

PART 1 - GENERAL

1.1 RELATED
REQUIREMENTS

- .1 Section 31 05 16 - Aggregate Materials.
- .2 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
- .3 Section 31 32 19.01 - Geotextiles.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM C 117-04, Standard Test Method for Material Finer Than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C 136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D 422-63(2007), Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D 4318-10, Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
 - .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System for New Construction and Major Renovations 2009.
 - .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
 - .4 CSA International
 - .1 CAN/CSA-B1800-11, Thermoplastic Non-Pressure Piping Compendium. (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).
 - .1 CAN/CSA-B182.2-11, PVC Sewer Pipe and Fittings (PSM Type).
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1.3 ACTION AND
INFORMATIONAL
SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for drainage field materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .3 Samples:
 - .1 Submit 20 kg sample of each granular materials 4 weeks minimum before beginning Work.
 - .4 Certificates:
 - .1 Submit copy of certification or licence of approved installers.
 - .5 Test Reports:
 - .1 Submit 2 certified copies of factory tests of pipe material.
 - .6 Sustainable Design Submittals:
 - .1 LEED Canada submittals: in accordance with Section 01 35 21 - LEED Requirements.
 - .2 Construction Waste Management:
 - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.
 - .3 Recycled Content:
 - .1 Submit listing of recycled content products used, including details of required percentages or recycled content materials and products, showing their costs and percentages of post-consumer and post-industrial content, and total cost of materials for project.
 - .4 Regional Materials: submit evidence that project incorporates required percentage 20% of regional materials and products, showing their cost, distance from project to furthest site of extraction or manufacture, and total cost of materials for project.
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1.3 ACTION AND
INFORMATIONAL
SUBMITTALS
(Cont'd)

- .6 Sustainable Design Submittals: (Cont'd)
.5 Erosion and Sedimentation Control:
submit copy of erosion and sedimentation
control plan in accordance with authorities
having jurisdiction and Section 01 35 21 -
LEED Requirements.

1.4 QUALITY
ASSURANCE

- .1 Use certified, licensed installers who comply
with local authority having jurisdiction.

1.5 DELIVERY,
STORAGE AND
HANDLING

- .1 Deliver, store and handle materials in
accordance with Section 01 61 00 - Common
Product Requirements and with manufacturer's
written instructions.
- .2 Delivery and Acceptance Requirements: deliver
materials to site in original factory
packaging, labelled with manufacturer's name
and address.
- .3 Storage and Handling Requirements:
.1 Store materials and in accordance with
manufacturer's recommendations in clean, dry,
well-ventilated area.
.2 Store and protect drainage field
materials from nicks, scratches, and
blemishes.
.3 Replace defective or damaged materials
with new.
- .4 Develop Construction Waste Management Plan
related to Work of this Section and in
accordance with Section 01 35 21 - LEED
Requirements.
- .5 Packaging Waste Management: remove for reuse
or return of pallets, crates, padding,
banding, and packaging materials as specified
in Construction Waste Management Plan in
accordance with Section 01 74 21 -
Construction/Demolition Waste Management and
Disposal and Section 01 35 21 - LEED
Requirements.

PART 2 - PRODUCTS

- 2.1 GRANULAR MATERIALS .1 Granular material in accordance with Section 31 05 16 - Aggregate Materials and to requirements as follows:
- .1 Pit run crushed or screened stone, gravel or sand.
 - .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.2.
 - .3 Table

Sieve Designation	% Passing	
	Sand	Stone
200 mm	-	-
75 mm	-	-
50 mm	-	-
38.1 mm	-	-
25 mm	-	80-100
19 mm	-	0-5
12.5 mm	100	-
9.5 mm	-	-
4.75 mm	80-100	-
2.00 mm	50-90	-
0.425 mm	10-50	-
0.180 mm	-	-
0.075 mm	0-5	-

- 2.2 IMPERVIOUS MATERIAL .1 Material Plasticity Index not less than 15% as measured to ASTM D 4318.
- .2 Material to have minimum of 50% of particles finer than 0.075 mm as measured to ASTM D 422.

- 2.3 IMPORTED FILTER MATERIAL .1 Sand conforming to requirements of local authority having jurisdiction.

<u>2.4 GEOTEXTILE COVER</u>	.1	Geotextile cover: to Section 31 32 19.01 - Geotextiles. .1 UV resistant polyolefin fabric. .2 As indicated.
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<u>2.5 PIPE FOR DISPOSAL FIELDS</u>	.1	Straight PVC pipe and fittings to CAN/CSA-B182.2, perforated or unperforated as indicated.
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<u>2.6 DISTRIBUTION BOX</u>	.1	Concrete: as indicated and to Section 33 36 00 - Utility Septic Tanks.
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PART 3 - EXECUTION

<u>3.1 EXAMINATION</u>	.1	Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for drainage field installation in accordance with manufacturer's written instructions. .1 Visually inspect substrate in presence of Departmental Representative. .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery. .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.
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<u>3.2 TRENCH TYPE DISPOSAL FIELD INSTALLATION</u>	.1	Excavate to lines and depths as indicated and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
	.2	Scarify trench base and walls under dry conditions.
	.3	Operate construction equipment across disposal only after receipt of written approval from Departmental Representative.

- 3.2 TRENCH TYPE DISPOSAL FIELD INSTALLATION
(Cont'd)
- .4 Place 150 mm minimum stone material in trench bottom.
 - .5 Install distribution box between septic tank and absorption trenches. Installation to be water-tight construction.
 - .6 Set distribution box level as indicated.
 - .1 Provide access with removable cover for inspection of distribution box.
 - .7 Connect lengths and place distribution pipe on stone material as indicated and cover with 50 mm minimum of stone material.
 - .8 Place geotextile over stone as indicated.
 - .9 Connect each distribution pipe individually to distribution box.
 - .10 Cap free ends of distribution lines.
 - .11 Maintain pipe elevations within 5 mm of inverts indicated.
 - .12 Do not backfill trenches until pipe grade and alignment have been approved by Departmental Representative and authority having jurisdiction.
 - .13 Backfill trenching with material as indicated.
 - .1 Use only material approved in writing by Departmental Representative to backfill.
 - .2 Do not compact.
 - .3 Overfill to allow for settlement.
- 3.3 CLEANING
- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
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3.3 CLEANING
(Cont'd)

- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and Section 01 35 21 - LEED Requirements.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.