



MATERIAL SPECIFICATION FOR NON-PRESSURE POLYETHYLENE PLASTIC PIPE PRODUCTS

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1840.01 SCOPE

This specification covers the requirements for non-pressure polyethylene plastic pipe products to be used for sanitary or storm sewers, pipe culverts, and subdrains.

1840.01.01 Significance and Use of Appendices

Appendices are not a mandatory part of the specification unless invoked by the Owner.

Appendix 1840-A is a commentary appendix to provide designers with information on the use of the specification in a Contract.

1840.02

REFERENCES

This specification refers to the following standards, specifications, or publications:

Canadian Standards Association

- B182.6-02 Profile Polyethylene Sewer Pipe and Fittings for Leak-Proof Sewer Applications [Part of B1800-02, Plastic Nonpressure Pipe Compendium]
B182.8-02 Profile Polyethylene Storm Sewer and Drainage Pipe and Fittings [Part of B1800-02, Plastic Nonpressure Pipe Compendium]

ASTM International

- F 405-05 Corrugated Polyethylene (PE) Pipe and Fittings
F 667-97 Large Diameter Corrugated Polyethylene Pipe and Fittings
F 894-05 Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe

American Association of State Highway and Transportation Officials

- M 252-02 Corrugated Polyethylene Drainage Pipe
M 294-04 Corrugated Polyethylene Plastic Pipe, 300 to 1500 mm Diameter

1840.03

DEFINITIONS

For the purpose of this specification, the following definitions apply:

Closed Profile Pipe means a pipe product that has a hydraulically smooth waterway reinforced circumferentially or spirally with corrugations that are joined integrally by an essentially smooth outer wall.

Corrugated Pipe means a single-walled pipe where the wall is formed into a series of alternating crests and valleys.

Open Profile Pipe means a pipe product that has a hydraulically smooth waterway reinforced circumferentially or spirally with outside corrugations.

Polyethylene Plastic means plastics based on virgin polymers made with ethylene as essentially the sole monomer.

Profile means a pipe wall construction that presents an essentially smooth surface in the waterway but includes ribs or other shapes, which can be either solid or hollow that helps brace the pipe against diametrical deformation.

1840.05

MATERIALS

1840.05.01

Polyethylene Plastic Pipe Products

The moulding and extrusion material shall be polyethylene plastic according to:

- a) ASTM F 405 or ASTM F 667 for corrugated sub-drainage tubing.
- b) AASHTO M 252 or AASHTO M 294 for corrugated interior flexible culvert pipe.

- c) CSA B182.6 or CSA B182.8 for open profile sewer and drainage pipe.
- d) ASTM F 894 for closed profile sewer and drainage pipe.

1840.07 PRODUCTION

1840.07.01 Requirements

The pipe or ring stiffness for all polyethylene plastic pipe products shall be as specified in the Contract Documents.

Polyethylene plastic pipe products shall be produced according to the following:

- a) ASTM F 405 and ASTM F 667 for corrugated sub-drainage tubing and fittings.
- b) AASHTO M 252 or AASHTO M 294 for corrugated interior flexible culvert pipe.
- c) CSA B182.6 or CSA B182.8 for open profile sewer and drainage pipe and fittings.
- d) ASTM F 894 for closed profile sewer and drainage pipe.

1840.08 QUALITY ASSURANCE

1840.08.01 Testing

Test methods for corrugated polyethylene plastic pipe products shall be according to ASTM F 405, ASTM F 667, AASHTO M 252, or AASHTO M 294.

Test methods for open and closed profile polyethylene plastic pipe products shall be according to CSA B182.6, CSA B182.8, or ASTM F 894, as applicable.

1840.08.02 Markings

Markings for polyethylene plastic pipe products shall be according to the appropriate standard. The following minimum markings are to be placed at each end of the pipe or at 3.0 m intervals along the pipe:

- a) Pipe nominal size.
- b) Pipe or ring stiffness.
- c) Standard designation, e.g., CSA B182.6.
- d) Manufacturer.

1840.08.03 Certificate

Suppliers shall provide a certificate upon request from the Contract Administrator to indicate that the product was produced and tested according to the appropriate specification requirements.

1840.09**OWNER PURCHASE OF MATERIAL**

Non-pressure polyethylene plastic pipe shall be measured in metres along the length of the pipe.

For measurement purposes, a count will be made of the non-pressure polyethylene plastic pipe fittings supplied and delivered as noted on the purchasing order.

Payment at the price specified in the purchasing order shall be for the supply and delivery of the non-pressure polyethylene plastic pipe products to the destination and at the time specified.

The cost of all testing, except that performed by the Owner, shall be included in the price.

Appendix 1840-A, Commentary for OPSS 1840, November 2006

Note: This appendix does not form part of the standard specification. It is intended to provide information to the designer on the use of this specification in a Contract.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Pipe or ring stiffness. (1840.07.01)

The designer should ensure that the Ontario Provincial Standards General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

OPSD 802.010	Flexible Pipe Embedment and Backfill, Earth Excavation
OPSD 802.013	Flexible Pipe Embedment and Backfill, Rock Excavation
OPSD 802.014	Flexible Pipe Embedment in Embankment, Original Ground: Earth or Rock
OPSD 806.020	Height of Fill Table, Dual Wall Corrugated Polyethylene Gravity Sewer Pipe, 210 and 320 kPa
OPSD 806.021	Height of Fill Table, Closed Profile Wall Polyethylene Pipe, RSC 160 and 250