

REACTION BEARING AREAS FOR
HORIZONTAL WATER PIPE BENDS

BASED ON TEST PRESSURE OF 200 P.S.I. (ALL AREA IN SQUARE FEET)

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	FAIRLY DRY CLAY 4000 LBS/FT Sq.	SOFT CLAY 2000 LBS/FT Sq.	GRAVEL, COARSE SAND 1600 LBS/FT Sq.	DRY CLAY—ALWAYS DRY—8000 LBS/FT Sq.	SAND, COMPACT, FIRM 8000 LBS/FT Sq.	SAND,—CLEAN, DRY 4000 LBS/FT Sq.	QUICKSAND, VERY POOR SOIL 1000 LBS/FT Sq.	ROCK—POOR 10,000 LBS/FT Sq.
6"									
11 1/4'	1,108	1	1	1	1	1	2	1	
22 1/2'	2,207	1	2	2	1	1	3	1	
45°	4,328	2	3	3	1	1	5	1	
90°	7,996	2	4	5	1	1	8	1	
PLUG	5,655	2	3	4	1	1	6	1	
8"									
11 1/4'	1,970	1	1	2	1	1	2	1	
22 1/2'	3,922	1	2	3	1	1	4	1	
45°	7,694	2	4	5	1	1	8	1	
90°	14,215	4	8	9	2	2	15	2	
PLUG	10,053	3	5	6	2	2	10	1	
12"									
11 1/4'	4,433	2	3	3	1	1	5	1	
22 1/2'	8,826	3	5	6	2	2	9	1	
45°	17,312	5	9	11	3	3	18	2	
90°	31,983	8	16	19	4	4	32	4	
PLUG	22,619	6	12	14	3	3	23	3	
16"									
11 1/4'	7,881	2	4	5	1	1	8	1	
22 1/2'	15,691	4	8	10	2	2	16	2	
45°	30,779	8	16	19	4	4	31	4	
90°	56,861	15	29	35	8	8	57	6	
PLUG	40,213	10	21	25	5	5	41	5	

NOTES:

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A
VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.
USE 6"—90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR



DATE
8/16/04

REVISED
8/18/04

SCALE
NOT TO SCALE

DETAIL

W-10

THRUST BLOCKING DESIGN QUANTITY TABLE (SH 1 OF 3)
CITY OF BURLINGTON, NORTH CAROLINA
ENGINEERING DEPARTMENT