

PART 1 GENERAL

1.1 Section Includes

- .1 Materials and installation for subsoil drainage piping.

1.2 Related Sections

- .1 Section 31 23 33 Excavation, Trenching and Backfilling

1.3 References

- .1 Canadian Standards Association (CSA International)
 - .1 CSA B1800, Plastic Non-pressure Pipe Compendium - B1800 Series (Consists of B181.1, B181.2, B181.3, B181.5, B182.1, B182.2, B182.4, B182.6, B182.7, B182.8 and B182.11).
 - .2 CSA B182.1-02, Plastic Drain and Sewer Pipe and Pipe Fittings.
 - .3 CSA B182.2-02, PVC Sewer Pipe and Fittings (PSM Type).
 - .4 CSA B182.11-02, Recommended Practice for the Installation of Thermoplastic Drain, Storm, and Sewer Pipe and Fittings.

1.4 Definitions

- .1 Pipe section is defined as length of pipe between successive manholes and/or between manhole and any other structure which is part of sewer system.

1.5 Delivery, Storage and Handling

- .1 Deliver, store and handle materials in accordance with the manufacturer's recommendations.

1.6 Waste Management and Disposal

- .1 Remove from site and dispose of packaging materials at appropriate disposal facilities.
- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations, and Division 2 specifications.
- .4 Dispose of unused asbestos cement pipe in accordance with regulations governing disposal of hazardous materials and Division 2 specifications.

PART 2 PRODUCTS

2.1 Subsoil Drain Piping

- .1 Perforated rigid drainage pipe: Polyvinyl Chloride (PVC) to CSA-B182.2.
- .2 Standard Dimensional Ratio (SDR): 35.
- .3 Pipe stiffness: 320 kPa at 5% deflection, ASTM D2412.

- .4 Fitting: solid hub by hub.
- .5 Size: 150mm [6"] unless otherwise noted.

2.2 Cleanout

- .1 Extended ferrule, Dura-Coated cast iron body with gas and water tight ABS countersunk plug.

PART 3 EXECUTION

3.1 Preparation

- .1 Clean and dry pipes and fittings before installation.
- .2 Obtain Departmental Representative's approval of pipes and fittings prior to installation.

3.2 Excavation

- .1 Do excavation work in accordance with Section 31 23 33.

3.3 Pipe Bedding and Cover

- .1 Subsoil drain shall be laid to on 150 mm drain gravel and covered with 250mm of drain gravel measured from the top of pipe, unless otherwise shown or specified. Do not place material in frozen conditions.
- .2 Shape bed true to grade to provide continuous uniform bearing surface for pipe. Do not use blocks when bedding pipe.
- .3 Shape transverse depressions in bedding as required to suit joints.
- .4 Fill excavation below design elevation to bottom of specified bedding in accordance with Section 31 23 33 with backfill material.

3.4 Installation

- .1 Lay and join pipes in accordance with manufacturer's recommendations and to approval of Departmental Representative.
- .2 Handle pipe using methods approved by the Departmental Representative. Do not use chains or cables passed through rigid pipe bore so that weight of pipe bears upon pipe ends.
- .3 Lay pipes on prepared bed, true to line and grade, with pipe invert smooth and free of sags or high points.
 - .1 Ensure barrel of each pipe is in contact with shaped bed throughout its full length.
 - .2 Correct pipe which is not in true alignment and grade or pipe which shows differential settlement after installation great than 10 mm in 3 meters.
 - .3 Subsoil drain shall be laid continuous and even falls of not less than 0.5% unless otherwise noted.
- .4 Begin laying at outlet and proceed in upstream direction with socket ends of pipe facing upgrade.
- .5 Do not exceed maximum joint deflection recommended by pipe manufacturer.

- .6 Do not allow water to flow through pipe during construction, except as may be permitted by the Departmental Representative.
- .7 Install plastic pipe and fittings in accordance with CSA B182.11.
- .8 Make watertight connections to manholes and catch basin. Use shrinkage compensating grout when suitable gaskets are not available. Stabilize pipe at openings made in rock pit manhole with shrinkage compensating grout.
- .9 All changes in direction shall be made with solid hub by hub fittings. Vertical drops shall be solid with a minimum of 100mm [4"] gravel curtain around pipe. Branches will be taken off with Y's and catch basin connections shall be made with one length of cast iron pipe.
- .10 Provide cleanouts at changes in direction, extended to terminate flush with grade.
- .11 Where noted on drawing, provide geotextile materials.

END OF SECTION