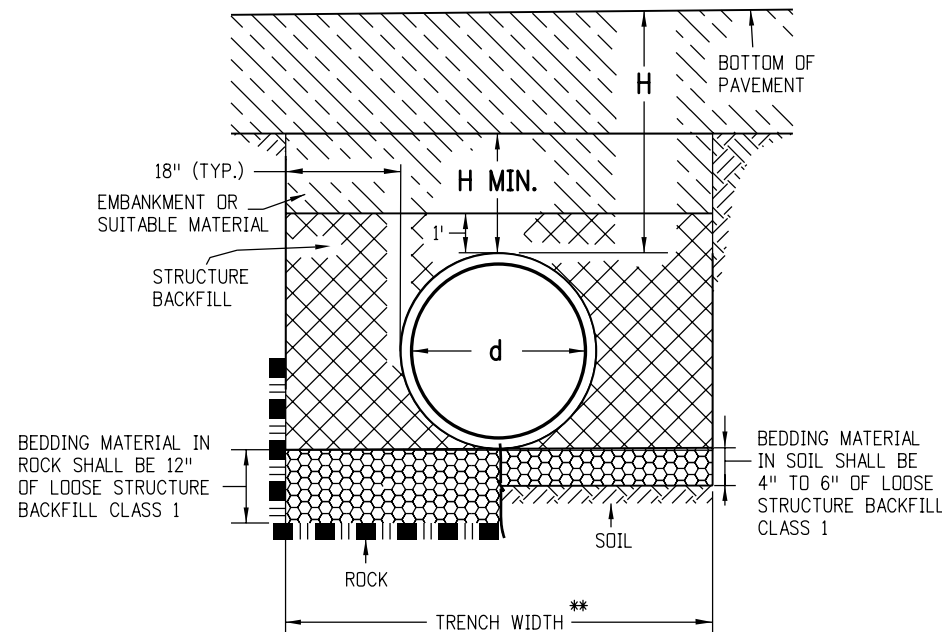


**LEGEND**

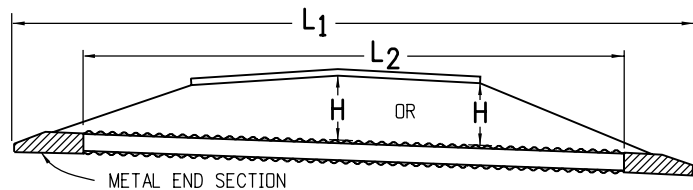
**H** = HEIGHT OF COVER LIMIT, MAXIMUM ALLOWABLE HEIGHT OF FILL OVER THE TOP OF THE PIPE, EXCLUDING PAVEMENT THICKNESS.  
 FILL HEIGHTS AND DESIGN ASSUMPTIONS ARE BASED ON AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4TH EDITION, SECTION 12, FOR 900 PSI LONG TERM STRENGTH OF HDPE, AND AASHTO T180 MINIMUM RELATIVE COMPACTION OF 95% OR 90%.  
 FILL HEIGHTS ARE BASED ON AASHTO'S M294, TYPE S PIPE WITH OUTER CORRUGATED WALL AND SMOOTH INNER LINEAR.  
 FILL HEIGHTS FOR INSTALLATION WITH HIGH WATER TABLE REQUIRE SPECIAL DESIGN. THE MAXIMUM HEIGHT IN HIGHWATER LOCATIONS SHOULD BE 15 FEET OR BASED ON AASHTO LRFD DESIGN SPECIFICATIONS.

**H MIN.** = THE MINIMUM COVER SHALL BE AS SHOWN ON THESE TABLES OR CONFORM TO AASHTO REQUIREMENTS, WHICHEVER IS GREATER. THE MINIMUM COVER FOR PIPE IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT: HMA OR PCCP.  
 THE MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE SUBGRADE DURING CONSTRUCTION. THE MINIMUM COVER IS BASED ON DUAL AXLE LOADS UP TO 50,000 POUNDS.  
 THE MINIMUM COVER IS BASED ON THE LATEST AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATION, SECTION 30.

**L<sub>1</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 617 OR 624.  
**L<sub>2</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.  
**+** = THE MINIMUM SPACING BETWEEN PIPES' OUTSIDE WALLS OR END SECTIONS ARE 18" OR 1/2 d, WHICHEVER IS GREATER, UP TO 36 INCHES MAXIMUM.

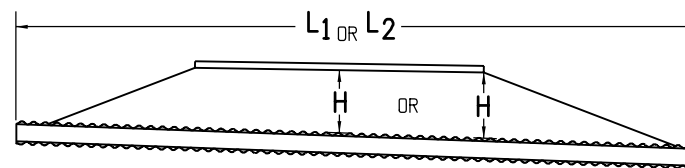


**INSTALLATION OF PIPE**



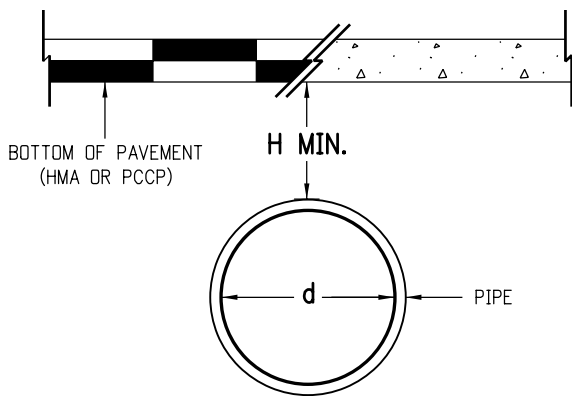
NOTE: USE THE **H** THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

**PIPE WITH END SECTIONS**



NOTE: USE THE **H** THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

**PIPE WITHOUT END SECTIONS**



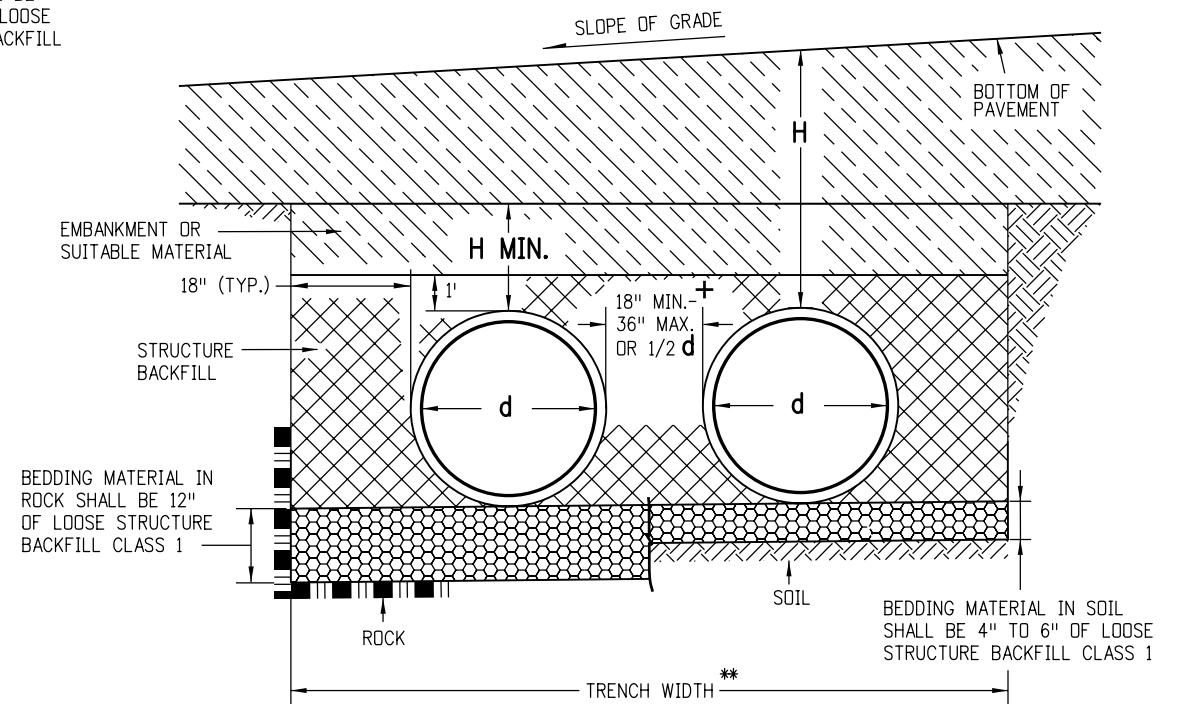
**MINIMUM COVER FOR PIPE**

PIPE DIAMETER, d (IN.)	MINIMUM HEIGHT OF COVER, H MIN. (FT.)	MAXIMUM HEIGHT OF COVER, H (FT.)	
		95% COMPACTION	90% COMPACTION
12	2	27	19
15	2	29	20
18	2	24	17
24	2	21	15
30	2	18	12
36	2	20	13
42	2	19	13
48	3	17	12
60	3	20	13

**MINIMUM AND MAXIMUM COVER**

**GENERAL NOTES**

- ALL PIPES SHALL MEET THE REQUIREMENTS OF AASHTO M294, TYPE S FOR HIGH DENSITY CORRUGATED POLYETHYLENE PIPE (HDPE) WITH SMOOTH INNER SURFACE.
- PIPES THAT MEET AASHTO M294, TYPE D, RIBBED POLYETHYLENE WITH SMOOTH INNER AND OUTER SURFACE, MAY BE SUBSTITUTED FOR TYPE S.
- WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL INSTALLATION SHALL BE USED.
- ADEQUATE COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE PIPE FROM DAMAGE.
- BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 206. BACKFILL FOR THE PIPE SHALL BE REQUIRED TO MEET THE MINIMUM AASHTO T180 RELATIVE COMPACTION OF 95% OR 90% FOR H MIN. ABOVE THE PIPE.
- WHEN INSTALLING A GUARDRAIL OR A SIGN POST DIRECTLY ABOVE A PIPE, THE POST'S BOTTOM MUST BE AT LEAST 1 FOOT FROM THE TOP OF THE PIPE. THE HOLE FOR THE POST SHALL BE DRILLED INTO THE SOIL.
- STRUCTURE BACKFILL MATERIAL SHALL BE CLASS 1 FOR ONE FOOT ABOVE THE PIPE.
- FOR PIPES 24 INCHES OR LESS IN DIAMETER, H MIN. MAY BE REDUCED TO ONE FOOT FOR LOW VOLUME APPROACH ROADS NOT ON STATE HIGHWAYS.



**INSTALLATION OF MULTIPLE PIPES**

\*\* TRENCH WIDTH ASSUMES STABLE IN-SITU SIDE WALL

NOMINAL PIPE DIAMETER (IN.)	MINIMUM COVER (IN.) FOR INDICATED AXLE LOADS (KIPS)			
	18.0-50.0	50.0-75.0	75.0-110.0	110.0-150.0
24 - 36	24.0	30.0	36.0	36.0
42 - 48	36.0	36.0	42.0	48.0
54 - 60	36.0	36.0	42.0	48.0

**AASHTO MINIMUM COVER FOR CONSTRUCTION LOADS**

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Sheet Revisions	
Date:	Comments
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(R-X)	

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**CORRUGATED POLYETHYLENE PIPE (AASHTO M294)**  
 Issued By: Project Development Branch on July 09, 2009

**STANDARD PLAN NO. M-603-4**  
 Sheet No. 1 of 1