



BEND DEGREES	SIZE	A (FT)	B (FT)	C (IN)	D (FT)	VOLUME CU. YDS APPROX	THRUST LBS
	6"	1.0	2.0	6	1.0	0.04	1,385
	8"	1.0	2.0	7	1.0	0.05	2,465
	10"	1.0	2.0	9	1.0	0.07	3,850
11 1/4	12"	1.0	2.5	11	1.5	0.12	5,550
	14"	2.0	2.5	11	2.0	0.24	7,550
	16"	2.0	2.5	12	2.0	0.26	9,860
	20"	2.0	3.5	15	2.5	0.48	15,405
	24"	2.0	4.0	18	3.0	0.7	22,185
	6"	1.0	2.0	6	1.0	0.04	2,760
	8"	1.0	2.0	7	1.5	0.06	4,905
	10"	1.0	2.0	9	2.0	0.1	7,665
22 1/2	12"	1.0	3.0	11	2.0	0.16	11,040
	14"	2.0	3.5	11	2.5	0.37	15,025
	16"	2.0	3.5	12	3.0	0.45	19,625
	20"	2.0	4.0	15	4.0	0.74	30,665
	24"	3.0	5.0	18	4.5	1.47	44,160
	6"	1.0	2.0	6	1.5	0.06	5,415
	8"	1.0	2.5	7	2.0	0.1	9,625
	10"	2.0	3.5	9	2.5	0.31	15,040
45	12"	2.0	3.5	11	3.0	0.41	21,655
	14"	2.0	4.0	11	3.75	0.56	29,475
	16"	3.0	5.0	12	4.0	1.45	38,495
	20"	4.0	6.0	15	5.0	2.06	60,145
	24"	4.0	7.5	18	6.5	3.35	91,610
	6"	1.0	2.5	12	2.0	0.13	10,005
	8"	2.0	3.0	14	3.0	0.38	17,785
	10"	2.5	4.5	18	3.0	0.74	27,785
90	12"	3.0	5.0	20	4.0	1.24	40,010
	14"	3.0	5.5	24	5.0	1.77	54,460
	16"	4.0	6.5	26	5.5	2.91	71,125
	20"	4.0	8.0	32	7.0	4.68	111,135
	24"	5.0	10.0	40	8.0	8.5	160,035
	6"	1.0	2.5	12	1.5	0.1	7,070
	8"	1.7	3.25	14	2.0	0.27	12,565
	10"	2.0	4.0	18	2.5	0.5	19,635
TEES	12"	2.5	4.5	20	3.25	0.91	28,275
AND	14"	3.0	5.0	24	4.0	1.41	38,485
PLUGS	16"	3.0	5.0	26	5.0	1.77	50,265
	20"	4.0	7.0	32	5.75	3.69	78,540
	24"	6.0	9.0	40	6.5	7.94	113,100

**MINIMUM DIMENSIONS  
FOR CONCRETE BLOCKING**

**NOTES:**

1. SOIL CONDITIONS SHALL BE VERIFIED BY THE ENGINEER BEFORE THRUST BLOCK DESIGN IS IMPLEMENTED.
2. COVER GLANDS & BOLTS W/ POLYETHYLENE BEFORE PLACING CONCRETE.
3. ALLOW CONCRETE TO SET UP A MIN. OF 6 HOURS BEFORE PLACING BACKFILL.

**DESIGN DATA**

1. DIMENSION OF THRUST BLOCK IN FEET BASED ON 2000 POUNDS PER SQUARE FOOT SOIL BEARING PRESSURE. ACTUAL INSIDE DIAMETER OF DIP, CLASS 50, 250 PSI TEST PRESSURE.
2. CONCRETE SHALL BE CLASS A, 3000 PSI.
3. UNDER ADVERSE CONSTRUCTION CONDITIONS, CONCRETE SHALL BE "HIGH EARLY" TYPE.



LATEST REVISION

07/14/2017

# CITY OF CUMMING

DEPARTMENT OF UTILITIES

## THRUST RESTRAINT: HORIZONTAL THRUST

DETAIL NUMBER:

# W-13

SCALE: NOT TO SCALE