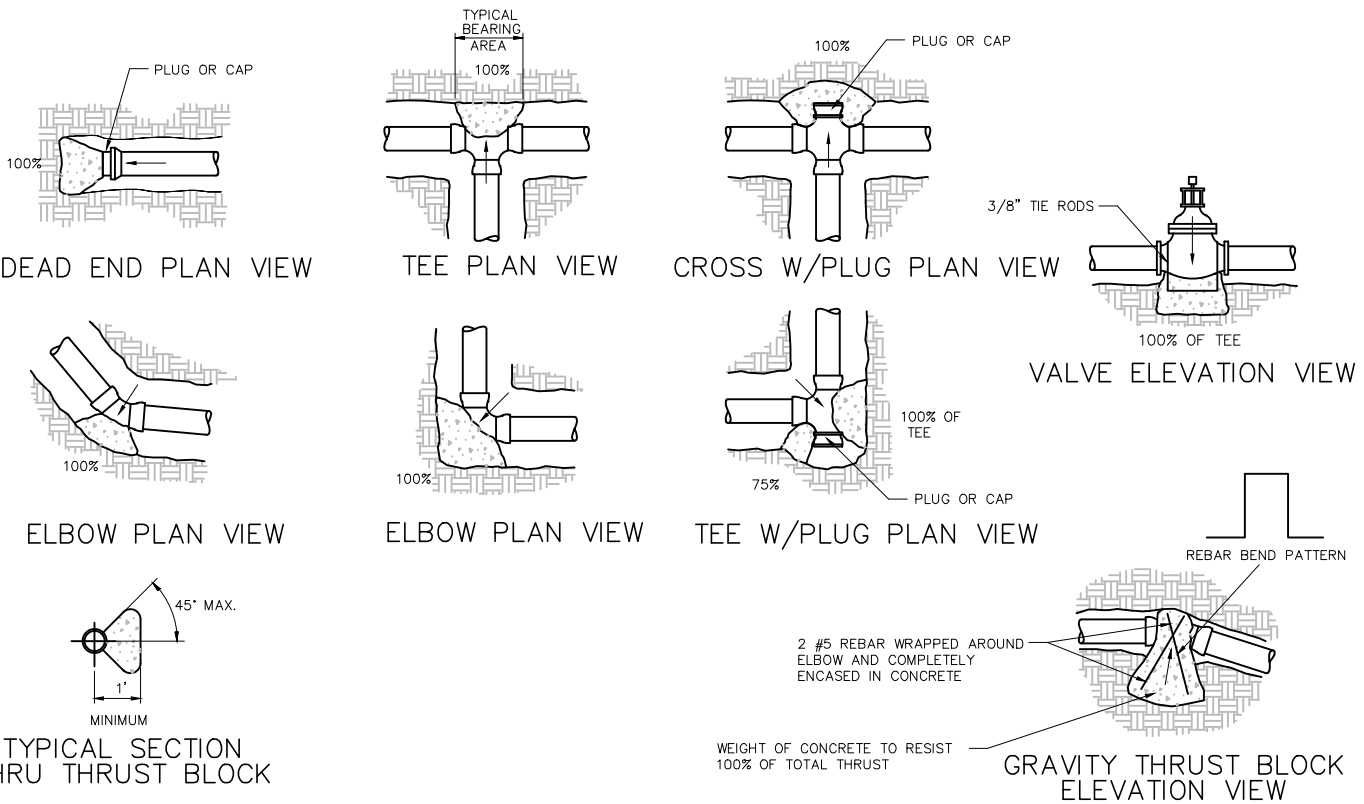


DETAILS ON THIS SHEET TO BE USED ONLY BY PERMISSION OF CITY ENGINEER



- NOTES:
1. THE FIGURE (100%) AT THE THRUST BLOCK INDICATES PER CENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.
  2. THE ARROW (→) INDICATES THRUST DIRECTION.
  3. CONCRETE FOR THRUST BLOCKS TO BE 3000 P.S.I.
  4. ALL MJ AND FLANGED FITTINGS TO BE WRAPPED WITH 12 MIL POLYETHYLENE PRIOR TO PLACING CONCRETE THRUST BLOCK
  5. WHERE SUFFICIENT BEARING SURFACE IS NOT AVAILABLE FOR THRUST BLOCK, MEGALUG THRUST RESTRAINING GLANDS MAY BE USED. MEGALUG THRUST RESTRAINING GLANDS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION INCLUDING ANY JOINT RESTRAINT. ANY USE OF MEGALUG OR CHANGE TO THE THRUST BEARING CHART MUST BE REVIEWED BY THE CITY ENGINEER.

USE WHEN LINE PRESSURE AND SOIL BEARING STRENGTH ARE KNOWN

LINE PRESSURE: \_\_\_\_\_ PSI  
 TEST PRESSURE (SF = 1.5): \_\_\_\_\_ PSI  
 SOIL BEARING STRENGTH: \_\_\_\_\_ PSF  
 (SOIL BEARING STRENGTH DETERMINED FROM A GEOTECHNICAL INVESTIGATION.)

SIDE THRUST (LBS.) PER 1 PSI LINE PRESSURE

PIPE SIZE (")	PIPE AREA* (SQ. IN.)	DEAD END OR TEE (LBS.)	90° BEND (LBS.)	45° BEND (LBS.)	22.5° BEND (LBS.)	11.5° BEND (LBS.)
4	14.39	22	31	17	9	5
6	32.17	49	69	37	19	10
8	56.88	86	121	66	34	17
10	86.92	131	185	100	51	26
12	124.29	187	264	143	73	37
14	168.33	253	358	194	99	50
16	219.56	330	466	253	129	65
18	277.59	417	589	319	163	82
20	342.41	514	727	394	201	101
24	490.09	736	1040	563	287	145
30	757.69	1137	1608	870	444	223

USE WHEN LINE PRESSURE AND SOIL BEARING STRENGTH ARE NOT KNOWN

LINE PRESSURE: 120 PSI  
 TEST PRESSURE (SF = 1.5): 180 PSI  
 SOIL BEARING STRENGTH: 800 PSF

AREA OF BEARING REQUIRED (SQ. FT.)

PIPE SIZE (")	PIPE AREA* (SQ. IN.)	DEAD END OR TEE (LBS.)	90° BEND (LBS.)	45° BEND (LBS.)	22.5° BEND (LBS.)	11.5° BEND (LBS.)
4	14.39	3.2	4.6	2.5	1.3	0.6
6	32.17	7.2	10.2	5.5	2.8	1.4
8	56.88	12.8	18.1	9.8	5.0	2.5
10	86.92	19.6	27.7	15.0	7.6	3.8
12	124.29	28.0	39.6	21.4	10.9	5.5
14	168.33	37.9	53.6	29.0	14.8	7.4
16	219.56	49.4	69.9	37.8	19.3	9.7
18	277.59	62.5	88.3	47.8	24.4	12.2
20	342.41	77.0	109.0	59.0	30.1	15.1
24	490.09	110.3	155.9	84.4	43.0	21.6
30	757.69	170.5	241.1	130.5	66.5	33.4

Example for Table 1:  
 8-inch 90° bend  
 Line Pressure = 100 psi  
 From Table: Thrust per 1 psi = 121 lbs.  
 Calculate Total Thrust: 100 psi x 121 lbs/psi = 12,100 lbs  
 Soil Bearing Strength = 2,000 psf  
 Area of bearing required for thrust block is 6.1 sq. ft. (12,100 lbs / 2,000 psf = 6.1 sq.ft.)

\* Pipe area is based on largest actual inside diameter of ductile iron pipe.