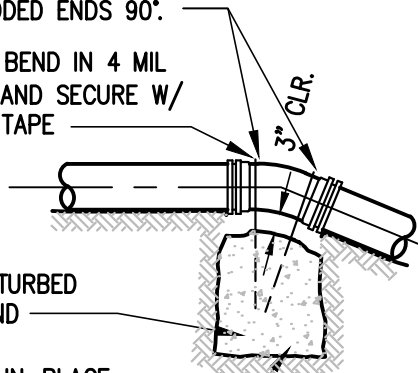


3/4" 'COR-TEN' OR #4 REBAR.
BEND LAST FOOT OF
EMBEDDED ENDS 90°.

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.



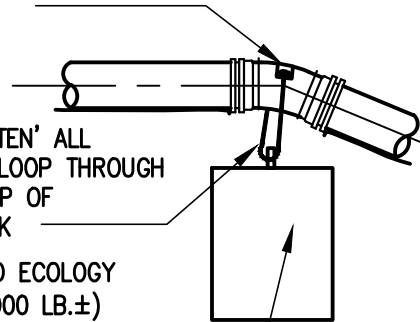
CAST IN PLACE

PIPE CLAMP (DIAM. OF PIPE).
SECURE ALLTHREAD W/ (2)
3/4" HEX NUTS

3/4" 'COR-TEN' ALL
THREAD- LOOP THROUGH
PICK STRAP OF
ECO-BLOCK

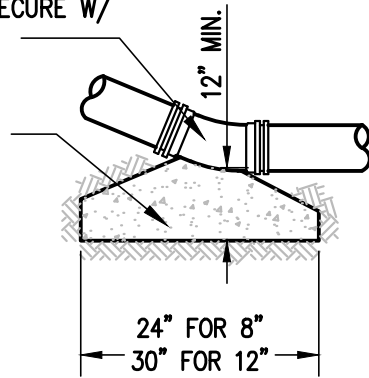
FULL SIZED ECOLOGY
BLOCK (3000 LB.±)
PERPENDICULAR TO
TRENCH & "KEYED" INTO
NATIVE GROUND

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 WITHOUT 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

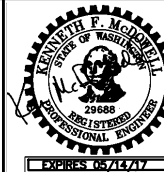
NOTES:

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