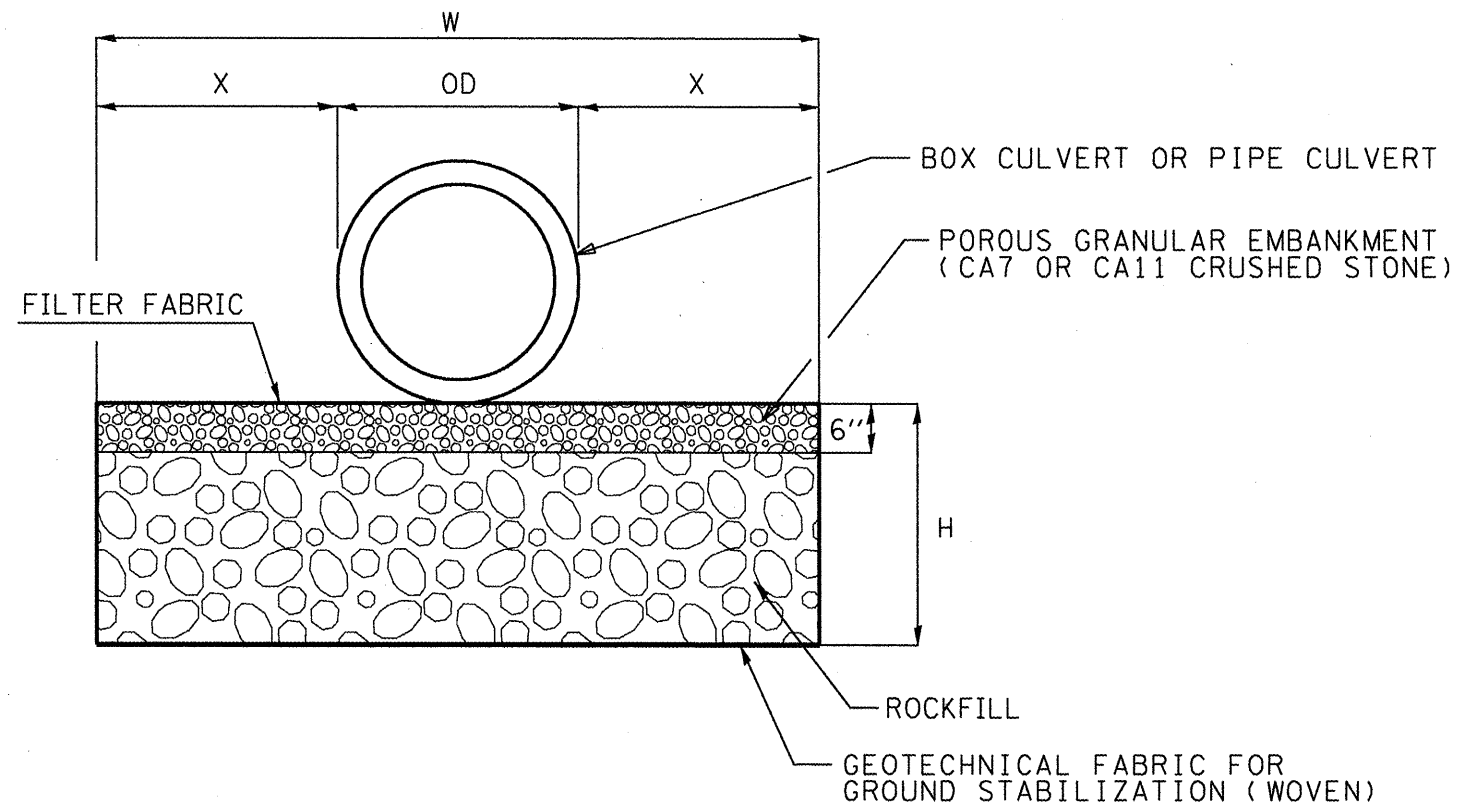


ALTERNATE I: FOR 12" TO 18" UNDERCUT



ALTERNATE II: FOR 18" AND GREATER UNDERCUT

| CULVERT LOCATION | UNDERCUT DIMENSIONS* | | | | | CULVERT UNDERCUT QUANTITIES | | | | | | |
|------------------|----------------------|-------------|--------------|-------------|-----------------------|----------------------------------|---|-----------------------|--------------------------------------|--------------------------------|--|---------------------------------|
| | DEPTH 'h' (FT) | Width | | | Length 'L' (FT) | TRENCH BACKFILL (CU. YDS.) | POROUS GRANULAR EMBANKMENT (TON) | ROCK FILL (TON) | GEOTECHNICAL FABRIC (SQ. YDS.) | FILTER FABRIC (SQ. YDS.) | REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL (CU. YD.) | ROCK EXCAVATION (CU. YD.) |
| | | 'x' (FT) | 'OD' (FT) | 'w' (FT) | | | | | | | | |
| PIPES | | | | | | | | | | | | |
| 674+01 | 4 | 2 | 4.25 | 8.25 | 62.0 | | | | | | | |
| 683+14 | 2 | 2 | 5.4 | 9.4 | 64.7 | | | | | | | |
| 698+70 | | | | | | 10.2 | | | | | | |
| 714+38 | 1 | 2 | 4.3 | 8.25 | 79.0 | | | | | | 9.0 | |
| 733+64.5 | 2 | 2 | 3.1 | 7.1 | 43.0 | | | | | | | |
| 743+12 | 3 | 2 | 4.25 | 8.25 | 97.0 | | | | | | | |
| 772+96.5 | 2 | 2 | 3.1 | 7.1 | 43.0 | | | | | | | |
| 864+33 | | | | | | 9.9 | | | | | | |
| TOTAL | | | | | | 20 | 146 | 427 | 354 | 558 | 255 | 9 |

GENERAL NOTES:

- Undercut if the Dynamic Cone Penetrometer tests indicate soil strength is less than 1 ton/sq ft.
- DEFINITIONS:
 OD = Outside Diameter or outside width of box culvert
 h = Depth of undercut (for box culverts, the upper 6" shall be included in the cost of the various box culvert pay items).
 x = 2' for pipe culverts
 x = h or minimum 2 feet, which ever is greater for box culverts.
 W = Width of undercut = 2x + OD
- Wrap porous granular material and rock fill in filter fabric. The fabric shall be according to the requirements of the applicable portions of section 1080 and section 282 with 6 or 8 oz/sy material allowed.

All dimensions are in inches (millimeters) unless otherwise noted.