

1 General

1.1 SECTION INCLUDES

- .1 The work under this section shall include the supply of all labour, supervision, materials, plant, equipment and transportation necessary to complete granular subbase material installation as shown on the drawings, as specified herein and as directed by the Departmental Representative, complete in every respect.

1.2 RELATED SECTIONS

- .1
- .1 Section 32 11 23 - Aggregate Base Course.
- .2 Section 31 05 17 – Aggregate Materials.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
- .1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D422-63(1998), Standard Test Method for Particle-Size Analysis of Soils.
- .4 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600kN-m³).
- .5 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB):
- .1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

2 Products

2.1 MATERIALS

- .1 Granular subbase material: in accordance with Section 31 05 17 - Aggregate Materials and following requirements:
- .1 Crushed, pit run or screened stone, gravel or sand.
- .2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.2.
- .3 Table:

Sieve Size	% Passing
100 mm	100

Sieve Size	% Passing
90 mm	95-100
75 mm	80-100
50 mm	60-87
37.5 mm	50-81
19 mm	34-68
9.5 mm	25-58
4.75 mm	17-48
2.36 mm	13-39
1.18 mm	9-30
0.300 mm	4-17
0.075 mm	0-7

- .4 Other properties as follows:
- .1 Liquid Limit: to ASTM D4318, Maximum 20.
 - .2 Plasticity Index: to ASTM D4318, Maximum 5.
 - .3 Micro-Deval: to MTO LS-618, Maximum 30% loss.
 - .4 Freeze/Thaw: to MTO LS-614, Maximum 20%.

3 Execution

3.1 PLACING

- .1 Place granular subbase after subgrade is inspected and approved by the Departmental Representative.
- .2 Construct granular subbase 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.
- .5 Begin spreading subbase material on crown line or high side of one-way slope.
- .6 Place granular subbase materials using methods which do not lead to segregation or degradation.
- .7 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. The Departmental Representative may authorize thicker lifts (layers) if specified compaction can be achieved.
- .8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

- .9 Remove and replace portion of layer in which material has become segregated during spreading.

3.2 COMPACTION

- .1 Compaction equipment to be capable of obtaining required material densities.
- .2 Compact to density of not less than 98% maximum dry density in accordance with ASTM D698.
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted subbase.
- .3 Apply water as necessary during compaction to obtain specified density.
- .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by the Departmental Representative.
- .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.3 SITE TOLERANCES

- .1 Finished subbase surface to be within 25 mm of elevation as indicated but not uniformly high or low.

3.4 PROTECTION

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

4 Measurement and Payment

4.1 MEASUREMENT

- .1 Measurement for the supply, placement and compaction of granular sub-base shall be based on cubic metres of granular subbase material placed, measured from the clear dimensions indicated in the drawings.

4.2 PAYMENT

- .1 Payment for the supply, placement and compaction of granular sub-base shall be based on cubic metres of granular subbase material placed as indicated in the Schedule of Contract Unit Price in the Bid Form.

END OF SECTION

1 General

1.1 SECTION INCLUDES

- .1 The work under this section shall include the supply of all labour, supervision, materials, plant, equipment and transportation necessary to complete granular base material installation as shown on the drawings, as specified herein and as directed by the Departmental Representative, complete in every respect.

1.2 RELATED SECTIONS

- .1
- .1 Section 32 11 19 - Granular Sub-base.
- .2 Section 31 05 17 – Aggregate Materials

1.3 REFERENCES

- .1
- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM D422-63 (1998), Standard Test Method for Particle-Size Analysis of Soils.
 - .4 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600kN-m³).
 - .5 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
- .2 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver and stockpile aggregates in accordance with Section 31 05 17 - Aggregate Materials.

2 Products

2.1 MATERIALS

- .1 Granular base: material in accordance with following requirements:
 - .1 Crushed stone or gravel.
 - .2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.2.

.3 Table:

Sieve Size	% Passing
37.5 mm	100
31.5 mm	95-100
25.0 mm	83-100
19.0 mm	70-90
12.5 mm	55-78
9.5 mm	45-72
4.75 mm	30-57
2.36 mm	20-46
1.18 mm	14-35
0.300 mm	5-19
0.075 mm	0-6

.4 Other properties as follows:

- .1 Liquid Limit: to ASTM D4318, Maximum 20.
- .2 Plasticity Index: to ASTM D4318, Maximum 3.
- .3 Micro-Deval: to MTO LS-618, Maximum 25% loss.
- .4 Freeze/Thaw: to MTO LS-614, Maximum 20%.
- .5 Gravel Base shall have a minimum of 40% of the particles, by mass, having at least one fractured face, when tested in accordance with ASTM D5821.

3 Execution

3.1 SEQUENCE OF OPERATION

- .1 Place granular base after subbase surface is inspected and approved by the Departmental Representative.
- .2 Placing:
 - .1 Construct granular base to depth and grade in areas indicated.
 - .2 Ensure no frozen material is placed.
 - .3 Place material only on clean unfrozen surface, free from snow and ice.
 - .4 Begin spreading base material on crown line or on high side of one-way slope.
 - .5 Place material using methods which do not lead to segregation or degradation of aggregate.
 - .6 Place material to full width in uniform layers not exceeding 150 mm compacted thickness. The Departmental Representative may authorize thicker lifts (layers) if specified compaction can be achieved.
 - .7 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
 - .8 Remove and replace that portion of layer in which material becomes segregated during spreading.

- .3 Compaction Equipment:
 - .1 Compaction equipment to be capable of obtaining required material densities.
- .4 Compacting:
 - .1 Compact to density not less than 98% of maximum dry density in accordance with ASTM D698.
 - .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
 - .3 Apply water as necessary during compacting to obtain specified density.
 - .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by the Departmental Representative.
 - .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.2 SITE TOLERANCES

- .1 Finished subbase surface to be within 19 mm of elevation as indicated but not uniformly high or low.

3.3 PROTECTION

- .1 Maintain finished base in condition conforming to this section until succeeding material is applied or until acceptance by the Departmental Representative.

4 Measurement and Payment

4.1 MEASUREMENT

- .1 Measurement for the supply, placement and compaction of aggregate base course shall be based on cubic metres of granular base course material placed and compacted measured from the clear dimensions indicated in the drawings.

4.2 PAYMENT

- .1 Payment for the supply, placement and compaction of aggregate base course shall be based on cubic metres of aggregate base course material placed as indicated in the Schedule of Contract Unit Price in the Bid Form.

END OF SECTION

1 General

1.1 SECTION INCLUDES

- .1 Materials and installation for asphalt concrete paving for roads and parking areas.

1.2 RELATED SECTIONS

- .1 01 33 00 – Submittal Procedures.
.2 01 74 21 – Construction/Demolition Waste Management and Disposal.
.3 31 05 17 - Aggregate Materials.
.4 32 11 19 - Granular Subbase.
.5 32 11 23 - Granular Base Course.

1.3 REFERENCES

- .1 American Society for Testing and Materials International (ASTM):
.1 ASTM C88-99a, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.
.2 ASTM C117-95, Standard Test Method for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
.3 ASTM C123-98, Standard Test Method for Lightweight Particles in Aggregate.
.4 ASTM C127-01, Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
.5 ASTM C128-01, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.
.6 ASTM C131-01, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
.7 ASTM C136-01, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
.8 ASTM D995 -95b (2002), Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
.9 ASTM D3203-94 (2000), Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.
.10 ASTM D4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
.11 New Brunswick Department of Transportation and Infrastructure Standard Specification Latest Edition.
.2 Canadian General Standards Board (CGSB):
.1 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.

1.4 MEASUREMENT FOR PAYMENT

- .1 The quantity to be measured for payment shall be in square metres of asphalt pavement in place.

- .2 Payment for work under this item shall include a separate unit price for each type of asphalt pavement, as identified under the Contract payment for the supply and placement of asphalt pavement for construction of the roadway.
- .3 Asphalt concrete pavement for restoration of existing areas disturbed by construction and not shown for replacement under this Contract will not be included in this item and shall be considered incidental to the work.
- .4 Asphalt padding required to create roadway crowns or similar will not be included in this item and shall be considered incidental to the work.
- .5 Asphalt required to reinstate existing asphalt driveways shall match the existing thickness (40 mm min and 70 mm max) and will be measured in square metres of asphalt pavement in place as indicated on the drawings or as directed by Consultant in the field and paid for under the item asphalt driveway reinstatement. This is to include all granulars, any concrete curbing along edges of driveways, any landscaping, and all associated appurtenances.

1.4 PRODUCT DATA

- .1 Submittals in accordance with Section 01 33 0 – Submittal Procedures.
- .2 Submit manufacturer's test data and certification that asphalt cement meets requirements of this section.
- .3 Submit asphalt concrete mix design and trial mix test results to Departmental Representative for approval at least four (4) weeks prior to beginning work.

1.6 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least four (4) weeks prior to beginning work.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Divert unused aggregate materials from landfill to facility for reuse as approved by Departmental Representative.
- .4 Divert unused asphalt from landfill to facility capable of recycling materials.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

2 Products

2.1 MATERIALS

- .1 Granular subbase: Section 32 11 19- Granular Subbase.

- .2 Granular base: Section 32 11 23 - Granular Base Course.
- .3 Prime coat: NBDTI Standard Specifications, Item 259.
- .4 Tack coat: NBDTI Standard Specifications, Item 259.
- .5 Asphalt cement: NBDTI Standard Specifications, Item 260.
- .6 Asphalt concrete: NBDTI Standard Specifications, Item 260.
- .7 Traffic paint: yellow and white to CAN/CGSB-1.74.
- .8 Paint thinner: to CAN/CGSB-1.5.

2.2 EQUIPMENT

- .1 Pavers: mechanical self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.
- .2 Rollers: sufficient number type and weight to obtain specified density of compacted mix.
- .3 Vibratory rollers:
 - .1 Minimum drum diameter: 1200 mm.
 - .2 Maximum amplitude of vibration (machine setting): 0.5 mm for lifts less than 40 mm thick.
- .4 Haul trucks: sufficient number and of adequate size, speed and condition to ensure orderly and continuous operation and as follows:
 - .1 Boxes with tight metal bottoms.
 - .2 Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.
 - .3 In cool weather or for long hauls, insulate entire contact area of each truck box.
 - .4 Use only trucks which can be weighed in single operation on scales supplied.
- .5 Hand tools:
 - .1 Lutes or rakes with covered teeth for spreading and finishing operations.
 - .2 Tamping irons having mass not less than 12 kg and bearing area not exceeding 310 cm² for compacting material along curbs, gutters and other structures inaccessible to roller. Mechanical compaction equipment, when approved by Departmental Representative, may be used instead of tamping irons.
 - .3 Straight edges, 4.5 m in length, to test finished surface.

2.3 MIX DESIGN

- .1 Mix design to be approved by Departmental Representative.
- .2 Design of mix: to NBDTI Standard Specifications, Item 260.

3 Execution

3.1 FOUNDATIONS

- .1 Foundations for roadways and parking areas comprise as shown on drawings, and as follows:
 - .1 300 mm compacted thickness of Granular Sub-base.
 - .2 150 mm compacted thickness of Granular Base.

- .2 Compaction: compact each lift of granular material to Section 32 11 19 - Granular Sub-Base and Section 32 11 23 - Granular Base.

3.2 PAVEMENT THICKNESS

- .1 Pavement for roadways and parking areas:
 - .1 Thickness as shown on drawings.

3.3 PAVEMENT CONSTRUCTION

- .1 Application of Prime Coat: NBDTI Standard Specifications, Item 259.
- .2 Construction of Asphalt Concrete: NBDTI Standard Specifications, Item 260.
- .3 Surface Preparation: NBDTI Standard Specifications, Item 260.

3.4 TRAFFIC MARKINGS

- .1 Paint parking space divisions and other pavement markings in accordance with manufacturer's recommendations and as indicated.
- .2 Use paint thinner in accordance with manufacturer's requirements.

3.5 FINISH TOLERANCES

- .1 Finished asphalt surface to be within 5 mm of design elevation but not uniformly high or low.
- .2 Finished asphalt surface not to have irregularities exceeding 5 mm when checked with 4.5 m straight edge placed in any direction.

3.6 DEFECTIVE WORK

- .1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form true and even surface and compact immediately to specified density.
- .2 Repair areas showing checking, rippling, or segregation.
- .3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

END OF SECTION

1 General

1.1 RELATED SECTIONS

.1 Section 31 23 10 - Excavating, Trenching and Backfilling.

2 Products

2.1 MATERIALS

.1 AAFC does not allow any calcium chloride application on their facilities because of on-going research. Therefore, only water shall be used for dust control.

3 Execution

3.1 APPLICATION

.1 Apply water with distributors equipped with means of shut-off and with spray system to ensure uniform application.

4 Measurement and Payment

4.1 MEASUREMENT

.1 There will be no measurement for dust control.

4.2 PAYMENT

.1 There will be no payment for the supply, placement and maintenance of dust control.

END OF SECTION

1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM D698-00a¹, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³) (600 kN-m/m³).
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

1.2 MEASUREMENT FOR PAYMENT

- .1 Measurement for payment shall be made by square metres for concrete walks, curb and gutter in place. Any restoration of curbing outside the scope of work will not be measured for payment.

2 Products

2.1 MATERIALS

- .1 Concrete mixes and materials: in accordance with Section 03 30 05 - Cast-in-Place Concrete.
- .2 Reinforcing steel: in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 Joint filler and Curing Compound: in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .4 Granular base: material to Section 31 05 17 - Aggregate Materials and Section 32 11 23 – Aggregate Base Course
- .5 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water-soluble soap.
- .6 Kerosene: to CAN/CGSB-3.3.

3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 31 23 10 - Excavating, Trenching and Backfilling.
- .2 Construct embankments using excavated material free from organic matter or other objectionable materials.

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- .1 Dispose of surplus and unsuitable excavated material in approved location on site.

3.2 GRANULAR BASE

- .1 Obtain Departmental Representative's approval of subgrade before placing granular base.
- .2 Place granular base material to lines, widths, and depths as indicated.
- .3 Compact granular base in accordance with Section 32 11 23 Aggregate Base Course.

3.3 CONCRETE

- .1 Obtain Departmental Representative's approval of granular base prior to placing concrete.
- .2 Do concrete work in accordance with Section 03 30 00 - Cast-in-Place Concrete.
- .3 Immediately after floating, give sidewalk surface uniform broom finish to produce regular corrugations not exceeding 2 mm deep, by drawing broom in direction normal to centre line.
- .4 Provide edging as indicated with 6 mm radius edging tool.
- .5 Slip-form pavers equipped with string line system for line and grade control may be used if quality of work acceptable to Departmental Representative can be demonstrated. Hand finish surfaces when directed by Departmental Representative.

3.4 TOLERANCES

- .1 Finish surfaces to within 10 mm in 3m as measured with 3 m straightedge placed on surface.

3.5 EXPANSION AND CONTRACTION JOINTS

- .1 Install expansion and contraction joints in accordance with NBDTI Standard Specifications 416- Curb and Gutter and 419 – Concrete Sidewalk.

3.6 ISOLATION JOINTS

- .1 Install isolation joints in accordance with NBDTI Standard Specifications 416- Curb and Gutter and 419 – Concrete Sidewalk.

3.7 CURING

- .1 Cure concrete by adding moisture continuously in accordance with CSA-A23.1/A23.2 to exposed finished surfaces in accordance with Section 03 30 05 – Cast in Place Concrete.
- .2 Apply curing compound evenly to form continuous film, in accordance with manufacturer's requirements.

3.8 BACKFILL

- .1 Allow concrete to cure for 3 days prior to backfilling.
- .2 Backfill to designated elevations with material as indicated on the drawings.\

3.9 CONCRETE SEALER

- .1 After concrete has cured for specified curing time and when surface of concrete is clean and dry, apply two coats of sealer uniformly to surfaces of curbs, walks and gutters.
- .2 Apply treatment when air temperature above 10 degrees C.
- .3 Apply first coat at 135 mL/m².
- .4 Apply second coat at 90 mL/m² when first coat has dried.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 31 23 10 – Excavating, Trenching and Backfilling.

1.2 REFERENCES

- .1 New Brunswick Department of Transportation and Infrastructure (NBDOTI):
.1 Department of Transportation and Infrastructure Standard Specifications (latest edition).
.2 Department of Justice Canada:
.1 Canada Seeds Act (R.S.C., 1985, c. S-8).
.3 Agriculture and Agri-Food Canada
.1 The Canadian System of Soil Classification, Third Edition, 1998.

1.3 DESCRIPTION

- .1 Work under this section consists of all operations necessary for placing of topsoil and hydraulic seed (“hydroseed”) in areas specified in documents or as required by the Departmental Representative.

1.4 CONTRACTOR’S WARRANTY

- .1 All areas landscaped under this Contract shall have a warranty period of one year starting from the date of initial acceptance. This warranty shall cover any defects in materials, workmanship or damages caused by the elements of weather. During this period, any defect brought to the attention of the Contractor by the Departmental Representative shall be fixed, repaired or made good to the satisfaction of the Departmental Representative and at no additional cost to the Departmental Representative.

1.5 SOURCE QUALITY CONTROL

- .1 Provide for inspection and testing of topsoil to be carried out by a laboratory approved by the Departmental Representative. Do not commence work until topsoil is accepted by Departmental Representative.

1.6 LIMITS OF WORK

- .1 All vegetated areas affected by the construction work are to be landscaped. All other areas such as undeveloped lots are to be landscaped to the extent as designated by the Departmental Representative with topsoil and hydroseed. The exact limits of this work will be verified by the Departmental Representative in the field.

2 Products

2.1 HYDROSEED

.1 This item consists of hydraulic seed for application on disposed common borrow material at the locations shown on the drawings.

.2 Grass Seed Mix:

- .1 25.0 kg bags, mixture as follows:
- | | |
|-----|---------------------------|
| 20% | Tall Fescue |
| 15% | Timothy |
| 5% | Alsike Clover |
| 5% | White Clover |
| 5% | Coated Birds Foot Trefoil |
| 30% | Annual Rye Grass |

Alternative seed mixtures must obtain the acceptance of the Departmental Representative prior to change.

.3 Soil Amendments:

- .1 Fertilizer for grass mix applications to have a plant food ratio of 1 nitrogen, 2 phosphorous and 2 potash + 2% F.T.E.
- .2 Lime: ground agricultural limestone containing minimum calcium carbonate equivalent of 85%.

.4 Mulch:

- .1 Mulch shall consist of natural organic fibres (straw, cotton, cellulose) and be capable of dispersing in water to form a homogeneous slurry and remain in such state when mixed with other approved additives.
- .2 Mulch must be free of growth-inhibiting ingredients.
- .3 Mulch shall be capable of forming an absorptive mat, which will allow moisture to percolate into the underlying soil.

.5 Hydroseeding Slurry Mixture:

- .1 The rate of application of the ingredients in the slurry mix shall be as follows:
- | | |
|--------------------|------------|
| Grass Seed Mixture | 125 kg/ha |
| Fertilizer | 100 kg/ha |
| Mulch | 1200 kg/ha |
- .2 Alternative slurry mixtures must obtain the approval of the Departmental Representative before being incorporated into the work.

2.2 TOPSOIL

- .1 Topsoil shall be a fertile, friable soil of loamy character typical of topsoil in the locality and shall contain a normal amount of organic matter. Topsoil shall be free of large stems, large clods, roots of trees or shrubs or other foreign matter.

3 Execution

3.1 TOPSOIL

- .1 Grade and shape areas requiring topsoil to smooth contours. Loosen or scarify these areas to a depth of 50 mm before placing topsoil.
- .2 Topsoil must be accepted by the Departmental Representative before being incorporated into the work. Spread topsoil on prepared areas to a uniform depth of 100 mm.

3.2 HYDROSEEDING

- .1 The Contractor shall prepare the ground (or topsoiled surface) by removing all ruts, ridges and deleterious materials such as sticks, roots and stones that would impede growth of the seed mix and mowing.
- .2 During or after the Work but no sooner than 2 Days before application, the surface shall be loosened to a minimum depth of 25 mm, to ensure that seed mix is not placed on hardened soil.
- .3 The seed mix shall be applied within 2 Days after ground preparation.
- .4 Complete coverage of slopes requires spraying from top and bottom of the slope, and the use of a manually held hose.
- .5 Areas of voids or shadowing shall be redone, at the Contractor's expense, to attain the prescribed application rate.
- .6 Work lime into the topsoil/prepared surface prior to seeding. All areas to receive hydroseed are to have lime applied to topsoil/prepared surface. Application rate for lime to be 2000 kg/ha to 5000 kg/ha, as determined by Departmental Representative in the field.
- .7 Apply slurry mixture uniformly at a rate which meets the specified requirements for the slurry mixture.
- .8 Take reasonable care to prevent spraying items such as structures, signs, fences, plant materials, and utilities. Remove immediately slurry from items and areas not designated to be sprayed.

3.3 MAINTENANCE

- .1 The Contractor shall be responsible for maintaining hydroseeded areas to ensure proper and adequate growth of the vegetation during the one (1) year warranty period.
- .2 Fertilize hydroseeded areas one (1) month after seeding or in the following spring if the area is seeded late in the fall. Spread evenly and water well. Use Type 2 fertilizer for triple mix, ratio 15-15-15, at rate of 340 kg/ha and for grass mix use 1-2-3 ratio fertilizer at a rate of 500 kg/ha and water.
- .3 Any areas which do not catch or where the grass dies over the winter of 2013/2014 are to be reseeded at no additional costs to the Departmental Representative in the spring of 2014.

4 Measurement and Payment

4.1 MEASUREMENT

- .1 Landscaping will be measured in square metres for areas acceptably landscaped as described herein.

4.2 PAYMENT

- .1 Payment to be unit price as indicated in the Schedule of Contract Unit Prices in the Bid Form for "Landscaping - Topsoil and Hydroseed " and shall include surface preparation, supply, hauling and placing of topsoil, fine grading and shaping of site contours, lime, fertilizers, hydroseed mix as specified, maintenance and all incidentals, together with a one year warranty period during which time the Contractor shall be responsible for making good any defect in the growth of the grass.

END OF SECTION