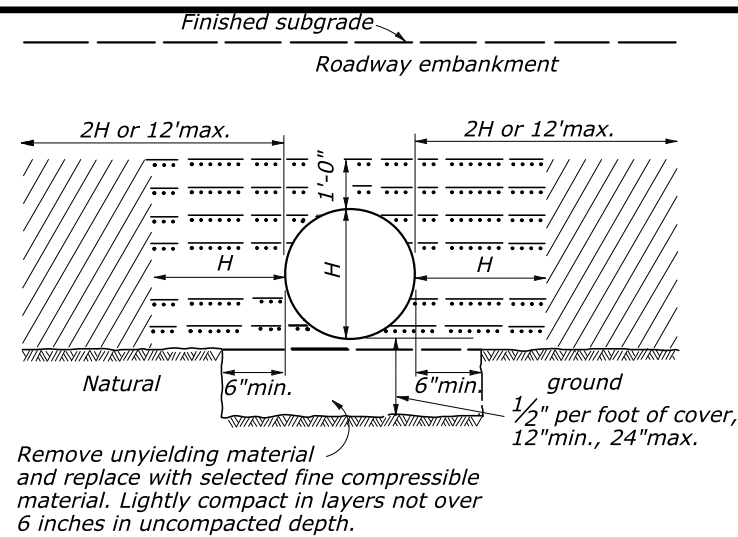


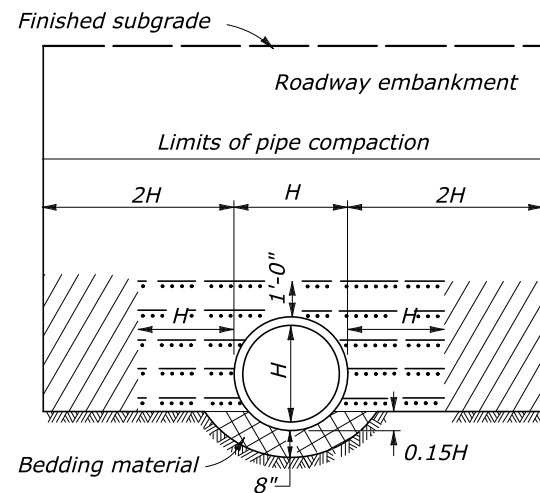
CONCRETE ROUND PIPE CULVERT									
FILL HEIGHT AND PIPE CLASS TABLE									
PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	EMBANKMENT				TRENCH			
		CLASS II	CLASS III	CLASS IV	CLASS V	CLASS II	CLASS III	CLASS IV	CLASS V
MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE IN FEET									
12	12	11	11	16	23	18	18	26	37
18	12	10	10	25	39	14	14	31	45
24	12	11	11	15	31	15	15	22	40
30	12	9	13	16	35	13	17	20	46
36	12	9	9	20	41	11	14	26	56
48	12	12	14	26	44	16	17	31	50
60	12	15	17	28	44	15	20	32	50
72	12	13	17	31	41	16	20	35	49
84	12	13	19	31		15	23	37	
96	12	13	20			16	24		
108	12	16	20			19	26		



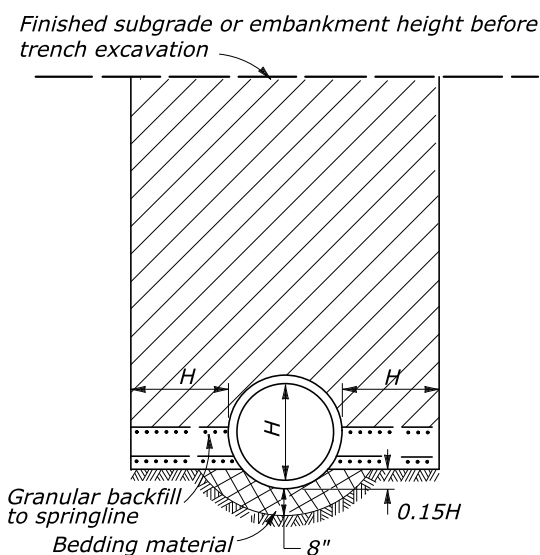
NOTES:

- When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
- Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavements.
- Pipe compaction limits shown are for pipe installation in an embankment. For pipe installation in a trench, the compaction limits shall be the walls of the trench.
- When grades exceed 10%, install supplemental concrete pipe ties on pipe culvert or install bell and spigot pipe.
- Maximum fill heights for pipe culvert installations may be increased on approval of site-specific structural pipe designs meeting the criteria of AASHTO Standard Specifications for Highway Bridges.
- Use supplemental concrete pipe ties on last downstream pipe-to-pipe joint and at downstream pipe-to-end section joint, if present. Use elsewhere as specified in the contract documents. All tie hardware shall be galvanized and conform to ASTM A 307.

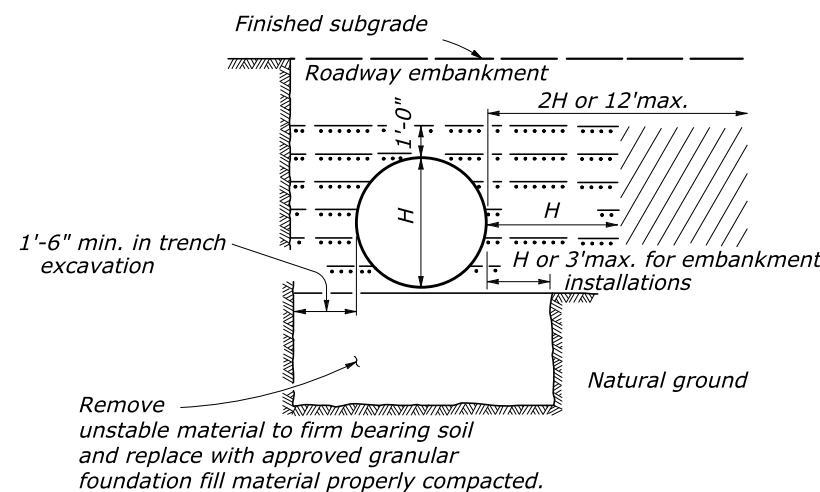
ON UNYIELDING MATERIAL



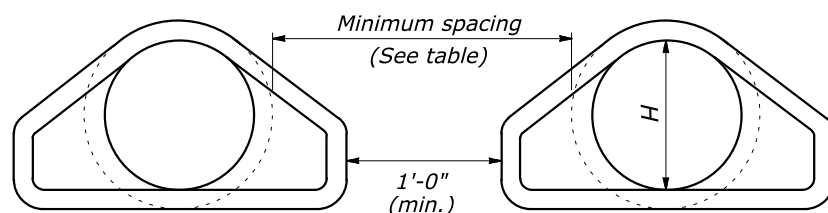
EMBANKMENT INSTALLATION



TRENCH INSTALLATION



ON UNSTABLE MATERIAL

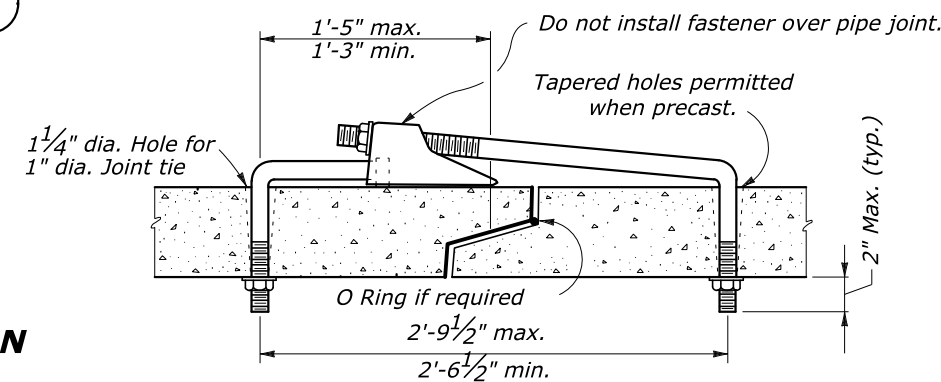


MINIMUM SPACING		
DIAMETER INCHES	EMBANKMENT	TRENCH
12-36	15"	2H
36-96	4 1/2"	72"
OVER 96	48"	72"

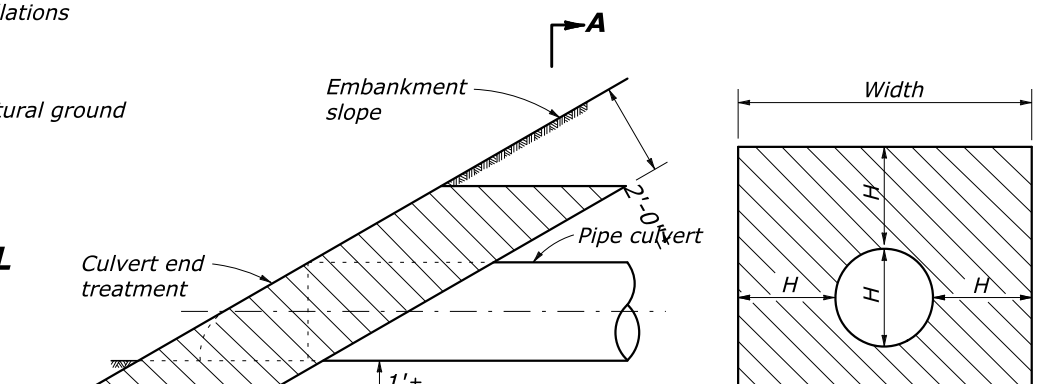
MULTIPLE ROUND PIPE INSTALLATION

LEGEND:

- Bedding material
- Embankment material placed in layers not exceeding 6" compacted depth.
- Approved granular material or fine compactable soil placed in layers not exceeding 6" compacted depth.



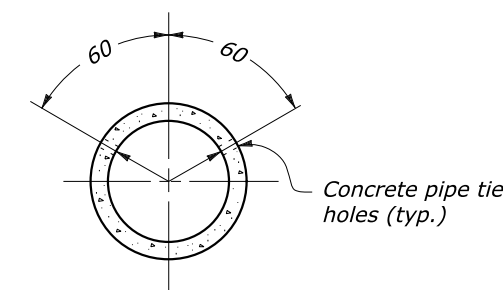
SUPPLEMENTAL CONCRETE PIPE TIE



SECTION A-A

PIPING PLUG

Construct piping plug at culvert inlet when embankment material is classified other than AASHTO A-6 or A-7. Inlets with full-height headwalls or slope paving excluded. Construct plug of A-6 or A-7 material or other approved material with a permeability not to exceed 0.004 in./sec. Width may be adjusted to tie into impervious material.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION EASTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
CONCRETE PIPE CULVERT INSTALLATION	
DETAIL APPROVED FOR USE	DETAIL
APPROVED : MAY 2011	E602-07