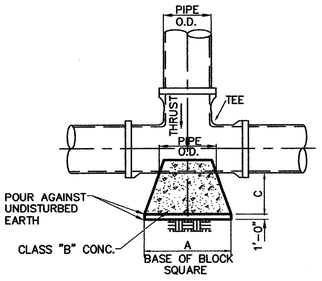
HORIZONTAL BENDS

DELTA	11.25°								22.50°								DELTA
			EARTH			ROCK					EARTH			ROCK			
I.D. (IN.)	G FT.	THRUST TONS	A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.	G FT.	THRUST TONS	A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.	I.D. (IN.)
4,6,8	0.4	1.0	1.0	1.5	0.1	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	2.2	1.5	1.5	0.1	1.0	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	5.0	2.0	2.5	0.3	1.5	2.0	0.2	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3	16,18
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5	24
DELTA	45°								90°								DELTA
I.D. (IN.)	G FT.	THRUST TONS	A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.	G FT.	THRUST TONS	A. FT.	B. FT.	VOL. C.Y.	A. FT.	B. FT.	VOL. C.Y.	I.D. (IN.)
4,6,8	0.4	3.9	2.0	2.0	0.2	1.5	1.5	0.1	0.4	5.0	5.0	1.5	0.4	2.0	2.0	0.2	4,6,8
10,12	0.5	8.7	3.5	2.5	0.5	2.0	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	19.5	4.5	4.5	1.2	3.0	3.5	0.6	0.6	9.0	9.0	4.0	2.4	4.5	4.0	1.0	16,18
24	0.9	34.6	8.0	4.5	2.3	4.5	4.0	1.1	0.9	14.5	14.5	4.5	5.0	8.0	4.0	2.1	24

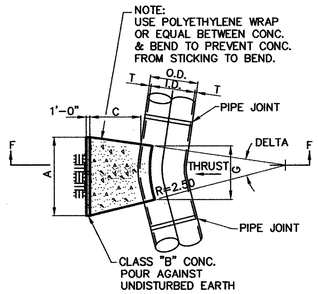
			EARTH		ROCK	
I.D. (IN.)	THRUST TONS	C. FT.	A. FT.	VOL. C.Y.	A. FT.	VOL. C.Y.
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7

VERTICAL BENDS

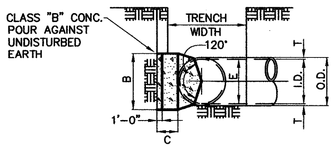
	11.25°		22.50°		30°		45°		67.50°		90°		
I.D. (IN.)	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	THRUST TONS	VOL. C.Y.	I.D. (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	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	41.8	20.9	45.2	22.6	24



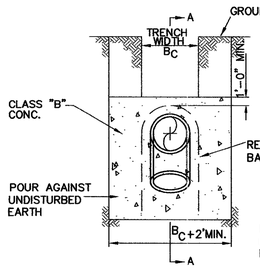
PLAN OF TEE THRUST BLOCK



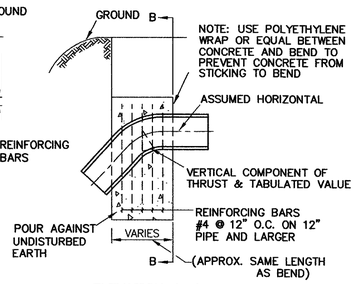
PLAN OF BEND THRUST BLOCK



SECTION F–F



ELEVATION B–B



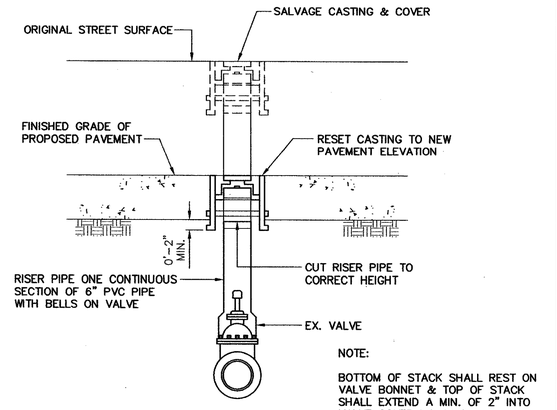
ELEVATION A–A

VERTICAL THRUST BLOCKS AT FITTINGS

N.T.S.

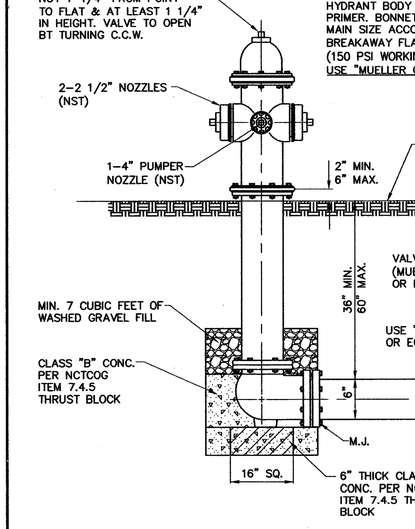
GENERAL NOTES FOR ALL THRUST BLOCKS

1. ALL CACULATIONS 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.
2. 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 COMPONET OF THRUST ON THE VERTICAL BEND.
3. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
4. CONCRETE FOR BLOCKING SHALL BE CLASS B CONCRETE.
5. 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.
6. CONCRETE BLOCKING SHALL BE IN PLACE A MINIMUM OF 4 DAYS PRIOR TO TESTING THE PIPELINE.



VALVE COVER & RISER PIPE ADJUSTMENT

N.T.S.



GENERAL NOTES:

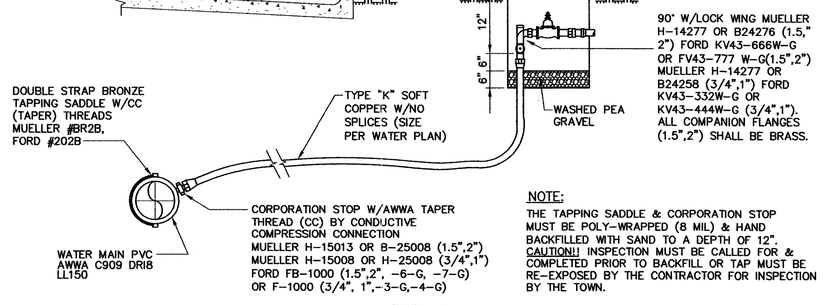
1. CL OF FIRE HYDRANT BARREL SHALL BE NOT LESS THAN 6.0' OR MORE THAN 9.0' FROM BACK OF CURB OR EDGE OF DRIVING LANE.
2. DO NOT SET FIRE HYDRANT IN AN EXISTING OR PROPOSED SIDEWALK, UNLESS OTHERWISE NOTED.
3. ALL FIRE HYDRANT TEES SHALL BE FLANGED TEE WITH ANCHORING ON THE BRANCH WITH FLANGED x M.J., M.J. 6" VALVE.
4. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE. (NOT APPLICABLE TO THIS PROJECT)
5. SEE SPECIFICATION FH–95–1 FOR ADDITIONAL REQUITEMENTS.

GATE VALVES AND VALVE BOXES:

1. GATE VALVES SHALL BE IRON BODY, BRONZE OR BRASS MOUNTED, NON–RISING STEM, RESILIENT WEDGE TYPE (SUCH AS MUELLER A–2360). VALVES SHALL BE OF EQUAL OR GREATER PRESSURE CLASS THAN THE PIPING IN WHICH THEY ARE TO BE INSTALLED.
2. VALVE BOXES SHALL BE CAST IRON AND SHALL BE OF SUFFICIENT LENGTH AND DIAMETER TO OPERATE ALL VALVES BURIED IN THE GROUND. COVERS SHALL BE MARKED "WATER". THE BOXES SHALL REST ON THE VALVE AND BE ADJUSTED SO THAT THE COVER MAY SET FLUSH WITH THE FINISHED GRADE.
3. VALVE DEPTH GREATER THAN 4 FEET REQUIRES VALVE EXTENSION STEM.

TYPICAL FIRE HYDRANT INSTALLATION

N.T.S.



NOTE:
THE TAPPING SADDLE & CORPORATION STOP MUST BE POLY–WRAPPED (8 MIL) & HAND BACKFILLED WITH SAND TO A DEPTH OF 12". CAUTION!! INSPECTION MUST BE CALLED FOR & COMPLETED PRIOR TO BACKFILL OR TAP MUST BE RE–EXPOSED BY THE CONTRACTOR FOR INSPECTION BY THE TOWN.

ELEVATION

TYPICAL WATER SERVICE DETAIL UP TO 2" METER

N.T.S.

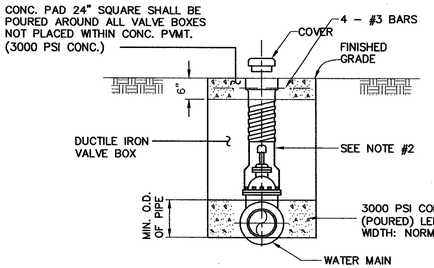
GENERAL NOTES

1. POLYVINYL CHLORIDE (PVC) WATER PIPE SHALL MEET OR EXCEED REQUIREMENTS OF AWWA C909 PVC PIPE WITH CAST IRON OUTSIDE DIMENSIONS. PIPE SHALL BE APPROVED FOR USE IN CITIES AND TOWNS OF THE STATE OF TEXAS BY THE STATE BOARD OF INSURANCE.
2. PVC WATER PIPE SHALL BE FURNISHED WITH A RUBBER RING AT EACH JOINT AND AND INTEGRAL THICKENED BELL AS A PART OF EACH JOINT. THE PIPE CLASS SHALL BE MINIMUM CLASS 150 DR 18 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 LUBIRCANT.
3. FITTINGS FOR PVC WATER PIPE SHALL BE GRAY IRON OR DUCTILE IRON OF THE BELL ANDSPIGOT. OR MECHANICAL JOINT TYPE AND SHALL BE CLASS 250 IN ACCORDANCE WITH AWWA C110–77 (ANSI.10)
4. 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.
5. 4"–12" RS GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C–500.
6. 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.
7. DUCTILE IRON OR C–900 PVC PIPE SHALL BE USED FOR VALVE STACKS WITH VALVE BOX CASTING.
8. ALL ANCHOR BOLTS SHALL BE GALVANIZED.
9. ALL WATER MAINS WILL BE INSTALLED WITH A LOCATION WIRE PER THE TOWN OF ADDISON REQUIREMENTS.
10. POLYWRAP ALL IRON FITTINGS AND VALVES.

AS-BUILT
NOVEMBER 4, 2004

NOTE:
THESE PLANS HAVE BEEN REVISED TO CONFORM WITH CONSTRUCTION RECORDS PROVIDED BY CONTRACTOR.

STATE OF TEXAS
ROBERT R. JEBAVY
55528
REGISTERED
PROFESSIONAL ENGINEER
11/4/04



TYPICAL GATE VALVE SETTING & BOX

N.T.S.

NOTES:

1. GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C–509–80 OR LATEST THEREOF. ALL VALVES SHALL BE "MUELLER" OR APPROVED EQUAL.
2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE ON WHICH THE 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 I'TS TOP IS WITHIN 4' OF VALVE BOX LID. MANUFACTURED VALVE STACK DUCTILE IRON PIPE TO BE USED FOR EXTENSION GREATER THAN 4'–0". BELL END OF STACK TO BE FITTED OVER VALVE. VALVE AND VALVE STACK IS TO BE POLY WRAPED.
3. VALVES SHALL BE OF DUCTILE IRON W/RUBBER ENCAPSULATED DISK. BOLTS SHALL BE STAINLESS STEEL OF SAME SIZE ON EACH VALVE.
4. ALL WATER COVERS SHALL BE MARKED "WATER".

WATER DETAILS

PARKVIEW AT ADDISON CIRCLE
TOWN OF ADDISON, TEXAS
DALLAS COUNTY

BROCKETTE · DAVIS · DRAKE , inc.
consulting engineers
Civil & Structural Engineering·Surveying
4144 North Central Expressway, Suite 1100 Dallas,Texas 75204
(214)824–3647, fax (214) 824–7064

DESIGNED	DRAWN	DATE	SCALE	NOTES	FILE	NO.
RRJ	BDD	04/04	AS SHOWN	BDD	C03393	C33

C03393\PLANS CD\33–WATER–DET–PVT.DWG