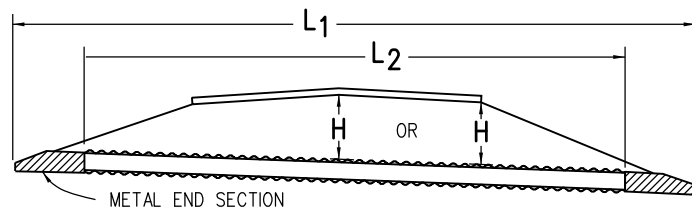


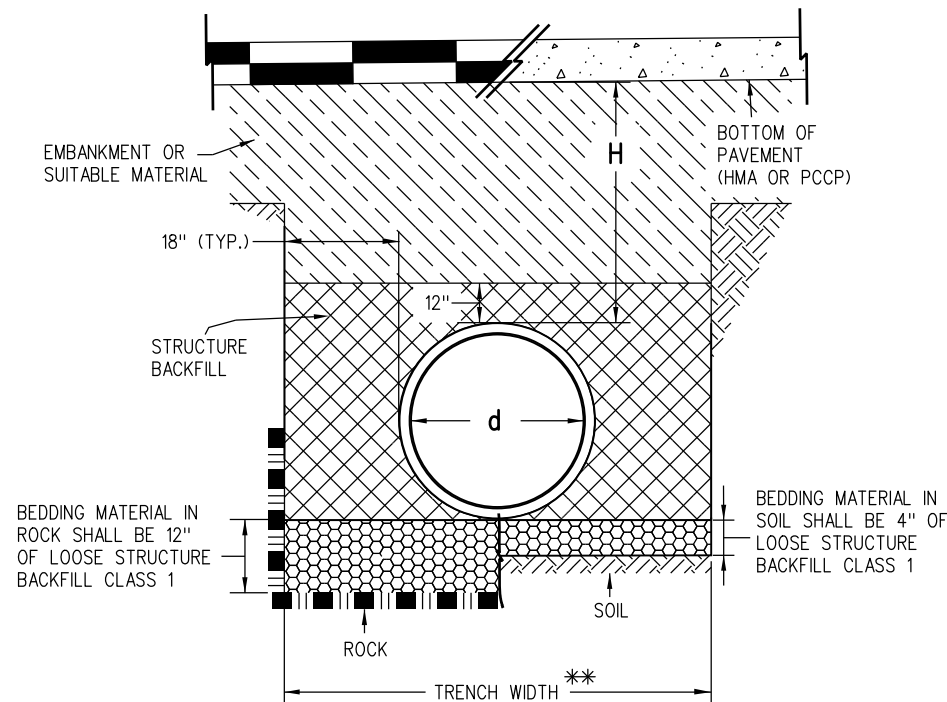
**LEGEND**

- H** = MAXIMUM ALLOWABLE HEIGHT OF COVER OVER THE TOP OF THE PIPE, EXCLUDING PAVEMENT THICKNESS.
- FILL HEIGHTS AND DESIGN ASSUMPTIONS ARE BASED ON AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, SECTION 12.7.
- FILL HEIGHTS ARE BASED ON AASHTO MP 20, TYPE S PIPES WITH RIBBED REINFORCED STEEL WALLS.
- FILL HEIGHTS FOR INSTALLATION WITH HIGH WATER TABLE REQUIRE A SPECIAL DESIGN.
- 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.
- L<sub>1</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.
- L<sub>2</sub>** = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.
- +** = THE MINIMUM SPACING BETWEEN THE OUTSIDE WALLS OF MULTIPLE PIPES OR END SECTIONS IS 18" OR d/2, WHICHEVER IS GREATER.

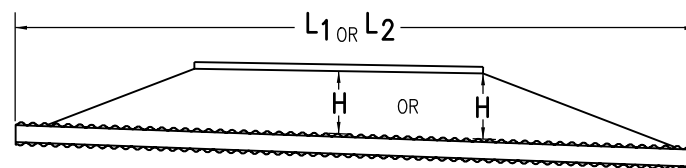


NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

**PIPE WITH END SECTIONS**

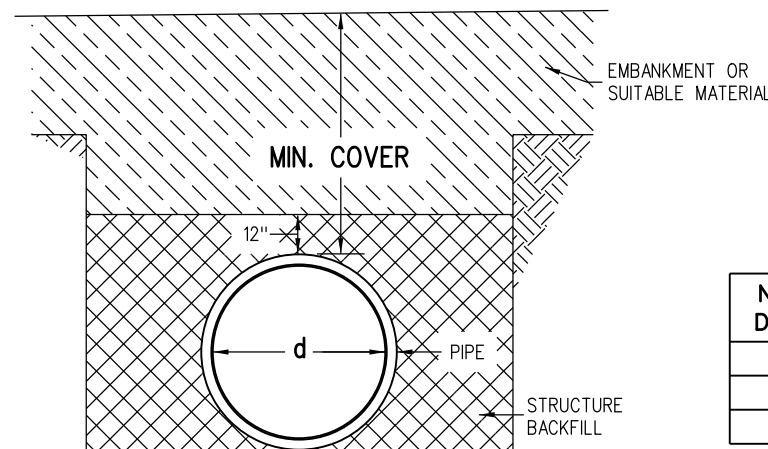


**INSTALLATION OF PIPE**



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

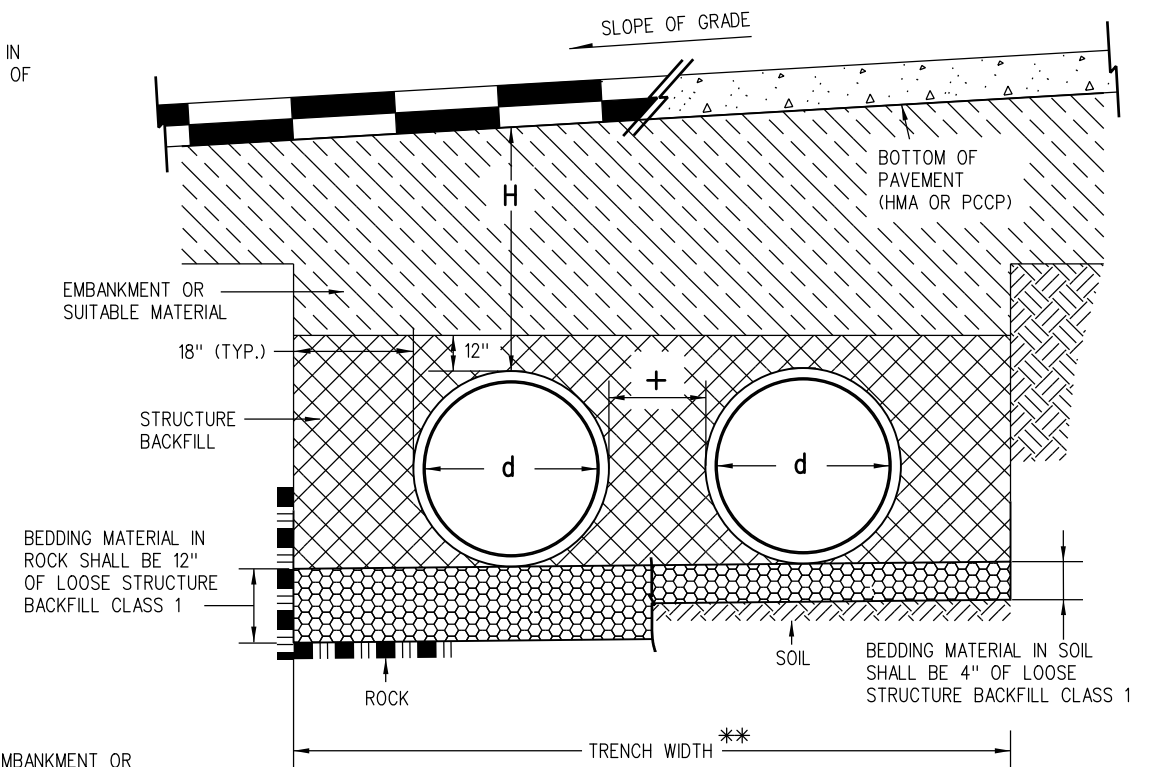
**PIPE WITHOUT END SECTIONS**



**CONSTRUCTION MINIMUM COVER FOR PIPE**

**GENERAL NOTES**

- ALL PIPES SHALL MEET THE REQUIREMENTS OF AASHTO MP 20 FOR STEEL REINFORCED, POLYETHYLENE, TYPE S RIBBED PIPE WITH SMOOTH INNER SURFACE. INSTALLATION SHALL CONFORM TO AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 3RD EDITION, SECTION 26.
- WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL INSTALLATION SHALL BE USED.
- MINIMUM COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE PIPE FROM DAMAGE.
- WHEN INSTALLING A GUARDRAIL OR A SIGN POST DIRECTLY ABOVE A PIPE, THE POST'S BOTTOM MUST BE AT LEAST 1 FOOT ABOVE THE TOP OF THE PIPE. THE HOLE FOR THE POST SHALL BE DRILLED INTO THE SOIL.
- STRUCTURE BACKFILL MATERIAL SHALL BE CLASS 1.



**INSTALLATION OF MULTIPLE PIPES**

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

| PIPE DIAMETER, d (IN.) | H MINIMUM HEIGHT OF COVER (FT.) | H MAXIMUM HEIGHT* OF COVER (FT.) |
|------------------------|---------------------------------|----------------------------------|
| 30                     | 2                               | 50                               |
| 36                     | 2                               | 50                               |
| 42                     | 2                               | 50                               |
| 48                     | 2                               | 30                               |
| 54                     | 2                               | 30                               |
| 60                     | 2.5                             | 30                               |

\* A MANUFACTURER'S CERTIFICATION OF MAXIMUM ALLOWABLE FILL HEIGHT IS REQUIRED PRIOR TO INSTALLATION.

**MINIMUM AND MAXIMUM COVER**

| 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 |
| 30 - 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**

**Computer File Information**

Creation Date: 03/06/15 Initials: DLM  
 Last Modification Date: 04/30/15 Initials: LTA  
 FullPath: www.coloradodot.info/business/designsupport  
 Drawing File Name: 603060101.dgn  
 CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

**Sheet Revisions**

| Date:    | Comments  |
|----------|---|
| 03/06/15 | Created M-603-6   |
| 04/30/15 | Revised 4th and 6th paragraph in Legend. Deleted Gen. Note 6. Added footnote and revised quantities in Min. and Max. Cover Table. Change dia from 24 to 30 in AASHTO Min. Cover for Construction Loads table. |

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**STEEL REINFORCED  
 POLYETHYLENE RIBBED PIPE  
 (AASHTO MP 20)**

Issued By: Project Development Branch on March 6, 2015

**STANDARD PLAN NO.**

**M-603-6**

**Sheet No. 1 of 1**