

PIPE SIZE (IN)	TEE			
	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)
4	26	13	338	2,828
6	39	20	780	6,364
8	52	26	1,352	11,313
10	64	32	2,048	17,677
12	77	39	3,003	25,455

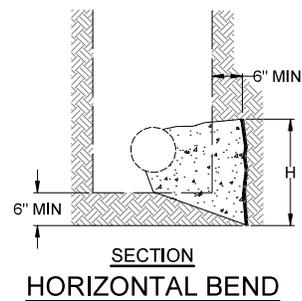
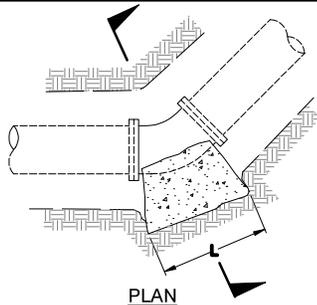
PIPE SIZE (IN)	VERTICAL BEND ANCHOR BLOCK					
	22.5° BEND L, H, W (IN)	VOLUME (CY)	THRUST (LBS)	45° BEND L, H, W (IN)	VOLUME (CY)	THRUST (LBS)
4	2,828	338	2,828	2,828	2,828	2,828
6	6,364	780	6,364	6,364	6,364	6,364
8	11,313	1,352	11,313	11,313	11,313	11,313
10	17,677	2,048	17,677	17,677	17,677	17,677
12	25,455	3,003	25,455	25,455	25,455	25,455

FOR DUCTILE IRON PIPE, ALL VERTICAL BENDS SHALL BE MECHANICALLY RESTRAINED. SEE NOTE 14 ON SHEET 2.

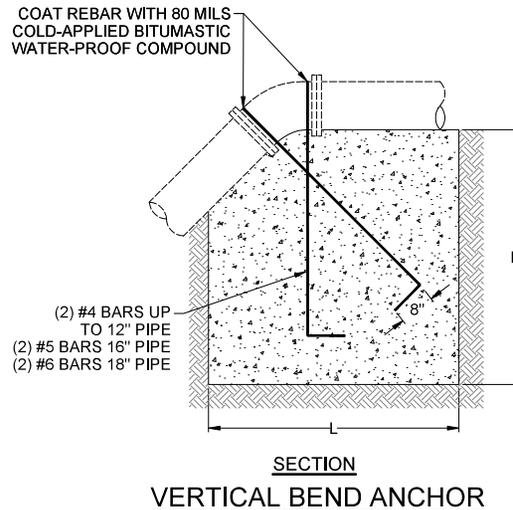
D1xD2 (IN)	TRENCH WIDTH (IN)	REDUCER									
		L (IN)	H (IN)	H1 (IN)	L1 (IN)	W (IN)	TOTAL AREA INCL. TRENCH (IN <sup>2</sup> )	MIN. BEARING AREA (IN <sup>2</sup> )	THRUST (LBS)		
12x10	30	52	34	8	11	12	1,768	954	7,778		
12x8	30	62	41	15	16	12	2,542	1,762	14,142		
12x6	30	68	45	19	19	12	3,060	2,280	19,091		
12x4	30	72	48	22	21	10	3,456	2,676	22,627		
10x8	30	48	32	8	9	10	1,536	816	6,364		
10x6	30	56	37	13	13	10	2,072	1,352	11,313		
10x4	30	62	41	17	16	10	2,542	1,822	14,849		
8x6	24	42	28	6	9	10	1,176	648	4,950		
8x4	24	48	32	10	12	8	1,536	1,008	8,485		
6x4	24	38	25	5	7	8	950	470	3,535		

\* IF A DIFFERENT TRENCH WIDTH IS USED, THE THRUST BLOCK SHALL MAINTAIN THE MIN. BEARING AREA SHOWN.

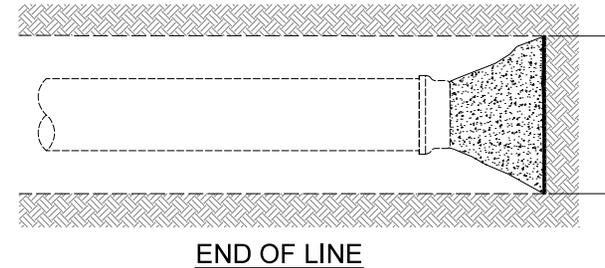
\*\* BEARING AREA REQUIRED ON UNDISTURBED SOIL OUTSIDE OF TRENCH.

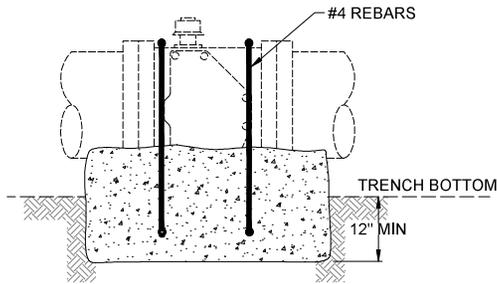


COAT REBAR WITH 80 MILS COLD-APPLIED BITUMASTIC WATER-PROOF COMPOUND

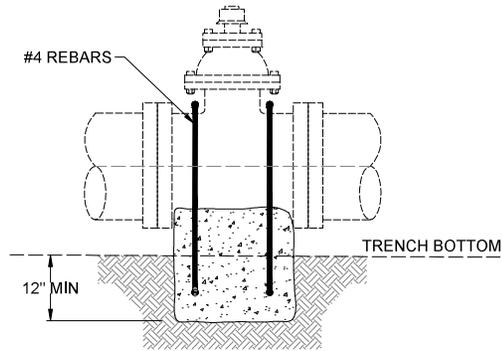


PIPE SIZE (IN)	22-1/2° BEND				45° BEND				90° BEND				END OF LINE			
	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)	L (IN)	H (IN)	AREA (IN <sup>2</sup> )	THRUST (LBS)
4	16	8	128	1,104	23	12	276	2,165	31	16	496	4,000	26	13	338	2,828
6	24	12	288	2,483	34	17	578	4,871	46	23	1,058	9,000	39	20	780	6,364
8	32	16	512	4,414	45	23	1,035	8,659	61	31	1,891	15,999	52	26	1,352	11,313
10	40	20	800	6,897	56	28	1,568	13,529	76	38	2,888	24,999	64	32	2,048	17,677
12	48	24	1,152	9,932	67	34	2,278	19,482	92	46	4,232	35,999	77	39	3,003	25,455

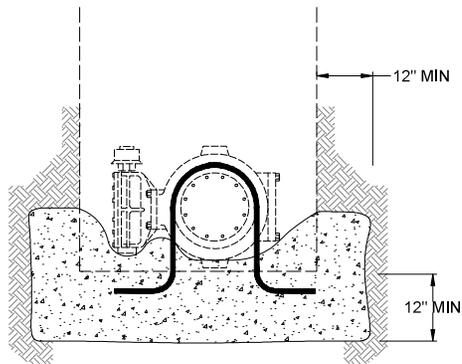




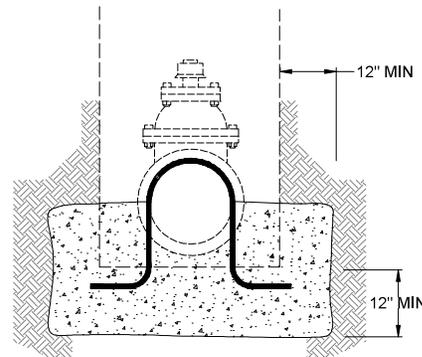
ELEVATION



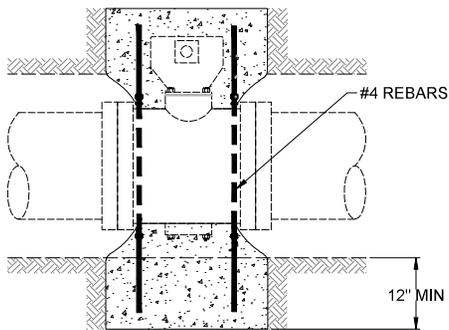
ELEVATION



SECTION

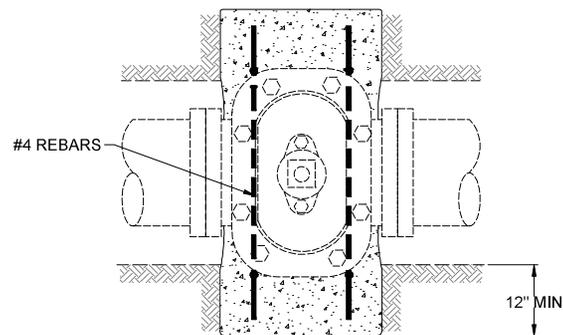


SECTION



PLAN

BUTTERFLY VALVES



PLAN

GATE VALVES

NOTES

1. ALL THRUST BLOCKS SHALL BE PORTLAND CEMENT BE OF CLASS 'C' (4 1/2 SACK MIX) CONCRETE.
2. CONCRETE THRUST BLOCKS ARE TO BE POURED AGAINST UN-DISTURBED EARTH.
3. ALL GATE VALVES SHALL BE SUPPORTED PER DETAIL HEREIN & STD W-0150.
4. PLUG ALL STUBS PER SPECS.
5. ALL CONCRETE SHALL BE POURED TO AVOID INTERFERENCE WITH BOLTED CONNECTIONS.
6. WHERE PIPE CONNECTS TO A FITTING IN A STEEL PIPELINE, THE STEEL PIPELINE SHALL BE BLOCKED AS SHOWN HEREON.
7. CONCRETE SHALL BE CONFINED BY FORMS TO PROVIDE A MINIMUM CLEARANCE OF 4" AT FLANGE BOLTS AND NUTS.