

TYPE I
FIRM, UNYIELDING
GROUND. STANDARD

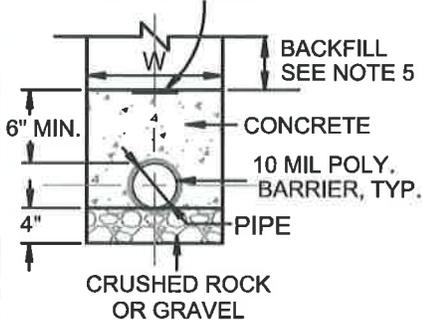
TYPE II
FIRM, UNYIELDING
GROUND (EXTRA)

TYPE III
ROCKY, POOR
SUB-BASE

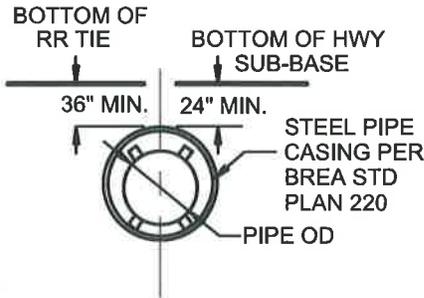
TYPE IV
UNSTABLE, YIELDING
GROUND; WET.

BEDDING

LOCATE 2" METAL TAPE
MARKED "WATER", TYP.
FOR ALL CASES



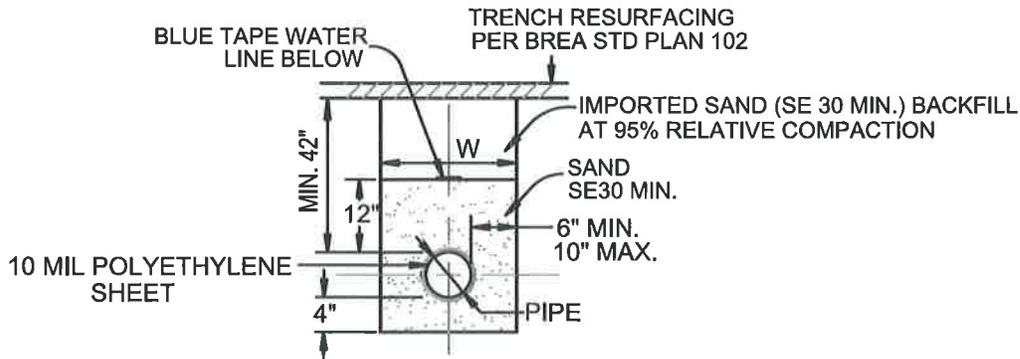
**CONCRETE
ENCASEMENT**
STANDARD



NOMINAL PIPE DIA. /OD (IN)	STEEL CASING	
	DIA. (IN)	WALL THICKNESS
6"	18"	3/8"
8"	18"	3/8"
10"	22"	3/8"
12"	26"	3/8"
15"	30"	1/2"
18"	34"	1/2"

PIPE CASING

UNDER RAILROAD OR HIGHWAY
OR WITHIN 10' (FEET) OF STRUCTURE



TYPICAL WATER TRENCH DETAIL

NOTES: SEE SHEET 2.



PIPE BEDDING AND ENCASEMENT

APPROVED:

[Signature]
CITY ENGINEER

DATE: 10-15-2013

STD. PLAN NUMBER
313-0
SHEET 1 OF 2

NOTES:

1. ALL TRENCHING AND CONSTRUCTION OPERATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
2. TRENCH WIDTH DIMENSION "W" SHALL BE A MINIMUM OF THE PIPE GREATEST O.D. PLUS 12" (INCHES) AND A MAXIMUM OF O.D. PLUS 20" (INCHES) TO A POINT 12" (INCHES) ABOVE TOP OF PIPE.
3. WHEN "W" HAS BEEN EXCEEDED OR ABNORMAL SOIL CONDITIONS EXIST, THE CITY ENGINEER MAY REQUIRE CONSTRUCTION USING TYPE II, III, OR IV BEDDING.
4. UTMOST CARE MUST BE TAKEN TO THOROUGHLY COMPACT THE MATERIAL BELOW THE SPRINGLINE OF THE PIPE.
5. BACKFILL SHALL BE SAND (SE 30 MIN.) OR GRAVEL, FREE FROM LARGE ROCKS, LUMPS, OR ORGANIC MATERIAL, AND COMPACTED TO THE REQUIRED RELATIVE DENSITY. 1-1/2 SACK CEMENT-SAND SLURRY BACKFILL SHALL BE USED WHEN DIRECTED BY THE CITY ENGINEER IN TUNNELS, UTILITY CROSSINGS OF EXISTING TRAVEL WAYS AND IN ALL ARTERIAL HIGHWAYS.
6. CONCRETE ENCASEMENT IS REQUIRED WHEN THE PIPE COVER IS LESS THAN 42 INCHES. CONSTRUCTION PLANS MUST DETAIL ANY ENCASEMENT REQUIRED FOR STRUCTURAL PURPOSES.
7. CONCRETE ENCASEMENT AND BEDDING SHALL BE CLASS 380-C-2000 CONCRETE.
8. GROUT SHALL BE ONE PART PORTLAND CEMENT TO SIX PARTS SAND BY VOLUME.
9. PIPE CASING AND JACKING SHALL BE APPROVED BY THE CITY ENGINEER BEFORE CONSTRUCTION.



PIPE BEDDING AND ENCASEMENT

APPROVED:

[Handwritten signature]
CITY ENGINEER

DATE: 10-15-2013

STD. PLAN NUMBER

313-0

SHEET 2 OF 2