



### DUCTILE IRON PIPE

HORIZONTAL, L (FEET)							45° VERTICAL OFFSET (FEET)	
DIAMETER	11 1/4"	22 1/2"	45°	90°	TEE OR CROSS	VALVES AND DEAD END	UPPER	LOWER
4"	1	2	4	10	7	20	9	4
6"	2	3	6	14	15	28	12	7
8"	2	4	8	17	23	37	16	8
10"	2	5	9	21	30	44	19	8
12"	3	5	10	24	38	52	22	9

### PVC PIPE

HORIZONTAL, L (FEET)							45° VERTICAL OFFSET (FEET)	
DIAMETER	11 1/4"	22 1/2"	45°	90°	TEE OR CROSS	VALVES AND DEAD END	UPPER	LOWER
4"	2	3	5	12	11	32	14	5
6"	2	4	7	16	23	45	19	6
8"	3	5	9	21	37	59	25	8
10"	3	5	11	25	48	71	30	9
12"	3	6	12	29	61	83	35	11

THE NOTED REQUIREMENTS WERE CALCULATED IN ACCORDANCE WITH THRUST RESTRAINT CALCULATOR V7.2 BY EBAA IRON WITH THE FOLLOWING ASSUMPTIONS:  
 SOIL CONDITIONS: SW OR GW; NOMINAL SIZE EQUALS BRANCH SIZE; LENGTH ALONG RUN EQUALS 4 FEET  
 LAYING CONDITION: 4, SAND BEDDING, BACKFILL COMPACTED > 80%; VERTICAL LOW SIDE DEPTH EQUALS 3.5 FEET  
 MINIMUM COVER: 3.0 FT SAFETY FACTOR: 1.5 BARE PIPE (NO POLY WRAP)  
 IF FIELD CONDITIONS DIFFER FROM THE ABOVE, CONTRACTOR SHALL NOTIFY THE CITY.  
 FOR PIPE LARGER THAN INCLUDED IN THE ABOVE TABLES, ENGINEER OF RECORD SHALL SUBMIT CALCULATIONS FOR EACH JOINT REQUIRING RESTRAINT.

### SINGLE FITTING RESTRAINED JOINT 150 PSI TEST PRESSURE

DATE: 05/24

DRAWN: KHA



CITY OF MARGATE, FLORIDA  
DEPARTMENT OF ENVIRONMENTAL  
AND ENGINEERING SERVICES

## RESTRAINED JOINT REQUIREMENTS SINGLE FITTINGS

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