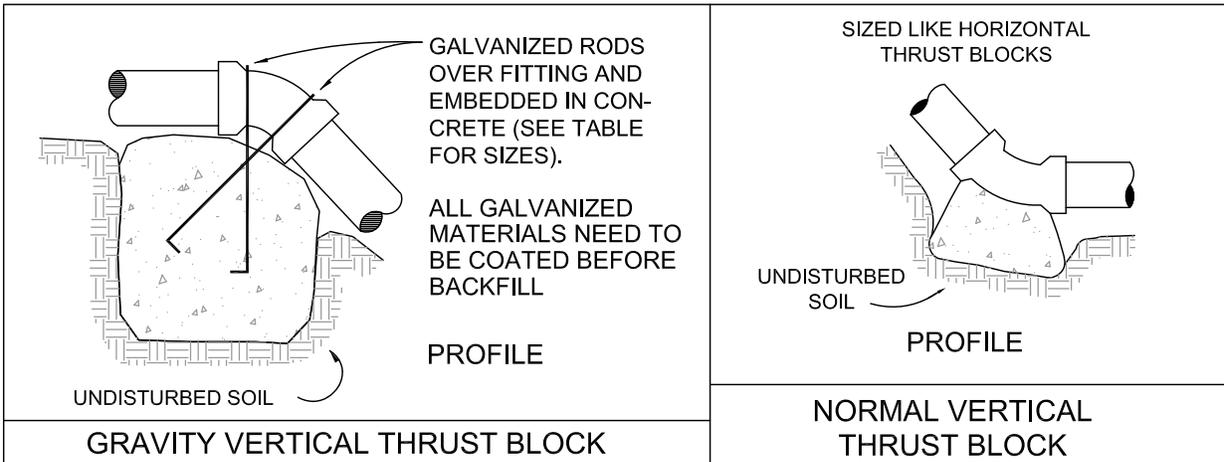


THIS DETAIL DRAWING SHALL NOT BE ALTERED OR CHANGED IN ANY MANNER EXCEPT BY THE CITY ENGINEER. IT IS THE RESPONSIBILITY OF THE USER TO ACQUIRE THE MOST CURRENT VERSION OF THE DETAIL.

NOTE:

1. GRAVITY VERTICAL THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
2. KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN 8MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
3. CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
4. CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3300 P.S.I.
5. THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS SHALL BE BASED ON TEST PRESSURE OF 180 PSI AND THE WEIGHT OF CONCRETE = 4050 LBS./CU.YD.
6. VERTICAL BENDS THAT REQUIRE A THRUST BLOCK VOLUME EXCEEDING 5 CUBIC YARDS REQUIRE SPECIAL BLOCKING DETAILS. SEE PLANS FOR VOLUMES SHOWN INSIDE HEAVY LINE IN TABLE BELOW.
7. PAYMENT SHALL BE THE SAME AS FOR HORIZONTAL THRUST BLOCKS.
8. ALL REBAR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-123 (MIN. 3.4 MIL). REBAR SHALL BE BENT BEFORE GALVANIZATION, AND LAST 4" OF BAR SHALL BE BENT 90 DEGREES WITH A 1/2" RADIUS BEND. REBAR SHALL BE TIGHTLY FIT TO RESTRAINED FITTING.
9. FOR HORIZONTAL THRUST BLOCK DETAILS SEE DWG NO. WL-406.



VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)			
FITTING SIZE	BEND ANGLE		
	45 °	22 1/2 °	11 1/4 °
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3

FITTING SIZE	ROD SIZE	EMBED- MENT
12" AND LESS	#6	30"
14" - 16"	#8	36"

VERTICAL THRUST BLOCKING

	DATE: 2010
	DRAWING NO. WL-407
	FILE NO.