

### CONCRETE ROUND PIPE CULVERT

PIPE SIZE DIAMETER	FILL HEIGHT AND PIPE CLASS TABLE									
	MINIMUM COVER	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 METERS								
300	300	3.0	3.0	4.5	7.0	5.5	5.5	8.0	4.0	
450	300	3.0	3.0	7.5	12.0	4.0	4.0	9.0	13.5	
600	300	3.0	3.0	4.5	9.0	4.5	4.5	6.5	12.0	
750	300	2.5	4.0	4.5	10.5	4.0	5.0	6.0	14.0	
900	300	2.5	2.5	6.0	12.5	3.0	4.0	8.0	17.0	
1200	300	3.5	4.0	8.0	13.5	4.5	5.0	9.0	15.0	
1500	300	4.5	5.0	8.5	13.5	4.5	6.0	9.5	15.0	
1800	300	4.0	5.0	9.0	12.5	4.5	6.0	10.5	15.0	
2100	300	4.0	5.5	9.0		4.5	7.0	11.0		
2400	300	4.0	6.0			4.5	7.0			
2700	350	4.5	6.0			5.5	8.0			

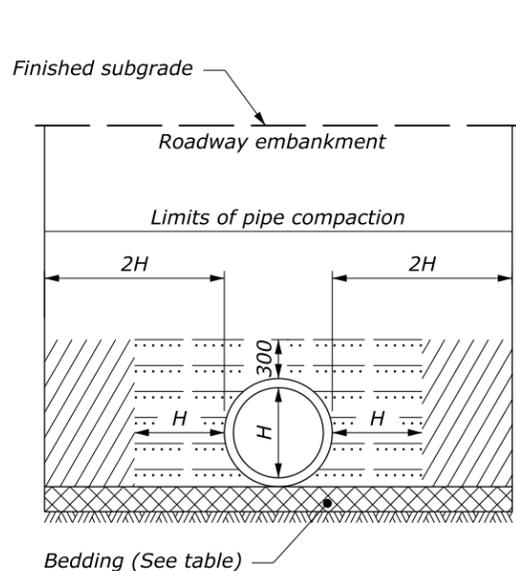
#### LEGEND:

-  Bedding material (uncompacted).
-  Embankment material placed in layers not exceeding 150 compacted depth.
-  Compacted backfill material placed in layers not exceeding 150 compacted depth, or lean concrete backfill in accordance with Section 614
-  Impermeable backfill material.

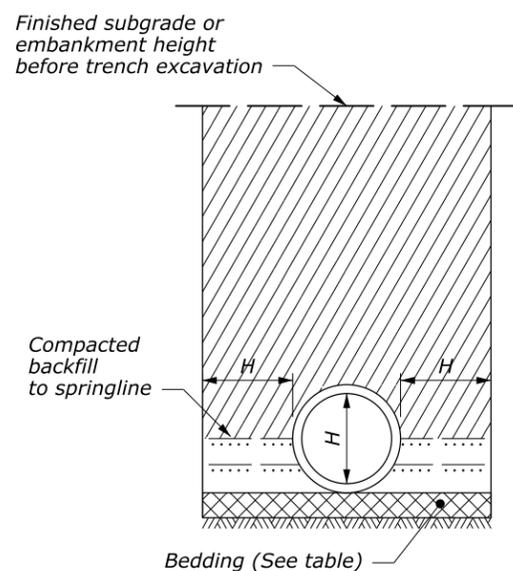
#### NOTE:

- When directed, camber pipe culverts upwards 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.
- Where unyielding or unstable material is encountered, install the pipe culvert according to the limits of pipe compaction shown on Standard M602-3.
- 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 Tie when specified in the contract documents.
- Dimensions without units are millimeters.

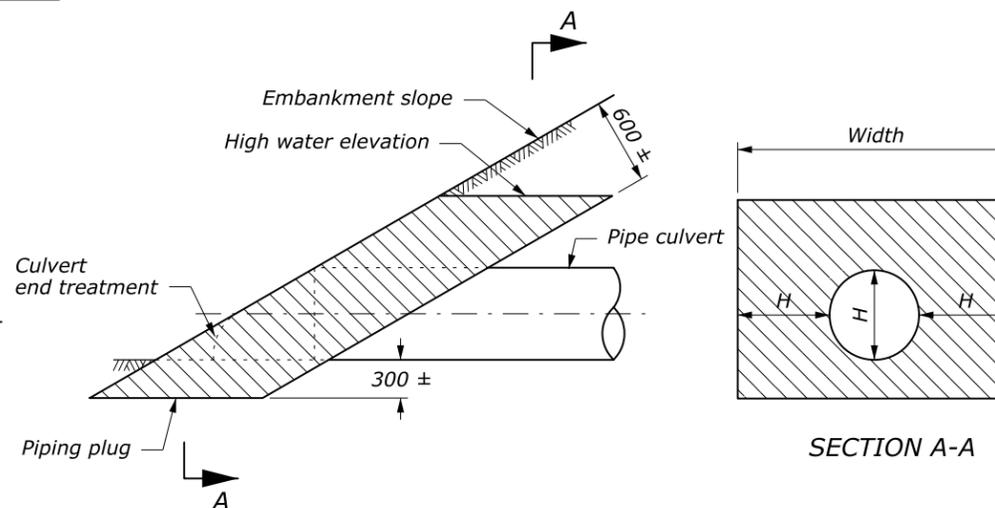
BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
300 TO 1350	100
> 1350	150



#### EMBAKMENT INSTALLATION

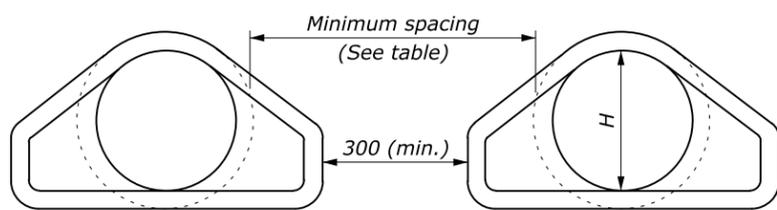


#### TRENCH INSTALLATION



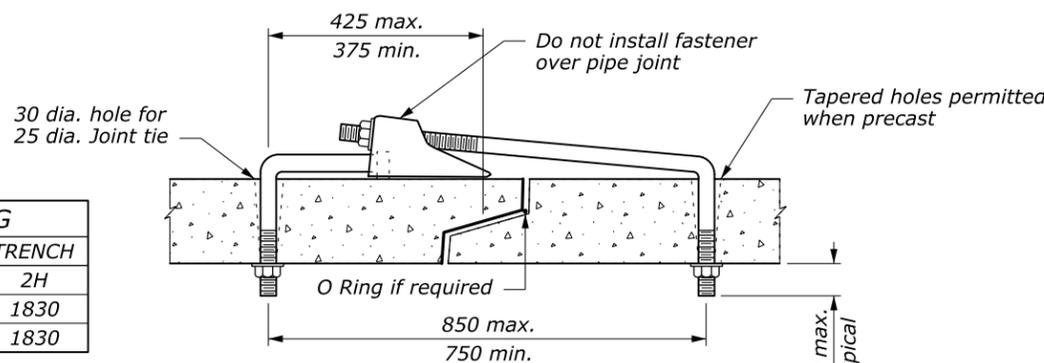
Construct a piping plug of impermeable backfill material at the pipe inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

#### PIPING PLUG

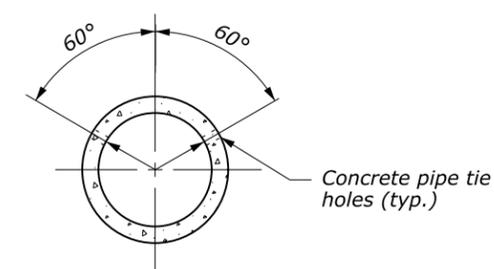


#### MULTIPLE ROUND PIPE INSTALLATION

MINIMUM SPACING		
DIAMETER	EMBANKMENT	TRENCH
300 - 900	380	2H
900 - 2400	0.5H	1830
OVER 2400	1220	1830



#### SUPPLEMENTAL CONCRETE PIPE TIE



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
METRIC STANDARD	
<b>CONCRETE PIPE CULVERT INSTALLATION</b>	
STANDARD APPROVED FOR USE 3/1996	STANDARD
REVISED: 6/2005 DRAFT: 6/2008	M602-7