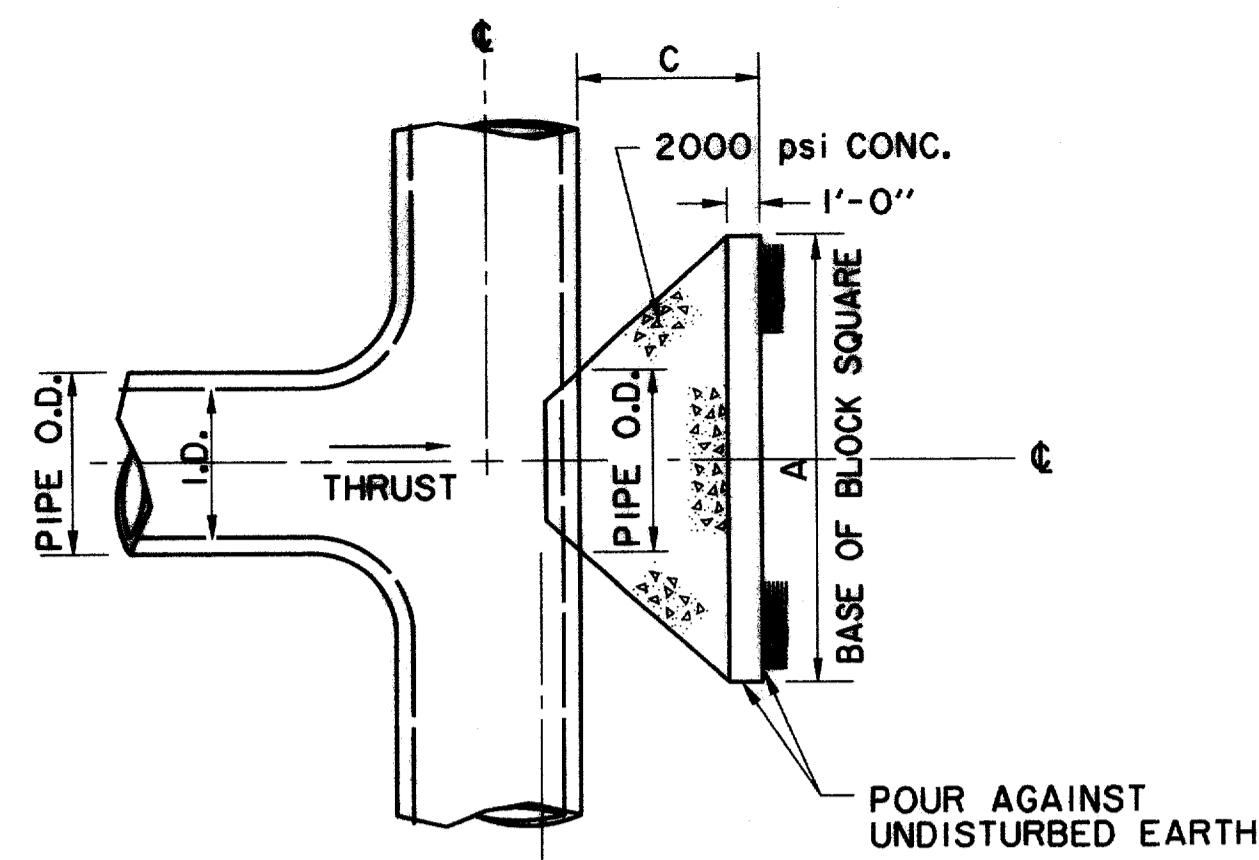
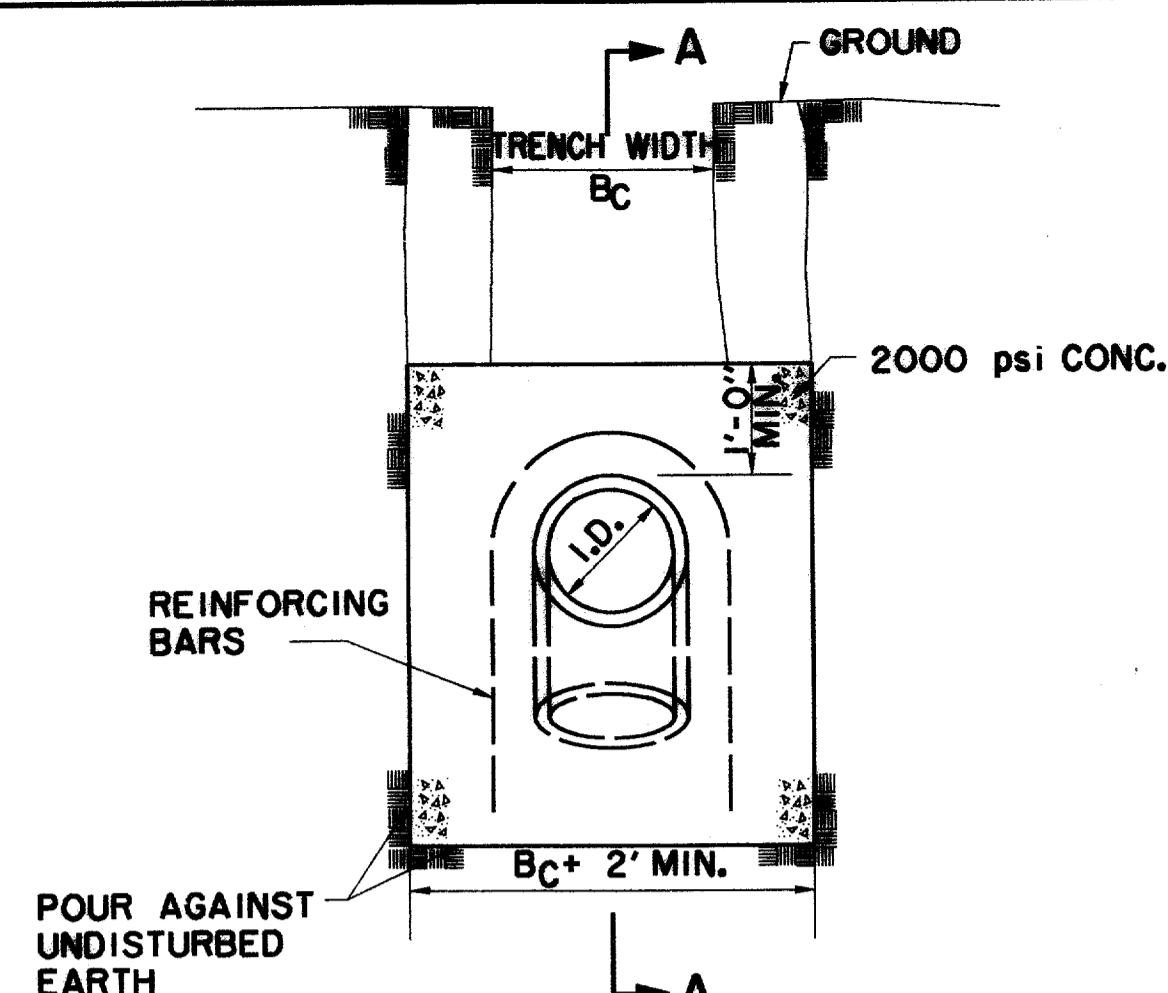


PLAN OF PLUG THRUST BLOCK
N.T.S.

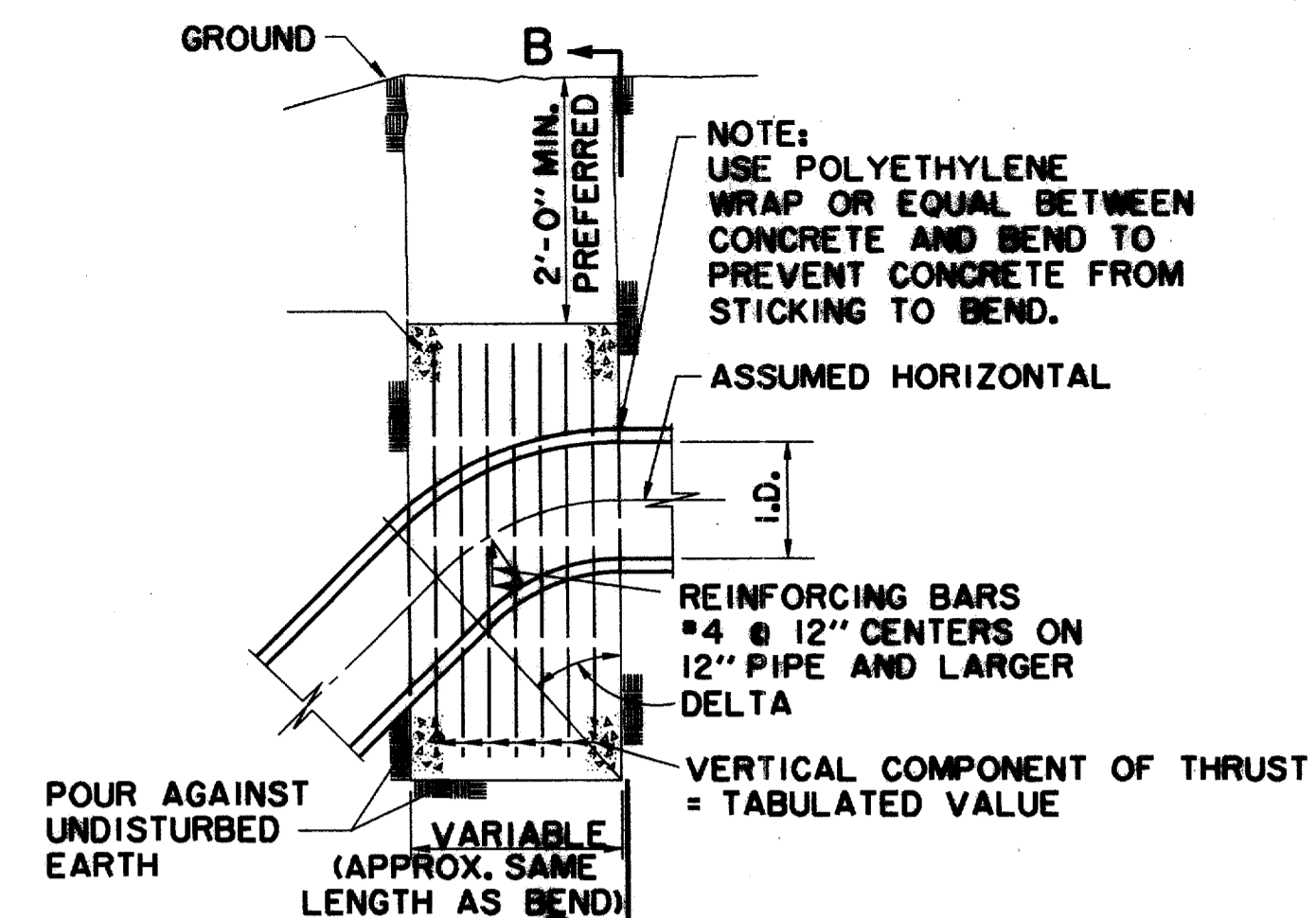


PLAN OF TEE THRUST BLOCK
N.T.S.

I.D. (IN.)	THRUST TONS	C. FT.	EARTH			ROCK		
			A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.
4, 6, 8	5.1	1.5	2.5	0.3	2.0	0.2		
10, 12	11.3	1.5	3.5	0.6	2.5	0.3		
16, 18	25.5	2.0	5.5	1.6	4.0	0.9		
24	45.2	2.5	7.0	3.1	5.0	1.7		



ELEVATION B-B
N.T.S.



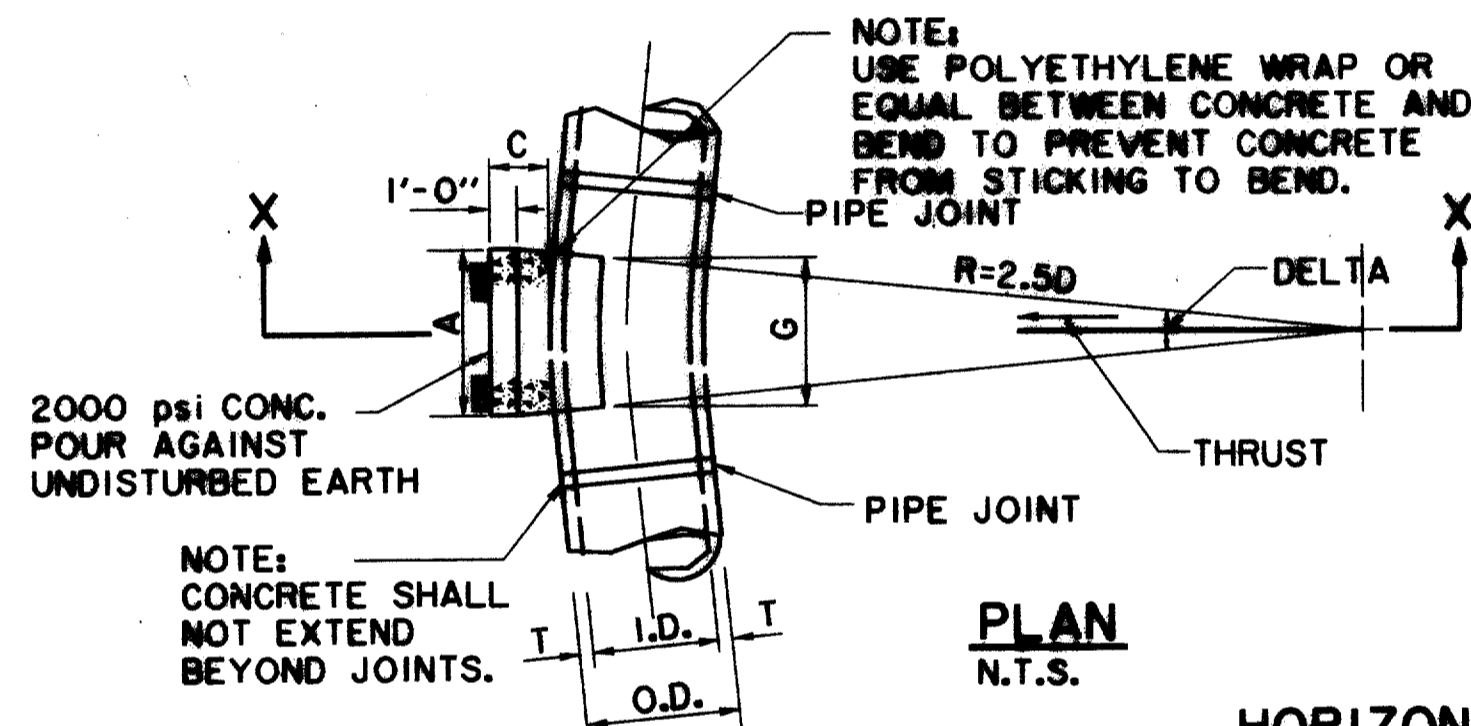
SECTION A-A
N.T.S.

VERTICAL BENDS

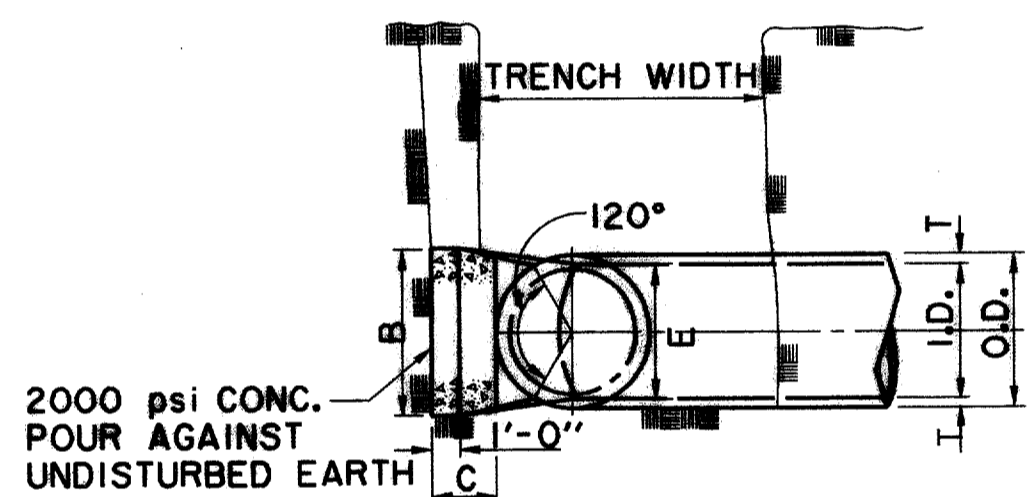
I.D. (IN.)	11.25°		22.50°		30°		45°		67.50°		90°		I.D. (IN.)
	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	
4, 6, 8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4, 6, 8
10, 12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10, 12
16, 18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16, 18
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.9	20.9	45.2	22.6	24

GENERAL NOTES FOR ALL THRUST BLOCKS

- ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 P.S.I. FOR 24" I.D. PIPE AND SMALLER AND 150 P.S.I. ON 30" I.D. AND LARGER.
- VOLUMES OF VERTICAL BEND THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS F) IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THRUST ON THE VERTICAL BEND.
- WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
- CONCRETE FOR BLOCKING SHALL BE 2000 PSI CONCRETE.
- DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
- CONCRETE BLOCKING SHALL BE IN PLACE A MINIMUM OF 4 DAYS PRIOR TO TESTING THE PIPELINE.



PLAN
N.T.S.



SECTION X-X
N.T.S.

HORIZONTAL BENDS

I.D. (IN.)	T. IN.	C 11.25° FT.	C 22.50°+ FT.	E. FT.	DELTA (IN.)	11.25°												DELTA (IN.)		
						EARTH			ROCK			G. FT.	THRUST TONS	EARTH			ROCK			
						A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.			A. FT.	B. FT.	VOL. C.Y.	A. FT.		B. FT.	VOL. C.Y.
4, 6, 8	0.4	1.5	1.5	0.9	4, 6, 8	0.8	2.0	1.0	1.0	0.1	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1	4, 6, 8	
10, 12	0.6	1.5	1.5	1.2	10, 12	1.1	4.4	1.5	1.5	0.1	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1	10, 12	
16, 18	0.8	1.5	1.5	1.6	16, 18	1.6	9.9	2.0	2.5	0.3	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3	16, 18	
24	1.1	1.5	1.5	1.6	24	2.2	17.7	3.0	3.5	0.5	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5	24	
DELTA					DELTA														DELTA	
4, 6, 8	0.4	1.5	1.5	0.9	4, 6, 8	0.4	5.0	2.0	2.0	0.2	0.4	5.0	5.0	1.5	0.4	2.0	2.0	0.2	4, 6, 8	
10, 12	0.5	1.5	1.5	1.2	10, 12	0.5	6.5	2.5	2.5	0.3	0.5	6.5	6.5	2.5	1.0	3.5	2.5	0.5	10, 12	
16, 18	0.6	1.5	1.5	1.6	16, 18	0.6	9.0	3.5	4.0	0.6	0.6	9.0	9.0	4.0	2.4	4.5	4.0	1.0	16, 18	
24	0.9	1.5	1.5	2.1	24	0.9	14.5	4.5	4.5	1.1	0.9	14.5	14.5	4.5	5.0	8.0	4.0	2.1	24	

GENERAL NOTES

- UNPLASTICIZED POLYVINYL CHLORIDE (PVC) WATER PIPE SHALL MEET OR EXCEED REQUIREMENTS OF AWWA C900 PVC PIPE WITH CAST IRON OUTSIDE DIMENSIONS. PIPE SHALL BE LISTED BY UNDERWRITER LABORATORIES AND SHALL BE APPROVED FOR USE IN CITIES AND TOWNS OF THE STATE OF TEXAS BY THE STATE BOARD OF INSURANCE.
- PVC WATER PIPE SHALL BE FURNISHED WITH A RUBBER RING AT EACH JOINT AND AN INTEGRAL THICKENED BELL AS A PART OF EACH JOINT. THE PIPE CLASS SHALL BE MINIMUM CLASS 200 DR 14 FOR 6-INCH PIPE AND CLASS 150 DR 18 FOR 8-INCH AND LARGER PIPE WHICH REFERS TO THE MAXIMUM HYDROSTATIC PRESSURE IN NORMAL OPERATIONS. LAYING LENGTHS SHALL BE 20 FEET***. PIPE AND FITTINGS MUST BE ASSEMBLED WITH A NONTOXIC LUBRICANT.
- ALL FITTINGS FOR PVC WATER PIPE SHALL BE GRAY IRON OR DUCTILE IRON AND SHALL BE CLASS 250 IN ACCORDANCE WITH AWWA C110-77 (ANSI.10).
- UNLESS OTHERWISE SPECIFIED ON PLANS OR SHOWN IN PROFILES, PVC WATER PIPE SHALL BE INSTALLED TO CLEAR ALL UTILITY LINES AND SHALL HAVE A MINIMUM COVER OF 36 INCHES BELOW THE LOWEST GRADE OF THE STREET AS PER CITY CODE.
- 4"-12" RESILIENT SEAT GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-500.
- A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE WHOSE OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4' OF VALVE BOX LID.
- DUCTILE IRON OR C-900 PVC PIPE SHALL BE USED FOR VALVE STACKS WITH VALVE BOX CASTING.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY KENNETH A. ROBERTS, P.E. 55446 ON OCTOBER 24, 1997



10-24-97

WATER DETAILS

ARAPAHO ROAD

ADDISON ROAD TO DALLAS NORTH TOLLWAY

TOWN OF ADDISON, TEXAS

Huitt-Zollars, Inc./Consulting Engineers
Dallas, Fort Worth, Houston, Phoenix, Tustin

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJECT NO.	NO.
HZI	HZI	KAR	N.T.S.	OCT 97	1772-01	W-9

RECORD DOCUMENTS 6/9/2000

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