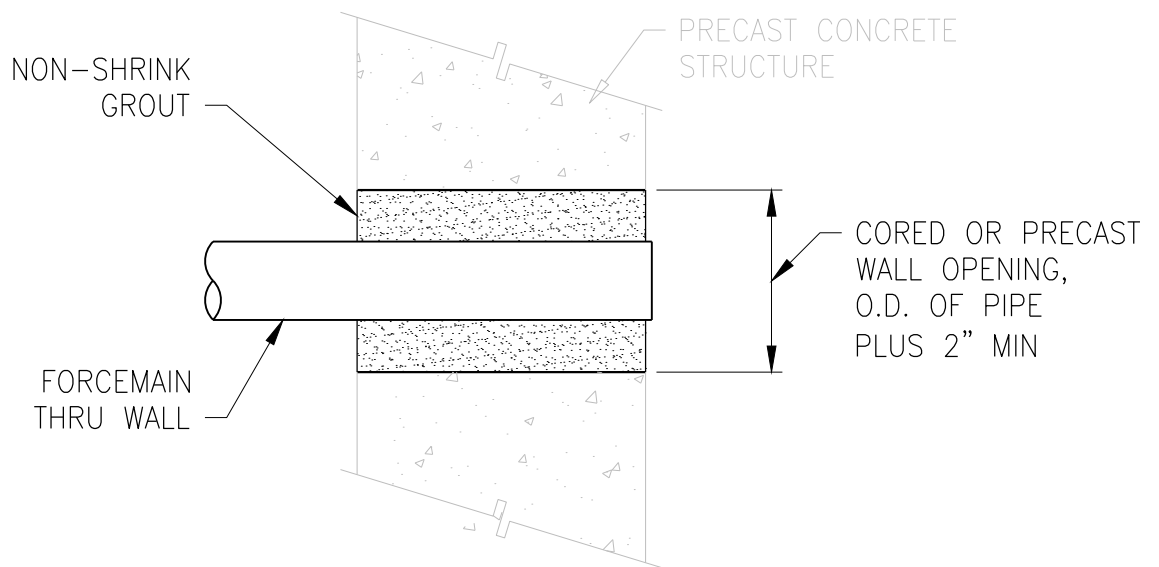
DATE APPROVED
9/28/17
GROUP
FORCEMAIN

DETAIL NUMBER
FM-01

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FORCE MAIN CONNECTION TO MANHOLE



CONNECTION DETAIL (DIP)

1

FORCEMAIN CONNECTION TO MANHOLE

FM-02

STANDARD UTILITY DETAILS

FORCEMAIN CONNECTION TO MANHOLE

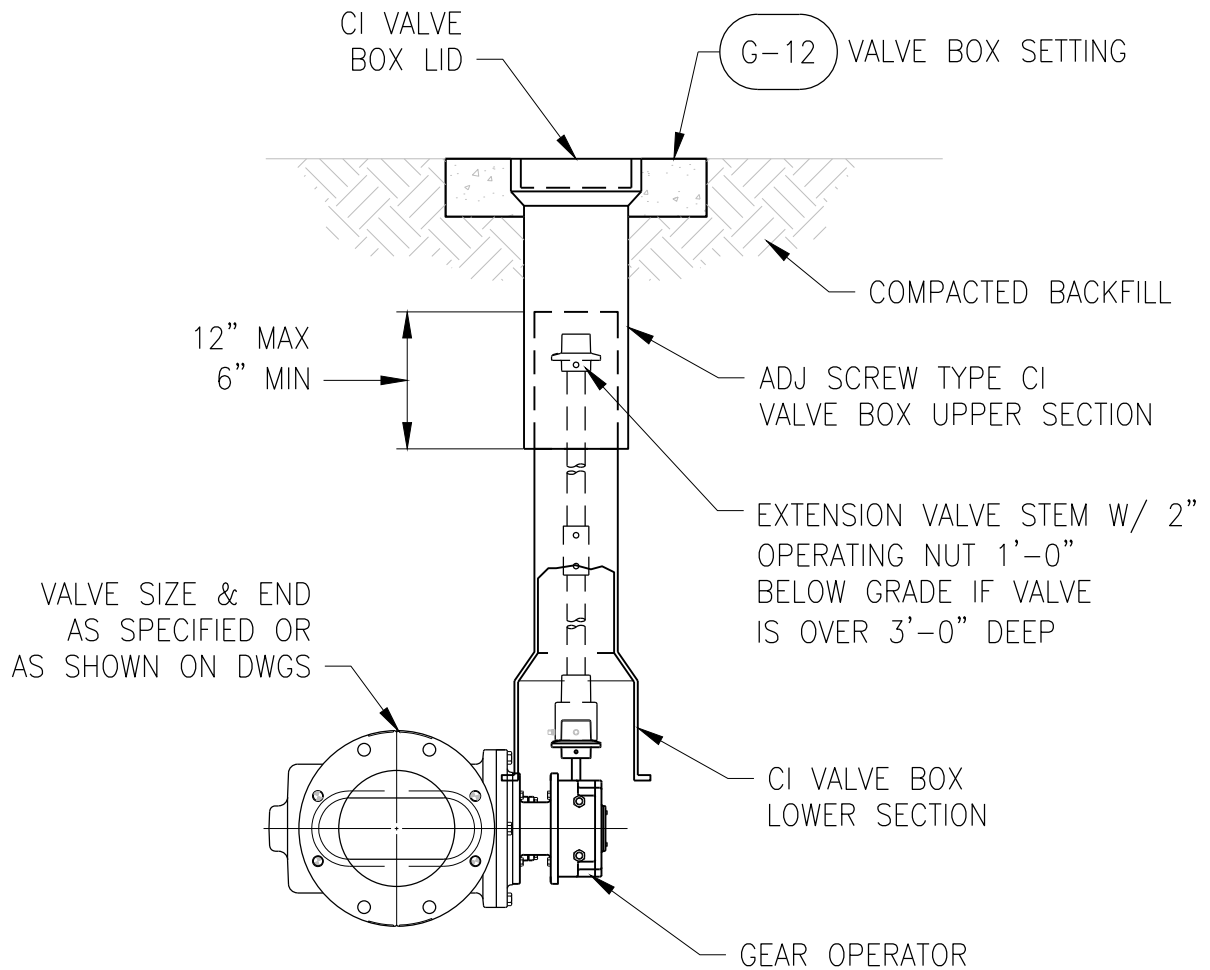


NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
FORCEMAIN

DETAIL NUMBER
FM-02

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PLUG VALVE WITH GEAR OPERATOR

FM-03

STANDARD UTILITY DETAILS

PLUG VALVE WITH GEAR OPERATOR



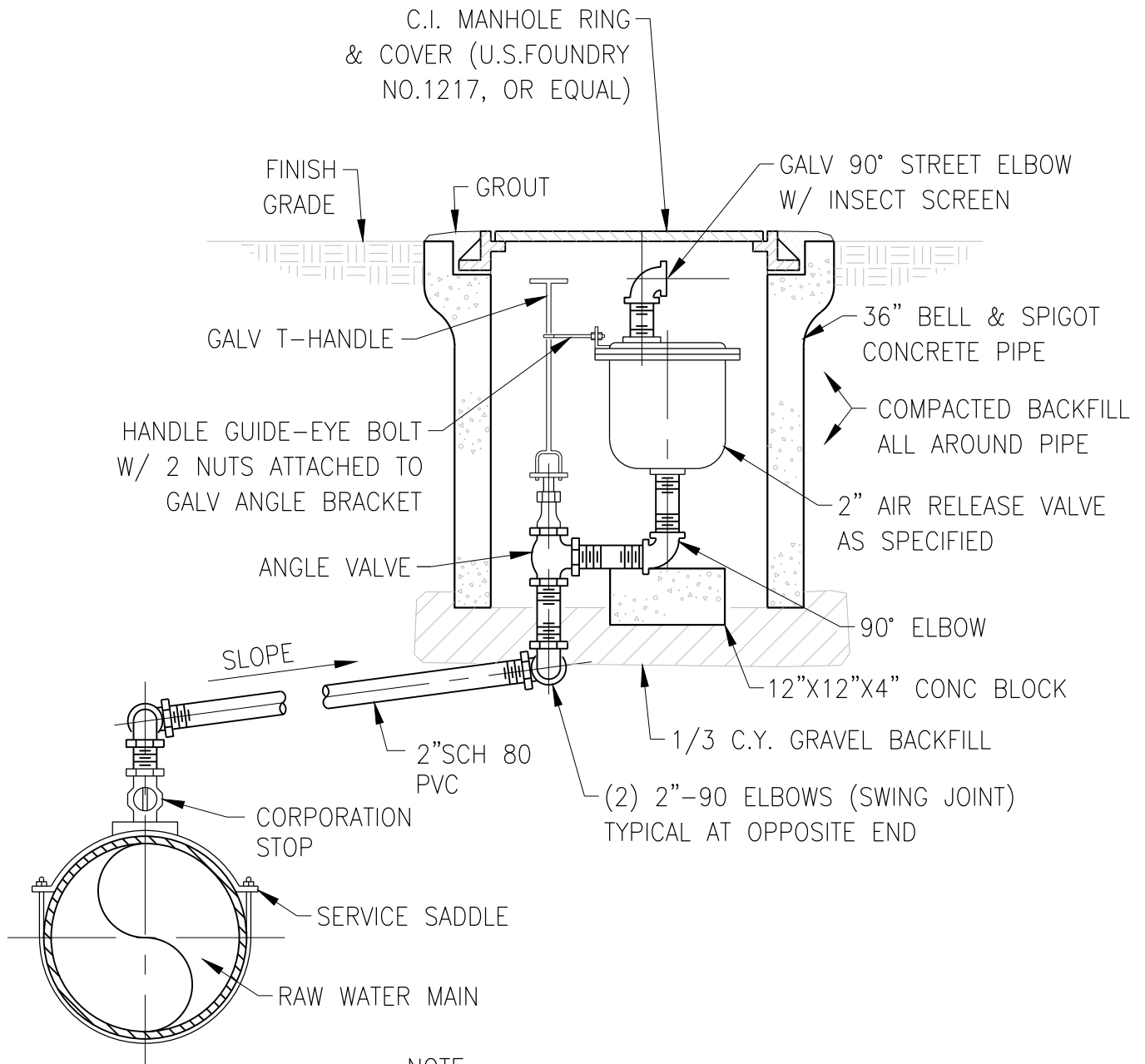
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REVISION

DATE APPROVED
9/28/17
GROUP
FORCEMAIN

DETAIL NUMBER
FM-03

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NOTE:

- 1) CORP STOP, ANGLE VALVE, PIPING & ETC TO MATCH RELEASE VALVE DIAMETER.

AUTOMATIC AIR RELEASE REMOTE INSTALLATION TYPE A

FM-04

STANDARD UTILITY DETAILS

AUTOMATIC AIR RELEASE REMOTE INSTALLATION TYPE A

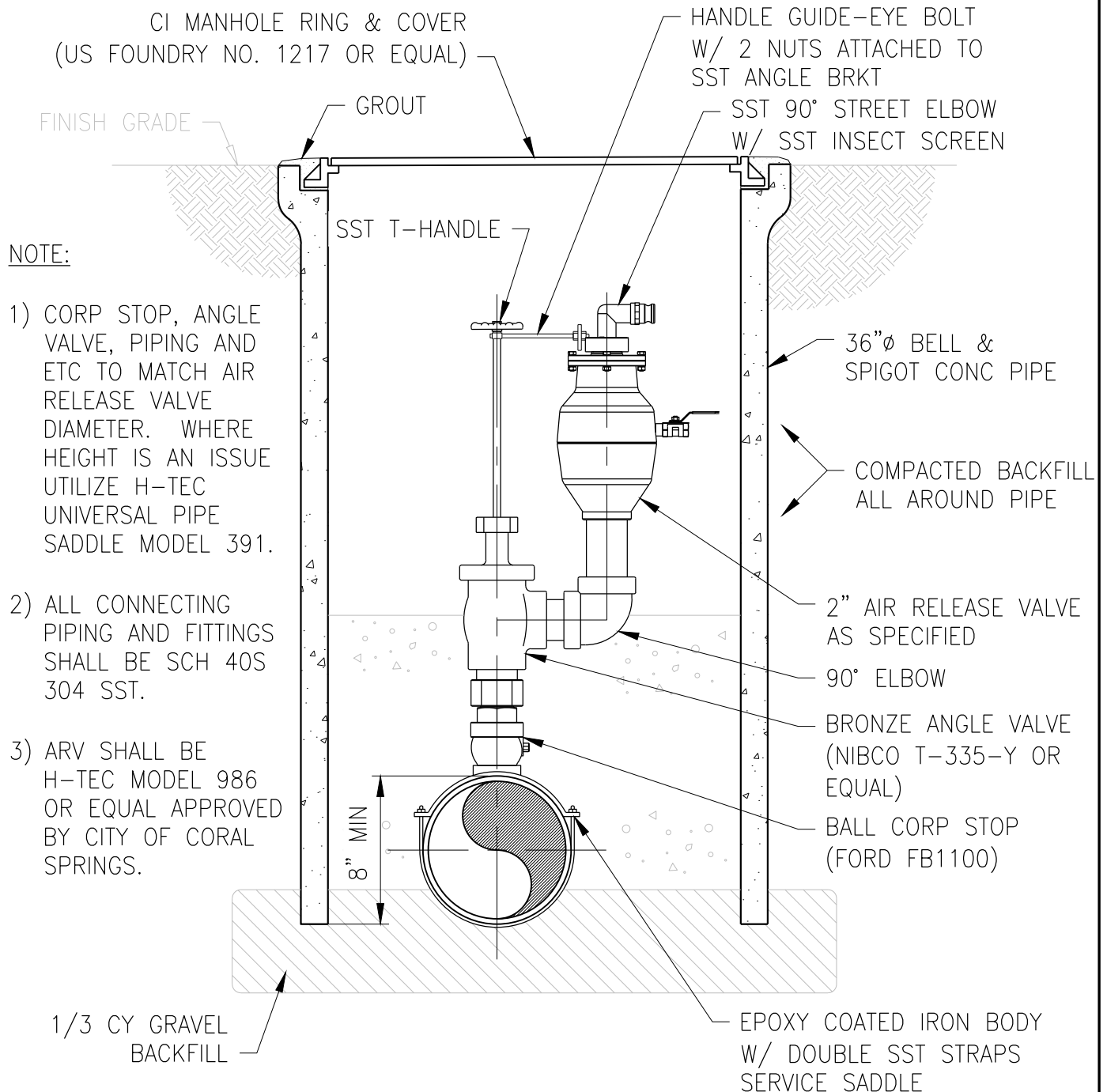


NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
FORCEMAIN

DETAIL NUMBER
FM-04

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AUTOMATIC AIR RELEASE (MOUNT ABOVE PIPE)

FM-05

STANDARD UTILITY DETAILS

AUTOMATIC AIR RELEASE (MOUNT ABOVE PIPE)

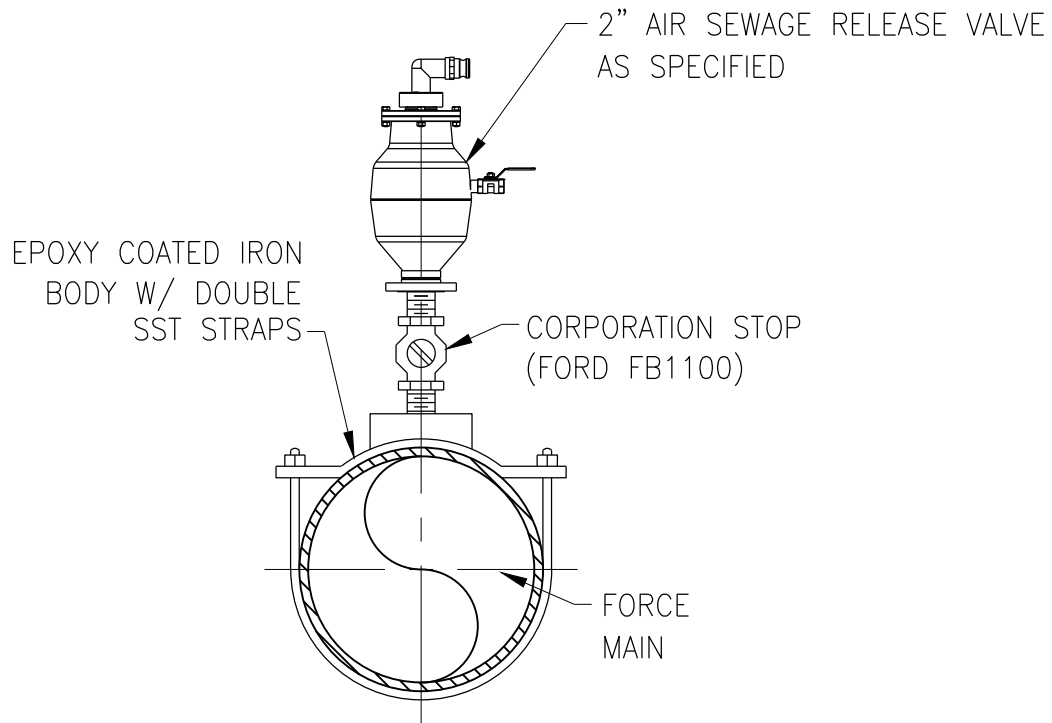


NO.	DATE

REVISION

DATE APPROVED 9/28/17
GROUP FORCEMAIN

DETAIL NUMBER FM-05



NOTE:

- 1) CORP STOP, PIPING AND ETC TO MATCH AIR RELEASE VALVE DIAMETER.
- 2) ALL CONNECTING PIPING AND FITTINGS SHALL BE SCH 40S 304 SST.
- 3) ARV SHALL BE H-TECH MODEL 986 OR EQUAL APPROVED BY CITY OF CORAL SPRINGS.

(AERIAL CROSSING ONLY)

AUTOMATIC AIR RELEASE (DIRECT MOUNT TO PIPE) FM-06

STANDARD UTILITY DETAILS

AUTOMATIC AIR RELEASE (DIRECT MOUNT TO PIPE)

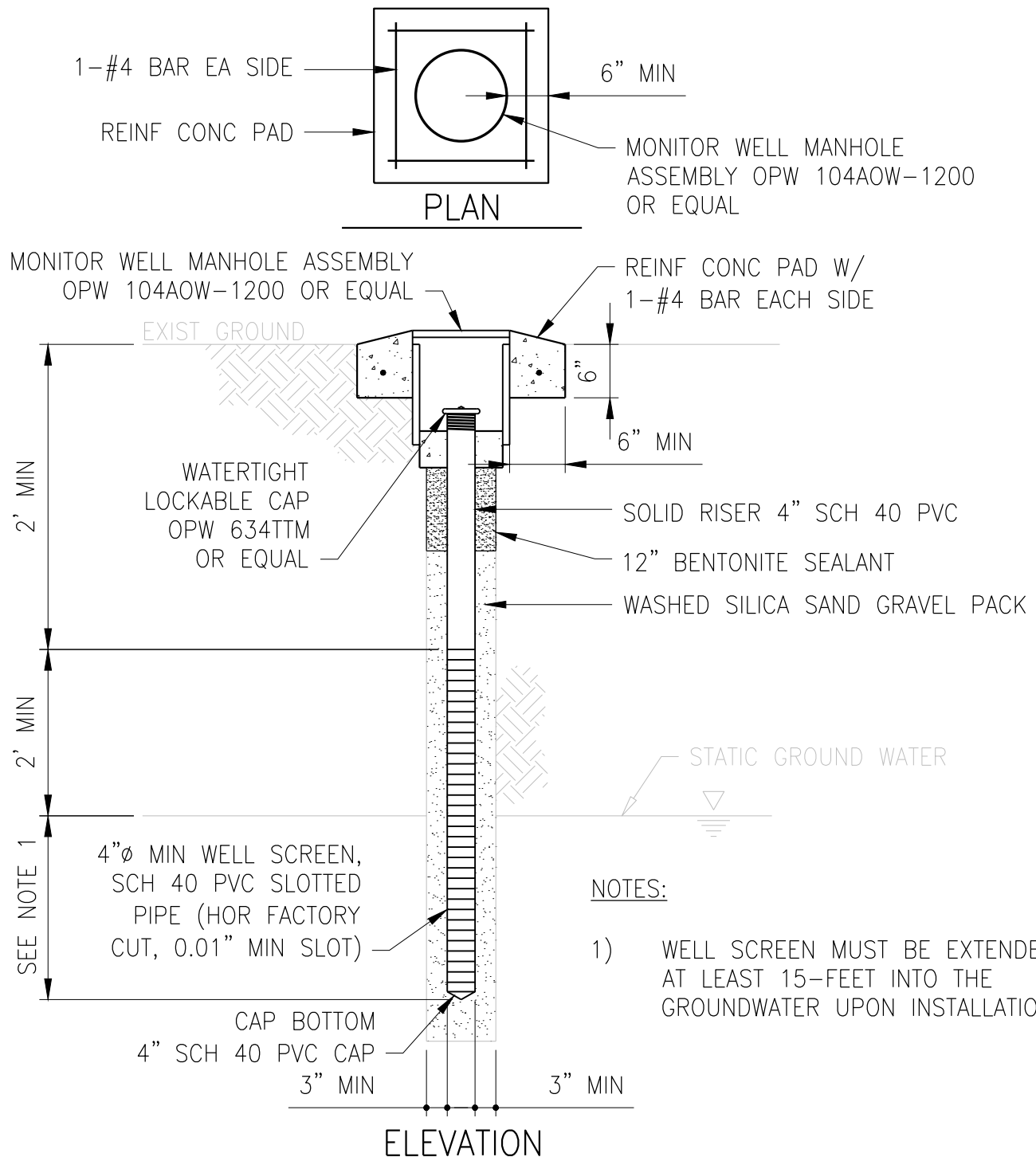


NO.	DATE	REVISION

DATE APPROVED
9/28/17
GROUP
FORCEMAIN

DETAIL NUMBER
FM-06

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MONITOR WELL

MSC-01

STANDARD UTILITY DETAILS

MONITOR WELL



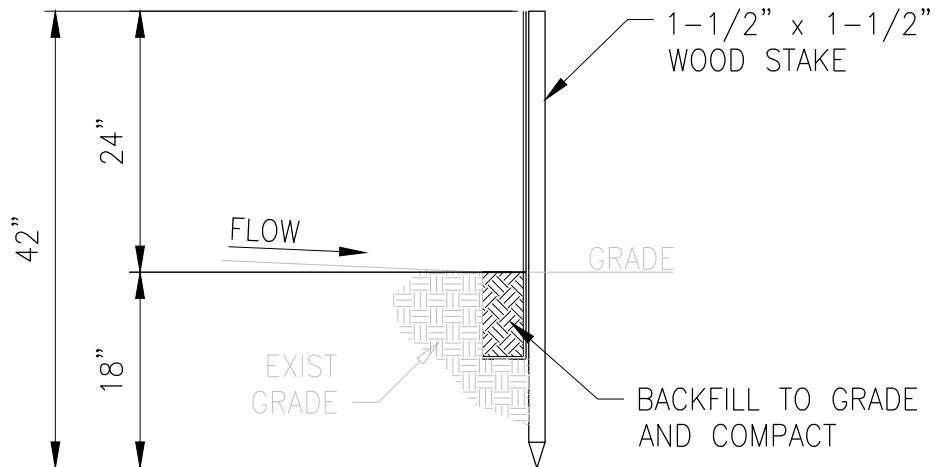
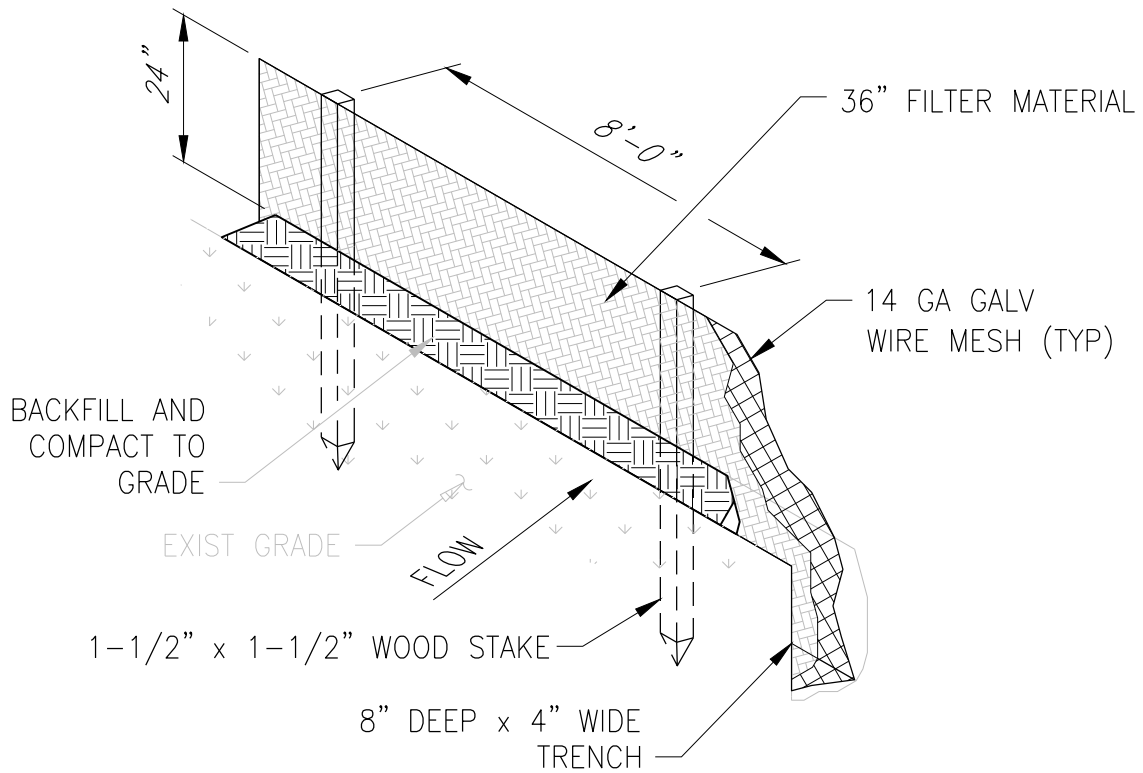
NO.	DATE

	REVISION

DATE APPROVED
9/28/17
GROUP
MISCELLANEOUS

DETAIL NUMBER
MISC-01

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SILT FENCE BARRIER INSTALLATION

MISC-02

STANDARD UTILITY DETAILS

SILT FENCE BARRIER INSTALLATION



NO.	DATE

	REVISION

DATE APPROVED
9/28/17
GROUP
MISCELLANEOUS

DETAIL NUMBER
MISC-02

File name: C:\Civil 3D Projects\224-002.00 CSID Standard Details\01_Working\06-Miscellaneous\224-002.00_MISC DTLS; Plotted @: 10/4/2017 3:39:58 PM; Milestone: FINAL SUBMITTAL

NOTE:

SPACINGS SHOWN IN THIS CHART ARE BASED ON GENERALIZED CONDITIONS AND SHOULD BE ADJUSTED BASED ON ACTUAL SITE PERFORMANCE OR HYDRAULIC COMPUTATIONS.

FLOW RATES (CFS)

VERY LIGHT	< 5
LIGHT	> 5 < 10
MODERATE	> 10 < 15
HEAVY	> 15 < 25
VERY HEAVY	> 25 < 40

SOILS

<u>COHESIVE</u>	<u>NON - COHESIVE</u>
FIRM LOAM	FINE SAND
CLAY SANDS	COURSE SAND
CLAYS	GRAVELS
HARDPANS	SANDY LOAM
	SILT LOAM

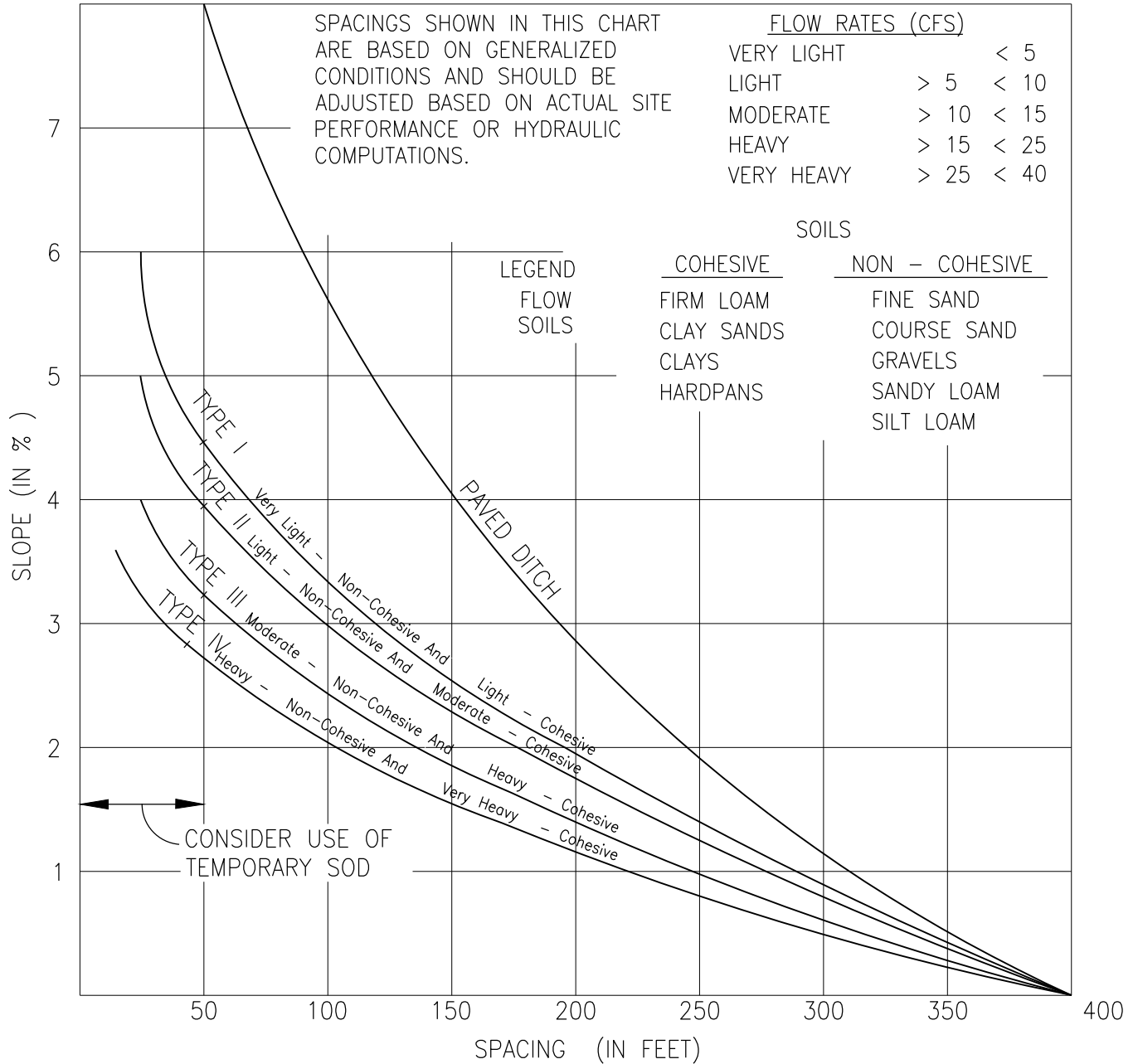


CHART I

RECOMMENDED SPACING FOR TYPE I AND TYPE II HAY BALE BARRIERS, AND TYPE III AND TYPE IV SILT FENCES AND PAVED DITCH HAY BALE BARRIERS

SPACING FOR SILT FENCES & HAY BALES

MISC-03

STANDARD UTILITY DETAILS

SPACING FOR SILT FENCES AND HAY BAILES



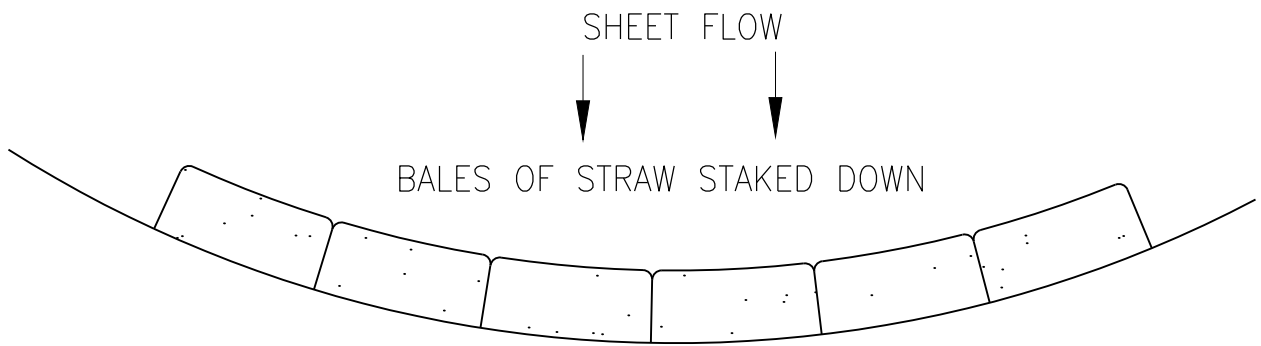
NO.	DATE

REVISION

DATE APPROVED 9/28/17
GROUP MISCELLANEOUS

DETAIL NUMBER
MISC-03

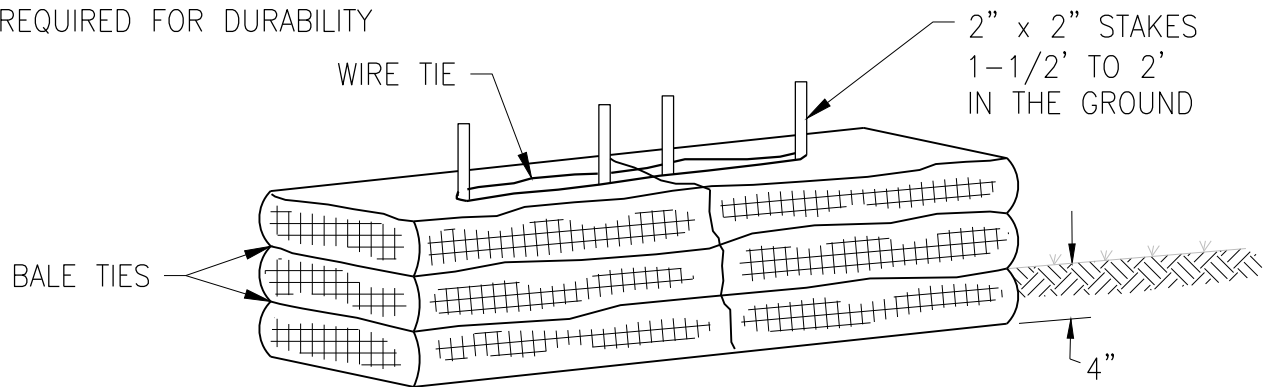
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SINGLE ROW OF BALES OF STRAW TO BE PLACED PRIOR TO THE START OF ROUGH GRADING.

PLAN VIEW

SECURELY BOUND BALES
REQUIRED FOR DURABILITY



ANCHORING BALES

HAY BALE BARRIER

MISC-04

STANDARD UTILITY DETAILS

HAY BALE BARRIER



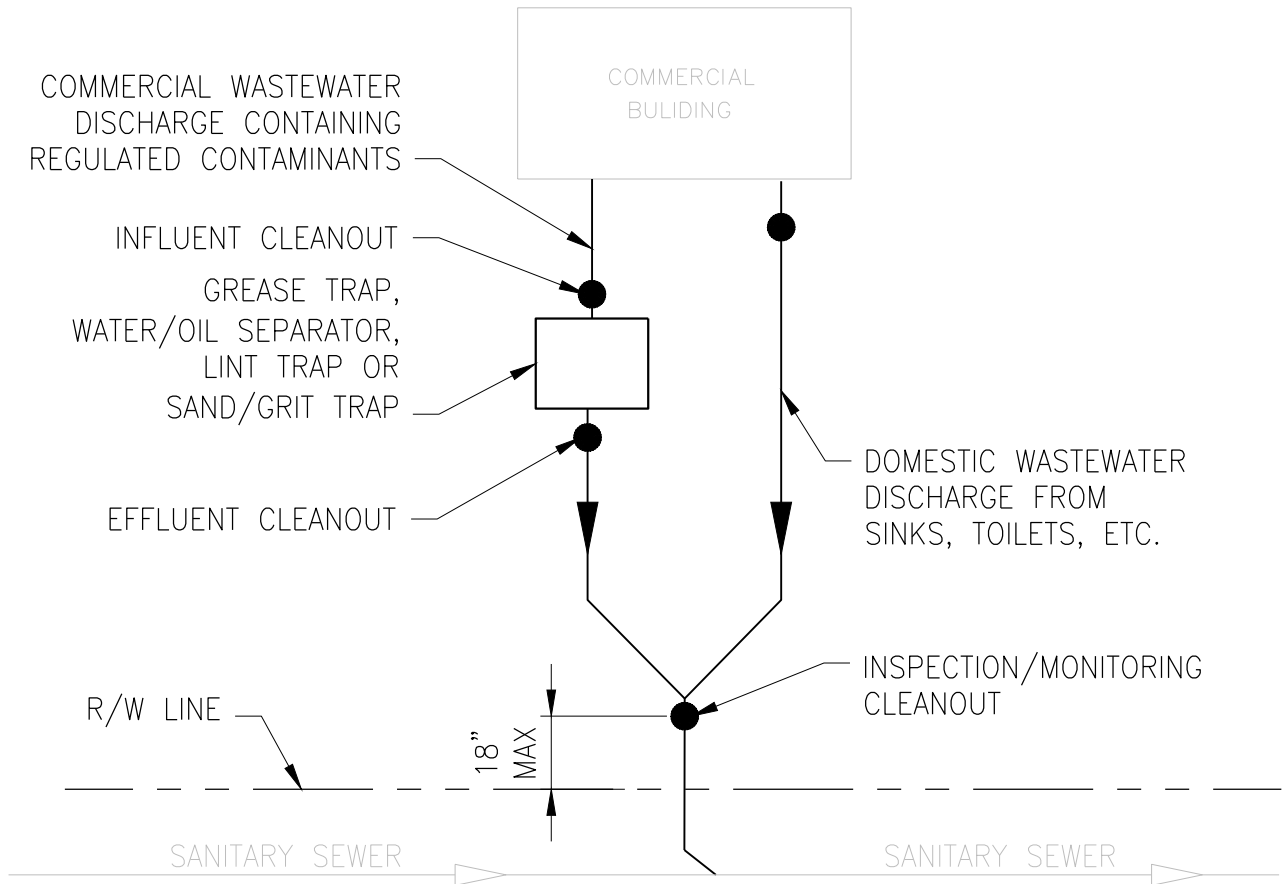
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REVISION

DATE APPROVED 9/28/17
GROUP MISCELLANEOUS

DETAIL NUMBER
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INSPECTION AND MONITORING REQUIREMENTS MISC-05

STANDARD UTILITY DETAILS

INSPECTION AND MONITORING REQUIREMENTS



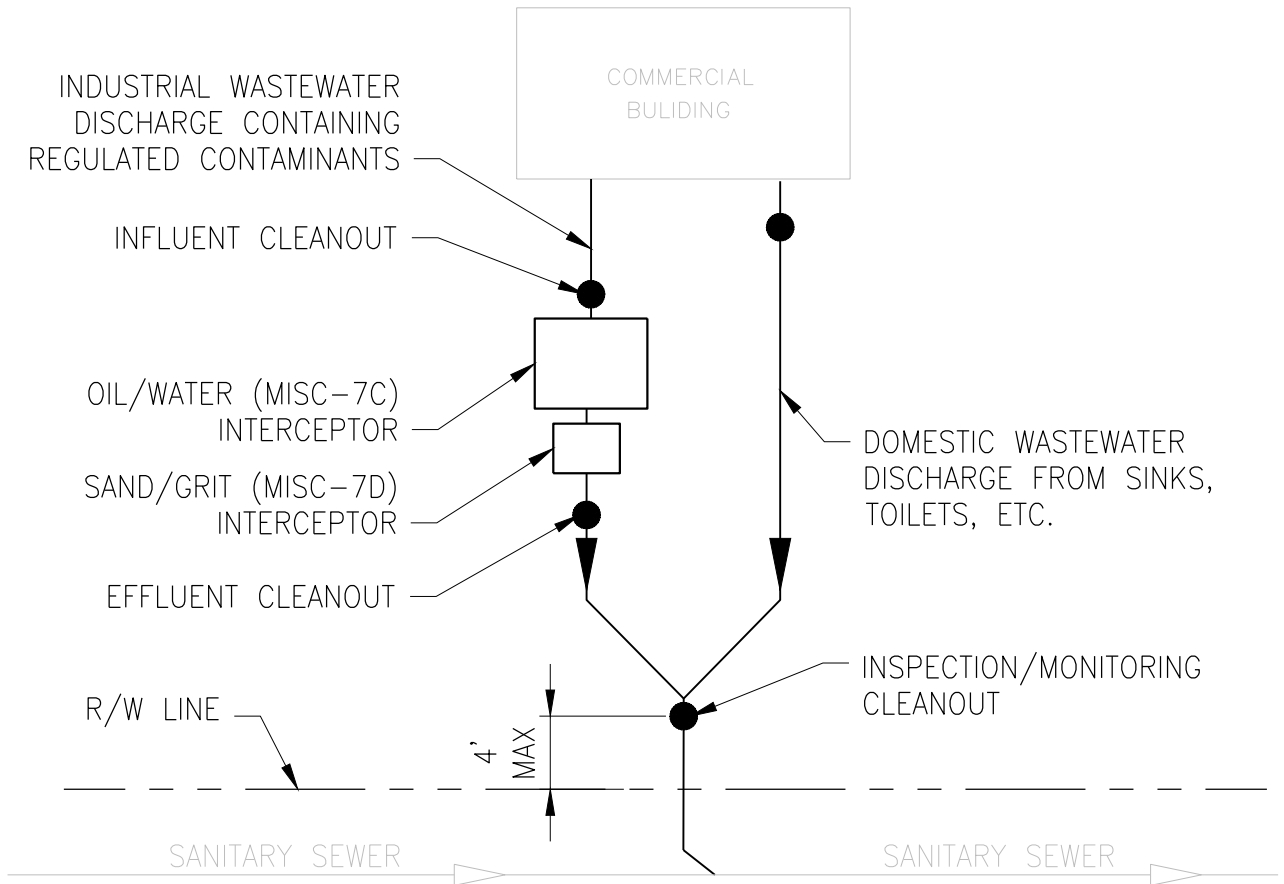
NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
MISCELLANEOUS

DETAIL NUMBER
MISC-05

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INSPECTION AND MONITORING REQUIREMENTS MISC-06

STANDARD UTILITY DETAILS

INSPECTION AND MONITORING REQUIREMENTS

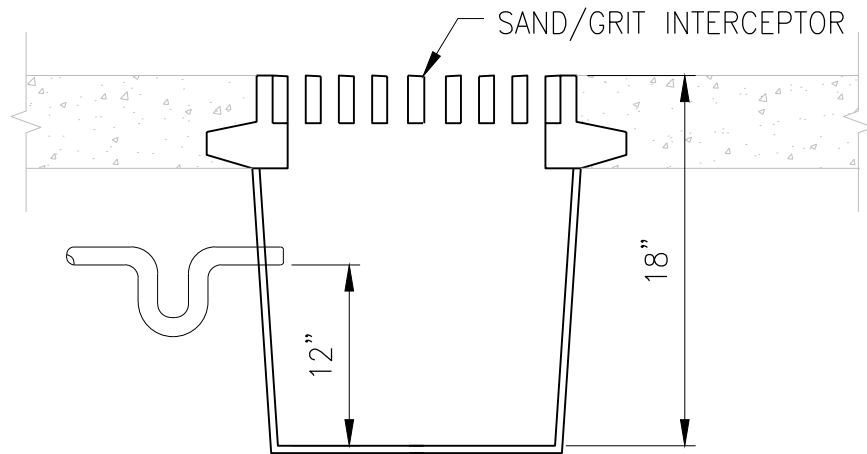


NO.	DATE

REVISION

DATE APPROVED
9/28/17
GROUP
MISCELLANEOUS

DETAIL NUMBER
MISC-06



FLOOR DRAINS ARE PRIMARILY USED FOR INSIDE LOCATIONS WHERE THE FLOW RATE INTO THE DRAIN CAN BE ANTICIPATED. DRAINS SHOULD BE SELECTED WITH SUFFICIENT TOP SIZE AND GRATE FREE AREA TO PASS THE ANTICIPATED FLOW. GRATE FREE AREA IS DEFINED AS "THE TOTAL AREA OF THE DRAINAGE OPENINGS IN THE GRATE." THE DRAIN OUTLET SHOULD BE SIZED LARGE ENOUGH SO THAT IT WILL SAFELY PASS THE MAXIMUM FLOW THROUGH THE GRATE, WITHOUT CREATING WATER BUILDUP.

SIZING AND LOCATION: THE GRATE FREE AREA SHOULD EQUAL THE TRANSVERSE AREA OF THE CONNECTING PIPE. THE NUMBER AND LOCATIONS OF DRAINS ARE BASED ON THE CONFIGURATION OF THE FLOOR PLAN, TYPE OF OPERATION AND LOCATION OF EQUIPMENT. LOCATION AND NUMBER REQUIRED OF FLOOR DRAINS CAN BE DETERMINED ONLY AFTER CAREFUL REVIEW OF THE PLAN AND ANTICIPATED BUILDING USE.

NOMINAL PIPE SIZE, INCHES	TRANSVERSE AREA OF PIPE, SQ IN	MINIMUM FLOW REQUIREMENTS (INTERIOR AREAS), SQ IN
1-1/2"	2.04	3.06
2"	3.14	4.71
3"	7.06	10.59
4"	12.60	18.90
5"	19.60	29.40
6"	28.30	42.45
8"	50.25	75.38

USE THE FOLLOWING FORMULA TO DETERMINE GPM:

GPM= .0104x R x A
 GPM= GALLONS PER MINUTE
 R= INTENSITY-INCHES/HOUR
 A= AREA-SQUARE FEET
 .0104= CONVERSION FACTOR

SAND AND GRIT INTERCEPTOR FOR CAR WASH

MISC-07

STANDARD UTILITY DETAILS

SAND AND GRIT INTERCEPTOR FOR CAR WASH



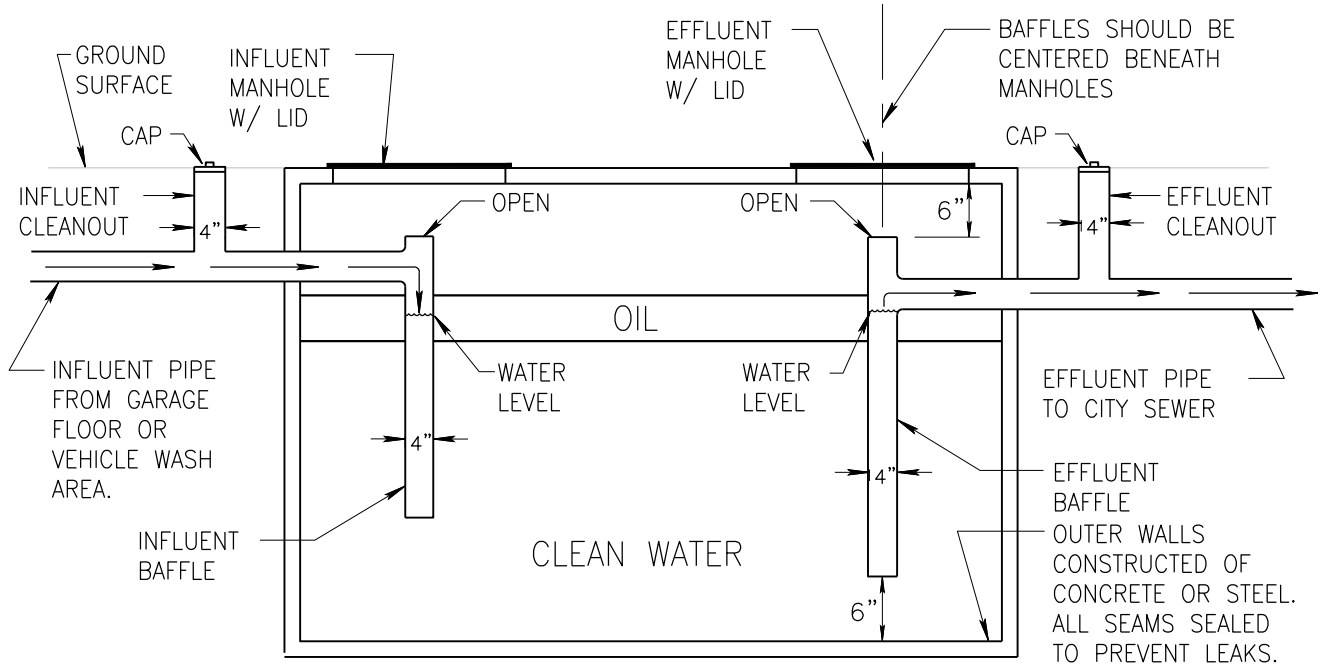
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SECTION VIEW

NOTES:

ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT USE PETROLEUM BASE PRODUCTS IN THEIR DAY TO DAY ACTIVITIES WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR IF THEY CHOOSE TO OPERATE WITH OPEN FLOOR DRAINS.

NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE OIL/WATER SEPARATOR.

OIL/WATER SEPARATOR MODELS AND WATER RECYCLE UNITS MANUFACTURED BY COMPANIES SUCH AS ZURN, SMITH, LANDA INC. OR RGF ENVIRONMENTAL SYSTEMS INC. AND OTHERS CAN BE SUBSTITUTED FOR THE ABOVE DESIGN WITH THE CITY'S APPROVAL.

ALL SIDES OF IN-GROUND OIL/WATER SEPARATOR UNITS (EXCEPT ACCESS DOORS AND MANHOLES) ARE REQUIRED TO BE CONSTRUCTED OF 1/8" INCH (OR GREATER) STEEL OR 6" REINFORCED CONCRETE (OR GREATER).

IF INSTALLED, ACCESS DOOR TO IN-GROUND OIL/WATER SEPARATOR UNITS SHALL BE CONSTRUCTED OF ALUMINUM WITH H-20 LOADING CAPACITY PER SPECIFICATIONS BY U.S. FOUNDRY, CORP. OR EQUIVALENT.

OIL INTERCEPTORS SHALL BE PUMPED OUT COMPLETELY AT A MINIMUM OF ONCE EVERY NINETY (90) DAYS OR MORE FREQUENTLY AS NEEDED TO PREVENT CARRY OVER OF OIL INTO COLLECTION SYSTEM.

SIZING GUIDELINES - OIL/WATER INTERCEPTOR

MISC-08

STANDARD UTILITY DETAILS

SIZING GUIDELINES - OIL AND WATER INTERCEPTOR

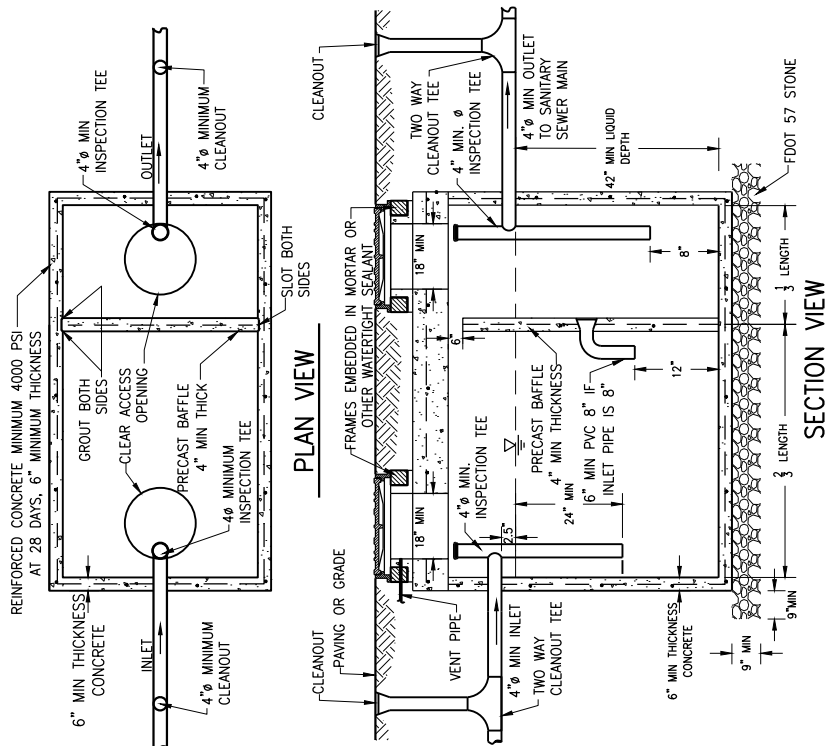


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DETAIL NUMBER
MISC-08



- NOTES:

1. SPECIFIC DESIGN DETAILS MUST IN ALL ASPECTS MEET APPLICABLE FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
 2. SIZE GREASE INTERCEPTOR PER OCU MANUAL, SECTION 2310. MINIMUM SIZE 750 GAL; MAXIMUM SIZE 1250 GAL.
 3. INTERCEPTORS SHALL BE WATER AND GAS TIGHT.
 4. ALL FIXTURES LOCATED IN FOOD AND BEVERAGE PREPARATION AREAS SHALL BE ROUTED THROUGH GREASE INTERCEPTOR. RESTROOM WASTE SHALL NOT BE ROUTED THROUGH INTERCEPTOR.
 5. BAFFLE REQUIRED; ALTERNATIVE DESIGNS ARE ACCEPTABLE. DESIGN MUST MEET FLORIDA PLUMBING AND ADMINISTRATIVE CODE.
 6. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT USE PETROLEUM BASE PRODUCTS IN THEIR DAY TO DAY ACTIVITIES WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR IF THEY CHOOSE TO OPERATE WITH OPEN FLOOR DRAINS.
 7. NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE OIL/WATER SEPARATOR.
 8. OIL/WATER SEPARATOR MODELS AND WATER RECYCLE UNITS MANUFACTURED BY COMPANIES SUCH AS ZURN, SMITH, LANDA INC. OR RGF ENVIRONMENTAL SYSTEMS INC. AND OTHERS CAN BE SUBSTITUTED FOR THE ABOVE DESIGN WITH THE CITY'S APPROVAL.
 9. ALL SIZES OF IN-GROUND OIL/WATER SEPARATOR UNITS (EXCEPT ACCESS DOORS AND MANHOLES) ARE REQUIRED TO BE CONSTRUCTED OF 1/8" INCH (OR GREATER) STEEL OR 6" (OR GREATER) REINFORCED CONCRETE OR FIBERGLASS.
 10. IF INSTALLED, ACCESS DOOR TO IN-GROUND OIL/WATER SEPARATOR UNITS SHALL BE CONSTRUCTED OF ALUMINUM WITH H-20 LOADING CAPACITY PER SPECIFICATIONS BY U.S. FOUNDRY, CORP. OR EQUIVALENT.
 11. OIL INTERCEPTORS SHALL BE PUMPED OUT COMPLETELY AT A MINIMUM OF ONCE EVERY NINETY (90) DAYS OR MORE FREQUENTLY AS NEEDED TO PREVENT CARRY OVER OF OIL INTO COLLECTION SYSTEM.
- AR WASH NOTES:**
1. ALL NEW AND EXISTING BUSINESSES OR INDUSTRIES THAT WASH CARS WILL BE REQUIRED TO INSTALL AN OIL/WATER SEPARATOR.
 2. IF YOU CHOOSE TO WASH CARS OUTSIDE, THE WASH PAD WILL HAVE TO BE SHELTERED SO RAIN WATER WILL NOT BE DISCHARGED TO SANITARY SEWER SYSTEM.
 3. TO PREVENT WASH WATER FROM RUNNING OUTSIDE OF WASH AREA, A SPEED BUMP WILL NEED TO BE INSTALLED ALONG THE ENTRANCE TO THE BAYS OF YOUR BUSINESS AND/OR ALONG THE OUTSIDE EDGES OF THE WASH PAD.

OIL GREASE INTERCEPTOR

MISC-09

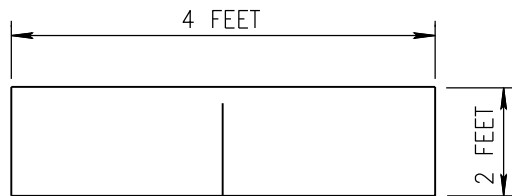
STANDARD UTILITY DETAILS			OIL GREASE INTERCEPTOR		
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				9/28/17	
				GROUP	
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ALL NEW OR EXISTING BUSINESSES OR INDUSTRIES THAT USE OR DEAL WITH METALS, SAND OR DIRT IN THEIR DAY TO DAY ACTIVITIES WILL BE REQUIRED TO INSTALL SAND INTERCEPTORS.

THE FOLLOWING GUIDE LINES SHALL BE FOLLOWED WHEN SIZING SAND INTERCEPTORS.

ALL SAND INTERCEPTORS WILL BE A MINIMUM OF 50 GALLONS, BAFFLED AND SET IN SUCH A WAY THAT THE LENGTH IS GREATER THEN THE DEPTH.

EXAMPLE:



NOTES:

1. NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE SAND INTERCEPTORS.

SAND INTERCEPTOR SIZING GUIDELINES

MISC-10

STANDARD UTILITY DETAILS

SAND INTERCEPTOR SIZING GUIDELINES

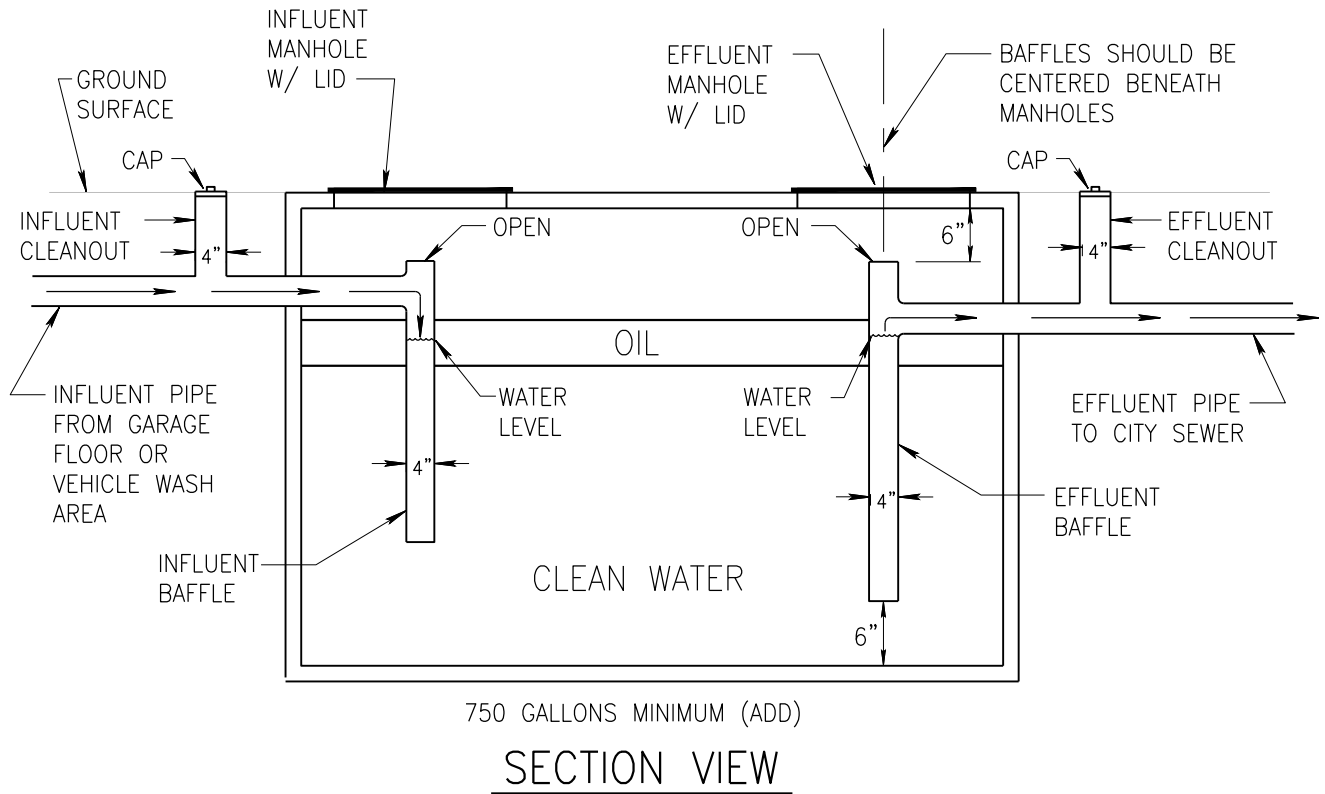


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NOTES:

1. NO DOMESTIC EFFLUENT SHALL BE ALLOWED TO DISCHARGE THROUGH THE OIL/GREASE INTERCEPTOR.
2. ALL SIDES OF IN-GROUND OIL/GREASE INTERCEPTOR UNITS (EXCEPT ACCESS DOORS AND MANHOLES) ARE REQUIRED TO BE CONSTRUCTED OF 1/8" INCH (MINIMUM) STEEL OR 4" REINFORCED CONCRETE (MINIMUM).
3. GREASE INTERCEPTORS SHALL BE PUMPED OUT COMPLETELY AT A MINIMUM FREQUENCY ONCE EVERY NINETY 90 (DAYS) OR MORE FREQUENTLY AS NEEDED TO PREVENT CARRY OVER OF GREASE INTO COLLECTION SYSTEM.

OIL/GREASE INTERCEPTOR (GREASE TRAP)

MISC-11

STANDARD UTILITY DETAILS

OIL AND GREASE INTERCEPTOR (GREASE TRAP)



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DETAIL NUMBER
MISC-11

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GREASE TRAP GUIDELINE

THE FOLLOWING GUIDELINES SHALL BE USED WHEN SIZING GREASE TRAPS FOR RESTAURANTS.

FULL SERVICE:

NUMBER OF SEATS x HOURS OF OPERATION PER DAY x 0.75 = MINIMUM SIZE OF THE GREASE TRAP. 500 GALLONS MINIMUM REQUIRED.

EXAMPLE: 400 SEATS 10 HOURS OF OPERATION PER DAY
 $400 \times 10 \times 0.75 = 3,000$ GALLONS

CAFETERIA:

NUMBER OF SEATS x HOURS OF OPERATION PER DAY x 0.9 = MINIMUM SIZE OF THE GREASE TRAP. 750 GALLONS MINIMUM REQUIRED.

EXAMPLE: 400 SEATS 10 HOURS OF OPERATION PER DAY
 $400 \times 10 \times 0.9 = 3,600$ GALLONS

FAST FOOD:

HOURS OF OPERATION x 55 = MINIMUM SIZE OF THE GREASE TRAP.
750 GALLONS MINIMUM REQUIRED.

EXAMPLE: 16 HOURS OF OPERATION PER DAY
 $16 \times 55 = 800$ GALLONS

CARRY OUT:

NUMBER OF MEALS SERVED PER DAY x 4.3 = MINIMUM SIZE OF THE GREASE TRAP. 500 GALLONS MINIMUM REQUIRED.

EXAMPLE: 125 MEALS SERVED PER DAY
 $125 \times 4.3 = 538$ GALLONS

SPECIAL NOTES:

1. ALL GREASE TRAPS OVER 3,000 GALLONS MUST BE TWO COMPARTMENT TRAPS.
2. ALL GREASE TRAPS MUST HAVE A SUITABLE CLEAN OUT ON BOTH THE ENTRY AND EXIT LINES AND INSPECTION COVERS ON TOP OF THE GREASE TRAP DIRECTLY ABOVE THE OVER FLOW PIPES INSIDE OF THE GREASE TRAP.
3. NO DOMESTIC WASTE SHALL BE DISCHARGED THROUGH THE GREASE TRAP.

OIL/GREASE INTERCEPTOR GUIDELINES (GREASE TRAP)

MISC-12

STANDARD UTILITY DETAILS

OIL AND GREASE INTERCEPTOR GUIDELINES (GREASE TRAP)



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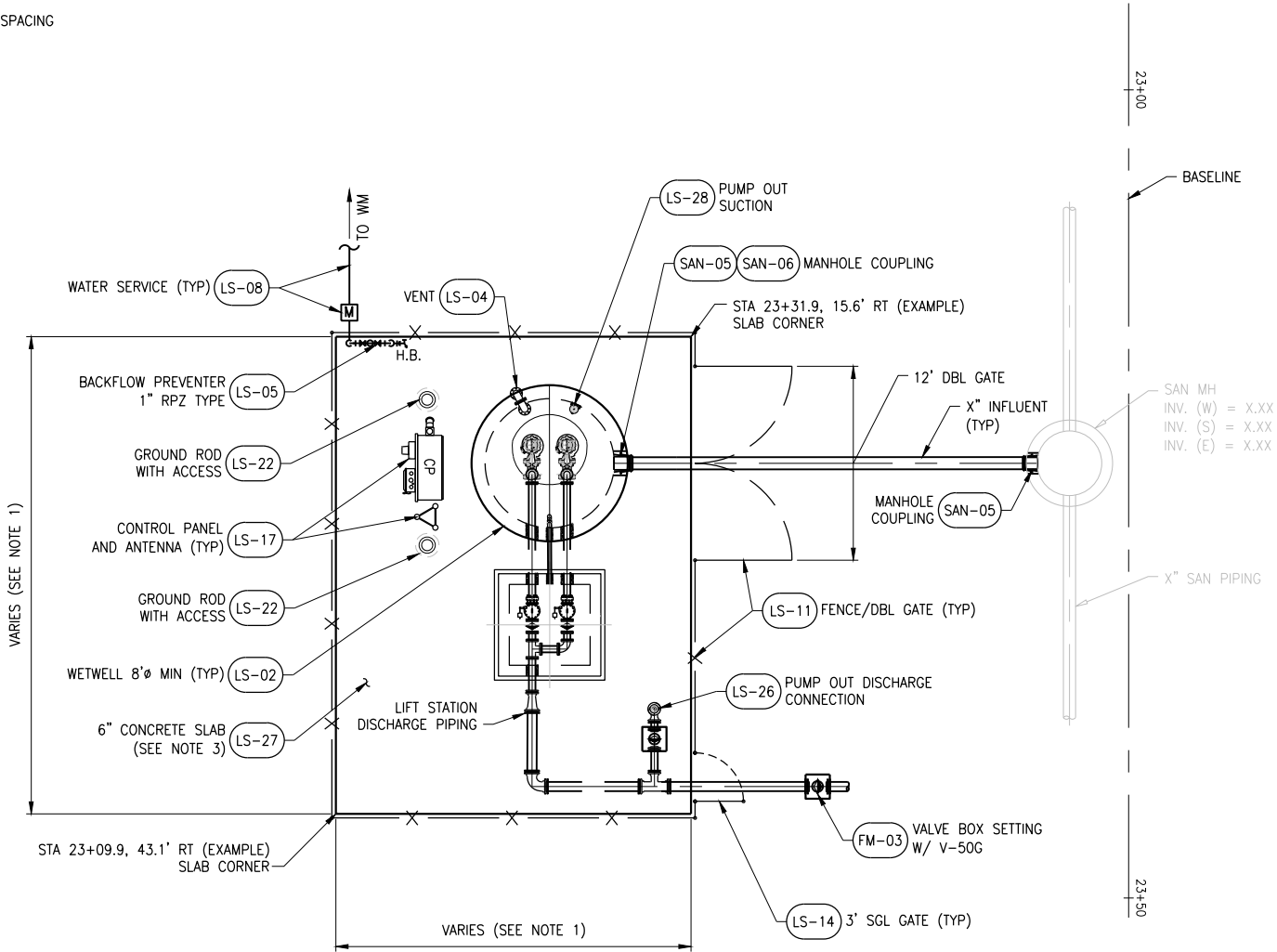
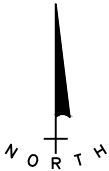
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NOTES:

- OVERALL SITE DIMENSIONS VARY BASED ON EQUIPMENT SPECIFIED.
- PROVIDE STATION AND OFFSET COORDINATES FOR THE FOLLOWING ITEMS:
 - CENTER OF WETWELL
 - MIDPOINT OF VALVE BOX
 - SLAB CORNERS
- PROVIDE SAWCUT CONTROL JOINTS IN THE CONCRETE SLAB. MINIMUM SPACING 5' O.C. EW. CONFIRM JOINT LAYOUT WITH CITY PRIOR TO CUTTING.
- PROVIDE ACCESS DRIVE FROM GATE TO NEAREST ROADWAY.
- FIELD VERIFY PUMPOUT SUCTION LOCATION WITH CITY PERSONNEL.

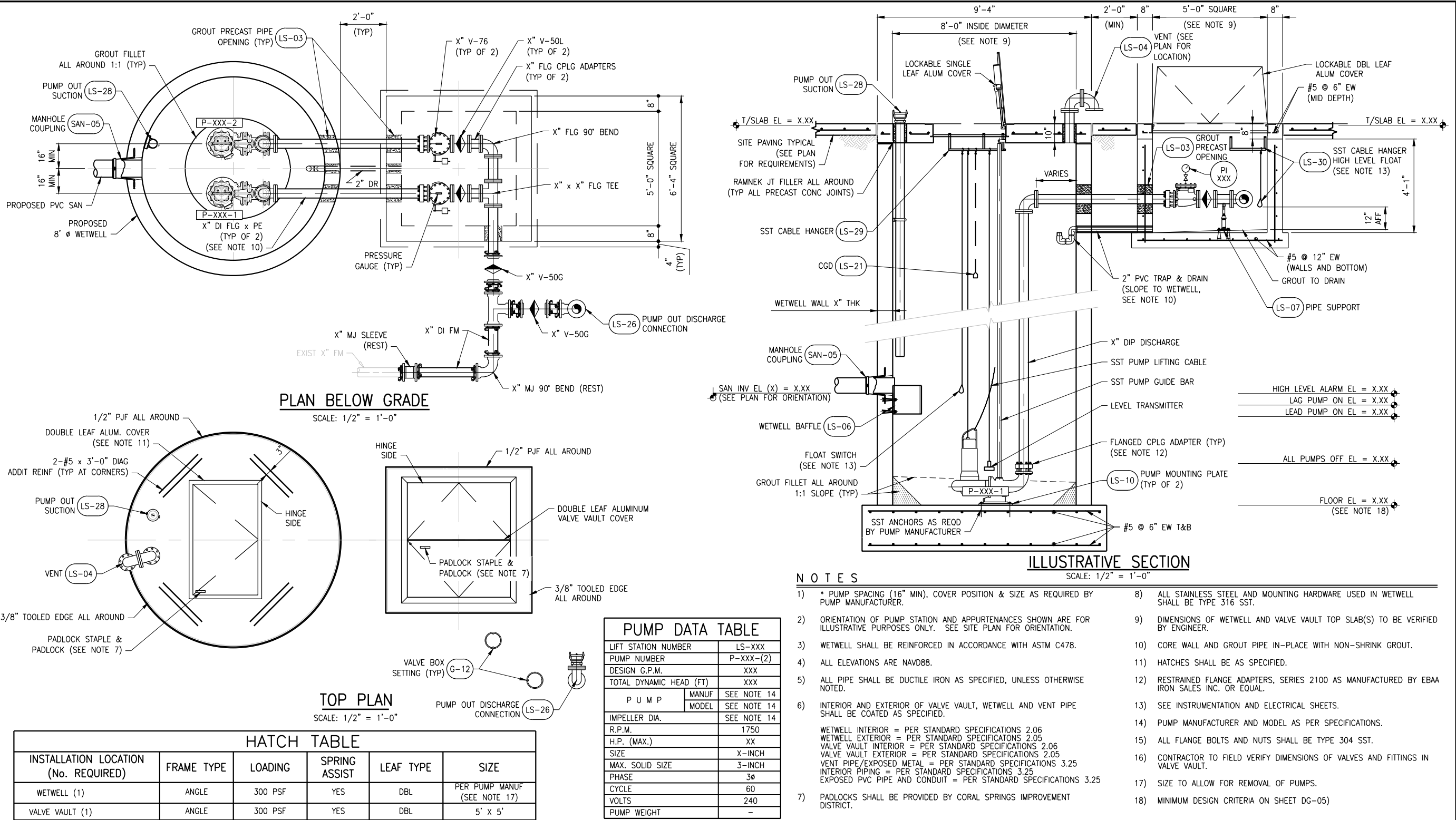


TYPICAL LIFT SATION SITE PLAN

DG-01

STANDARD UTILITY GUIDELINES				TYPICAL LIFT STATION SITE PLAN			
						DATE APPROVED	DETAIL NUMBER
						9/28/17	
						GROUP	
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				DG-01			

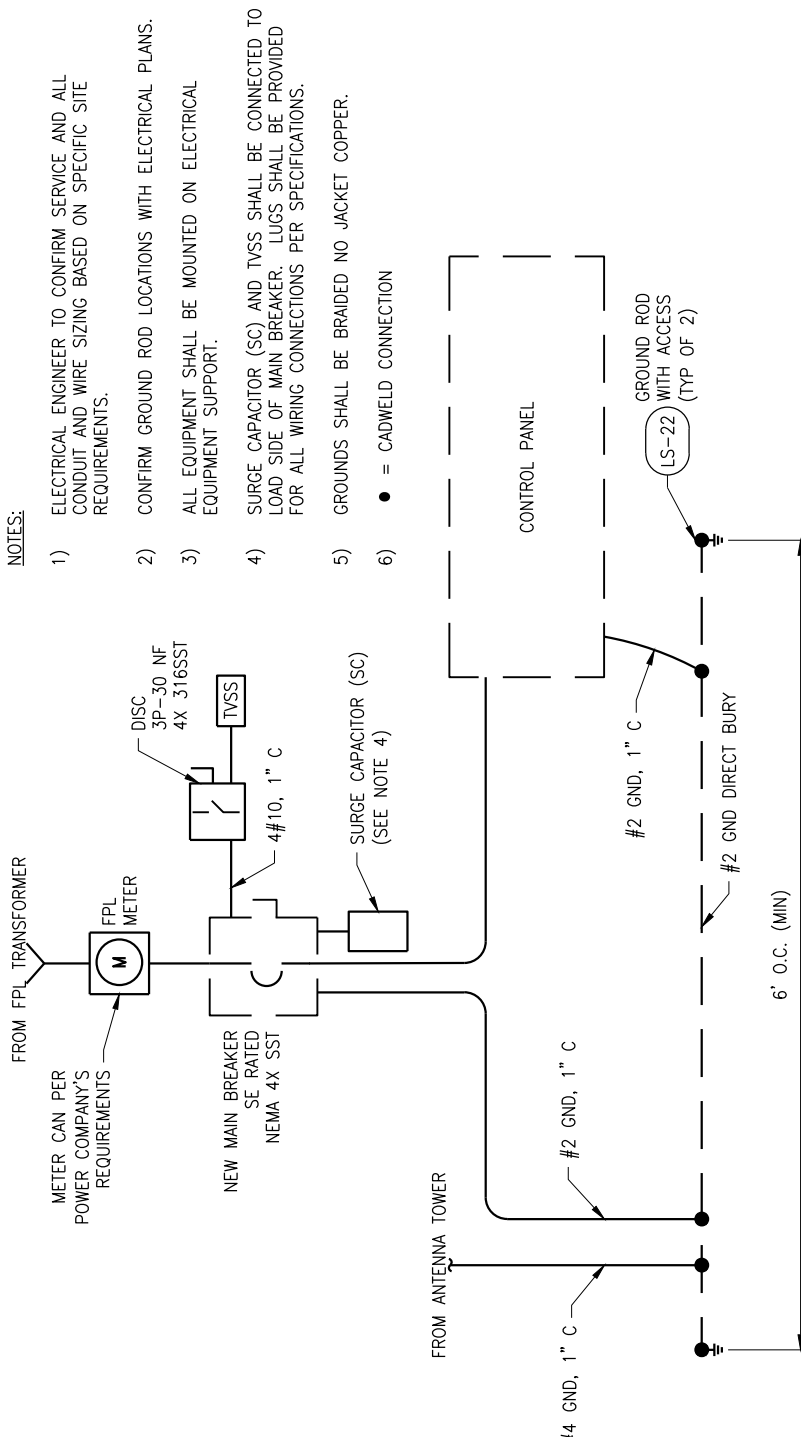
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TYPICAL PLAN AND SECTION (DUPLEX LIFT STATION)

DG-02

STANDARD UTILITY GUIDELINES				TYPICAL PLAN AND SECTION (DUPLEX LIFT STATION)			
							
	NO.	DATE	REVISION				
							DATE APPROVED 9/28/17 GROUP DESIGN GUIDELINES
							DETAIL NUMBER DG-02

STANDARD UTILITY DETAILS			ONE-LINE DIAGRAM		
					
NO.	DATE		REVISION	DATE APPROVED 9/28/17 GROUP DESIGN GUIDELINES	DETAIL NUMBER DG-03A

NOTES:

- 1) ELECTRICAL ENGINEER TO CONFIRM SERVICE AND ALL CONDUIT AND WIRE SIZING BASED ON SPECIFIC SITE REQUIREMENTS.
- 2) CONFIRM GROUND ROD LOCATIONS WITH ELECTRICAL PLANS.
- 3) ALL EQUIPMENT SHALL BE MOUNTED ON ELECTRICAL EQUIPMENT SUPPORT.
- 4) SURGE CAPACITOR (SC) AND TVSS SHALL BE CONNECTED TO LOAD SIDE OF MAIN BREAKER. LUGS SHALL BE PROVIDED FOR ALL WIRING CONNECTIONS PER SPECIFICATIONS.
- 5) GROUNDS SHALL BE BRAIDED NO JACKET COPPER.
- 6) ● = CADWELD CONNECTION

ONE-LINE DIAGRAM

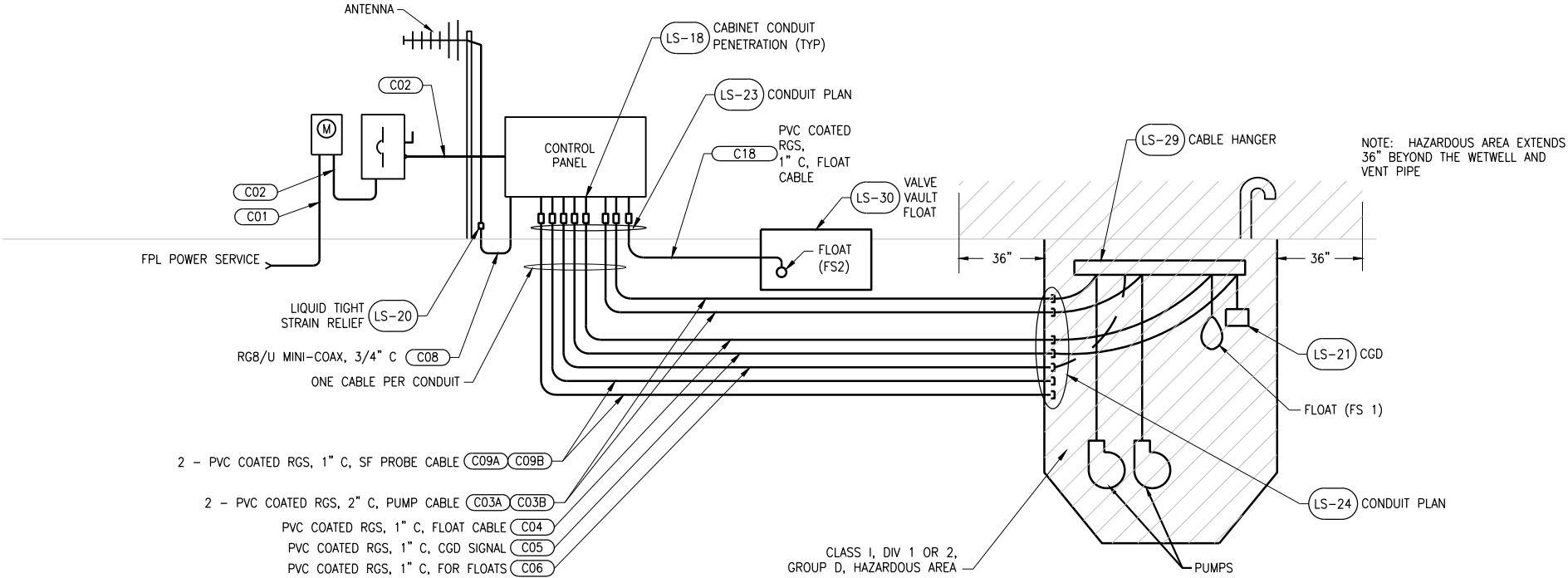
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NOTES:

- 1) FINAL CONDUIT AND WIRE SIZES PER ELECTRICAL ENGINEER.
- 2) FINAL CONDUIT AND CABLE SIZE PER PUMP MANUFACTURER.
- 3) IF SEAL FAILURE AND THERMAL WIRE IS PART OF PUMP CABLE, THEN THESE CONDUITS WILL BECOME SPARES.
- 4) GROUNDING NOT SHOWN FOR CLARITY, SEE #LS-13A.

CONDUIT AND WIRE SCHEDULE				
TAG NAME	FROM	TO	CONDUIT AND WIRE	REMARKS
C01	FPL HANDHOLE	DISCONNECT	TBD	SEE NOTE 1
C02	DISCONNECT	CONTROL PANEL	TBD	SEE NOTE 1
C03A	CONTROL PANEL	WETWELL	PUMP CABLE, 2" C	SEE NOTE 2
C03B	CONTROL PANEL	WETWELL	PUMP CABLE, 2" C	SEE NOTE 2
C04	CONTROL PANEL	WETWELL	FLOAT CABLE, 1" C	HIGH LEVEL FLOAT
C05	CONTROL PANEL	WETWELL	CGD SIGNAL CABLE, 1" C	
C07	ANTENNA	CONTROL PANEL	RG8/U MINI-COAX, 1" C	
C08A	CONTROL PANEL	WETWELL	SF PROBE CABLE, 1" C	SEE NOTE 3
C08B	CONTROL PANEL	WETWELL	SF PROBE CABLE, 1" C	SEE NOTE 3
C18	CONTROL PANEL	VALVE VAULT	FLOAT CABLE 1" C	HIGH LEVEL FLOAT



ELECTRICAL RISER CLASS 1, DIV 1 OR 2, GROUP D HAZARDOUS AREA

DG-04

STANDARD UTILITY GUIDELINES				ELECTRICAL RISER CLASS 1, DIV 1 OR 2, GROUP D HAZARDOUS AREA			
							
	NO.	DATE	REVISION				
						DATE APPROVED 9/28/17 GROUP DESIGN GUIDELINES	DETAIL NUMBER DG-04

STANDARD UTILITY DETAILS		DESIGN CRITERIA			
				DATE APPROVED	DETAIL NUMBER
				9/28/17	
				GROUP	
	NO.	DATE	REVISION	DESIGN GUIDELINES	
<u>DESIGN CRITERIA FOR LIFT STATIONS</u> A) MINIMUM WETWELL DIAMETER 1) MINIMUM WETWELL DIAMETER - 6-FT 2) WETWELL TOP SLAB ELEVATION - ABOVE 25 YEAR FLOOD 3) FLOAT LEVELS (FROM LOWEST INCOMING INVERT ELEVATION. a. PUMPS OFF - 6-INCHES ABOVE VOLUTE (MIN) b. PRIMARY PUMP ON - 6-INCHES BELOW SECONDARY ON (MIN) c. SECONDARY PUMP ON - 6-INCHES BELOW ALARM ON (MIN) d. ALARM ON - 6-INCHES BELOW HIGH ALARM (MIN) e. HIGH ALARM - EQUAL TO LOWEST INCOMING INVERT ELEVATION (MIN) 4) FILLING TIME BASED ON AVERAGE FLOW - 30 MINUTES (MAX) B) PUMP DESIGN 1) MINIMUM NUMBER OF PUMPS - 2 EACH 2) RATED PUMP DISCHARGE - BASED ON PEAK FLOW (GPM) 3) MINIMUM SCOURING VELOCITY - 2.0 FT/SEC 4) PUMP DESIGN - 3-INCH IN DIAMETER (PASSING OF SPHERES) C) ELECTRICAL COMPONENTS 1) ELECTRICAL PANEL ELEVATION - ABOVE 100 YEAR FLOOD 2) ELECTRICAL COMPONENTS COMPLIANCE - CLASS I, GROUP D, DIVISION 1 3) WEATHER PROOF EQUIPMENT - NEMA 3R OR 4 D) OTHER CRITERIA 1) MINIMUM PIPE DIAMETER - 4-INCH 2) FORCEMAIN MATERIAL - DUCTILE IRON PIPE					DG-05