

LAPEER COUNTY ROAD COMMISSION
PERSONNEL AND OPERATIONS POLICY MANUAL

Policy Subject: **PLACEMENT OF PLASTIC (HDPE) PIPE UNDER ROADWAYS AND DRIVEWAYS**

Authorized by Board of Road Commissioners Date: 10/21/2009

STATEMENT OF POLICY

Whereas the use of high-density polyethylene (HDPE) pipe is becoming increasingly popular, and whereas, the performance of such pipe is highly dependent on the trench and backfill structure; it shall therefore be resolved that all such pipes placed within the Lapeer County road right-of-way shall meet the following requirements:

Material:

Pipe shall be dual wall, high-density polyethylene (NDPE/HDPE) – ADS N-12 or approved equivalent. The pipe shall meet or exceed the material requirements of the latest edition of AASHTO M294.

Size:

Diameters of 24 inches or smaller shall be allowed. Diameters 30 to 48 inches may be allowed with prior approval from the Road Commission Engineer. Length shall be determined by the driveway permit requirements or onsite conditions.

Minimum and Maximum Cover:

HDPE pipe shall not be used in applications where the depth of cover exceeds 10 feet.

The minimum cover shall be 18 inches. In applications where 18 inches of cover can not be obtained, cover of 12 inches or more may be allowed with Engineer approval.

Trench:

Due to its flexible nature, HDPE pipe requires increased trench width and bedding to ensure proper compaction around the pipe walls.

Trench bedding shall be a minimum of 4", with the bottom of the excavated trench being firm, even, and stable to provide uniform support.

Trench widths shall be sufficient to ensure working room to properly and safely place, backfill and compact the pipe. Minimum trench widths shall be as follows:

<u>Pipe Size (Inches)</u>	<u>Trench Width (Feet)</u>
15 or Less	3.0
18	3.5
21	4.0
24	5.5
30	6.0
36	6.5
48	7.5

Pavement removal shall be the trench width plus 1 foot each side of the trench minimum.

Backfill:

Granular material, Class II, shall be used to bed and backfill the trench. Compaction shall be in 4 to 6 inch layers until a point 12 inches above the pipe is reached. Compaction around the pipe must be done by hand. Compaction above this point may be done in 8 to 12 inch lifts.

Backfill shall be compacted to not less than 95% of its maximum unit weight. Density test reports shall be submitted and kept on file at the Road Commission office.

Joints:

The connection of pipe sections shall form a watertight, continuous flow line - free from irregularities. It is recommended that pipe joints be wrapped with geotextile blankets.

Deflection:

At the Road Commission Engineer's discretion, all pipe suspected of exceeding 5% deflection (as per AASHTO Section 30) shall require replacement or mandreling of the pipe with an effective diameter equal to 95% of the nominal pipe diameter. All pipe exceeding 5% deflection shall be replaced. Mandreling and replacement shall be at the owner's expense.

Flammability:

HDPE pipe can burn when exposed to flames. HDPE shall not be used in project locations where controlled burning is a common occurrence (crop, leaf, etc). If a culvert is damaged due to burning, it shall be replaced by the person(s) responsible for the damage.