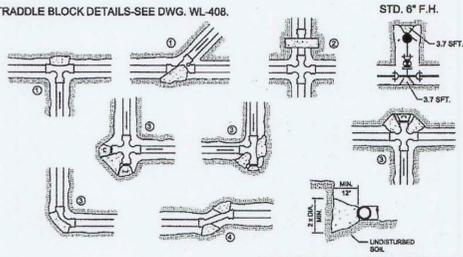


FITTING SIZE (Inches)	TEE, WYE & HYDRANTS	STRADDLE BLOCK	90° BEND PLUGGED CROSS TEE	45° BEND	22 1/2° BEND	11 1/2° BEND
2	*	*	*	*	*	*
4	1.7	2.1	2.4	1.3	-	-
6	3.7	4.9	5.3	2.9	1.5	-
8	6.7	8.7	9.5	5.1	2.7	1.3
10	10.8	13.8	14.8	8	4.1	2
12	15.1	19.8	21.3	11.8	5.9	2.9
14	20.8	26.8	27.9	16.5	8.4	3.8
16	28.8	34.8	37.9	22.5	10.4	5.2
18	33.9	44	47.9	28.5	13.8	6.7
LARGER	**	**	**	**	**	**

BEARING AREA OF THRUST BLOCKS (sq. ft.)

- ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS: AVG. PRESSURE = 100 PSI X 2 (safety factor); 1500 PSF SOIL BEARING CAPACITY; NORMAL DISTRIBUTION DESIGN VELOCITY NOT TO EXCEED 5 F/S.
- ALL FITTINGS SHALL BE WRAPPED IN 8 MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
- BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL.
- ALL CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 PSI.
- ALL PIPE ZONES SHALL BE GRAVEL FILLED AND COMPACTED.
- THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.
- VERTICAL THRUST DETAILS-SEE DWG. WL-407.
- STRADDLE BLOCK DETAILS-SEE DWG. WL-408.

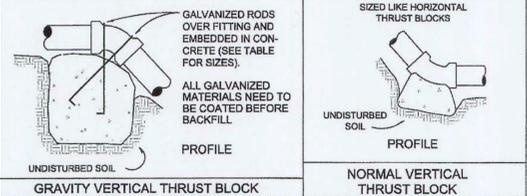


HORIZONTAL THRUST BLOCKING

DATE: 2010
DRAWING NO. WL-406
FILE NO.

* BLOCK TO UNDISTURBED TRENCH WALLS.
** THRUST BLOCKS FOR PIPES LARGER THAN 18" WILL BE INDIVIDUALLY DESIGNED BY THE ENGINEER.

- NOTE:
- GRAVITY VERTICAL THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
 - KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN 8MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
 - CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
 - CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3300 P.S.I.
 - 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.
 - 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.
 - PAYMENT SHALL BE THE SAME AS FOR HORIZONTAL THRUST BLOCKS.
 - 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.
 - 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	EMBEDMENT
12" AND LESS	#6	30"
14" - 16"	#8	36"

VERTICAL THRUST BLOCKING

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

SECTION A-A

SECTION B-B

PLAN VIEW

NOTE:

- BOTTOM RISER TO BE BEDDED IN THE CAST-IN-PLACE AS THE BASE TAKES ITS INITIAL SET. SET FOR 24 HOUR MIN. OR UNTIL CONCRETE HAS CURED SUFFICIENTLY BEFORE ADDING ADDITIONAL RISERS.
- 3" TO 6" CLEARANCE BETWEEN BOTTOM RISER SECTION AND TOP OF PIPE. RISER SECTION MUST BE CAST TO ACCOMMODATE PIPE (DOG HOUSE) NO SAWING OR OR BREAKING OF RISER WILL BE ALLOWED.
- REMOVE TOP OF PIPE ONLY AFTER TESTING AND ACCEPTED BY CITY.

NEW MANHOLE TO EXISTING PVC SEWER LINE CONNECTION

DATE: 2010
DRAWING NO. WL-210A
FILE NO.

FRONT VIEW

SIDE VIEW

NOTE:

- WATER MAIN SHALL BE CLEANED BEFORE ATTACHING SLEEVE.
- SLEEVE AND VALVE SHALL BE PRESSURE TESTED BEFORE MAKING TAP.
- PRESSURE TEST AND TAP SHALL BE MADE IN THE PRESENCE OF AN AUTHORIZED CITY REPRESENTATIVE.
- PROPER TAPPING MACHINE SHALL BE USED TO MAKE TAP.
- THRUST BLOCKING REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER OR PER DWG. WL-406.
- TAP SHALL BE MADE NO CLOSER THAN 18 INCHES FROM THE NEAREST JOINT OR TAP.
- SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL PLASTIC.
- SLEEVES TO BE USED ARE JCM OR MUELLER STAINLESS STEEL TAPPING SLEEVES. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
- SLEEVE SHALL BE AS LEVEL AS POSSIBLE.
- ALL BOLTS SHALL HAVE NEVER SIEZE ON THREADS.

STANDARD WET TAP

DATE: 2010
DRAWING NO. WL-410
FILE NO.

CONSTRUCTION DETAILS

SUNCREST DRIVE
6-LOT SUBDIVISION
TAX LOT 6700
T2S R1E, SECTION 23 BD
WEST LINN, OREGON

NO.	DATE	REVISIONS DESCRIPTION
1	7-13-11	REV. PER CITY COMMENTS
2	7-28-11	REV. PER CITY COMMENTS

EMERIO Design

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BEAVERTON, OREGON 97008
PH: (503) 515-5528
FAX: (503) 639-9592



APPROVED FOR CONSTRUCTION BY
CITY OF WEST LINN

This approval is only for general conformance with the design concept and general compliance with applicable codes and requirements and shall not be construed as relieving the Design Engineer of full responsibility for accuracy and completeness of the drawings. This plan review approval does not prevent the City from requiring further code corrections.

DATE: 8/1/11 BY: [Signature] ENGINEERING
DATE: 8/1/11 BY: [Signature] PLANNING