

PART 1 - GENERAL

1.1 RELATED  
REQUIREMENTS

- .1 Section 31 05 16 - Aggregate Materials.

1.2 REFERENCES

- .1 ASTM International  
.1 ASTM D 698-07e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft<sup>3</sup>) (600kN-m/m<sup>3</sup>).
- .2 Canada Green Building Council (CaGBC)  
.1 LEED Canada-NC-2009, LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .3 Washington State Department of Ecology.  
.1 Stormwater Management Manual for Western Washington, Volume II, Construction Pollution Prevention (2015 edition).
- .4 Newfoundland and Labrador Department of Municipal Affairs.  
.1 Municipal Water, Sewer and Roads Master Construction Specifications, latest revision.

1.3 ACTION AND  
INFORMATIONAL  
SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Sustainable Design Submittals:  
.1 LEED Canada Submittals: in accordance with Section 01 35 21 - LEED Requirements.  
.2 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with EPA 832/R-92-2005, authorities having jurisdiction and Section 01 35 21 - LEED Requirements.  
.3 Construction Waste Management:  
.1 Submit project Waste Management Plan highlighting recycling and salvage requirements.  
.2 Submit calculations on end-of-project recycling rates, salvage

- 1.3 ACTION AND INFORMATIONAL SUBMITTALS  
(Cont'd)
- .2 Sustainable Design Submittals: (Cont'd)
- .3 Construction Waste Management: (Cont'd)
- .2 (Cont'd)
- rates, and landfill rates demonstrating that 75 % of construction wastes were recycled or salvaged.
- .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.
- 1.4 DELIVERY, STORAGE AND HANDLING
- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, Section 31 05 16 - Aggregate Materials and with manufacturer's written instructions.
- .2 Storage and Handling Requirements:
- .1 Store materials in accordance with manufacturer's recommendations and erosion and sedimentation control plan.
- .2 Replace defective or damaged materials with new.
- .3 Develop Construction Waste Management Plan related to Work of this Section and in accordance with Section 01 35 21 - LEED Requirements.

## PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Granular "B" sub-base material: in accordance with Class B material of Section 02233 of the Newfoundland and Labrador Municipal Water, Sewer and Roads Master Construction Specifications.
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### PART 3 - EXECUTION

- 3.1 EXAMINATION .1 Verification of Conditions: verify conditions of substrate previously installed under other Sections or Contracts are acceptable for granular sub-base 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.
- 3.2 PREPARATION .1 Temporary Erosion and Sedimentation Control:
- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings.
  - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- 3.3 PLACING .1 Place granular sub-base after subgrade is inspected and approved by Departmental Representative.
- .2 Construct granular sub-base to depth and grade in areas indicated.
  - .3 Ensure no frozen material is placed.
  - .4 Place material only on clean unfrozen surface, free from snow or ice.

3.3 PLACING  
(Cont'd)

- .5 Begin spreading sub-base material on crown line or high side of one-way slope.
- .6 Place granular sub-base materials using methods which do not lead to segregation or degradation.
- .7 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.
- .8 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.
  - .1 Departmental Representative may authorize thicker lifts if specified compaction can be achieved.
- .9 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .10 Remove and replace portion of layer in which material has become segregated during spreading.

3.4 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Compact to density of not less than 100% maximum dry density in accordance with ASTM D 698.
- .3 Shape and roll alternately to obtain smooth, even and uniformly compacted sub-base.
- .4 Apply water as necessary during compaction to obtain specified density.
- .5 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative.
- .6 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

- 3.5 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.
- .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.

- 3.6 TESTING .1 Inspection and testing of soil compaction will be carried out by independent inspection and testing agency designated by Departmental Representative. Costs of these tests will be paid by the Contractor in accordance with Section 01 29 83 - Payment Procedures for Testing Laboratory Services and Section 01 45 00 - Quality Control.

- 3.7 SITE TOLERANCES .1 Finished sub-base surface to be within 10 mm of elevation as indicated but not uniformly high or low.

- 3.8 PROTECTION .1 Maintain finished sub-base in condition conforming to this section until succeeding base is constructed, or until granular sub-base is accepted by Departmental Representative.