


<b>MODIFIED BY EI 92-041</b> <b>EFFECTIVE 9/16/92</b>	<h1>ENGINEERING INSTRUCTION</h1> <p>NEW YORK STATE DEPARTMENT OF TRANSPORTATION</p>	
<b>SUPERSEDED BY EI 93-033</b> <b>EFFECTIVE 2/24/94</b>	<b>SUBJECT: SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, ITEM 18603.97XX</b>  Subject Code: 7.27-3-603	
<b>Distribution:</b> 30      Main Office      32      Regions      34      Special		<b>Code:</b> <u>EI 90-36</u>
<b>APPROVED:</b>  <u>J. K. LAMBERT, Deputy Chief Engr., Fac. Design Div.</u>		<b>Date:</b> <u>10/1/90</u>  <b>Supersedes:</b> EI 90-14

The attached are specifications for smooth interior polyethylene pipe:

- ITEM 18603.9712 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 12" DIAMETER
- ITEM 18603.9715 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 15" DIAMETER
- ITEM 18603.9718 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 18" DIAMETER
- ITEM 18603.9724 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 24" DIAMETER
- ITEM 18603.9730 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 30" DIAMETER
- ITEM 18603.9736 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE, 36" DIAMETER

Engineering Instruction 90-14 issued specifications for smooth interior corrugated polyethylene pipe having diameters of 12, 15, 18 and 24 inches. We are now reissuing the specification with additional diameters of 30 and 36 inches and EI 90-14 is hereby superseded.

**Background:** The Materials Bureau has completed their evaluation of 6400 linear feet of 30 and 36 inch smooth interior corrugated polyethylene storm drain pipe installed in three Regions. The pipe is performing satisfactorily and no installation problems were reported. Section 18 of the AASHTO Bridge Design Manual has been addended to include 30 and 36 inch diameter Polyethylene Corrugated Pipe. Revisions to AASHTO M294 have recently been approved to include 30 and 36 inch diameter Corrugated Polyethylene Pipe.

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Designer Information: The designer should consider the following points when considering an application for smooth interior corrugated PE pipe.

1. The pipe should be designed using a Manning "n" value of 0.013.
2. Maximum height of cover is 15 feet.
3. The minimum cover height is 12" from crown to subgrade.
4. The anticipated service life of PE pipe is 70 years, regardless of zone.
5. Metal end sections should be used until the evaluation of PE end sections is completed.
6. Partial height headwalls will require a special anchor bolt detail on the plans. Use the detail given in EI 83-42 but add a 1 5/16" washer. Ordinary Hex head nuts can be used.
7. The product may be used in both open and closed drainage systems.

Several manufacturers supplying 30 and 36 inch diameter pipe have been added to the Department's Approved List for Smooth Interior Corrugated Polyethylene Storm Drain Pipe 706-14.

This specification is a Main Office insert and copies will be inserted into proposals by the Final Plan Review Bureau.

The items may be used immediately.

If you have any questions regarding this Engineering Instruction, contact Larry Brown (518-457-4093) or Bruce Zeh (518-457-4090) in Final Plan Review Bureau.

ITEM 18603.97XX SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE

DESCRIPTION

The work shall consist of furnishing and installing smooth interior corrugated polyethylene pipe for drainage in accordance with this specification and in conformity with the lines, grades and sections shown on the plans and Standard Sheet entitled "Installation Details for Circular and Elliptical Reinforced Concrete and Other Rigid Pipes".

MATERIALS

The smooth lined corrugated polyethylene pipe shall conform to the requirements of Subsection 706-14, Corrugated Polyethylene Storm Drain Pipe, of the Standard Specifications.

The pipe also must exceed the minimum engineering property values as specified in Section 18 of the AASHTO Standard Specifications for Highway Bridges. These properties are listed below:

Section Properties  
PE Corrugated Pipes

<u>I.D.</u> <u>(in.)</u>	<u>O.D.</u> <u>(in.)</u> <u>(Approx.)</u>	<u>A</u> <u>(Sq. in./ft.)</u>	<u>C</u> <u>(in.)</u> <u>(Maximum)</u>	<u>I</u> <u>(in. 4/in.)</u>
12	14.0	1.50	0.625	0.024
15	17.7	1.91	0.875	0.053
18	21.1	2.34	0.851	0.062
24	27.5	3.14	1.134	0.116
30	34.1	3.92	1.350	0.165
36	41.0	4.50	1.650	0.222

BASIS OF ACCEPTANCE

Acceptance of this material will be based on the manufacturer's name appearing on the Department's Approved List and the manufacturer's certification of compliance with these requirements.

CONSTRUCTION DETAILS

The following provisions of Section 603 - Culverts and Storm Drains shall apply for the installation of the pipe:

- §603-3.01 Excavation. Side limits to be measured from exterior wall
- §603-3.02A & B Laying Pipe, General & Handling and Assembly of Pipe
- §603.3.03 Bedding and Backfilling Pipe
- §603-3.04A Damaged Pipe and Repair General

METHOD OF MEASUREMENT

This work will be measured as the number of Linear Feet of pipe installed. Measurement will be made along the bottom center line of the pipe

BASIS OF PAYMENT

The requirements of 5603-5.01 shall apply.

Payment will be made under:

- Item 18603.9712 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE,  
12" DIAMETER
- Item 18603.9715 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE,  
15" DIAMETER
- Item 18603.9718 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE,  
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36" DIAMETER