Product Note 3.116

Re: Singlewall Pipe Installation Guide
Date: July 1, 1995

Product Notes

ADS
ADVANCED DRAINAGE SYSTEMS, INC.

ADS corrugated polyethylene pipe is a flexible conduit, as is corrugated metal pipe. When properly installed, ADS culvert pipe has excellent load bearing strength. **To ensure maximum performance, ADS pipe should be installed in accordance with the following installation recommendations:**

1. Crushed stone, gravel or compacted soil backfill material should be used as the bedding and envelope material around the culvert. The aggregate size should not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe should be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it should be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

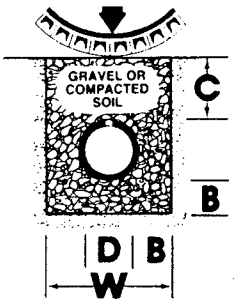
3. Either flexible (asphalt) or rigid (concrete) pavements may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

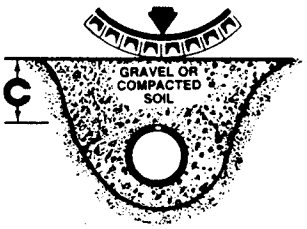
5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 90% is required. This is the same minimum compaction that is recommended by all culvert pipe manufacturers and can be achieved by either hand or mechanical tamping.

Two types of installations are recommended for H-20 live loads -- the heaviest legal highway loads. These are the trench and open ditch installations. The minimum height of cover recommendations are the same for both conditions.

Trench Installation



Open Ditch Installation



Minimum Dimensions -
Trench or Open Ditch Installations

Nominal Diameter D	Minimum Thickness B	Minimum Cover C	Min. Trench Width W
3"	4"	12"	20"
4"	4"	12"	21"
6"	4"	12"	23"
8"	4"	12"	25"
10"	4"	12"	28"
12"	5"	12"	31"
15"	5"	12"	34"
18"	6"	12"	39"
24"	6"	12"	48"

Note 1. ADS pipe also is recommended for residential driveway culverts and field crossings. Because these installations are not subject to repeated heavy truck traffic, the recommended compaction level is 85%. This compaction typically can be achieved by hand tamping the backfill material around the pipe. The minimum heights of cover for these installations are as listed in the above table.

Note 2. For more detailed installation data, contact the nearest ADS sales office.

Applicable Specifications and Installation Guidelines

1. ASTM F 405, Standard Specification for Corrugated Polyethylene Tubing and Fittings
2. ASTM F 667, Standard Specification for Large Diameter Corrugated Polyethylene Tubing and Fittings
3. AASHTO M 252, Standard Specification for Corrugated Polyethylene Drainage Tubing
4. AASHTO M 294, Standard Specification for Corrugated Polyethylene Pipe, 12" to 24" Diameter
5. ASTM D 2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications