



MECHANICAL THRUST RESTRAINT MINIMUM PIPE LENGTHS 24R

MIN. LENGTH OF PIPE (FEET) TO BE RESTRAINED (SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

FITTING TYPE	PIPE SIZE											
	4"	6"	8"	10"	12"	16"	20"	24"	30"	36"	42"	48"
90° HORIZ. BEND	14	20	25	30	35	45	54	62	98	112	124	135
45° HORIZ. BEND	6	8	11	13	15	19	22	26	41	46	51	56
22.5° HORIZ. BEND	3	4	5	6	7	9	11	12	19	22	25	27
11.25° HORIZ. BEND	1	2	3	3	4	5	6	10	11	12	13	13
90° VERT. BEND	29	41	53	64	74	95	115	134	214	246	276	304
45° VERT. BEND	12	19	24	29	34	39	48	56	69	102	114	126
22.5° VERT. BEND	3	4	6	7	8	10	12	15	23	27	31	34
11.25° VERT. BEND	1	1	2	2	3	3	4	6	7	8	9	9
PLUG (HEAD END)	32	45	59	70	83	107	129	151	214	246	276	304
IN-LINE VALVE	32	45	45	45	45	55	65	80	110	125	140	155
TEE (BRANCH RESTRAINT)	47X	23	-	-	-	-	-	-	-	-	-	-
200psi	87X	35	-	-	-	-	-	-	-	-	-	-
150psi	18	34	47	-	-	-	-	-	-	-	-	-
100psi	16	32	46	58	-	-	-	-	-	-	-	-
75psi	13	30	44	57	69	-	-	-	-	-	-	-
50psi	7	26	41	55	67	90	-	-	-	-	-	-
25psi	1	11	15	33	49	77	100	122	205	236	270	-
15psi	1	16	34	49	62	86	108	129	-	-	-	-
10psi	1	8	28	44	58	83	106	127	208	-	-	-
7.5psi	1	1	22	39	54	80	103	124	206	240	-	-
5psi	1	1	15	33	49	77	100	122	205	236	270	-
2.5psi	1	1	7	27	44	73	97	120	203	236	269	298
1.5psi	87X	23	-	-	-	-	-	-	-	-	-	-
1psi	38	25	-	-	-	-	-	-	-	-	-	-
0.75psi	57	43	24	-	-	-	-	-	-	-	-	-
0.5psi	72	60	44	41	-	-	-	-	-	-	-	-
0.25psi	99	90	78	75	45	-	-	-	-	-	-	-
0.15psi	123	116	107	105	81	45	-	-	-	-	-	-
0.1psi	145	140	132	131	111	82	45	-	-	-	-	-
0.075psi	209	204	197	188	177	153	116	75	-	-	-	-
0.05psi	243	236	233	226	217	196	168	135	74	-	-	-
0.0375psi	273	270	265	259	252	234	211	183	133	72	-	-
0.025psi	301	298	294	289	283	268	249	226	183	131	71	-

NOTES: 1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS: 1.5' TRENCH DEPTH AND TEST PRESSURE-150 P.S.I./200 P.S.I. DEPTH OF BURRY-3' VERTICAL SAFETY FACTOR-1.5

DEFINITIONS

- DEPARTMENT - THE PALM BEACH COUNTY WATER UTILITIES DEPARTMENT.
- CONTRACTOR - UTILITY CONTRACTOR AND ALL UTILITY SUBCONTRACTORS.
- ENGINEER - ENGINEER RESPONSIBLE FOR INSPECTION AND CERTIFICATION.

GENERAL NOTES

- A PRE-CONSTRUCTION MEETING IS TO BE HELD PRIOR TO DELIVERY OF MATERIALS AND INSTALLATION OF ANY POTABLE WATER, RECLAIMED WATER AND/OR WASTEWATER SYSTEM CONSTRUCTION. THE MEETING SHALL BE ATTENDED BY THE DEPARTMENT, CONTRACTOR, ENGINEER AND OTHER INTERESTED PARTIES.
- ANY REVISIONS TO THE APPROVED PLANS SHALL BE CALLED TO THE ATTENTION OF THE DEPARTMENT PRIOR TO THE PRE-CONSTRUCTION MEETING. REVISED PLANS MUST BE APPROVED PRIOR TO THE MEETING.
- FIVE (5) COPIES OF THE CURRENT APPROVED MATERIAL LIST AND ALL NECESSARY SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO SCHEDULING OF THE PRE-CONSTRUCTION MEETING.
- ALL APPLICABLE PERMITS MUST BE OBTAINED PRIOR TO PRECONSTRUCTION MEETING. (DOT, HEALTH DEPARTMENT, COUNTY ENGINEER, ETC.).
- THE CONTRACTOR SHALL MAINTAIN A CURRENT APPROVED SET OF CONSTRUCTION PLANS ON JOB SITE.
- ALL MATERIALS SUPPLIED SHALL CONFORM TO PRODUCT LIST AND SHOP DRAWINGS AS APPROVED PRIOR TO CONSTRUCTION. SUBSTITUTE MATERIALS SHALL NOT BE APPROVED AFTER DELIVERY TO THE JOB SITE. ALL REQUESTS FOR MATERIAL SUBSTITUTION SHALL BE APPROVED PRIOR TO DELIVERY OF THESE MATERIALS TO THE JOB SITE.
- THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THE APPROVED PLANS ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR. APPROVAL OF DEVELOPMENT PLANS BY THE DEPARTMENT IN NO WAY IMPLIES VERIFICATION OF THE ACCURACY OF THOSE PLANS OR FEATURES DEPICTED THEREIN. ANY DISCREPANCY IN OR VARIATION FROM THE APPROVED PLANS IS TO BE BROUGHT TO THE ATTENTION OF THE DEPARTMENT BY THE ENGINEER AND CONTRACTOR. THE CONTRACTOR SHALL CONFIRM AND INSTALL (IF NECESSARY) ADEQUATE MECHANICAL PIPES / JOINT RESTRAINT ON EXISTING PIPES PRIOR TO CONNECTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TIMES THROUGHOUT THE DURATION OF CONSTRUCTION FOR THE PROTECTION OF EXISTING AND NEWLY INSTALLED UTILITIES FROM DAMAGE OR DISRUPTION OF SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING SUCH MEASURES AS NECESSARY TO PROTECT THE HEALTH, SAFETY AND WELFARE OF THOSE PERSONS HAVING ACCESS TO THE WORK SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATIONS FROM ALL OTHER UTILITY FACILITIES.
- THE CONTRACTOR OR ENGINEER SHALL SCHEDULE INSPECTIONS AND TESTS A. MINIMUM OF 24-48 HOURS IN ADVANCE.
- NO CONNECTION TO OR ANY OTHER CONSTRUCTION SHALL BE PERFORMED ON AN EXISTING DEPARTMENT OWNED OR MAINTAINED MAIN OR STRUCTURE WITHOUT THE PRESENCE OF A DEPARTMENT INSPECTOR.
- FACILITIES PROVIDED HEREIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND THE DEPARTMENT'S MINIMUM STANDARDS. CONFLICTS BETWEEN THE PRECEDING DOCUMENTS SHOULD BE CALLED TO THE ATTENTION OF THE DEPARTMENT FOR CLARIFICATION. REQUESTS FROM THE APPROVED PLANS MUST BE APPROVED IN ADVANCE BY THE DEPARTMENT.
- UPON COMPLETION OF CONSTRUCTION, A FINAL INSPECTION SHALL VERIFY PROPER ADHERENCE TO ALL FACETS OF THE PLANS AND SPECIFICATIONS.

IRRIGATED WITH RECLAIMED WATER

Water Utilities Department Water Reclamation Program

DO NOT DRINK NOT FOR

CALL (561) 493-6000 FOR INFORMATION

RECLAIMED WATER IRRIGATION AREA IDENTIFICATION SIGN 23R

RECLAIMED WATER #3 STANDARD DETAILS

CONSULTANT: WUD

DESIGNED BY: WUD

DRAWN BY: WUD_CADD

CHECKED BY: A. GALICKI

APPROVED BY: WUD

Palm Beach County Water Utilities Department P.O. Box 16097 West Palm Beach, FL 33416-6097

IT'S THE LAW! CALL 48 HOURS BEFORE YOU DIG 1-800-432-4770 SUNSHINE STATE ONE CALL OF FLORIDA, INC. UTILITIES NOTIFICATION CENTER