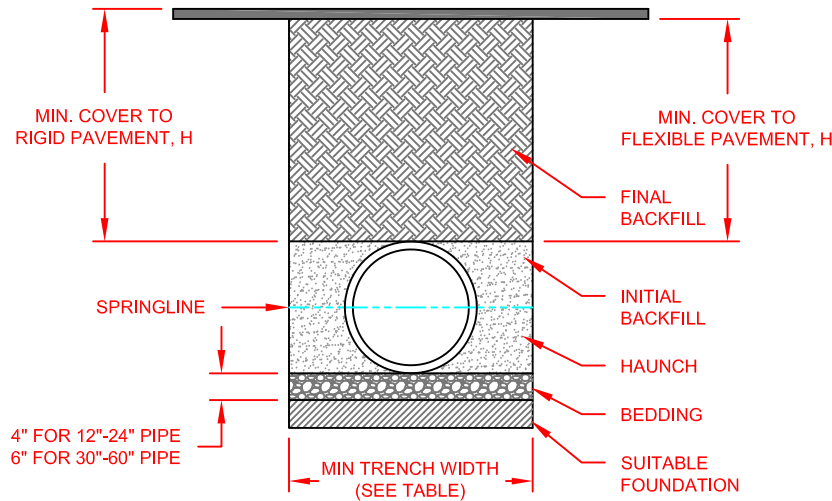


N-12 HP STORM TRENCH INSTALLATION DETAIL



NOTES:

- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION, WITH THE EXCEPTION THAT THE INITIAL BACKFILL MAY EXTEND TO THE CROWN OF THE PIPE. SOIL CLASSIFICATIONS ARE PER THE LATEST VERSION OF ASTM D2321. CLASS IVB MATERIALS (MH, CH) AS DEFINED IN PREVIOUS VERSIONS OF ASTM D2321 ARE NOT APPROPRIATE BACKFILL MATERIALS.
- MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 12"-24" (300mm-600mm) DIAMETER PIPE; 6" (150mm) FOR 30"-60" (750mm-900mm) DIAMETER PIPE. THE MIDDLE 1/3 BENEATH THE PIPE INVERT SHALL BE LOOSELY PLACED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE CLASS I, II, III, OR IV IN THE PIPE ZONE EXTENDING TO THE CROWN OF THE PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. COMPACTION SHALL BE SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH TABLE 3 FOR THE APPLICABLE FILL HEIGHTS LISTED. PLEASE NOTE, CLASS IV MATERIAL HAS LIMITED APPLICATION AND CAN BE DIFFICULT TO PLACE AND COMPACT; USE ONLY WITH THE APPROVAL OF A SOIL EXPERT.
- MINIMUM COVER:** MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" (300mm) FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS; CLASS I OR II MATERIAL COMPACTED TO 90% SPD AND CLASS III COMPACTED TO 95% SPD IS REQUIRED. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" (300mm) UP TO 48" (1200mm) DIAMETER PIPE AND 24" (600mm) OF COVER FOR 60" (1500mm) DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. CLASS IV MATERIALS ARE NOT RECOMMENDED AS BACKFILL FOR TRAFFIC APPLICATION WITH LESS THAN 72" (1830mm) OF COVER MEASURED FROM TOP OF PIPE TO TOP OF SURFACE.

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN TRENCH WIDTH
12" (300mm)	30" (750mm)
15" (375mm)	34" (860mm)
18" (450mm)	39" (990mm)
24" (600mm)	48" (1200mm)
30" (750mm)	56" (1420mm)
36" (900mm)	64" (1620mm)
42" (1050mm)	72" (1830mm)
48" (1200mm)	80" (2030mm)
60" (1500mm)	96" (2440mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (300mm)	48" (1200mm)
60" (1500mm)	24" (600mm)	60" (1500mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TABLE 3, MAXIMUM COVER FOR ADS N-12 HP PIPE, ft

PIPE DIA	CLASS I COMPACTED	CLASS II			CLASS III			CLASS IV
		95%	90%	85%	95%	90%	85%	
12" (300mm)	39 (11.9m)	27 (8.2m)	20 (6.1m)	15 (4.6m)	21 (6.4m)	16 (4.9m)	14 (4.3m)	13 (4.0m)
15" (375mm)	42 (12.8m)	29 (8.8m)	21 (6.4m)	16 (4.9m)	22 (6.7m)	17 (5.2m)	15 (4.6m)	14 (4.3m)
18" (450mm)	36 (11.0m)	25 (7.6m)	18 (5.5m)	13 (4.0m)	19 (5.8m)	14 (4.3m)	13 (4.0m)	12 (3.7m)
24" (600mm)	31 (9.4m)	22 (6.7m)	16 (4.9m)	11 (3.4m)	16 (4.9m)	12 (3.7m)	11 (3.4m)	10 (3.0m)
30" (750mm)	36 (11.0m)	25 (7.6m)	18 (5.5m)	13 (4.0m)	19 (5.8m)	14 (4.3m)	13 (4.0m)	12 (3.7m)
36" (900mm)	32 (9.8m)	23 (7.0m)	16 (4.9m)	11 (3.4m)	16 (4.9m)	12 (3.7m)	11 (3.4m)	10 (3.0m)
42" (1050mm)	37 (11.3m)	25 (7.6m)	18 (5.5m)	13 (4.0m)	18 (5.5m)	13 (4.0m)	12 (3.7m)	9 (2.7m)
48" (1200mm)	35 (10.7m)	24 (7.3m)	17 (5.2m)	12 (3.7m)	17 (5.2m)	13 (4.0m)	11 (3.4m)	9 (2.7m)
60" (1500mm)	37 (11.3m)	25 (7.6m)	17 (5.2m)	12 (3.7m)	18 (5.5m)	13 (4.0m)	11 (3.4m)	7 (2.1m)


FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
HEIGHT OF WATER (Hw) = CROWN + 1', UNIT WEIGHT OF SOIL (γs) = 120 PCF

2	GENERAL UPDATE	CKM	12/4/12	
REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

**TYPICAL STORM TRENCH DETAIL
N-12 HIGH PERFORMANCE (HP)**

DRAWING NUMBER: STD-108



4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

ADVANCED DRAINAGE SYSTEMS, INC.

DRAWN BY: JAB

DATE: 01/29/09

SCALE: NTS

SHEET: 1 OF 1