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EI 98-038
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ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

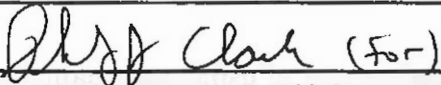
**SUBJECT: SPECIFICATIONS FOR SMOOTH INTERIOR
CORRUGATED POLYETHYLENE CULVERT AND
STORM DRAIN PIPE, ITEM 18603.9801XX**

Subject Code: 7.27-3-603

Distribution: 30 Main Office 32 Regions 34 Special

Code: EI 93-033

APPROVED:


J. R. LAMBERT, Deputy Chief Engr., Fac. Design Div.

Date: 10/18/93

Supersedes: EI 90-36
& EI 92-40

The following specifications will be effective with the letting date of February 24, 1994

- ITEM 18603.980112 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 12" DIAMETER
- ITEM 18603.980115 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 15" DIAMETER
- ITEM 18603.980118 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 18" DIAMETER
- ITEM 18603.980124 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 24" DIAMETER
- ITEM 18603.980130 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 30" DIAMETER
- ITEM 18603.980136 SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 36" DIAMETER

This specification is a main office insert and will be inserted into proposals by the Design Quality Assurance Bureau.

The specification for Item 18603.97XX Smooth Interior Corrugated Polyethylene Pipe (SICPP) is resinded with the letting date of February 24, 1994.

Also attached as a proposed insert is a shelf note titled: Corrugated Polyethylene Pipe.

Improvements and changes covered in the specification are as follows:

- Installation of SICPP shall be in accordance with the Standard Sheet for corrugated metal and structural plate pipe and pipe-arches, instead of the standard sheet for concrete pipe. The standard sheet for concrete pipe was previously referenced to describe the excavation trench width. The trench width requirements are now specified within the specification and the standard sheet for metal pipe is considered to be more appropriate for SICPP pipe.
- Requirements for the use of galvanized steel end sections, with dimension details, have been added.
- Joint assembly tolerances and the requirement of using only manufactured pipe ends at all joints have been added.
- Requirement for Approved Materials Details for handling, storage and assembly of the pipe have been added.
- Materials Specification Item 706-14 has been revised. It now covers only corrugated interior polyethylene pipe. SICPP must now conform to new Materials Item 706-12, which is referenced in the attached 18603.9801XX Specification. 706-12 is now issued as a shelf note.
- Installation requirements at basin connections have been added.

If you have any questions regarding this Engineering Instruction, contact John Haviland (518-457-7283) of the Design Quality Assurance Bureau, or Mike Brinkman (518-457-5956) of the Materials Bureau.

ITEM 18603.9801XX SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE

DESCRIPTION: The work shall consist of furnishing and installing smooth interior corrugated polyethylene pipe for drainage in accordance with this specification, the contract plans and the Standard Sheet entitled "Installation Details For Corrugated Metal and Structural Plate Pipe and Pipe-Arches".

MATERIALS: The smooth lined polyethylene pipe shall conform to the requirements of Subsection 706-12, Smooth Interior Corrugated Polyethylene Pipe, of the Standard Specifications.

End Sections. End sections shall be galvanized steel conforming to Subsection 707-10, Galvanized Steel End Sections, of the Standard Specifications. Metal end sections used with polyethylene pipe shall be sized as follows:

PE PIPE I. D.	Pe Pipe Wall Thick. (Approx.)	O. D. (Approx.)	End Section (Metal Pipe Size)
12"	1.0"	14.0"	15"
15"	1.4"	17.8"	18"
18"	1.6"	21.2"	21"
24"	1.8"	27.6"	30"
30"	2.1"	34.2"	36"
36"	2.5"	41.0"	42"

CONSTRUCTION DETAILS:

Excavation. The requirements specified in §206, Trench, Culvert and Structure Excavation, that apply to culverts and storm drains shall govern, except as modified herein. Bottom limits shall be measured as the lesser of three (3) times the nominal inside pipe diameter plus twice the pipe wall thickness or the nominal outside pipe diameter plus four (4) feet.

Laying Pipe. All pipe shall be laid in reasonably close conformity to line and grade and shall have a full, firm and even bearing at each joint and along the entire length of pipe. Joint misalignment shall not result in offsets, in the interior smooth liner, greater than ¼". Pipe laying shall begin at the downstream end and progress upstream. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. No section of pipe used shall be less than three (3) feet in length.

**SMOOTH INTERIOR CORRUGATED POLYETHYLENE
CULVERT AND STORM DRAIN PIPE**

Handling and Assembly of Pipe. All pipe shall be handled, stored and assembled in accordance with the Approved Materials Details except as modified on the plans or by the Engineer's written order. Joint assembly shall be made with manufactured ends; no field cuts shall be permitted unless approved by the Engineer. Joint assemblies shall provide separations no greater than ½" between adjoining sections of pipe. Lateral connections shall be made with appropriate fittings, supplied by the pipe manufacturer and approved by the Engineer. For basin connections, installations shall be in accordance with the standard sheet entitled " Drainage Structure Details " except that the pipe end shall protrude 2" into the basin to provide for a 45° battered grout seal. The battered grout seal shall be applied to both interior and exterior faces of the basin.

Bedding and Backfilling Pipe. When using Smooth Interior Corrugated Polyethylene Culvert and Storm Drain pipe, the type of materials to be used in bedding and backfilling at culverts and pipes and the procedure for placement shall conform to the provisions of §203-3.15, Fill and Backfill at Structures, Culverts, Pipes, Conduits and Direct Burial Cables. Installation shall be in accordance with the Standard Sheet entitled "Installation Details for Corrugated Metal and Structural Plate Pipe and Pipe-Arches" and as modified in this specification. The pipe after installation shall have a maximum deflection of 5% of its nominal inside diameter.

Damage. Pipe that is damaged or disturbed through any cause occurring prior to acceptance of the contract, shall be replaced or realigned as directed by the Engineer and at the Contractor's expense. Pipe that is defective from any cause, including damage caused by handling, will be unacceptable for installation and will be replaced as directed by the Engineer and at no cost to the State. Pipe with damaged ends may be incorporated into the work at terminal locations or at other locations where field cuts are permitted by the Engineer and only if the damaged portion is totally removed by the field cut.

METHOD OF MEASUREMENT:

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

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**SMOOTH INTERIOR CORRUGATED POLYETHYLENE
CULVERT AND STORM DRAIN PIPE**

BASIS OF PAYMENT:

End sections, Excavation, granular fill and backfill will be paid for separately under their appropriate items in sections 203 and 206 as applicable.

The requirements of §603-5.01 shall apply.

Payment will be made under:

- Item 18603.980112 SMOOTH INTERIOR CORRUGATED POLYETHYLENE
CULVERT AND STORM DRAIN PIPE, 12" DIAMETER
- Item 18603.980115 SMOOTH INTERIOR CORRUGATED POLYETHYLENE
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CULVERT AND STORM DRAIN PIPE, 36" DIAMETER

CORRUGATED POLYETHYLENE PIPE

Make the following changes to the Standard Specifications of January 2, 1990.

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Delete §706-12 (VACANT) and replace with the following:

706-12 SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE

SCOPE. This specification covers the material and quality requirements for smooth interior corrugated polyethylene pipe and fittings.

MATERIAL REQUIREMENTS. The polyethylene material for the pipe and fittings shall meet the requirements of A.A.S.H.T.O. M294, Type S or Type SP. In addition, when checked with a 12 inch straight edge the smoothness of the interior liner shall not deviate more than ¼".

BASIS OF ACCEPTANCE. For smooth interior corrugated polyethylene pipe the Department requires the submission of Materials Details as defined in §101-34.1. The manufacturer shall prepare and submit the appropriate material in accordance with the procedural directives of the Materials Bureau. Upon approval by the Materials Bureau, the name of the manufacturer and product along with the reference number and date assigned to the approved Materials Details will be placed on the Approved List. Such products shall then be accepted in stock lot quantities in accordance with the procedural directives of the Materials Bureau.

The supplier shall provide two copies of the approved Materials Details through the Contractor to the Engineer as part of the evidence of acceptability for the material at least 10 days prior to shipment of the product to the job site.

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Delete §706-14 in its entirety and replace with the following:

706-14 CORRUGATED INTERIOR POLYETHYLENE PIPE

SCOPE. This specification covers the material and quality requirements for corrugated interior polyethylene pipe and fittings.

MATERIAL REQUIREMENTS. The polyethylene material for the pipe and fittings shall meet the requirements of A.A.S.H.T.O. M294, Type C.

10/04/93

CORRUGATED POLYETHYLENE PIPE

BASIS OF ACCEPTANCE. Corrugated interior polyethylene pipe will be accepted on the basis of the manufacturer's name appearing on the Department's Approved List and the manufacturer's certification of compliance with these requirements.

10/04/93