

PART 1 - GENERAL

1.1 WORK INCLUDED .1 This Section specifies requirements for supplying, transporting and placing gravel for hot mix asphalt paved areas to lines, grades and typical cross-sections indicated on the Drawings or as directed by the Departmental Representative.

1.2 RELATED WORK .1 Cast-in-Place Concrete: Section 03 30 00
.2 Excavating, Trenching and Backfilling: Section 31 23 10
.3 Hot Mix Asphalt Paving: Section 32 12 16
.4 Reinstatement: Section 32 98 00

1.3 REFERENCES .1 Province of Nova Scotia, Department of Transportation and Infrastructure Renewal, Standard Specification.
.2 ASTM D1557-09, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³)).

PART 2 - PRODUCTS

2.1 MATERIALS .1 Granular base and sub-base material: crushed and screened rock or gravel, consisting of approved hard and durable stone particles, free from flat, elongated or other objectionable pieces. Gradation shall be dense, uniform and as follows:
.1 Type 1 granular base:

<u>Sieve Size (micrometre)</u>	<u>Percent Passing</u>
20,000	100
14,000	50-85**
5,000	20-50
160	5-12
80	3-8*

.2 Type 2 granular sub-base:

<u>Sieve Size (micrometre)</u>	<u>Percent Passing</u>
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2.1 MATERIALS .1 (Cont'd)
(Cont'd) .2 Type 2 granular sub-base:(Cont'd)

80,000	100
56,000	70-100
28,000	50-80
14,000	35-65
5,000	20-50
160	3-10
80	0-7*

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* For gravel sources not classified as quarries the allowable percentage passing the 080 sieve shall be 3 to 5%.

** For gravel sources classified as quarries the allowable percentage passing the 14,000 sieve shall be 50 to 90%.

.3 Incorporation of existing roadway recovered aggregates into Type 2 sub-base or subgrade may be considered by the Departmental Representative if the Contractor proves suitability of the blend through analysis to the satisfaction of the Departmental Representative.

.4 Physical properties: gravel materials shall conform to the physical properties listed in Table 3.2.3, Nova Scotia Department of Transportation and Infrastructure Renewal, Standard Specification.

PART 3 - EXECUTION

- 3.1 INSPECTION .1 Do not place granular base until finished granular sub-base is inspected and approved.
- .2 Do not place granular sub-base until subgrade profile is inspected and approved.
- .3 Proof roll subgrade in presence of geotechnical inspector prior to beginning placement of granular base and granular materials. Over-excavate any soft spots and backfill with compacted approved granular fill.

3.2 PLACING

- .1 Place granular base and sub-base on approved subgrade.
- .2 Proof roll subgrade. Any soft spots detected are to be removed and replaced with approved fill. Proof roll with 10 tonne vibratory roller in presence of Contractor's geotechnical engineer.
- .3 Excavated gravels from existing pavement structures are not permitted for re-use as base gravels in new pavement structures.
- .4 Place material only on a clean unfrozen surface, properly shaped and compacted and free from snow or ice.
- .5 Place granular base and sub-base using methods which do not lead to segregation or degradation.
- .6 Place gravel in uniform layers, not to exceed 200 mm compacted thickness, to compacted depth shown on Drawings.
- .7 Shape each layer to a smooth contour and compact to specified density before the succeeding layer is placed.
- .8 Remove and replace that portion of a layer in which material becomes segregated during spreading.

3.3 COMPACTING

- .1 Compact granular base and sub-base to a density of not less than 100% to ASTM D1557, corrected for oversized particles.
 - .2 Shape and roll alternately to obtain a smooth, even and uniformly compacted sub-base.
 - .3 Apply water as necessary during compaction to obtain specified density. If subgrade is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.
 - .4 In areas not accessible to rolling equipment, compact to specified density with approved mechanical tampers.
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3.4 FINISH
TOLERANCES

- .1 Finish compacted surface to within 12 mm of established grade, but not uniformly high or low.
- .2 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.5 MAINTENANCE

- .1 Maintain finished granular base in condition conforming to this section until succeeding material is applied.

3.6 SCHEDULING
WORK

- .1 Placement of granular base shall not commence until all other civil works below base, and large vehicle/heavy traffic activities have been completed. Minimize contamination of granular material.
- .2 No portion of the granular base shall be used for temporary access during construction. Contractor shall provide granular materials as required for such temporary access at no additional cost to the Contract.

PART 1 - GENERAL

- 1.1 RELATED WORK .1 Excavating, Trenching and Backfilling: Section 31 23 10
- .2 Granular Materials: Section 32 11 00
- 1.2 REFERENCES .1 Nova Scotia Department of Transportation and Infrastructure Renewal, Standard Specification.
- .2 ASTM D3203-2013, Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.
- 1.3 SAMPLES .1 At least three (3) weeks prior to commencing work inform Departmental Representative of proposed source of aggregates, liquid asphalt and asphalt cement and provide access for sampling.
- .2 Preliminary approval of any sample or samples of any material shall not constitute a final approval of the material or its source of supply.
- .3 All materials to be incorporated into the work shall be continuously and regularly sampled and tested in the field and in the laboratory and shall comply with the requirements of the material specification.
- 1.4 MATERIAL CERTIFICATION .1 At least three (3) weeks prior to commencing work submit viscosity-temperature chart for asphalt cement to be supplied showing either Saybolt Furol viscosity in seconds or Kinematic Viscosity in centistokes, temperature range 105 to 175°C.
- .2 Submit manufacturer's test data and certification that asphalt cement meets requirements of this section.
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PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Asphalt material: hot mixed, hot-laid combination of mineral aggregates, uniformly coated and mixed with an asphaltic binder in a suitable mixing plant. Asphalt materials and aggregates shall meet the requirements of Division 4, Section 4 of the Nova Scotia Department of Transportation and Infrastructure Renewal Specification.
 - .2 Composition of asphalt mixture: to grading and asphalt content requirements in Table 4.4.1-Physical Requirements of Asphalt Concrete of the Nova Scotia Department of Infrastructure Renewal Specification, Type B-HF and Type C-HF mix. Minimum Marshall Stability to be 7.5 kN @ 60°C formulated for truck route traffic.
 - .3 Liquid asphalt primer: to requirements in Table 4.5.1 of the Nova Scotia Department of Transportation and Infrastructure Renewal Specification.
 - .4 Liquid asphalt tack coat: to same requirements as liquid asphalt primer.

PART 3 - EXECUTION

- 3.1 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 of rollers of type and weight to obtain specified density of compacted mix.
 - .3 Haul trucks: 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.
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3.2 PREPARATION

- .1 Make vertical saw cut to full depth of asphalt concrete in straight lines. Cut back 300 mm minimum from edge of excavation or beyond to eliminate tension cracks.
- .2 Remove additional existing asphalt in locations where longitudinal strips less than 1 m wide and/or asphalt "islands" less than 10 m² in size occur after saw cutting and replace with new asphalt.
- .3 Cold mill an additional 300 mm wide by 50 mm deep longitudinal strip along all saw cut joints to facilitate an overlap joint in the surface asphalt.
- .4 Place or remove gravel to depth indicated.
- .5 Shape, fine grade and compact gravel surface to 100 percent standard proctor density.

3.3 PLACING

- .1 Obtain Departmental Representative's approval of granular base and preparation prior to placing asphalt.
 - .2 Before placing asphalt, clean surface of loose and foreign material. Apply liquid asphalt primer to Nova Scotia Department of Transportation and Infrastructure Renewal specifications. Application rate: 1.0 l/m².
 - .3 Apply liquid asphalt tack coat to Nova Scotia Department of Transportation and Infrastructure Renewal Standard Specification between Class B-HF binder and Class C-HF surface courses, and as primer at all cold joints. Application rate: 0.5 l/m².
 - .4 Place asphalt concrete in compacted lifts to thicknesses, grades and lines as indicated or as directed by Departmental Representative.
 - .5 Place catch basin and manhole covers into final position prior to placement of Type C-HF asphalt.
 - .6 Placing conditions:
 - .1 Place asphalt mixtures only when air temperature is above 5°C.
 - .2 When temperature of surface on which material is to be placed falls below 10°C, provide extra rollers as necessary to obtain required compaction before cooling.
 - .3 When the air temperature is 5°C, or less, or after the 31st of October, the Contractor shall not be permitted to lay any asphalt pavement, unless
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- 3.3 PLACING
(Cont'd)
- .6 Placing conditions:(Cont'd)
.3 (Cont'd)
otherwise directed by the Departmental Representative.
.4 Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.
- .7 Place, roll and compact asphalt concrete in accordance with Division 4, Section 4, Province of Nova Scotia, Department of Transportation and Infrastructure Renewal, Standard Specification.
- .8 Rake all joints.
- .9 The minimum density acceptable shall be 95% of the theoretical Maximum Relative Density determined according to ASTM D3203.
- 3.4 ASPHALT PATCHING
- .1 Remove existing asphalt by saw cutting in straight lines and removing cut asphalt with suitable excavating equipment to full depth of asphalt.
- .2 Provide tack coat on edges of saw cut.
- .3 Reinstate asphalt to full depth of existing asphalt using mix type C-HF asphalt concrete.
- .4 Dispose of excavated asphalt at approved disposal site.
- 3.5 FINISH TOLERANCES
- .1 Finished asphalt surface to be within 6 mm of design elevation but not uniformly high or low.
- .2 Finished asphalt surface not to have irregularities exceeding 6 mm when checked with a 3 m straight edge placed in any direction.
- 3.6 PROTECTION
- .1 Restrict traffic during setting period to prevent damage as directed by the Departmental Representative.
- 3.7 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
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3.7 DEFECTIVE WORK .1
(Cont'd)

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compaction, remove surface course promptly and lay new material to form a true and even surface and compact immediately to specified density.

.2 Repair areas showing checking or rippling.

.3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

.4 If, at any time before the work is finally accepted, any ravelling, shoving or other fault develops in the pavement as laid, remove all mixed materials in such places, cut edges of joints square and paint with tack coat. Place fresh asphalt mixture and compact. Do such removal and replacement of unsatisfactory material at no additional cost to the Contract.

PART 1 - GENERAL

- 1.1 RELATED WORK .1 Hot asphalt mix paving: Section 32 12 16
- 1.2 REFERENCES .1 CAN/CGSB 1.74-2001, Alkyd Traffic Paint.
- .2 Manual of Uniform Traffic Control Devices for
Canada, 4th Edition, Transportation Association of
Canada.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Paint:
- .1 To CAN/CGSB 1.74, alkyd traffic paint.
- .2 Colour: yellow 505-308 and white 513-301.
- .3 Colour: black for black-out markings.

PART 3 - EXECUTION

- 3.1 EQUIPMENT
REQUIREMENTS .1 Paint applicator to be an approved pressure type
distributor capable of applying paint in single,
double and dashed lines. Applicator to be capable of
applying marking components uniformly, at rates
specified, and to dimensions as indicated, and to
have positive shut-off.
- 3.2 CONDITION OF
SURFACES .1 Pavement surface to be dry, free from ponded water,
frost, ice, dust, oil, grease and other foreign
materials.
- 3.3 APPLICATION .1 Lay out pavement markings as indicated and to the
approval of the Departmental Representative.
- .2 Unless otherwise approved by Departmental
Representative, apply paint only when air temperature
is above 10°C, wind speed is less than 60 km/h and no
rain is forecast within next 4 h.
- .3 Apply traffic paint evenly at rate of 3 m²/L where
indicated on the Project Drawings.
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3.3 APPLICATION
(Cont'd)

- .4 Do not thin paint unless approved by Departmental Representative.
- .5 Symbols and letters to conform to dimensions indicated.
- .6 Paint lines to be of uniform colour and density with sharp edges.
- .7 Thoroughly clean distributor tank before refilling with paint of different colour.

3.4 TOLERANCE

- .1 Paint markings to be within plus or minus 12mm of dimensions indicated.
- .2 Remove incorrect markings as directed by Departmental Representative.

3.5 PROTECTION OF
COMPLETED WORK

- .1 Protect pavement markings until dry.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for providing chain link fence and rolling gates as indicated on the Drawings, and as specified.
- 1.2 REFERENCES .1 ASTM A90/A90M-09, Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
- .2 ASTM A123-09, Standard Specification for Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products.
- .3 ASTM A653/A653M-2011, Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .4 ASTM F1043-2012, Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
- .5 CAN/CGSB-138.1-96, Fabric for Chain Link Fence.
- .6 CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence.
- .7 CAN/CGSB-138.3-96, Installation of Chain Link Fence.
- .8 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- 1.3 SHOP DRAWINGS .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Drawings to indicate: dimensions, size of components, anchorage details and gates.
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PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Temporary fence. No concrete bases.
 - .2 Chain-link fence fabric: to CAN/CGSB-138.1.
 - .1 Type 1, Class A, Grade 3, medium style.
 - .2 Height of fabric: as indicated.
 - .3 Posts, braces and rails: to CAN/CGSB-138.2, galvanized steel pipe, Type 2. Dimensions as indicated.
 - .4 Bottom tension wire: to CAN/CGSB-138.1, Table 3, single strand, galvanized steel wire, 5 mm diameter.
 - .5 Tie wire fasteners: to CAN/CGSB-138.1, Table 2 (steel wire), single strand.
 - .6 Tension bar: to ASTM A653, 5 mm x 20 mm minimum galvanized steel.
 - .7 Tension bar bands: 3 mm x 20 mm minimum, galvanized steel.
 - .8 Double Gate frames: to ASTM F1043, galvanized steel pipe, minimum 87 mm outside diameter pipe for outside frame, 42 mm outside diameter pipe for interior bracing.
 - .1 Fabricate gates as indicated with electrically welded joints, and hot-dip galvanized after welding.
 - .2 Fasten fence fabric to gate with twisted selvage at top. Track design is to prevent interference with gate track and gate framework.
 - .3 Furnish gates with galvanized top and bottom rollers and tracks, latch and catch with provision for padlock which can be attached and operated from either side of installed gate. Track to be located on inside (north) face of fence line.
 - .4 Furnish double gate with chain hook to hold gates open.
 - .9 Fittings and hardware: to CAN/CGSB-138.2, cast aluminum alloy, galvanized steel or malleable or ductile cast iron. Tension bar bands: 3 mm x 20 mm minimum galvanized steel or 5 mm x 20 mm minimum aluminum. Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail. Overhang tops to provide waterproof fit.
 - .10 Organic zinc rich coating: to CAN/CGSB-1.181.
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2.1 MATERIALS .11 Barbed wire: to CAN/CGSB-138.2, three strand and as
(Cont'd)

2.2 FINISHES .1 Galvanizing:
.1 For chain link fabric: to CAN/CGSB-138.1
Grade 3.
.2 For pipe: 610 g/m² minimum to ASTM A90.
.3 For barbed wire: to CAN/CGSB-138.2.
.4 For other fittings: to ASTM A123.

PART 3 - EXECUTION

3.1 SITE SECURITY .1 Prior to removal of existing fence and gates,
provide temporary security fencing around site to
satisfaction of Departmental Representative.
Coordinate with roadway construction to ensure site
security is maintained at all times.

3.2 GRADING .1 Remove debris and correct ground undulations along
fence line to obtain smooth uniform gradient between
posts. Provide clearance between bottom of fence and
ground surface of 100 mm.

3.3 ERECTION OF FENCE .1 Erect fence along lines as indicated accordance with
CAN/CGSB-138.3.
.2 Cut holes into the ground where post will be placed.
There will be no concrete posts installed in this
fencing.
.3 Space line posts maximum 3 m apart, measured
parallel to ground surface.
.4 Install additional straining posts at relative
changes in grade greater than 1V:5H and where
directed by Departmental Representative.
.5 Install corner post where change in alignment
exceeds 10°.
.6 Install gate posts on both sides of gate openings
and assemble in accordance with approved shop
drawings.

- 3.3 ERECTION OF FENCE
(Cont'd)
- .7 Install brace between gate posts and nearest line post, placed in centre of panel and parallel to ground surface. Install braces on both sides of corner and straining posts in similar manner.
 - .8 Install overhang tops and post caps.
 - .9 Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
 - .10 Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
 - .11 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300 mm intervals. Knuckled selvedge at bottom. Twisted selvedge at top.
 - .12 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450 mm intervals. Give tie wires minimum two twists.
 - .13 Install barbed wire strands and clip securely to lugs of each projection.
- 3.4 INSTALLATION OF GATES
- .1 Install gates in locations as indicated.
 - .2 Level ground between gate posts and set gate bottom approximately 100 mm above ground surface.
 - .3 Determine position of centre gate rest for double gate. Cast gate rest in concrete as directed. Dome concrete above ground level to shed water.
- 3.5 TOUCH UP
- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.
- 3.6 CLEANING
- .1 Clean and trim areas disturbed by operations. Dispose of surplus material and replace damaged turf with sod as directed by Departmental Representative.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This section specifies requirements for providing topsoil and sod as specified.
- .2 All topsoil to be obtained from an off-site source as approved by Departmental Representative.
- 1.2 RELATED WORK .1 Site Grading: Section 31 23 10
- 1.3 SOURCE QUALITY CONTROL .1 Obtain approval from Departmental Representative of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization.
- .3 Advise Departmental Representative of source of topsoil to be used seven (7) days in advance of starting work.
- .4 conduct soil analysis requirement for amendments to topsoil as specified.
- 1.4 SCHEDULING .1 Schedule sod laying to coincide with preparation of soil surface.
- .2 Schedule sod installation after frost has left ground and before June 30 or between August 15 and September 30.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Topsoil:
- .1 Friable loam, neither heavy clay nor of very light sandy nature, containing minimum 4% organic matter for clay loam, and 2% for sandy loam, to maximum 20% by volume.
- .2 Containing no toxic elements or growth inhibiting materials.
- .3 Free from debris, subsoil, vegetation, and stones and roots over 50 mm diameter.
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- 2.1 MATERIALS
(Cont'd)
- .2 Soil amendments:
 - .1 Peatmoss:
 - .1 Derived from partially decomposed species of Sphagnum Mosses.
 - .2 Elastic and homogeneous, brown in colour.
 - .3 Free of wood and deleterious material which could prohibit growth.
 - .4 Shredded particle minimum size: 5mm.
 - .2 Limestone:
 - .1 Ground agricultural limestone containing minimum calcium carbonate equivalent of 85%.
 - .2 Gradation requirements: percentage passing by weight, 90% passing 1.0mm sieve, 50% passing 0.125mm sieve.
 - .3 Fertilizer:
 - .1 Complete, commercial, with 35% soluble nitrogen.
 - .3 Number One Turfgrass Nursery Sod: Sod that has been especially sown and cultivated in nursery fields as turfgrass crop.
 - .1 Turfgrass Nursery Sod: Number One Kentucky Bluegrass Sod - Fescue Sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue or Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivar(s).
 - .2 Turfgrass Nursery Sod quality:
 - .1 Not more than 2 broadleaf weeds or 10 other weeds/40 m².
 - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 40 mm.
 - .3 Mowing height limit: 35mm to 6mm.
 - .4 Soil portion of sod: 9 to 15mm in thickness.
 - .4 Water: potable, free of impurities.
 - .5 Fertilizer:
 - .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.
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PART 3 - EXECUTION

3.1 PREPARATION OF
EXISTING GRADE

- .1 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and do not commence Work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Remove debris, roots, branches, stones in excess of 50 mm diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 75 mm above surface. Dispose of removed material off site.
- .4 Course cultivate entire area which is to receive topsoil to depth of 100 mm. Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.2 PLACING AND
SPREADING OF
TOPSOIL

- .1 Place topsoil after Departmental Representative has accepted subgrade.
- .2 Spread topsoil in uniform layers not exceeding 100 mm, over unfrozen subgrade free of standing water.
- .3 For sodded areas keep topsoil 15 mm below finished grade.

3.3 SOIL AMENDMENTS

- .1 Apply and thoroughly mix soil amendments and fertilizer into full specified depth of topsoil as determined by soil analysis.

3.4 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage. Prepare loose friable bed by means of cultivation and subsequent raking.
 - .2 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative. Leave surfaces smooth, uniform and firm against deep footprinting.
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3.5 ACCEPTANCE
OF TOPSOIL

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading. Approval of topsoil material subject to soil testing and analysis.
- .2 Bear all costs for soil testing and analysis.

3.6 PREPARATION
FOR SODDING

- .1 Do not perform Work under adverse field conditions such as frozen soil, excessively wet or dry soil or soil covered with snow, ice, or standing water.
- .2 Fine grade surface free of humps and hollows to smooth, even grade, elevations indicated, to tolerance of plus or minus 9 mm for Turfgrass Nursery Sod, surface to drain naturally.
- .3 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site.
- .4 Cultivate fine grade approved by Departmental Representative to 25 mm depth immediately prior to sodding.

3.7 SOD PLACEMENT

- .1 Lay sod within 36 hours of being lifted.
- .2 Lay sod sections in rows, longitudinally, along contours of slopes, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
- .3 Roll sod as directed by Departmental Representative. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.

3.8 FERTILIZING
PROGRAM

- .1 Fertilize during establishment and period of maintenance to following program:

<u>Date</u>	<u>Rate</u>	<u>Ratio</u>
May	70 kg/ha	3:0:0
July	70 kg/ha	3:1:3
September	25 kg/ha	1:2:3

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- 3.9 MAINTENANCE .1 Perform following maintenance operations from time
DURING of installation until acceptance:
ESTABLISHMENT .1 Water sodded areas in sufficient quantities and
PERIOD at frequency required to maintain optimum soil
moisture condition to depth of 75 to 100 mm.
.2 Cut grass to 40 mm when it reaches height of 65
mm. Remove clippings which will smother grass.
.3 Maintain sodded areas weed free.
.4 Fertilize areas in accordance with fertilizing
program. Spread half of required amount of fertilizer
in one direction and remainder at right angles and
water in well.
- 3.10 ACCEPTANCE .1 Turfgrass Nursery Sod areas will be accepted by
Departmental Representative provided that:
.1 Sodded areas are properly established.
.2 Sod is free of bare and dead spots and without
weeds.
.3 No surface soil is visible from height of 1500
mm when grass has been cut to height of 40 mm.
.4 Sodded areas have been cut minimum 3 times, and
within 24 hours prior to acceptance.
.5 Fertilizing in accordance with fertilizer
program has been carried out at least once.
- .2 Areas sodded in fall will be accepted in following
spring one month after start of growing season
provided acceptance conditions are fulfilled.
- 3.11 MAINTENANCE .1 Perform following operations from time of acceptance
DURING WARRANTY until end of maintenance period:
PERIOD .1 Water sodded Turfgrass Nursery Sod areas at
weekly intervals to obtain optimum soil moisture
conditions to depth of 100 mm.
- .2 Repair and resod dead or bare spots to approval of
Departmental Representative.
- .3 Cut grass and remove clippings that will smother
grass to height as follows:
.1 Turfgrass Nursery Sod:
.1 40 mm during normal growing conditions.
.2 65 mm at end of growing season and during
periods of high temperatures and low
precipitation.
.2 Cut grass at two (2) week intervals or as
directed by Departmental Representative, but at
intervals so that approximately one third of growth
is removed in single cut.
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3.11 MAINTENANCE .3
DURING WARRANTY
PERIOD
(Cont'd)

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.3 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.

.4 Eliminate weeds by mechanical means to extent acceptable to Departmental Representative.

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 The Work under this Section consists of furnishing all materials, labour, tools and equipment and performing all operations necessary for the complete reinstatement of surfaces and structures disturbed by work of this Contract.
- .2 Repair damage or disturbance to surfaces, properties and structures, within limits of the Site or elsewhere on other properties occupied, traversed or otherwise used by the Contractor during the Contract period to a condition equal to or better than that before work began, at no additional cost to the Contract.
- 1.2 RELATED WORK .1 Cast-in-Place Concrete: Section 03 30 00
- .2 Excavating, Trenching and Backfilling: Section 31 23 10
- .3 Granular Materials: Section 32 11 00
- .4 Hot Mix Asphalt Paving: Section 32 12 16
- .5 Topsoil and Sodding: Section 32 92 23
- 1.3 REFERENCES .1 Nova Scotia Department of Transportation and Infrastructure Renewal Standard Specifications, latest edition.
- 1.4 MAINTENANCE .1 Take care and maintain all reinstated areas until final acceptance of the work.
- .2 Repair damaged areas to the approval of the Departmental Representative.
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PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Granular material: in accordance with the requirements of Section 32 11 00.
 - .2 Concrete material: as specified in Section 03 30 00.
 - .3 Asphalt material: as specified in Section 32 12 16.
 - .4 Grass surface materials: as specified in Sections 32 91 23 and 32 92 19.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Maintain surfaces to be reinstated level with adjoining existing surfaces gravel until final reinstatement.
- 3.2 CONCRETE SURFACES
- .1 Carry out final reinstatement of concrete surfaces as follows:
 - .1 Cut back broken edges of original pavement to full depth, in straight lines.
 - .2 Before placing final surface material, remove existing gravel to a depth indicated over disturbed area, grade and recompact. Add gravel to compacted depths indicated. Compact to not less than 100% Maximum Corrected Dry density.
 - .3 Place and finish concrete in accordance with Section 03 30 00.
 - .4 Ensure finished surface is even, dense and matches grade of existing road or surface, as approved by the Departmental Representative.
- 3.3 ASPHALT SURFACES
- .1 Keep surface of asphalt paved roads and surfaces in good condition by repairing settlement of trench backfilling as described in Section 31 23 10.
 - .2 Carry out final reinstatement of asphalt surfaces as follows:
 - .1 Cut back broken edges of original pavement to full depth, in straight lines. Cut back 300 mm minimum from edge of excavation to eliminate tension cracks. Clean contact surfaces and apply tack coat before placing asphalt concrete.
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- 3.3 ASPHALT SURFACES (Cont'd) .2 (Cont'd)
- .2 Before placing final surface material, remove existing gravel to a depth indicated over disturbed area, grade and recompact. Add gravel to compacted depths indicated. Compact to not less than 100% Maximum Corrected Dry density.
- .3 Supply, place, roll and compact asphalt mixture in accordance with Section 32 12 16.
- .4 Compact asphalt concrete in lifts not exceeding 50 mm in thickness.
- .5 Ensure finished surface is even, dense and matches grade of existing road or surface, as approved by the Departmental Representative.
- 3.4 PAVEMENT MARKINGS .1 Reinstate pavement markings to Section 32 17 23.
- 3.5 GRAVEL SURFACES .1 Reinstate gravel surfaces by placing 200 mm compacted thickness of gravel at an elevation such that gravel surface is smooth and even with adjacent surfaces.
- .2 Place and compact gravel for surfaces in accordance with the requirements of Nova Scotia Department of Transportation and Infrastructure Renewal Standard Specifications.
- 3.6 GRASS SURFACES .1 Sodding: to Section 32 91 23. Fine grade areas to be reinstated to smooth surface. Grade to allow for topsoil and sod to be placed so finish grade is smooth and even with existing surfaces.