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MATERIAL SPECIFICATION FOR NON-PRESSURE POLYETHYLENE PLASTIC PIPE PRODUCTS

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

1840.02 REFERENCES

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

CSA Standards

- B182.6-11 Profile Polyethylene (PE) Sewer Pipe and Fittings for Leak-Proof Sewer Applications
[Part of B1800-11, Thermoplastic Nonpressure Pipe Compendium]
- B182.8-11 Profile Polyethylene (PE) Storm Sewer and Drainage Pipe and Fittings
[Part of B1800-11, Thermoplastic Nonpressure Pipe Compendium]

ASTM International

- F 405-13 Corrugated Polyethylene (PE) Pipe and Fittings
- F 667-12 3 Through 24 in. Corrugated Polyethylene Pipe and Fittings
- F 714-13 Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
- F 894-13 Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe

American Association of State Highway and Transportation Officials (AASHTO)

M252-09 Corrugated Polyethylene Drainage Pipe
M294-13 Corrugated Polyethylene Plastic Pipe, 300 to 1,500 mm Diameter

Bureau De Normalisation Du Quebec (BNQ)

3624-115 (2007) Polyethylene (PE) Pipe and Fittings - Flexible Corrugated Pipes for Drainage - Characteristics and Test Methods.

1840.03 DEFINITIONS

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

Certification Body means an independent 3rd party agency, accredited by the Standards Council of Canada that has the qualifications, skills, and expertise required to confirm that a pipe manufacturer produces pipe products to the quality and requirements of an accepted standard and that has the mandate to certify the pipe products produced.

Certified means pipe products that have been marked with a certification body's logo confirming that the production of the pipe product is in accordance with the quality and requirements of CSA B182.6, CSA B182.8, AASHTO M294 Type S, or ASTM F 894.

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.

Delivered Quality means the pipe products' physical condition upon arrival at the construction site in terms of the extent and degree of dents, scratches, cracks, pipe coating integrity, etc., that appear on the pipe products delivered.

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, ASTM F 667, or BNQ 3624-115 for corrugated sub-drainage tubing.
- b) AASHTO M252 for corrugated interior flexible culvert pipe.

- c) CSA B182.6, CSA B182.8, or AASHTO M294 Type S for open profile sewer and drainage pipe.
- d) ASTM F 714 or ASTM F 894 for closed profile sewer and drainage pipe.

1840.07 PRODUCTION

1840.07.01 Requirements

The pipe diameter, stiffness, material, and type 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, ASTM F 667, or BNQ 3624-115 for corrugated sub-drainage tubing and fittings.
- b) AASHTO M252 for corrugated interior flexible culvert pipe.
- c) CSA B182.6, CSA B182.8, or AASHTO M294 Type S for open profile sewer and drainage pipe and fittings.
- d) ASTM F 714 or ASTM F 894 for closed profile sewer and drainage pipe.

All polyethylene plastic pipe products used on the Contract for sewers and culverts shall be certified and supplied from a manufacturer that produces the polyethylene plastic pipe products according to CSA B182.6, CSA B182.8, AASHTO M294 Type S, ASTM F 894 or ASTM F 714.

When the delivered quality of certified polyethylene plastic pipe products is deemed to be unacceptable by the Contract Administrator, the products shall be rejected.

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, BNQ 3624-115 or AASHTO M252, as applicable.

Test methods for open and closed profile polyethylene plastic pipe products shall be according to CSA B182.6, CSA B182.8, AASHTO M294 Type S, ASTM F 894, or ASTM F 714 as applicable.

1840.08.02 Markings

Markings for certified polyethylene plastic pipe products shall be according to CSA B182.6, CSA B182.8, AASHTO M294 Type S, ASTM F 894, or ASTM F 714 as applicable.

As a minimum, the following markings shall be placed, notwithstanding any other required markings, in accordance with the applicable standard:

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

e) Accredited certification body's logo.

Accepted certification body logos confirming certified polyethylene plastic pipe products shall be as shown in Figures 1, 2, and 3.

1840.08.03 Certificate of Compliance

When requested by the Owner, the Contractor shall provide a certificate of compliance for subdrains to indicate that the product was produced and tested according to the appropriate specification requirements.

When requested by the Owner, the Contractor shall provide a copy of the certificate of compliance from the manufacturer for storm sewers and pipe culverts. The manufacturer's certificate of compliance shall be issued by the certification body confirming that the manufacturer produces certified polyethylene plastic pipe products.



**FIGURE 1
CSA Standards Certification Logo**



**FIGURE 2
Warnock Hersey - Intertek Certification Logo**



**FIGURE 3
NSF International Certification Logo**
(Note: Different variations of the NSF logo will also be accepted)