

ITEM 18603.9801xx M - 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 titled "Installation Details For Corrugated Metal and Structural Plate Pipe and Pipe-Arches".

MATERIALS: The smooth lined corrugated 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) |
|---------------|-------------------------------|-----------------|-------------------------------|
| 305 mm | 25 mm | 355 mm | 400 mm |
| 380 mm | 36 mm | 452 mm | 450 mm |
| 455 mm | 41 mm | 537 mm | 600 mm |
| 610 mm | 46 mm | 702 mm | 800 mm |
| 760 mm | 53 mm | 866 mm | 900 mm |
| 915 mm | 64 mm | 1043 mm | 1200 mm |

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. Width of excavation at trench bottom 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 1.2 m.

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 6 mm. Pipe laying shall begin at the down stream end and progress upstream or as ordered by the Engineer. Any single run of pipe, excluding end sections, shall consist wholly of the same type material unless otherwise directed by the Engineer. In a closed drainage application the upgrade end of a run need not be capped. End caps shall be used when deemed necessary by the Engineer.

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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. Two copies of the Materials Details shall be provided by the supplier through the Contractor to the Engineer at least 10 days prior to shipment of the product to the job site. Joint assembly shall be made with manufactured ends. Field cuts shall be permitted only at the terminal ends and shall result in a minimum pipe length of one (1) meter. Joint assemblies shall provide separations no greater than 13 mm 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 titled "Drainage Structure Details" except that the pipe end shall protrude 50 mm 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 titled "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. The Engineer may order the Contractor to perform mandrel testing to determine the 5% compliance.

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 shall 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. Repair or replacement of pipe that is disturbed, damaged or misaligned shall provide the same product as a new pipe installation, as determined by the Engineer.

METHOD OF MEASUREMENT:

Pipe. This work will be measured as the number of meters of pipe installed. Measurement shall be made along the bottom center of the pipe.

BASIS OF PAYMENT:

The requirements of §603-5.01 shall apply.

End sections, excavation, granular fill and backfill will be paid for separately under their appropriate items in Sections 203, 206 and 603 as applicable.

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Payment will be made under:

| <u>PAY ITEM NUMBER</u> | <u>DESCRIPTION</u> | <u>UNIT OF MEASUREMENT</u> |
|------------------------|---|----------------------------|
| Item 18603.980112 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 305 mm DIAMETER | METER |
| Item 18603.980115 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 380 mm DIAMETER | METER |
| Item 18603.980118 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 455 mm DIAMETER | METER |
| Item 18603.980124 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 610 mm DIAMETER | METER |
| Item 18603.980130 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 760 mm DIAMETER | METER |
| Item 18603.980136 M | SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 915 mm DIAMETER | METER |

This Specification has been Disapproved and the items were added to the standard specifications with the issuance of Addenda 2 to the metric spec book