



MATERIAL REQUIREMENTS

All ductile iron pipe shall have polyethylene encasement. The polyethylene film shall be tube type, the polyethylene film shall be manufactured from materials conforming to ASTM Standard Specification D-1248-68. Raw materials shall be Type I, Class A or C, Grade E-1, with a flow rate of 0.4 maximum and have a dielectric strength...volume resistivity, a maximum ohm - cm³ 10'. The film shall have a tensile strength of 1,200 psi minimum; elongation of 300%; and dielectric strength...of 800 v/mil thickness minimum. The polyethylene film shall have a minimum nominal thickness of 0.008 in. The tube size shall be as follows:

Nominal Pipe Diameter (in.)	Min. Polyethylene Width (in.)
8	24
10	27
12	30
14	34
16	37
18	41
20	45
24	54
30	67
36	81
42	95

The tape used to hold the film in place shall be polyethylene type 1-1/2" wide of a type recommended by the film manufacturer.

INSTALLATION REQUIREMENTS

The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material.

The general method of installing the film is as follows:

1. Cut the polyethylene film to a length two feet longer than the length of the pipe section. Slip the tube over the pipe. Center the tube to provide a one-foot overlap on each adjacent pipe section. Bunch the tube in accordion fashion lengthwise until it clears the pipe ends, and equipment support point(s).
2. Lower the pipe into the trench. Make up the pipe joint with the preceding section of pipe. A shallow ball hole must be made at the joints to facilitate the installation of the polyethylene tube.
3. After assembling the pipe joint, make the overlap of the polyethylene tube, pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe and secure in place with tape. Then slip the end of the polyethylene from the new pipe section over the end of the preceding length of pipe and secure the overlap in place; then pull lengthwise to take up the slack. Along the barrel of the pipe, take up the slack width and make snug, but not tight, securing the fold at the quarter points.
4. Any rips, punctures, or other damage to the polyethylene film shall be repaired with adhesive tape or tube section cut open and wrapped around the pipe. The tube section shall be secured in place with adhesive tape.
5. Proceed with the next section of pipe in the same manner.

APPURTENANCES

Bends, reducers, offsets, and other pipe-shaped appurtenances shall be covered with polyethylene film in the same manner as the pipe.

Odd-shaped appurtenances, including valves, ties, crosses, and other odd-shaped pieces which cannot be wrapped practically in a tube, shall be wrapped in a flat piece or split length of polyethylene tube. The sheet shall be brought under the appurtenance and brought up around the body. Seams shall be made by bringing the edges together, folding over twice and tapping down. Slack widths and overlaps shall be handled as described above for pipe joints. Tape the polyethylene securely in place at valves stem and other penetrations.

The use of the tape shall hold the film in position, but shall not require that all film protection be a completely air and water-tight enclosure.

BACKFILL

Backfill material shall be free from cinders, refuse, boulders, rocks, stones or other material that could damage the polyethylene film. Care shall be taken during placement of backfill to prevent damage to the polyethylene film wrapping. Backfill and or pipe bedding material shall be as specified for the pipe without the polyethylene wrapping.

JUNCTIONS BETWEEN WRAPPED AND UNWRAPPED PIPE

Where the polyethylene wrapped pipe joins a pipe which is not wrapped, extend the polyethylene tube to cover the unwrapped pipe a distance of at least two feet, secure the end with two circumferential turns of tape. Where beginning with a valve, install the wrapping material over the valve or other appurtenance.

OPENINGS IN ENCASEMENT

Openings for branches, service taps, blow-offs, air valves, and similar appurtenances shall be made by making an X-shaped cut in the polyethylene, and temporarily folding the film back. After the appurtenance is installed, tape the slack securely to the appurtenance and repair the cut, as well as any other damaged areas in the polyethylene with tape.

		CITY OF ELYRIA OHIO ENGINEERING DEPARTMENT	
		POLYETHYLENE ENCASEMENT FOR DUCTILE IRON PIPE	
		DR. BY _____	DATE _____
		CK. BY <i>ESB</i>	DATE <i>7-17</i>
BY	DATE	<i>Henry A. Skop</i>	
REVISIONS		APPROVED CITY ENGINEER	
			DRAWING 2-701