



ADDENDUM NO. 1

DATE ISSUED: May 9, 2018

PROJECT: 2018-RFP-12 - Construction of the Summerland Skatepark

The Request for Proposal documents for this work are revised as noted herein. All such revisions become a part of the work and shall be included in your Proposal. No consideration will be allowed for extras due to the Contractor not being familiar with this addendum.

1. REFERENCE: Part A, Exhibit 2 - Technical Specifications for the Summerland Skatepark

The following technical specifications are added to Exhibit 2 and are provided for the provision item work for landscaping.

ADD: Part A, Exhibit 2 is amended as follows:

- Section 32 91 21 - Topsoil & Finish Grading, high traffic lawn area category
- Section 32 92 20 - Seeding
- Section 32 92 23 - Sodding

See attachment to this Addendum 1

2. REFERENCE: Answers to Questions Received

The following are answers to questions received:

Q1	Is there any hard wire in the electrical duct bank that needs to be redirected? If so, do you have any information regarding what is included in there?
A1	No, the ducts are empty and do not contain any wire.
Q2	Is there any specifications for the landscaping scope of work?
A2	Refer to the following MMCD Platinum edition specification: <ul style="list-style-type: none"> • Section 32 91 21 - Topsoil & Finish Grading, high traffic lawn area category • Section 32 92 20 - Seeding • Section 32 92 23 - Sodding See attachment to this Addendum 1
Q3	It appears bonding is required but there is no bid bond agreement to bond required for the submission? Is this correct?
A3	Correct. No Bid Bond or Bid Security is required for this RFP process. As per Section 7 of Part A, Contract Security will be required upon execution

	of a Contract with the Contractor. Respondents are reminded that a consent of surety is required with Proposals, as per the instructions in Appendix C of Part D.
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END OF ADDENDUM NO. 1

CHAIN LINK FENCES AND GATES

- .14 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 375 mm intervals. Knuckled selvage at top and bottom.
- .15 Secure fabric to top rails, line posts and bottom tension wire as detailed on Standard Detail Drawing C.13. Give tie wires minimum two twists.
- .16 Where specified, install barbed wire strands and clip securely to lugs of each bracket.

TOPSOIL AND FINISH GRADING

- 1.0 **GENERAL**
 - .1 Section 32.91.21 refers to those portions of the work that are unique to the supply and placement of growing medium (topsoil) and subsequent finish grading. In this Section, the term "growing medium" is used in place of the generic and commonly used term "topsoil". The term "topsoil" in this Section is used where appropriate to identify imported or on-site natural material conforming to 2.4 of this Section. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
 - .2 This section is based on the "British Columbia Landscape Standard" published by the B. C. Society of Landscape Architects and the B. C. Nursery Trades Association. This standard is intended to set a level of quality which is to be equalled or bettered in the construction documents for each project. Guidance of a registered British Columbia Landscape Architect is recommended.
- 1.1 **Related Work**
 - .1 Site Grading Section 31.22.01
 - .2 Seeding Section 32.92.20
 - .3 Hydraulic Seeding Section 32.92.19
 - .4 Sodding Section 32.92.23
 - .5 Planting of Trees, Shrubs and Ground Covers Section 32.93.01
- 1.2 **References**
 - .1 British Columbia Landscape Standard.
 - .2 Canadian System of Soil Classification.
- 1.3 **Source Quality Control**
 - .1 Advise Contract Administrator of sources of growing medium to be utilized 7 days in advance of starting work.
 - .2 Contractor is responsible for soil analysis and requirements for amendments to supply growing medium as specified.
- 1.4 **Measurement and Payment**
 - .1 Payment for growing medium and imported topsoil will be made separately for each type of growing medium and imported topsoil specified, and includes supply of materials, on-site handling, placement to thickness specified, application of fertilizers and finish grading. Payment for growing medium will be by actual area provided and payment for imported topsoil will be based on loose truck box volume.
 - .2 Payment for placement and spreading of native topsoil previously stockpiled on site will be made under Section 31.22.01 – Site Grading - 1.4.6.
 - .3 Payment for excavation of native topsoil and re-use on site will be made under Section 31.22.01 – Site Grading - 1.4.2.
- 1.5 **Inspection and Testing**
 - .1 Refer to General Conditions, Clause 4.12, Inspections.

PRODUCTS

General

- .1 In this Section, a range of measurable physical and chemical properties are set out as being acceptable in a growing medium. Compliance with this Section is to be determined by testing for those properties. When imported or on-site soil is used, it is to be tested and modified as necessary by admixture of other components to bring its properties within ranges set in 2.10 of this Section for growing medium.

Applications

- .1 Three different growing medium types are described in this Section for different applications:
 - .1 Low traffic lawn areas, trees and large shrubs.
 - .2 High traffic lawn areas, having regular pedestrian traffic. This growing medium has relatively high structural strength but will require more care due to lower water and nutrient capacity.
 - .3 Growing medium for planting areas, such as for shrub and ground cover areas and in planters. This growing medium is similar to that for low traffic lawn areas, but has higher organic content and slightly lower pH. This may be achieved by adding peat moss to growing medium for low traffic lawn areas.

Native Topsoil

- .1 On-site native topsoil may be used, provided it meets standard set for imported topsoil and can be modified to meet requirements set out for specified growing medium.
- .2 If testing shows on-site soil to be suitable for landscaping, a sufficient quantity of stripped topsoil to be stockpiled where shown on Contract Drawings or in areas specified for stockpiling.
- .3 Do not handle topsoil while in a wet or frozen condition or in any manner in which structure is adversely affected.

Imported Topsoil

- .1 Imported topsoil to be friable loam, neither heavy clay nor of very light sandy nature, containing a minimum of 4% organic matter for clay loams and 2% for sand loams, to a maximum of 20% by volume. To be free from subsoil, roots, noxious grass, weeds, toxic materials, stones over 30 mm, foreign objects, and with an acidity range (pH) of 5.5 to 7.5. To be free from crabgrass, couchgrass, equisetum or noxious weeds or seeds or parts thereof.
- .2 Freedom from rock or debris to be such that 95 - 100% of particles pass a 25 mm sieve and 85 - 100% pass a 9.5 mm sieve.
- .3 Population of any single species of plant pathogenic nematode to not exceed 1000 per litre of growing medium.

Peat Moss

- .1 Peat moss to be Horticultural grade, partially decomposed fibrous or cellular stems and leaves of Sphagnum Mosses with texture varying from porous to spongy fibrous, fairly elastic and substantially homogeneous with pH value not less than 3.5 and not greater than 4.5, free of decomposed colloidal residue, wood, sulphur and iron, brown in colour and medium to coarse shredded, suitable for horticultural purposes.

2.6 Sand

- .2 Salinity: saturation extract conductivity to not exceed 2.0 millimhos/cm at 25°C.
- .3 Organic content: to be no less than 90% based on dry weight as determined by ash analysis.
- .4 Nitrogen: to be no less than 0.8% based on dry weight.
- .5 Particle size:
 - .1 95 - 100% passing a 9.5 mm sieve.
 - .2 0 - 15% passing a 0.500 mm sieve.

2.7 Manure

- .1 Sand to be hard, granular sharp sand to CSA A82.50, well washed and free of impurities, chemical or organic matter.
- .2 Particle size in sand to be:
 - .1 95 - 100% passing a 4.75 mm sieve.
 - .2 0 - 40% passing a 0.500 mm sieve.
 - .3 0 - 5% passing a 0.050 mm sieve.
- .1 Manure to be well-rotted farm animal manure, rotted to extent that liquids have been eliminated, and material is crumbly, free from weed seeds, rocks, sticks, rubble and containing not more than 40% sawdust, straw or shavings.
- .2 Manure to be free of harmful chemicals such as any used to artificially hasten decomposition, and to have salt content that gives an electrical conductivity reading of less than 0.5 mmho/cm.
- .3 Manure to contain not less than 1.0% nitrogen based on dry weight.
- .4 All particles in manure to pass a 6.35 mm sieve.
- .5 Manure to be free of viable seed, maximum two plants per litre of manure.

2.8 Wood Residuals

- .1 Where wood residuals such as fir or hemlock sawdust are present in growing medium, their quantities and properties to be such that total Carbon to total Nitrogen ratio is a maximum of 40:1.
- .2 Cedar or redwood sawdust to not be present in growing medium.

2.9 Fertilizers

- .1 Chemical Fertilizers:
 - .1 Fertilizers to be standard commercial brands, meeting requirements of Canada Fertilizer Act.
 - .2 All fertilizers to be in granular, pelleted or prill form, and to be dry, free-flowing and free from lumps.
 - .3 Fertilizers to have a guaranteed N-P-K analysis.
 - .4 Fertilizer to be packed in standard waterproof containers, clearly marked with name of manufacturer, weight and analysis.
 - .5 Fertilizer to be stored in weatherproof storage place and in such a manner that it will stay dry and its effectiveness is not impaired.

- .6 Fertilizers to include, but not be limited to, those shown in Table 1.

TABLE 1: Fertilizers

Name	Minimum Proportion by Weight	Main Element
Ammonium Nitrate	33.5%	N
Ammonium Sulfate	21.0%	N
Superphosphate (0-20-0)	8.5%	P (20% P ₂ O ₅)
Superphosphate (0-45-0)	19.5%	P (45% P ₂ O ₅)
Potassium Sulfate	41.5%	K (50% K ₂ O)
Potassium Chloride (muriate)	50.0%	K (60% K ₂ O)
Potassium Nitrate	13.0%	N
	36.5%	K (44% K ₂ O)
Iron Sulfate	20.0%	Fe, as metallic
Gypsum	23.0%	Ca
Rock or oyster shell lime, limestone flour	40.0%	Ca
Dolomite Lime	20.0%	Ca
	13.0%	M
Bonemeal	20.0%	Phosphoric Acid
	3.0%	N

(Bonemeal, Gypsum and limes to be finely ground, to 12 mesh or finer).

Growing Medium

- .1 Growing medium is any soil, soil substitute, or mixture whose chemical and physical properties fall within ranges required by this Section for a particular application.
- .2 Growing medium to be free of plants or their roots, sticks, building materials, wood chips (in excess of 10 mm in maximum dimensions), chemical pollutants, and other extraneous materials not contributing to generally desirable physical and chemical properties for landscaping purposes.
- .3 Growing medium to require not more than 0.5 kg/m² of dolomite lime to reach required pH level.

- .4 Fertility (nitrogen, phosphorous and potassium) and pH: may be modified after growing medium is placed, by incorporation of lime and fertilizers, or by incorporating these chemicals when mixing and screening.
- .5 Salinity: saturation extract conductivity to not exceed 3.0 millimhos/cm at 25°C.
- .6 Boron: concentration in saturation extract to not exceed 1.0 ppm.
- .7 Sodium: sodium adsorption ratio (SAR) as calculated from analysis of saturation extract to not exceed 8.0.
- .8 Total Nitrogen: to be 0.2% to 0.4% by weight.
- .9 Available Phosphorous: to be 50 to 70 ppm.
- .10 Available Potassium: to be 50 to 100 ppm.
- .11 Cation Exchange Capacity: to be 30 to 50 meq.
- .12 Carbon to Nitrogen Ratio: to be not more than 40:1.
- .13 Acidity: to be within pH range shown in Table 2 for intended application.
- .14 Texture: particle sizes and proportions of each size particle to be within ranges shown in Table 2 for intended application.
- .15 Organic Content: to be within range shown in Table 2 for intended application.
- .16 Drainage of growing medium can be measured only after growing medium in place. Mixing and handling of growing medium to be done in such a manner that minimum saturated hydraulic conductivity shown in Table 2 is achieved.
- .17 Tolerances: samples of growing medium taken just before planting to have above properties to within tolerances of ±20%, except for salinity, which is to be less than stated limit.

Properties	Low Traffic Lawn Areas, Trees and Large Shrubs	High Traffic Lawn Areas	Planting Areas, Planters, Shrub and Groundcover Areas
TEXTURE: Particle size classes by Canadian System of Soil Classification	Percent of Dry Weight Mineral Fraction (%)		
Gravel greater than 2 mm less than 75 mm	0 - 10	0	0
Sand greater than 0.05 mm less than 2 mm	50 - 70	80 - 90	50 - 70
Silt greater than 0.002 mm less than 0.05 mm	10 - 30	5 - 20	10 - 30
Clay less than 0.002 mm	7 - 20	2 - 5	7 - 20
ACIDITY (pH)	6.0 - 6.5	6.0 - 6.5	5.0 - 6.0
DRAINAGE: Minimum saturated hydraulic conductivity (cm/hr) in place	2.0	7.0	2.0
ORGANIC CONTENT: Percent of Dry Weight (%)	5 - 10	3 - 5	25 - 30

EXECUTION

Stripping of Topsoil .1 Strip existing topsoil in accordance with Section 31.22.01 - Site Grading.

Preparation of Subgrade .1 Prepare subgrade in accordance with Section 31.22.01 - Site Grading.

.2 Verify that grades are correct. If discrepancies occur, notify Contract Administrator and do not commence work until instructed by Contract Administrator.

.3 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.

.4 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 to approved off-site disposal area.

.5 Coarse cultivate entire area which is to receive growing medium to minimum depth of 150 mm immediately before placing growing medium. Cross cultivate areas where equipment used for hauling and spreading has compacted soil.

- 3.3 Processing Growing Medium**
- .1 Ensure commercial processing and mixing of growing medium components are done thoroughly by mechanized screening process. Do not mix by hand. Ensure resulting product is homogeneous mixture having required properties throughout.
 - .2 Ensure moisture content of peat moss at time of mixing not less than 50% to 75%. Peat moss to form a ball when squeezed and retain shape upon release of pressure. Insufficient moisture will result in peat moss not holding together, while excessive moisture is evident when ball formed is pliable with a clear water sheen on surface.
 - .3 Do not prepare or handle growing medium in a wet or frozen condition.
- 3.4 Placing Growing Medium**
- .1 When subgrade accepted by Contract Administrator commence placing growing medium.
 - .2 Place growing medium over prepared subgrade and allow to settle or compact by light rolling such that it is firm against deep footprints. Do not compact growing medium more than necessary to meet this requirement.
 - .3 Ensure growing medium is moist (25% to 75% of field capacity) but not wet when placed, and do not handle if frozen or so wet that its structure will be altered.
 - .4 Manually spread growing medium around trees, shrubs and obstacles.
 - .5 Table 3 sets out minimum depths of growing medium after settlement for various types of subgrade.

Application	Minimum Depths		
	Over Prepared Subsoil		Over Structures
	Where subsoil has medium (loamy) texture	Where subsoil has coarse (sandy) or fine (clay) texture	
Low traffic lawn areas:			
i) irrigated	100 mm	150 mm	150 mm
ii) not irrigated	100 mm	150 mm	225 mm
High traffic lawn areas:	100 mm	150 mm	-----
Planting medium:			
i) ground cover areas	150 mm 300 mm	300 mm 450 mm	225 mm 300 - 500 mm
ii) shrub areas - small shrubs	450 mm	600 mm	500 - 900 mm
iii) shrub areas - large shrubs	225 mm on sides and bottom of rootball	300 mm on sides and bottom of rootball	See Section 02950
iv) tree pits			

TOPSOIL AND FINISH GRADING

- 3.5 Applying Fertilizers**
- .1 Add fertilizers to bring growing medium fertility within ranges set out in this Section.
 - .2 Add lime (if required) and potassium (if required) to growing medium at time of screening. Add all other fertilizers (such as nitrogen, phosphorus and micronutrients) to growing medium by thorough cultivation after medium is in place (if required).
 - .3 Spread fertilizers evenly over growing medium with suitable mechanical spreader.
 - .4 Ensure fertilizers are fully incorporated to minimum depth of 150 mm, except in lawn areas, where they are to be incorporated to depth of 50 mm.
 - .5 Minimum one week separation between application of lime and fertilizers other than lime.
- 3.6 Finished Grading**
- .1 Fine grade growing medium after placing to specified areas to ensure positive surface drainage.
 - .2 Finish surface smooth, uniform, firm against deep footprinting with a fine loose surface texture.
- 3.7 Acceptance**
- .1 Contract Administrator will inspect and test growing medium in place and determine acceptance of material, depth of growing medium and finish grading. Approval of growing medium material subject to soil testing and analysis.
- 3.8 Restoration of Stockpile Sites**
- .1 Restore stockpile sites as specified in Contract Documents.
- 3.9 Clean-up**
- .1 Dispose of surplus materials and all construction debris off-site.

HYDRAULIC SEEDING

- 1.0 GENERAL**
- .1 Section 32.92.19 refers to those portions of the supply and application of grass seed by hydraulic seeding to be referenced to and interpreted simultaneously and pertinent to the works described herein.
 - .2 This section is based on the "British Columbia Landscaping Standard" by the B. C. Society of Landscape Architects and the B. C. Landscape Association. This standard is intended to set a minimum standard equalled or bettered in the construction documents of a registered British Columbia Landscape Architect.
- 1.1 Related Work**
- .1 Site Grading Section 31
 - .2 Topsoil and Finish Grading Section 32
 - .3 Seeding Section 32
 - .4 Sodding Section 32
 - .5 Planting of Trees, Shrubs and Ground Covers Section 32
- 1.2 References**
- .1 British Columbia Landscape Standard.
 - .2 Canadian System of Soil Classification.
- 1.3 Scheduling**
- .1 Schedule all operations to ensure optimum environment for growing medium placement, planting, seeding and sodding as outlined in these Specifications. Organize scheduling to minimize duration of on-site storage of plant material, compaction of growing medium, and prompt mulching. Coordinate work schedule with scheduling of other works.
 - .2 Coordinate and schedule such that no damage occurs to existing plants after placement. In particular, meet requirements of other works.
 - .3 Plan, schedule and execute work to ensure a sufficient quantity of plants for purposes in adequate amounts and at adequate intervals for irrigation of all plants.
- 1.4 Handling and Storage**
- .1 Store all grass seed and nurse crop seed, hydraulic seeding related materials, where required, in dry, weatherproof containers, protect from damage by heat, moisture, rodents or insects. Do not remove or deface labels or other information.
- 1.5 Drainage Control**
- .1 Provide proper water management and drainage during construction. Include silt traps, erosion control measures, temporary ditches, as well as their adequate maintenance during construction.
- 1.6 Samples**
- .1 Provide samples of all materials required, handle and store them such that they are representative of material or product supplied.
- 1.7 Site Examination**
- .1 Do not carry out landscaping work in areas or conditions not properly prepared. Examine site before starting work and ensure it is properly prepared.

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END OF SECTION 32 92 19

1.0 GENERAL

- .1 Section 32 92 20 refers to those portions of the work that are unique to the supply and application of grass seed by mechanical dry seeding or hand seeding. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
- .2 This section is based on the "British Columbia Landscape Standard" published by the B. C. Society of Landscape Architects and the B. C. Nursery Trades Association. This standard is intended to set a level of quality which is to be equalled or bettered in the construction documents for each project. Guidance of a registered British Columbia Landscape Architect is recommended.

1.1 Related Work

- .1 Site Grading Section 31 22 01
- .2 Topsoil and Finish Grading Section 32 91 21
- .3 Hydraulic Seeding Section 32 92 19
- .4 Sodding Section 32 92 23
- .5 Planting of Trees, Shrubs and Ground Covers Section 32 93 01

1.2 References

- .1 British Columbia Landscape Standard.
- .2 Canadian System of Soil Classification.

1.3 Scheduling

- .1 Schedule all operations to ensure optimum environmental protection, grading, growing medium placement, planting, seeding or sodding operations as outlined in these Specifications. Organize scheduling to ensure a minimum duration of on-site storage of plant material, minimum movement and compaction of growing medium, and prompt mulching and watering operations. Coordinate work schedule with scheduling of other trades on-site.
- .2 Coordinate and schedule such that no damage occurs to materials before or after placement. In particular, requirements of living plant material to be met.
- .3 Plan, schedule and execute work to ensure a supply of water for landscape purposes in adequate amounts and at adequate pressures for satisfactory irrigation of all plants.

1.4 Handling and Storage

- .1 Store all grass seed and nurse crop seed, mulch, fertilizers and related materials, where required, in dry, weatherproof storage place and protected from damage by heat, moisture, rodents or other causes until time of seeding. Do not remove or deface labels or other identification.

1.5 Drainage Control

- .1 Provide for proper water management and drainage of site during construction. Include silt traps, erosion control measures, temporary water collection ditches, as well as their adequate maintenance during construction period.

1.6 Samples

- .1 Provide samples of all materials required, handle and ship in such a manner that they are representative of material or product sampled.

SEEDING

- Site Examination** .1 Do not carry out landscaping work in areas or over surfaces that are not properly prepared. Examine site before starting work to verify all surfaces are properly prepared.
- Measurement and Payment** .1 Payment for seeding includes supply and mechanical or hand application of grass seed and maintenance to meet Conditions of Total Performance per 3.7 of this Section. Measurement for payment will only be made for surface actually seeded. Areas of blending into existing grass or sod will not be measured for payment.
- Inspection and Testing** .1 Refer to General Conditions, Clause 4.12, Inspections.

PRODUCTS

- Grass Seed**
 - .1 Grass seed to meet requirements of Canada Seed Act for Canada No. 1 seed. Where specified, all nurse crop seed to meet requirements of Canada Seed Act for Canada No. 1 seed.
 - .2 Seed mixtures to be approved by Contract Administrator and to be suited to climate, terrain, establishment and maintenance conditions under which they are to be grown.
 - .3 Seed to have minimum germination rate of 75% and minimum purity of 97%, except where otherwise required by professional selecting seed mixture.
 - .4 Seed to be packed and delivered in original containers clearly showing:
 - .1 Name of supplier.
 - .2 Analysis of seed mixture.
 - .3 Percentage of pure seed.
 - .4 Year of production.
 - .5 Net weight (mass).
 - .6 Date and location of bagging.
 - .5 Mixture to be mixed and supplied by recognized seed house.

- Water**
 - .1 Free of impurities that would inhibit germination and growth or may be harmful to environment.
 - .2 Contractor to supply.

- Fertilizer** .1 To Section 32.91.21 - Topsoil and Finish Grading – 2.9.

EXECUTION

- Finish Grade Preparation**
 - .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 Verify that grades are correct. If discrepancies occur, notify Contract Administrator and do not commence work until instructed by Contract Administrator.

MASTER
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SPECIFICATIONS

SEEDING

- .3 Remove and dispose of weeds; debris; soil contaminated by oil, gasoline and other deleterious materials; to approved off-site disposal area.
- .4 Loosen surfaces of areas that are excessively compacted by means of thorough scarification, discing or harrowing, to minimum 150 mm depth.
- .5 Finish grade smooth to extent required for class of seeding to be carried out, firm against footprints, loose textured, and free of all stones, roots, branches, etc. larger than diameter required for removal for class of seeding to be carried out.

3.2 Seeding - General

- .1 Scheduling: carry out seeding during periods that are most favourable for establishment of healthy stand of grass. Seed only during calm weather and on soil that is free of frost, snow and standing water, when seasonal conditions are likely to ensure successful germination and continued growth of all varieties of seed in grass mix.
- .2 Methods: apply seed by Method A - Mechanical Dry Seeding or Method B - Hydraulic Seeding unless otherwise specified. Ensure hydraulic seeding in accordance with Section 32.92.19 - Hydraulic Seeding. Hand seeding is not recommended. Hand seed only when site conditions preclude above two methods.
- .3 Rates of Application: rates of application of fertilizers, seed mixtures, mulch and other components to be based on analysis of season, climate, terrain, soil, and establishment and maintenance conditions affecting project.

3.3 Application for Mechanical Dry Seeding

- .1 Measure all grass seed, nurse crop seed, water, fertilizer, and mulch accurately before application.
- .2 Apply required fertilizer to and work well into topsoil by discing, raking, or harrowing at rate required.
- .3 Apply seed at rate required by means of approved mechanical dry seeder which accurately places seed at specified depth and rate and rolls in single operation.
- .4 Apply seed in two intersecting directions, except where conditions dictate seeding in one direction only.
- .5 Apply mulch with seed or immediately following seeding with approved mulcher. No area to be seeded in excess of that which can be mulched on same day.
- .6 Apply mulch to form even, uniform mat over entire area.
- .7 Use agricultural, water ballast type roller, not less than 500 mm diameter smooth steel drum, width not less than width of landscape seeder. Adjust ballast to suit site conditions.
- .8 Blend applications 150 mm into adjacent grass areas or previous applications to form uniform surfaces.

3.4 Application for Hand Seeding

- .1 Do not use hand seeding method unless approved by Contract Administrator.
- .2 Use all procedures specified in 3.3 of this Section, except as modified by specifications as follows:

SEEDING

- .1 Use "Cyclone" type manually operated seeder. Adjust ballast to suit site conditions.
- .2 Embed seed into soil to depth of 10 mm. Not less than 85% of seed to be placed at specified depth and covered by soil.
- .3 Consolidate mechanically seeded areas by rolling area with manually operated, water ballast, landscaping type, smooth steel drum roller, immediately after seeding. Adjust ballast to suit site conditions.

5 **Clean-up**

- .1 Remove all materials and other debris resulting from seeding operations from job site.

6 **Grass Maintenance**

- .1 Begin maintenance for seeded areas immediately after seeding has been completed, and continue until issuance of Certificate of Total Performance.
- .2 Include all measures necessary to establish and maintain grass in a vigorous growing condition, including, but not limited to, following:
 - .1 Mow at regular intervals as required, to maintain grass at maximum height of 60 mm. Do not cut more than 1/3 of blade at any one mowing. Neatly trim edges of seeded areas. Remove heavy clippings immediately after mowing and trimming.
 - .2 Water when required and with sufficient quantities to prevent grass and underlying soil from drying out.
 - .3 Roll when required to remove any minor depressions or irregularities.
 - .4 Undertake weed control when density of weeds reaches 10 broadleaf weeds or 50 annual weeds or weedy grasses per 40 m² and reduce density of weeds to zero.
 - .5 Immediately repair seeded areas that show deterioration or bare spots. Top-dress all areas showing shrinkage due to lack of watering and seed with seed mix that matches original seed mix.
 - .6 Protect all seeded areas with warning signs, temporary wire or twine fences, or other necessary means.

7 **Conditions for Total Performance**

- .1 Contract Administrator will issue Certificate of Total Performance only when following conditions exist:
 - .1 Growing medium quality, fertility levels, depths and surface conditions are as specified in Contract Documents.
 - .2 Grasses are required varieties, free of varieties other than those specified.
 - .3 Grass areas are relatively free of weeds, containing no more than two broadleaf weeds or ten annual weeds or weedy grasses per m².
 - .4 Grass is sufficiently established that its roots are growing into underlying growing medium.
 - .5 Seeded areas have been mown at least twice, to a height of 38 mm, last mowing being within 48 h of inspection for acceptance.
 - .6 Grasses established in sufficient density that no surface soil visible when mown to height of 38 mm.

SEEDING

- .7 Specified maintenance procedures have been carried out.

3.8 **Guarantee / Maintenance**

- .1 Customary one year guarantee period for construction industry will apply a standard for landscape work. Contractor to guarantee all materials and workmanship for a period of one full year from date of Total Performance unless specified otherwise in Contract Documents.
- .2 Guarantee includes replacing all seeded areas determined by Contract Administrator to be dead or failing at end of guarantee period. Replacement to be made at next appropriate season, and conditions of guarantee will apply to all replacement seeding for one full growing season.
- .3 Guarantee will not apply to seeded areas damaged after date of Total Performance by causes beyond Contractor's control, such as vandalism, "acts of God", "excessive wear and tear", or abuse. Contractor is responsible for work until Total Performance. After Total Performance, Owner is responsible for work and proper maintenance.

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1.0 GENERAL

- .1 Section 32 92 23 refers to those portions of the supply and placement of grassed sod. This section shall be read and interpreted simultaneously with all other sections described herein.
- .2 This section is based on the "British Columbia Standard for Sod" published by the B. C. Society of Landscape Architects and Horticultural Trades Association. This standard is intended to be equalled or bettered in the construction of sod. The guidance of a registered British Columbia landscape architect is recommended.

1.1 Related Work

- .1 Site Grading Section 32 92 01
- .2 Topsoil and Finish Grading Section 32 92 02
- .3 Seeding Section 32 92 20
- .4 Hydraulic Seeding Section 32 92 21
- .5 Planting of Trees, Shrubs and Ground Covers Section 32 92 22

1.2 References

- .1 British Columbia Landscape Standard.
- .2 Canadian System of Soil Classification.

1.3 Scheduling

- .1 Schedule all operations to ensure optimum environmental conditions for growing medium placement, planting, seeding and sodding outlined in these Specifications. Organize schedule to minimize duration of on-site storage of plant material, sodding, compaction of growing medium, and promote efficient operations. Coordinate work schedule with schedule of other trades.
- .2 Coordinate and schedule such that no damage occurs to sod after placement. In particular, meet requirements for sodding.
- .3 Plan, schedule and execute work to ensure a sufficient water supply for purposes in adequate amounts and at adequate intervals for irrigation of all plants.

1.4 Handling and Storage

- .1 Protect sod during transportation to prevent drying and maintain fresh and healthy condition.
- .2 Install sod as soon as possible after delivery. If sod is not installed, sod shall be kept moist and cool at all times until installation.
- .3 During growing season, install sod within 24 h of delivery.
- .4 Do not store sod on site more than 3 levels in height.

1.5 Drainage Control

- .1 Provide for proper water management and drainage during construction. Include silt traps, erosion control measures, collection ditches, as well as their adequate maintenance during the period.

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|-----|--|--|----|--------------|-------------------------|----|----------------------------|-------------------------|----|---------|-------------------------|----|-------------------|-------------------------|----|--|-------------------------|
| 1.0 | GENERAL | <p>.1 <u>Section 32.92.23</u> refers to those portions of the work that are unique to the supply and placement of grassed sod. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.</p> <p>.2 This section is based on the "<u>British Columbia Landscape Standard</u>" published by the B. C. Society of Landscape Architects and the B. C. Nursery Trades Association. This standard is intended to set a level of quality which is to be equalled or bettered in the construction documents for each project. Guidance of a registered British Columbia Landscape Architect is recommended.</p> | | | | | | | | | | | | | | | |
| 1.1 | Related Work | <table border="0"> <tr> <td style="padding-right: 10px;">.1</td> <td>Site Grading</td> <td style="text-align: right;"><u>Section 31.22.01</u></td> </tr> <tr> <td>.2</td> <td>Topsoil and Finish Grading</td> <td style="text-align: right;"><u>Section 32.91.21</u></td> </tr> <tr> <td>.3</td> <td>Seeding</td> <td style="text-align: right;"><u>Section 32.92.20</u></td> </tr> <tr> <td>.4</td> <td>Hydraulic Seeding</td> <td style="text-align: right;"><u>Section 32.92.19</u></td> </tr> <tr> <td>.5</td> <td>Planting of Trees,
Shrubs and Ground Covers</td> <td style="text-align: right;"><u>Section 32.93.01</u></td> </tr> </table> | .1 | Site Grading | <u>Section 31.22.01</u> | .2 | Topsoil and Finish Grading | <u>Section 32.91.21</u> | .3 | Seeding | <u>Section 32.92.20</u> | .4 | Hydraulic Seeding | <u>Section 32.92.19</u> | .5 | Planting of Trees,
Shrubs and Ground Covers | <u>Section 32.93.01</u> |
| .1 | Site Grading | <u>Section 31.22.01</u> | | | | | | | | | | | | | | | |
| .2 | Topsoil and Finish Grading | <u>Section 32.91.21</u> | | | | | | | | | | | | | | | |
| .3 | Seeding | <u>Section 32.92.20</u> | | | | | | | | | | | | | | | |
| .4 | Hydraulic Seeding | <u>Section 32.92.19</u> | | | | | | | | | | | | | | | |
| .5 | Planting of Trees,
Shrubs and Ground Covers | <u>Section 32.93.01</u> | | | | | | | | | | | | | | | |
| 1.2 | References | <p>.1 <u>British Columbia Landscape Standard.</u></p> <p>.2 <u>Canadian System of Soil Classification.</u></p> | | | | | | | | | | | | | | | |
| 1.3 | Scheduling | <p>.1 Schedule all operations to ensure optimum environmental protection, grading, growing medium placement, planting, seeding or sodding operations as outlined in these Specifications. Organize scheduling to ensure a minimum duration of on-site storage of plant material, minimum movement and compaction of growing medium, and prompt mulching and watering operations. Coordinate work schedule with scheduling of other trades on-site.</p> <p>.2 Coordinate and schedule such that no damage occurs to materials before or after placement. In particular, meet requirements of living plant material.</p> <p>.3 Plan, schedule and execute work to ensure a supply of water for landscape purposes in adequate amounts and at adequate pressures for satisfactory irrigation of all plants.</p> | | | | | | | | | | | | | | | |
| 1.4 | Handling and Storage | <p>.1 Protect sod during transportation to prevent drying out. Sod to arrive at site in fresh and healthy condition.</p> <p>.2 Install sod as soon as possible after delivery. If any delay in installation, keep sod moist and cool at all times until installation.</p> <p>.3 During growing season, install sod within 24 h of delivery to site.</p> <p>.4 Do not store sod on site more than 3 levels in height.</p> | | | | | | | | | | | | | | | |
| 1.5 | Drainage Control | <p>.1 Provide for proper water management and drainage of site during construction. Include silt traps, erosion control measures, temporary water collection ditches, as well as their adequate maintenance during construction period.</p> | | | | | | | | | | | | | | | |

SODDING

Samples .1 Provide samples of all materials required, handle and ship in such a manner that they are representative of material or product sampled.

Site Examination .1 Do not carry out landscaping work in areas or over surfaces that are not properly prepared. Examine site before starting work to verify all surfaces are properly prepared.

Measurement and Payment .1 Payment for nursery sod includes supply and placing of sod and grass maintenance to meet Conditions of Total Performance per 3.5 of this Section.
.2 Additional payment for pegging of sod will be made over sloped areas as shown on Contract Drawings or as directed by Contract Administrator.

Inspection and Testing .1 Refer to General Conditions, Clause 4.12. Inspections.

PRODUCTS

Sod .1 Sod to be approved by Contract Administrator and to be nursery grown, true to type, conforming to standards of Nursery Sod Growers' Association and their Nursery Sod Specifications. Sod to be quality, cultured turf grass grown from seed approved by Canada Department of Agriculture, free of diseases, clovers, stones, pests and debris. Sod to be relatively free of weeds, containing no more than two broadleaf weeds or ten annual weeds or weedy grasses per 40 m².
.2 Grass mixture in sod to be suited to locality, site conditions, and intended maintenance procedures for each project or area. Sod to be cut by machines designed for that purpose, and by accepted methods, and rolled for shipment. Strips to be 1 m² - 457 mm wide and 2.19 m long.
.3 When lifted, height of grass in sod to be between 40 mm and 60 mm.
.4 Sod to be lifted in such a manner as to prevent tearing or breaking.
.5 Mowing height limit to be 38 mm to 64 mm and thickness of soil portion of sod to not exceed 25.4 mm or be less than 16 mm.
.6 Grasses in sod to be of sufficient density that no surface soil to be visible when mowed to height of 38 mm.
.7 Broken, dry, discoloured pieces will be rejected by Contract Administrator.

Water .1 Free of impurities that would inhibit germination and growth or may be harmful to environment.
.2 Contractor to supply.

Fertilizer .1 To Section 32.91.21 - Topsoil and Finish Grading - 2.9.

SODDING

3.0 EXECUTION

3.1 Finish Grade Preparation .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 Verify that grades are correct. If discrepancies occur, notify Contract Administrator and do not commence work until instructed by Contract Administrator.
.3 Remove and dispose of weeds; debris; soil contaminated by oil, gasoline and other deleterious materials; to approved off-site disposal area.
.4 Loosen surfaces of areas that are excessively compacted by means of thorough scarification, discing or harrowing, to minimum 150 mm depth.
.5 Finish grade smooth to extent required for class of sodding to be carried out, firm against footprints, loose textured, and free of all stones, roots, branches, etc. larger than diameter required for removal for class of sodding to be carried out.

3.2 Sodding

.1 Spread growing medium under all sodded areas evenly over approved subgrade to specified depth. See Section 32.91.21 - Topsoil and Finish Grading.
.2 Apply required fertilizer to and work well into growing medium by discing, raking or harrowing, at rates specified. Do within 48 h before laying sod.
.3 Lay sod as soon as possible after delivery to prevent deterioration and lay within 24 h of delivery.
.4 Lay sod staggered, closely knit together such that no open joints are visible, and no pieces overlap.
.5 Lay sod smooth and flush with adjoining grass areas and paving and top surface of curbs unless shown otherwise on Contract Drawings.
.6 On slopes of approximately 2:1 and steeper, lay sod lengthwise up slope, and peg every row with wooden pegs at intervals of not more than 0.5 metres. Drive pegs flush with sod.
.7 Wooden pegs, for pegging sod on steep slopes, to be lath pegs. Pegs to be of sufficient length to ensure satisfactory anchorage of sod.
.8 Where required, place erosion control mesh or netting and secure with stakes or staples sunk firmly into ground to minimum depth of 150 mm at maximum intervals of 4.5 m along pitch of slope. Place stakes or staples horizontally across slope at intervals equal to width of mesh or netting minus 150 mm and drive flush with top of sod.
.9 Protect new sod from heavy foot traffic during laying. Place planks if necessary to prevent damage.
.10 Cut sod where necessary only with sharp tools.
.11 Roll, tamp, or plank sodded area providing sufficient pressure to ensure good bond between sod and growing medium.
.12 Water sod area immediately with sufficient amounts to saturate sod and upper 100 mm of growing medium.

SODDING

- 3 **Clean-up**
 - .1 Remove all materials and other debris resulting from sodding operations from job site.

- 4 **Grass Maintenance**
 - .1 Begin maintenance for sodded areas immediately after sod has been installed, and continue until issuance of Certificate of Total Performance.
 - .2 Include all measures necessary to establish and maintain grass in a vigorous growing condition, including, but not limited to, following:
 - .1 Mow at regular intervals as required, to maintain grass at maximum height of 60 mm. Do not cut more than 1/3 of blade at any one mowing. Neatly trim edges of sodded areas. Remove heavy clippings immediately after mowing and trimming.
 - .2 Water when required and with sufficient quantities to prevent sod and underlying soil from drying out.
 - .3 Roll when required to remove any minor depressions or irregularities.
 - .4 Undertake weed control when density of weeds reaches 10 broadleaf weeds or 50 annual weeds or weedy grasses per 40 m² and reduce density of weeds to zero.
 - .5 Immediately repair sodded areas that show deterioration or bare spots. Top-dress all areas showing shrinkage due to lack of watering and seed with seed mix that matches original seed mix.
 - .6 Protect all sodded areas with warning signs, temporary wire or twine fences, or other necessary means.

- 5 **Conditions for Total Performance**
 - .1 Contract Administrator will issue Certificate of Total Performance only when following conditions exist:
 - .1 Growing medium quality, fertility levels, depths and surface conditions are as specified in Contract Documents.
 - .2 Grasses are required varieties, free of varieties other than those specified.
 - .3 Grass areas are relatively free of weeds, containing no more than two broadleaf weeds or ten annual weeds or weedy grasses per m².
 - .4 Sod is sufficiently established that its roots are growing into underlying growing medium.
 - .5 Sodded areas have been mown at least twice, to a height of 38 mm, last mowing being within 48 h of inspection for acceptance.
 - .6 Grasses established in sufficient density that no surface soil visible when mown to height of 38 mm.
 - .7 Specified maintenance procedures have been carried out.

SODDING

- 3.6 **Guarantee / Maintenance**
 - .1 Customary one year guarantee period for construction industry will apply as standard for landscape work. Contractor to guarantee all materials and workmanship for a period of one full year from date of Total Performance unless specified otherwise in Contract Documents.
 - .2 Guarantee includes replacing all sodded areas determined by Contract Administrator to be dead or failing at end of guarantee period. Replacements to be made at next appropriate season, and conditions of guarantee will apply to all replacement seeding for one full growing season.
 - .3 Guarantee will not apply to sodded areas damaged after date of Total Performance by causes beyond Contractor's control, such as vandalism, "acts of God", "excessive wear and tear", or abuse. Contractor is responsible for work until Total Performance. After Total Performance, Owner is responsible for work and proper maintenance.

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END OF SECTION 32 92 23

1.0 GENERAL

- .1 Section 32 93.01 refers to those portions of the specifications that apply to the supply and planting of trees, shrubs and ground cover. All references to and interpretations of the works described herein.
- .2 This section is based on the "British Columbia Landscape Standard" published by the B. C. Society of Landscape Architects and the British Columbia Trades Association. This standard is to be equalled or bettered in the construction of the works. The guidance of a registered British Columbia Landscape Architect is recommended.

1.1 Related Work

- .1 Site Grading
- .2 Topsoil and Finish Grading
- .3 Seeding
- .4 Hydraulic Seeding
- .5 Sodding

1.2 References

- .1 British Columbia Landscape Standard
- .2 Landscape/Paysage Canada Guide Specifications
- .3 Canadian System of Soil Classification

1.3 Source Quality Control

- .1 Obtain approval from Contract Administrator before commencing excavation to digging.
- .2 Imported plant material to be accompanied by appropriate import licenses. Conform to federal and provincial requirements.

1.4 Scheduling

- .1 Schedule all operations to ensure optimum growing medium placement, planting, and maintenance. Organize the duration of on-site storage of plant material, compaction of growing medium, and other operations. Coordinate work schedule with other trades.
- .2 Coordinate and schedule such that no damage to plants occurs after placement. In particular, meet requirements for watering and irrigation.
- .3 Plan, schedule and execute work to ensure adequate watering and irrigation purposes in adequate amounts and at appropriate intervals for irrigation of all plants.

1.5 Handling and Storage

- .1 Transport trees and plants to site in compliance with British Columbia Landscape Standard and Canadian System of Soil Classification.
- .2 Handle and store in compliance with British Columbia Landscape Standard.
- .3 Take particular care to avoid damage and loss of plants.