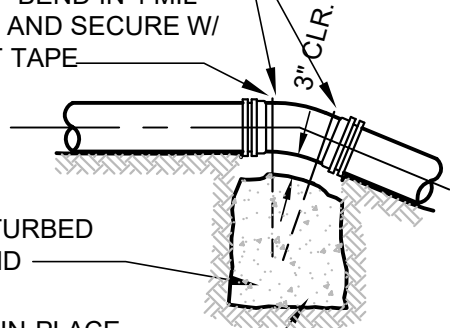


$\frac{3}{4}$ " 'COR-TEN' OR #4 REBAR. BEND LAST FOOT OF EMBEDDED ENDS 90°.

WRAP BEND IN 4 MIL POLY AND SECURE W/ DUCT TAPE

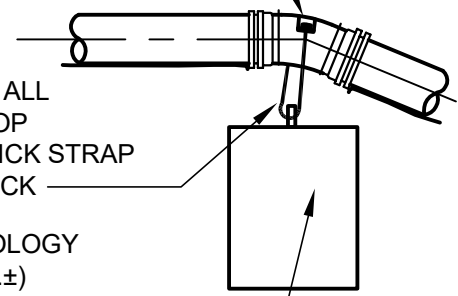


UNDISTURBED GROUND

CAST-IN-PLACE GRAVITY THRUST BLOCK (1) CY MIN. SEE NOTE 5.

CAST IN PLACE

PIPE CLAMP (DIAM. OF PIPE). SECURE ALL THREAD W/ (2) $\frac{3}{4}$ " HEX NUTS



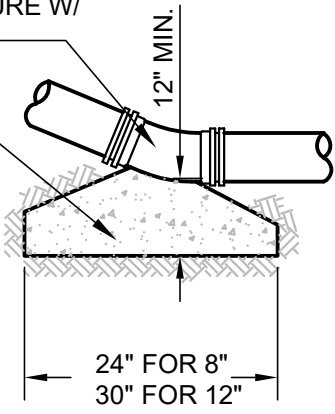
$\frac{3}{4}$ " 'COR-TEN' ALL THREAD-LOOP THROUGH PICK STRAP OF ECO-BLOCK

FULL SIZED ECOLOGY BLOCK (3000 LB.±) PERPENDICULAR TO TRENCH & "KEYED" INTO NATIVE GROUND

ECOLOGY BLOCK OPTION

WRAP BEND IN 4 MIL POLY AND SECURE W/ DUCT TAPE

POURED IN PLACE CONC. SEE NOTE 5.



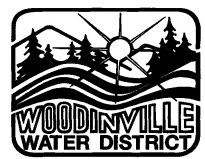
REVERSE VERTICAL BENDS

RESTRAINED JOINT REQUIREMENTS

BEND SIZE	MIN. REQUIRED DISTANCE (LF) PIPE RESTRAINT EA. SIDE W/O VERTICAL BLOCKING		MIN. REQUIRED DISTANCE (LF) PIPE RESTRAINT EA. SIDE WITH VERTICAL BLOCKING	
	4" TO 8"	12"	4" TO 8"	10" TO 12"
11 1/4°	30	30	0	0
22 1/2°	40	40	10	20
45°	NA	NA	20	30

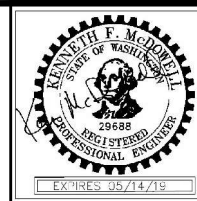
NOTES:

1. DRAWING SUBMITTAL REQUIRED FOR APPROVAL BY THE DISTRICT WHEN PIPE DIAMETER EXCEEDS 12" OR VERTICAL DEFLECTION MORE THAN 45 DEGREES.
2. EBAA IRON MEG-A-LUGS OR EQUAL REQUIRED ON ALL MECHANICAL JOINTS.
3. POOR GROUND CONDITIONS WILL REQUIRE ADDITIONAL RESTRAINT AS DIRECTED BY THE DISTRICT.
4. ALL REVERSE VERTICAL BENDS SHALL BE BLOCKED AS SHOWN.
5. CONCRETE TO BE MIN. 3000 PSI COMPRESSIVE STRENGTH.



**Woodinville
Water District**

**VERTICAL BLOCKING
RESTRAINT REQUIREMENTS**



**WATER STD.
PLAN NO. 4**

REVISION DATE
12-11