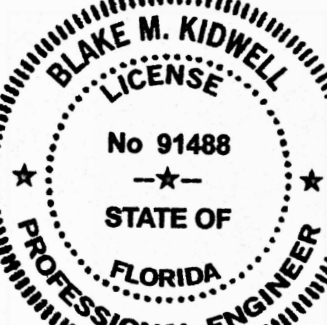


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Phase:
PERMIT
DOCUMENTS



Scale:	Date
N.T.S.	01/27/25
Job No.	Plot Date
24-1832.00	08/19/25
Drawn by	Sheet No.
BMK	C5.3
Proj. Mgr.	
BMK	
Appr. by	— of —
BMK	

This document has been digitally signed and sealed by Blake M. Kidwell on 08/19/2025.

Printed copies of this document are not considered signed and sealed.

GENERAL NOTES:

1. ALL UTILITY PIPE SHALL BE INSTALLED WITH 4"Ø MARKING BALLS PLACED EVERY 40' AND AT EVERY FITTING, FOR IDENTIFICATION AND WARNING PURPOSES, BURIED ABOVE THE PIPE AT A MAXIMUM DEPTH OF 24 INCHES OR AS APPROVED BY THE OWNER. IT SHALL BE COLOR CODED AND WORDED AS FOLLOWS:

POTABLE WATER.

A. COLOR: BLUE PER 62-555.320(21)(b)(3) F.A.C.

B. LETTERING: WATER

C. FREQUENCY OF MARKER BALLS SHALL BE 145.7 Khz.

D. THE MARKER BALLS CAN BE BURIED IN ANY ORIENTATION.

THE MARKER BALLS SHALL BE DETECTABLE BY STANDARD METAL DETECTION EQUIPMENT AND SHALL BE MANUFACTURED BY TEMPO OR 3M LOCATOR SYSTEM OR EQUIVALENT (FREQUENCY 145.7 Khz)

2. FOR LARGE DIAMETER PIPE INSTALLED AT DEPTHS BELOW 4'-0" MARKER BALLS SHALL BE PLACED AT A MAXIMUM DEPTH OF 4'-0" BELOW GRADE *.

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	WATER PIPE IDENTIFICATION
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
S.S. 06/16		
	SCALE: N.T.S.	DATE: JAN. 2022 DWG. NO. 119-1

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED

(SOURCES: EBA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

FITTING TYPE	4"	6"	8"	10"	12"	14"	16"	20"	24"	30"	36"	42"	48"
90° HORIZ. BEND	14	20	25	30	35	45	54	62	68	112	124	135	
45° HORIZ. BEND	8	9	11	13	15	19	22	26	41	46	51	56	
22.5° HORIZ. BEND	3	4	5	6	7	9	11	13	19	22	25	27	
11.25° HORIZ. BEND	1	2	3	3	4	4	5	6	10	11	12	13	
90° VERT. OFFSET	29	41	53	64	74	95	115	134	214	246	278	304	
45° VERT. OFFSET	7	10	13	16	19	25	30	35	57	66	74	83	
22.5° VERT. OFFSET	12	19	24	29	34	39	48	58	89	102	114	126	
11.25° VERT. OFFSET	3	4	6	7	8	10	12	15	23	27	31	34	
PUBLIC (SEWER) CHD	26	43	56	71	85	107	128	151	214	246	278	304	
IN-LINE VALVE	25	43	45	45	45	56	65	85	110	125	140	155	
TEE (BRANCH RESTRAINT)	4"Ø 23	-	-	-	-	-	-	-	-	-	-	-	-
10"Ø 18	32	46	58	-	-	-	-	-	-	-	-	-	-
12"Ø 13	30	44	57	69	-	-	-	-	-	-	-	-	-
18"Ø 7	26	41	55	67	80	-	-	-	-	-	-	-	-
20"Ø 1	21	36	52	65	86	109	-	-	-	-	-	-	-
24"Ø 1	15	34	48	62	86	108	126	-	-	-	-	-	-
30"Ø 1	8	28	44	58	83	108	127	208	-	-	-	-	-
36"Ø 1	1	22	38	54	80	103	124	208	240	-	-	-	-
42"Ø 1	1	15	33	49	67	100	123	228	238	-	-	-	-
48"Ø 1	1	1	7	27	44	73	97	123	203	238	266	298	-
6"Ø 23	-	-	-	-	-	-	-	-	-	-	-	-	-
8"Ø 38	-	-	-	-	-	-	-	-	-	-	-	-	-
10"Ø 57	43	24	-	-	-	-	-	-	-	-	-	-	-
12"Ø 72	60	44	41	-	-	-	-	-	-	-	-	-	-
15"Ø 99	90	78	75	43	-	-	-	-	-	-	-	-	-
20"Ø 153	118	107	105	81	45	-	-	-	-	-	-	-	-
24"Ø 146	140	132	131	111	82	45	-	-	-	-	-	-	-
30"Ø 228	224	197	188	172	153	118	75	-	-	-	-	-	-
36"Ø 243	238	233	228	217	196	166	135	74	-	-	-	-	-
42"Ø 273	270	265	259	250	234	211	183	153	72	-	-	-	-
48"Ø 301	298	294	289	280	268	249	226	193	71	-	-	-	-

NOTES:

1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPE-C-2 SAND TEST PRESSURE-150 PSI/2000 PSI DEPTH OF BURY-3' VERTICAL OFFSET-3'
MINIMUM PIPE LENGTH ALONG TEE RUN-6'

2. THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.

3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.

4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.

RESTRAINED JOINT INFORMATION

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	RESTRAINED JOINT INFORMATION
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
S.S. 06/16		
	SCALE: N.T.S.	DATE: MAY 2022 DWG. NO. 118-2

PVC HORIZONTAL BENDS AND VERTICAL UP BENDS

PIPE SIZE (IN.)	RESTRAINED L (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)				
90"	45"	22.5"	11.25"		
6	26	11	6	3	53
8	33	14	7	4	68
12	46	19	10	5	96

PVC VERTICAL DOWN BEND

PIPE SIZE (IN.)	RESTRAINED L (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)				
90"	45"	22.5"	11.25"		
6	26	11	6	3	
8	33	14	7	4	144
12	46	19	10	5	

DIP HORIZONTAL BENDS AND VERTICAL UP BENDS

PIPE SIZE (IN.)	RESTRAINED L (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)				
90"	45"	22.5"	11.25"		
12"	68	28	14	7	144
24"	119	49	24	12	258

DIP VERTICAL DOWN BEND

PIPE SIZE (IN.)	RESTRAINED L (MINIMUM DISTANCE IN FEET FROM FITTING - EACH WAY)			
90"	45"	22.5"	11.25"	
12"	144	60	29	14
24"	258	107	51	25

RESTRAINED JOINT INFORMATION

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	RESTRAINED JOINT INFORMATION
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
S.S. 06/16		
	SCALE: N.T.S.	DATE: MAY 2022 DWG. NO. 118-2

GENERAL NOTES:

1. VALUES IN TABLE ARE BASED ON 3' OF COVER, 100 PSI INTERNAL PRESSURE, FOR FORCE MAINS, 150 PSI REUSE WATER LINES, ANSI/AWWA C605 & C150/A21.50 LAYING CONDITION 3, ASTM D2487 SAND-SILT SP SOIL TYPE, AND SAFETY FACTOR OF 2.0. RESTRAINED LENGTHS WERE COMPUTED PER DIPRA "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" AND "PVC PIPE THRUST RESTRAINT DESIGN HANDBOOK," EBA IRON, INC.

2. CONFIRM THE EXACT LENGTH OF RESTRAINING REQUIRED FOR REDUCERS, PIPE ENCASED IN POLYETHYLENE AND ENCRANCHING RESTRAINED LENGTHS WITH THE DESIGN ENGINEER.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROPER INSTALLATION OF THE RESTRAINED JOINTS TO PREVENT MOVEMENT OF THE PIPE & FITTINGS.

4. IN THE EVENT OF A CONFLICT BETWEEN RESTRAINED LENGTHS SHOWN ON THE TABLE AND RESTRAINED LENGTHS SHOWN ON THE DRAWINGS, THE LONGEST RESTRAINED LENGTH SHALL BE USED.

RESTRAINED JOINT INFORMATION

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	RESTRAINED JOINT INFORMATION
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
S.S. 06/16		
	SCALE: N.T.S.	DATE: MAY 2022 DWG. NO. 118-1

SPECIAL UTILITY CROSSING - FITTING TYPE

* 12" MINIMUM CLEARANCE REQUIRED FOR PRESSURE TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN OR REUSE WATER MAIN CROSSINGS. IF MINIMUM CLEARANCE CANNOT BE OBTAINED, REFER TO "PROTECTION OF POTABLE WATER SUPPLY" FOR WATER MAIN CROSSINGS. SEE NOTE 2(B), ON STANDARD NO. 122-3.

6" MINIMUM CLEARANCE REQUIRED FOR WATER AND STORMWATER, SEWER MAIN CROSSINGS. SEE NOTE 2(A), ON STANDARD NO. 122-3.

STANDARD UTILITY CROSSING - DEFLECTION TYPE

NOTES:

1. THE DEFLECTION TYPE CROSSING SHALL BE USED WHEREVER POSSIBLE. ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER SHALL THE FITTING TYPE CROSSING BE ALLOWED.

2. CONSTRUCT STANDARD CROSSING USING NO MORE THAN 75% OF MANUFACTURERS' MAXIMUM JOINT DEFLECTION.

3. FOR POTABLE WATER MAINS, REFER TO "PROTECTION OF POTABLE WATER SUPPLY".

UTILITY CROSSINGS

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	UTILITY CROSSINGS
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
	SCALE: N.T.S.	DATE: JAN. 2022 DWG. NO. 122-1

MINIMUM HORIZONTAL SEPARATION REQUIREMENTS FOR POTABLE WATER, REUSE, STORMWATER AND SEWER LINES

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	MIN. HORIZONTAL SEPARATION FOR POTABLE WATER
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
	SCALE: N.T.S.	DATE: JAN. 2022 DWG. NO. 121-1

GENERAL NOTES:

1. ALL NONMETALLIC PIPE SHALL BE INSTALLED WITH 12 THHN SOLID COPPER TRACING WIRE.

2. THE MARKER BALLS MUST BE INSTALLED DIRECTLY ABOVE THE PIPE.

3. MARKER BALLS SHALL BE INSTALLED AT 40' O.C.

4. BALL COLOR CODING:
POTABLE WATER SYSTEM: BLUE PER 62-555.320(21)(b)(3) F.A.C.

UTILITY PIPE AND MARKER BALLS LOCATION

ENGINEERING STANDARDS 2025

REVISIONS	ENGINEERING DIVISION	UTILITY PIPE AND MARKER BALLS LOCATION
BY DATE	CITY OF POMPAÑO BEACH	
S.S. 01/12		
S.S. 06/16		
	SCALE: N.T.S.	DATE: JAN. 2022 DWG. NO. 120-1

Received after DRC Meeting to address DRC comments prior to the submission of a Building Permit Application.