

## 1 ADDENDUM #1

**All clauses set forth in the Bidding Documents, Contract Documents and General Requirements of the original Contract Documents shall apply to and govern this work. The addendum refers to changes and additions to the original Contract Documents and is to be read in conjunction with the same. All other parts of the original Contract Documents are to be considered as applying to the work of this Contract with the exceptions and changes as noted below.**

### 1.1 SPECIFICATIONS

#### .1 Reference Section 00 11 13 - Advertisement for Bids:

##### .1 Reference 1.1.1: Tender:

- .1 Delete wording "until 2:00 PM Local Time on 07 March 2019" and replace with "until 2:00 PM Local Time on 13 March 2019"

Clarification:

The tender will now close on March 13, 2019 @ 2:00PM at Resort Municipality Office, located at 7951 Cawnpore Lane, Cavendish, PEI.

#### .2 Reference Section 00 21 13 - Instructions to Bidders:

##### .1 Reference Paragraph 1.26.1.3:

- .1 Delete wording "07 MAR 2019 @ 2:00 PM." and replace with "13 MAR 2019 @ 2:00 PM."

Clarification:

The tender will now close on March 13, 2019 @ 2:00PM at Resort Municipality Office, located at 7951 Cawnpore Lane, Cavendish, PEI.

#### .3 Reference Section 00 41 13 - Bid Form:

##### .1 Reference Paragraph 1.4.1.4:

- .1 Delete paragraph in its entirety.

#### .4 Reference New Specification Sections:

- .1 Reference newly added "Section 02 41 13 - Selective Site Demolition", attached to and forming part of this addendum.
- .2 Reference newly added "Section 31 22 13 - Rough Grading", attached to and forming part of this addendum.
- .3 Reference newly added "Section 32 15 40 - Crushed Stone Surfacing", attached to and forming part of this addendum.
- .4 Reference newly added "Section 32 17 23 - Pavement Markings", attached to and forming part of this addendum.
- .5 Reference newly added "Section 32 37 00 - Exterior Site Furnishings", attached to and forming part of this addendum.
- .6 Reference newly added "Section 32 91 19.13 - Topsoil Placement and Grading", attached to and forming part of this addendum.
- .7 Reference newly added "Section 32 93 10 - Trees, Shrubs and Groundcover Planting", attached to and forming part of this addendum.
- .8 Reference newly added "Section 32 93 43 .01 - Trees Pruning", attached to and forming part of this addendum.

## 1.2 DRAWINGS

- .1 Reference Drawing L-4.1 Heritage Park Site Details 2:
  - .1 Reference Detail 2 - Plaque Sign & Foundation:
    - .1 Existing Founding Families Plaque is located adjacent to Cavendish Baptist Church on Route 6 Cavendish Road.
  
- .2 Reference Drawing M1 - Washroom Plumbing, Ventilation Floor Plan and Details:
  - .1 Reference Detail 1:
    - .1 Add Laundry Sink S-1 in corner of the Mechanical Room. See Architectural Drawing A1, Detail 1 for exact location. Provide 15mm DCW, 15mm DHW, 50mm sanitary connection to nearest main.
    - .2 Add Note:  
"Provide Ceiling Mounted Pressure Drop Type Trap Primer, Connected to All three (3) Floor Drains. Trap Primer is to be Metered Water Quantity from Distribution Unit and Located maximum 3 m from Fixtures. Piping from Distribution Unit to Floor Drain to be ½" (15mm) PEX. Trap Primer Is to be connected to DCW line with ½" Copper Line. Acceptable Material: Precision Plumbing Product, PI-500 c/w DU-4 unit, Mifab MI-500 c/w MI-DU unit."
  - .2 Reference Plumbing Fixture Schedule:
    - .1 Add new Fixture S-1 Laundry Sink:
      - .1 Unit Ref: S-1
      - .2 Fixture: Laundry Sink
      - .3 Waste: 50mm
      - .4 Vent: 40mm
      - .5 DCW: 15
      - .6 DHW: 15mm
      - .7 Fixture: Fiat FL-1
      - .8 Trim: Fiat A1 Deck Type Faucet
  - .3 Reference Note 3.2.1:
    - .1 Delete note as written and replace with following:  
"Drainage and Vents: ABS or PVC."
  - .4 Reference Note 3.2.3:
    - .1 Delete note as written and replace with following:  
"Water Below Grade: Poly Pipe."
  
- .3 Reference Drawing E1 - Electrical Site Plan & Washroom Floor Plan:
  - .1 Reference Detail 1 - Site Plan:
    - .1 Site plan scale is 1:400 NOT 1:50.

## 1.3 CLARIFICATIONS

- .1 Reference Questions Received at Pre-Tender Site Review:
  - .1 Question: Is snow fencing required around construction site?
    - .1 Response: Yes; fencing is to be installed as indicated in Specification Section 01 50 00 Paragraph 1.2.
  - .2 Question: No path grades have been provided on drawings. Is path to blend with existing grades?
    - .1 Response: Yes; path is to be approximately 13mm above existing grades as indicated in Detail 6 on Drawing L-4.0.
  - .3 Question: Is select borrow acceptable under paths in lieu of compacted base granular?

- .1 Response: No; compacted base granular is to be used as indicated in Detail 6 on Drawing L-4.0
- .4 Question: Are connections to the well and well pump to be included in this contract?
  - .1 Response: Yes; all connections to the well and well pump are to be included in this contract as indicated on Drawings E1 and M1.

**END OF SECTION**

## 1 General

### 1.1 SITE CONDITIONS

- .1 Site Environmental Requirements.
  - .1 Perform work in accordance with Division 01 - General Requirements.
  - .2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
  - .3 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
    - .1 Ensure proper disposal procedures are maintained throughout the project.
  - .4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
  - .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.
  - .6 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .2 Existing Conditions:
  - .1 Remove contaminated or hazardous materials as defined by authorities having jurisdiction from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with applicable regulatory requirements.
  - .2 Notify the Consultant when materials deemed hazardous are encountered.

## 2 Products

### 2.1 EQUIPMENT

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

## 3 Execution

### 3.1 PREPARATION

- .1 Inspect site with Consultant and verify extent and location of items designated for removal and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.
- .3 Notify and obtain approval of utility companies before starting demolition.
- .4 Contact utility companies to locate known buried services, including drainage lines.

### 3.2 REMOVAL OPERATIONS

- .1 Remove items as indicated.
- .2 Do not disturb items designated to remain in place.
- .3 Removal of pavements, curbs and gutters:
  - .1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Consultant.
  - .2 Protect adjacent joints and load transfer devices.
- .4 Remove designated trees during demolition.
  - .1 Obtain written approval of Consultant/Owner prior to removal of trees not designated.

- .5 Disposal of Material:
  - .1 Dispose of materials not designated for salvage or reuse on site at authorized facilities approved in Waste Reduction Workplan.

**3.3 RESTORATION**

- .1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning of Work.
- .2 Use soil treatments and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.
- .3 Upon completion of the work, remove debris, trim surfaces, and leave work site clean.

**3.4 ACCESS**

- .1 Maintain safe access at all times.
- .2 Maintain access to adjacent streets and buildings at all times.

**3.5 DUST CONTROL**

- .1 Take necessary measures to minimize air born dust generated.
- .2 Take immediate remedial dust control measures upon notification by the Owner or the Consultant.
- .3 Manage all operations in a neighbourly manner.

**3.6 MEASUREMENT**

- .1 The work shall be measured as a lump sum of all required selective site demolition.

**3.7 PAYMENT**

- .1 Payment for this work shall be at the contract lump sum price for selective site demolition.

**END OF SECTION**

## **1 General**

### **1.1 RELATED SECTIONS**

- .1 Section 32 91 19.13 - Topsoil Placement and Grading.

### **1.2 REFERENCES**

- .1 PEI Department of Transportation, Infrastructure and Energy, General Provisions and Contract Specifications for Highway Construction:
  - .1 Section 200 - Earthwork, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
  - .2 Section 400 - Granular Material, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM D698 12, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN m/m 3).

### **1.3 EXISTING CONDITIONS**

- .1 Known underground and surface utility lines and buried objects to be verified prior to commencement of construction. Contractor responsible to verify location of all site services prior to commencing any excavation on the site.

### **1.4 PROTECTION**

- .1 Protect and/or transplant existing fencing, trees, landscaping, natural features, bench marks, buildings, pavement, surface or underground utility lines which are to remain as directed by Consultant. If damaged, restore to original or better condition unless directed otherwise.
- .2 Maintain access roads to prevent accumulation of construction related debris on roads.

## **2 Products**

### **2.1 MATERIALS**

- .1 Fill material: in accordance with Section 200 - Earthwork, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 Excavated or graded material existing on site may be suitable to use as fill for grading work if approved by Engineer.

## **3 Execution**

### **3.1 STRIPPING OF TOPSOIL**

- .1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Consultant.
- .2 Commence topsoil stripping of areas as indicated and as directed by Consultant.
- .3 Till the turf in two directions with equipment approved by the Consultant to break up the turf layer and mix with the underlying 150mm of topsoil to make a friable soil. Larger lumps of turf will not be acceptable.
- .4 Unused topsoil shall become property of the Contractor.

### **3.2 GRADING**

- .1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

- .2 Rough grade to following depths below finish grades:
  - .1 150 mm for grassed areas.
  - .2 525mm for asphalt areas.
  - .3 575 mm for concrete sidewalks.
  - .4 300 mm for crusher dust walkways.
  - .5 450mm for concrete furniture pads.
  - .6 450mm for concrete furniture pads.
  - .7 As indicated for tree pits.
- .3 Slope rough grade away from building 1:50 minimum or as indicated on drawings and as directed.
- .4 Grade ditches and swales to depth required for maximum run off and as indicated.
- .5 Prior to placing fill over existing ground, scarify surface to depth of 150 mm. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.
- .6 Compact fill areas to corrected maximum dry density to ASTM D698, as follows:
  - .1 85% under landscaped areas.
  - .2 95 % under paved, chip seal and gravel road, and walk areas.
- .7 Do not disturb soil within branch spread of trees or shrubs to remain.

### 3.3 TESTING

- .1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by the Owner. Costs of tests will be paid by Owner.

### 3.4 SURPLUS

- .1 Remove surplus material and material unsuitable for fill, grading or landscaping off site.

### 3.5 PAYMENT

- .1 No separate payment shall be made for rough grading and shall be considered incidental to work relating to excavation and backfill.

### END OF SECTION

**1 General**

**1.1 RELATED SECTIONS**

- .1 Section 31 22 13 - Rough Grading.

**1.2 REFERENCES**

- .1 PEI Department of Transportation, Infrastructure and Energy, General Provisions and Contract Specifications for Highway Construction:
  - .1 Section 200 - Earthwork, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
  - .2 Section 400 - Granular Material, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM C 136 96a, Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .2 ASTM C 117 95, Test Method for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
  - .3 ASTM E 11 95, Specification for Wire Cloth Sieves for Testing Purposes.
  - .4 ASTM D 4318-98, Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
  - .5 ASTM D 698 91, Test Methods for Moisture Density Relations of Soils and Soil Aggregate Mixtures, Using 5.5 lb. (2.49 kg) Rammer and 12 in (304.8 mm) Drop.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 8.1 88, Sieves, Testing, Woven Wire, Inch Series
  - .2 CAN/CGSB 8.2 M88, Sieves, Testing, Woven Wire, Metric.

**1.3 PROTECTION**

- .1 Prevent damage to buildings, landscaping, curbs, sidewalks, trees, fences, roads and adjacent property. Make good any damage.
- .2 Provide access to building at all times. Coordinate paving schedule to minimize interference with normal use of premises.

**2 Products**

**2.1 MATERIALS**

- .1 Granular Base:
  - .1 As per Section 207 - Granular Base from P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 Granular topping:
  - .1 Screenings: hard, durable, crushed stone particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
  - .2 Gradations: within limits specified when tested to ASTM C 136 and ASTM C 117.
  - .3 Table:

Sieve Designation	% Passing
9.5mm	100
4.75mm	50-100



2.00mm	30-65
0.425mm	10-30
0.075mm	5-10

**3 Execution**

**3.1 SUBGRADE**

- .1 Ensure that subgrade preparation conforms to levels and compaction required to allow for installation of granular base.

**3.2 GRANULAR BASE**

- .1 Granular base material minimum thickness: 200 mm as indicated.
- .2 Spread and compact granular base material in uniform layers not exceeding 100mm compacted thickness.
- .3 Compact to a density of not less than 98% Standard Density in accordance with ASTM D 698.

**3.3 GRANULAR TOPPING**

- .1 Place granular topping to compacted thickness 100 mm as indicated.
- .2 Place in layer of 50 mm compacted thickness. Compact layer to 95% Standard Density in accordance with ASTM D 698.

**3.4 FIELD QUALITY CONTROL**

- .1 Inspection and testing of crushed stone paving will be carried out by designated testing laboratory in accordance with Section 200 - Earthwork, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 Costs of tests will be paid by Owner.

**END OF SECTION**

## **1 General**

### **1.1 RELATED WORK**

- .1 Section 01 55 26 - Traffic Control
- .2 Section 32 12 00 - Flexible Paving.

### **1.2 REFERENCES**

- .1 PEI Department of Transportation, Infrastructure and Energy, General Provisions and Contract Specifications for Highway Construction:
  - .1 Section 600 - Pavement, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
- .2 CAN/CGSB-1.5-M91, Low Flash Petroleum Spirits Thinner.
- .3 CGSB1-GP-12c-68, Standard Paint Colors.
- .4 CGSB1-GP-71-83, Method, of Testing Paints and Pigments.
- .5 CGSB1-GP-74M-79, Paint, Traffic, Alkyd.

### **1.3 SAMPLES**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to the Consultant, the following material sample quantities at least four (4) weeks prior to commencing work.
  - .1 Two (2) x 1L samples of each type of paint.
  - .2 Sampling to CGSB1-GP-71.
- .3 Mark samples with name of project and its location, paint manufacturer's name and address, name of paint, CGSB specification number and formulation number and batch number.

## **2 Products**

### **2.1 MATERIALS**

- .1 Paint:
  - .1 To CGSB1-GP-74M, alkyd traffic paint.
  - .2 Color:
    - .1 To be CGSB1 GP 12C, white 513 301, blue (handicap symbol).
- .2 Thinner: to CAN/CGSB 1.5.

## **3 Execution**

### **3.1 EQUIPMENT REQUIREMENTS**

- .1 Paint applicator to be an approved pressure type mobile 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.
- .2 Distributor to be capable of applying reflective glass beads as an overlay on freshly applied paint.

### **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.
- .2 Unless otherwise approved by Consultant, apply paint only when air temperature is above 10°C, wind speed is less than 60km/h and no rain is forecast within next 4 hours.
- .3 Apply traffic paint evenly at rate of 3m<sup>2</sup>/L.
- .4 Do not thin paint unless approved by Consultant.
- .5 Symbols and letters to conform to dimensions indicated.
- .6 Paint lines to be of uniform color and density with sharp edges.
- .7 Thoroughly clean distributor tank before refilling with paint of different color.

**3.4 TOLERANCE**

- .1 Paint markings to be within plus or minus 12 mm of dimensions indicated.
- .2 Remove incorrect markings to satisfaction of Consultant.

**3.5 PROTECTION OF COMPLETED WORK**

- .1 Protect pavement markings until dry.

**END OF SECTION**

## 1 General

### 1.1 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for furniture and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit shop drawings indicating dimensions, sizes, assembly, anchorage and installation details for each furnishing specified.
- .4 Closeout Submittals:
  - .1 Submit maintenance data for care and cleaning of site furnishings for incorporation into manual specified in General Requirements.

### 1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with General Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Materials to be stored indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect furnishings from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## 2 Products

### 2.1 BENCHES

- .1 Du Mor Site Furnishings
  - .1 Model number: 490-60PL
  - .2 Length: 1828mm (6')
  - .3 Steel finish: Coated with zinc rich epoxy then finished with polyester powder coating.
  - .4 Slats: Nominal 50mm x 75mm (2"x3") recycled plastic.
  - .5 Legs: Cast aluminum.
  - .6 Arms: Cast aluminum.
  - .7 Colours: To be selected and approved by Consultant.
  - .8 Fasteners: Stainless steel.
  - .9 Overall Weight: 76kg (167 lbs).
  - .10 Support: Install with manufacturer's anchor kit to concrete pad as indicated.

### 2.2 TRASH RECEPTACLE

- .1 Du Mor Site Furnishings:
  - .1 Model Number: 434-72sh-0001 (with liner shields).
  - .2 Capacity: One (1) x 32-gal and two (2) x 20-gal liners with concealing shield.
  - .3 Finish: Coated with zinc rich epoxy then finished with polyester powder coating.
  - .4 Openings and Labels: 10" diameter center cover (recyclables), 6-3/4"x18" both ends (label one end compost and label the other end waste).
  - .5 Colours: To be selected and approved by consultant.

- .6 Support: Install with manufacturer's anchor kit to concrete pad as indicated.

### **2.3 BIKE RACK**

- .1 Du Mor Site Furnishings:
  - .1 Model Number: 125-30.
  - .2 Finish: coated with zinc rich epoxy then finished with polyester powder coating.
  - .3 Colour: To be selected and approved by consultant.
  - .4 Support: Surface Plate Mounted onto concrete pad as detailed.

## **3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for exterior site furnishing installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Consultant.
  - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied Consultant.

### **3.2 PREPARTION**

- .1 Locate and protect utility lines.
- .2 Notify and acquire written acknowledgment from utility authorities before beginning installation Work.

### **3.3 INSTALLATION**

- .1 Assemble furnishings in accordance with manufacturer's written recommendations.
- .2 Install furnishing true, plumb, anchored as recommended by manufacturer.
- .3 Touch-up damaged finishes to approval of Consultant.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with General Requirements.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with General Requirements.

### **3.5 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by site furnishings installation.

### **3.6 MEASUREMENT**

- .1 The work shall be measured per number of benches, trash receptacles, and bike racks in place, secured, and touched up as required.
- .2 Reinforced concrete pads that are required under various furniture shall be measured per square meter of reinforced concrete installed (sizes required for various furniture elements noted on details).

### **3.7 PAYMENT**

- .1 Payment for this work shall be at the contract unit price for various site furniture elements. Payment shall include all incidentals such as removal of any debris and correction of any minor ground elevation problems, and complete site cleanup after work

- is complete.
- .2 All work to be done by the Contractor for which specific unit prices are not named in the contract or not specifically mentioned but obviously necessary for the proper completion of the work, shall be considered as incidental and as being a part of and included with the work for which prices are given in the contract.

**END OF SECTION**

## 1 General

### 1.1 RELATED SECTIONS

- .1 Section 31 22 13 - Rough Grading.
- .2 Section 32 93 10 - Trees, Shrubs and Groundcover Plantin

### 1.2 REFERENCES

- .1 PEI Department of Transportation, Infrastructure and Energy, General Provisions and Contract Specifications for Highway Construction:
  - .1 Section 200 - Earthwork, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
    - .1 Section 212 - Topsoil and Landscaping.
  - .2 Section 800 - Environment, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
    - .1 Section 803 - Hydro Seeding.
    - .2 Section 809 - Sodding.

### 1.3 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

## 2 Products

### 2.1 MATERIALS

- .1 Topsoil will be imported as required.

### 2.2 TOPSOIL

- .1 Mixture of particulates, micro organisms and organic matter which provides suitable medium for supporting intended plant growth.
- .2 Topsoil for seeded/sodded areas:
  - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 20 to 70 % sand, minimum 15 % clay, and contain 3 to 5 % organic matter by weight.
  - .2 Contain no toxic elements or growth inhibiting materials or debris.
  - .3 Finished surface free from:
    - .1 Debris and stones over 50 mm diameter.
    - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.
  - .4 Consistence: friable when moist.
- .3 Planting Beds and Tree Pits:
  - .1 Soil texture based on The Canadian System of Soil Classification, to consist of 30 to 70 % sand, 15-30% clay, and contain 5 to 20 % organic matter by weight.
  - .2 Contain no toxic elements or growth inhibiting materials or debris.
  - .3 Finished surface free from:
    - .1 Debris and stones over 50 mm diameter.

.2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume.

.4 Consistence: friable when moist.

### 2.3 SOIL AMENDMENTS

.1 Fertilizer as recommended by soils tests for:

.1 Trees and shrubs.

.2 Lawn.

.2 Limestone:

.1 Ground agricultural limestone.

.2 Gradation requirements: percentage passing by weight, 90% passing 1.0 mm sieve, 50% passing 0.125 mm sieve.

.3 Limestone as recommended by soils test.

.3 Fertilizer: industry accepted standard medium containing nitrogen, phosphorous, potassium and other micro nutrients suitable to specific plant species or application or defined by soil test.

### 2.4 SOURCE QUALITY CONTROL

.1 Site shall be stripped and topsoil shall be stockpiled on site for re-use. Supplemental topsoil shall be imported as required.

.2 Topsoil to be screened and amended.

.3 Contractor is responsible for topsoil testing and requirements for amendments to supply topsoil as specified.

.4 Soil testing by recognized testing facility for PH, P, N and K, and organic matter and sand content.

.5 Testing of topsoil will be carried out by testing laboratory designated by Consultant. Soil sampling, testing and analysis to be in accordance with Provincial standards.

.6 Owner will pay for cost of soils tests.

## 3 Execution

### 3.1 PREPARATION OF EXISTING GRADE

.1 Verify that grades are correct prior to placement of topsoil. If discrepancies occur, notify Consultant and do not commence work until instructed by Consultant.

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

.3 Remove debris, lumps of turf, roots, branches, stones in excess of 50 (twenty-five) mm diameter and other deleterious materials. Remove soil contaminated with calcium chloride, toxic materials and petroleum products. Remove debris which protrudes more than 75 (seventy-five) mm above surface. Dispose of removed material off site under direction of Consultant.

.4 Cultivate entire area which is to receive topsoil to minimum depth of 50 (fifty) 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 Consultant has accepted subgrade.

.2 Spread topsoil in uniform layers not exceeding 150 mm.

.3 For sod areas keep topsoil 15 (fifteen) mm below finished grade.

.4 Spread topsoil as indicated to following minimum depths after rolling and settlement.

.1 150mm for seed areas.

.2 150mm for sod areas.



- .3 450mm for planting beds.
- .4 As indicated for tree pits.
- .5 Manually spread topsoil/planting soil around existing trees, shrubs and obstacles.

**3.3 SOIL AMENDMENTS**

- .1 For tree pits and lawn areas: apply and thoroughly mix soil amendments into full specified depth of topsoil.

**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 Consultant. Leave surfaces smooth, uniform and firm against deep footprinting.

**3.5 ACCEPTANCE**

- .1 Consultant will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

**3.6 SURPLUS MATERIAL**

- .1 Dispose of surplus materials off site.

**3.7 CLEANING**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

**3.8 MEASUREMENT**

- .1 Measurement of this work shall be included as part of hydraulic seeding or sod in place. Refer to Section 803 - Hydro Seeding and Section 809 - Sodding of P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.

**END OF SECTION**

## **1 General**

### **1.1 SUMMARY**

- .1 Section Includes:
  - .1 Materials and installation for plant material, plant material to be relocated, accessories, mulch, planting, tree supports, mulching and maintenance.

### **1.2 RELATED SECTIONS**

- .1 Section 31 22 13 - Rough Grading.
- .2 Section 32 91 19.13 - Topsoil Placement and Grading.

### **1.3 REFERENCES**

- .1 Agriculture and Agri-Food Canada (AAFC).
  - .1 Plant Hardiness Zones in Canada-2000.
- .2 Canadian Nursery Landscape Association (CNLA).
  - .1 Canadian Standards for Nursery Stock 8th Edition (2006), or latest edition.
- .3 Department of Justice Canada (Jus).
  - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c.34.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).

### **1.4 DEFINITIONS**

- .1 Mycorrhiza: association between fungus and roots of plants. This symbiosis, enhances plant establishment in newly landscaped and imported soils.

### **1.5 SUBMITTALS**

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data and MSDS sheets for:
  - .1 Fertilizer.
  - .2 Mycorrhiza.
  - .3 Anti-desiccant.
  - .4 Mulch.
  - .5 Flexible Ties.
- .3 Submit samples for:
  - .1 Mulch.

### **1.6 QUALITY ASSURANCE**

- .1 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with General Requirements

### **1.7 STORAGE AND PROTECTION**

- .1 Protect plant material from frost, excessive heat, wind and sun during delivery.
- .2 Immediately store and protect plant material which will not be installed within one (1) hour after arrival at site in storage location approved by Consultant.
- .3 Protect plant material from damage during transportation:
  - .1 When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
  - .2 When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.

- .3 Protect foliage and root balls using anti desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
- .4 Protect stored plant material from frost, wind and sun and as follows:
  - .1 For bare root plant material, preserve moisture around roots by heeling-in or burying roots in sand or topsoil and watering to full depth of root zone.
  - .2 For pots and containers, maintain moisture level in containers. Heel-in fiber pots.
  - .3 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.

## 1.8 SCHEDULING

- .1 Obtain approval from Consultant of schedule seven (7) days in advance of shipment of plant material.
- .2 Schedule to include:
  - .1 Quantity and type of plant material.
  - .2 Shipping dates.
  - .3 Arrival dates on site.
  - .4 Planting Dates.

## 1.9 WARRANTY

- .1 The Contractor hereby warrants that all plant material as itemized on plant list will remain free of defects for 1 (one) year, one time only providing adequate maintenance has been provided.
- .2 End-of-warranty inspection will be conducted by Consultant.
- .3 The Consultant reserves the right to extend Contractor's warranty responsibilities for an additional 1 (one) year if, at end of initial warranty period, leaf development and growth is not sufficient to ensure future survival.
- .4 Plant material identified to be relocated shall be exempt from warranty provided proper planting procedures have been executed.

## 1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material in appropriate on site bins for recycling in accordance with Waste Management Plan (WMP).
- .3 Separate for reuse and recycling and place in designated containers Steel, Metal, and Plastic waste in accordance with WMP.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Divert unused metal materials from landfill to metal recycling facility as approved by Consultant.
- .6 Fold up metal and plastic banding, flatten and place in designated area for recycling.
- .7 Divert discarded plastic plant containers materials from landfill to plastic recycling facility approved by Consultant.
- .8 Dispose of unused fertilizer at official hazardous material collection site approved by Consultant.
- .9 Dispose of unused anti desiccant at official hazardous material collections site approved by Consultant.
- .10 Divert unused wood and mulch materials from landfill to recycling, composting facility approved by Consultant.

## 2 Products

### 2.1 PLANT MATERIAL

- .1 Type of root preparation, sizing, grading and quality: comply to Canadian Standards for Nursery Stock 8th Edition - 2006, or latest edition.
  - .1 Source of plant material: grown in Zone 5a in accordance with Plant Hardiness Zones in Canada.
  - .2 Plant material must be planted in zone indicated as appropriate for its species.
  - .3 Plant material in location appropriate for its species.
- .2 Plant material: free of disease, insects, defects or injuries and structurally sound with strong fibrous root system.
- .3 Trees: with straight trunks, well and characteristically branched for species.
- .4 Trees larger than 200 mm in caliper: half root pruned during each of two successive growing seasons, the latter at least one growing season prior to arrival on site.
- .5 Bare root stock: nursery grown, in dormant stage, not balled and burlapped or container grown.

## **2.2 WATER**

- .1 Free of impurities that would inhibit plant growth.

## **2.3 STAKES**

- .1 T-bar, steel, 40 x 40 x 2440 mm or wood, pointed one end, 64 x 64 x 2400 mm.

## **2.4 FLEXIBLE TIES**

- .1 Trees shall be secured to stakes using ARBORTIE.

## **2.5 PLANTING SOIL**

- .1 For planting of trees and shrubs, mix stockpiled topsoil with 20% to 30% compost.
- .2 Incorporate into planting soil bonemeal at a rate of 3 kg/m<sup>3</sup> of soil mixture.

## **2.6 MULCH**

- .1 Bark chip: varying in size from 25 (twenty-five) to 50 (fifty) mm in diameter, from bark of coniferous trees.

## **2.7 FERTILIZER**

- .1 Synthetic commercial type as recommended by soil test report.

## **2.8 ANTI-DESICCANT**

- .1 Wax-like emulsion.

## **2.9 FLAGGING TAPE**

- .1 Fluorescent, pink in color.

## **2.10 SOURCE QUALITY CONTROL**

- .1 Obtain approval from Consultant of plant material prior to planting.
- .2 Imported plant material must be accompanied with necessary permits and import licenses. Conform to Federal, Provincial or Territorial and Municipal regulations.

## **3 Execution**

### **3.1 PRE-PLANTING PREPARATION**

- .1 Ensure plant material acceptable to Consultant.
- .2 Remove damaged roots and branches from plant material.
- .3 Apply anti-desiccant to conifers and deciduous trees in leaf in accordance with manufacturer's instructions.

### 3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS

- .1 Establishment of sub grade for planting beds and tree pits as specified in Section 31 22 13 - Rough Grading.
- .2 Preparation of planting beds and tree pits is specified in Section 32 91 19.13 Topsoil Placement and Grading.
- .3 For individual planting holes:
  - .1 Stake out location and obtain approval from Consultant prior to excavating.
  - .2 Excavate to depth and width as indicated.
  - .3 Remove subsoil, rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material under direction of Consultant.
  - .4 Scarify sides of planting hole.
  - .5 Remove water which enters excavations prior to planting. Notify Consultant if water source is ground water.
  - .6 Scarify
  - .7 Remove
  - .8

### 3.3 PLANTING

- .1 For jute burlapped root balls, cut away top one third of wrapping and wire basket without damaging root ball. Do not pull burlap or rope from under root ball.
- .2 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.
- .3 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.
- .4 For trees and shrubs:
  - .1 Backfill soil in 150 mm lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.
  - .2 Form watering saucer as indicated.
- .5 For ground covers, backfill soil evenly to finish grade and tamp to eliminate air pockets.
- .6 Water plant material thoroughly.
- .7 After soil settlement has occurred, fill with soil to finish grade.
- .8 Dispose of burlap, wire and container material in appropriate bins on site or under direction of Consultant.

### 3.4 TREE SUPPORTS

- .1 Install tree supports at all new trees.
- .2 Use two tree supports for deciduous trees less than 3 m and three tree supports for deciduous trees 3 m and greater. Use three tree supports for all evergreens.
  - .1 Place stake in line with prevailing wind side and 150 mm from trunk.
  - .2 Drive stake minimum 150 mm into undisturbed soil beneath roots. Ensure stake is secure, vertical and unsplit.
  - .3 Secure to stakes using two opposing flexible ties.
- .3 After tree supports have been installed, remove broken branches with clean, sharp tools.

### 3.5 MULCHING

- .1 Ensure soil settlement has been corrected prior to mulching.
- .2 Spread mulch as indicated.

### 3.6 ACCEPTANCE

- .1 Plant material will be accepted by Consultant 90 days after planting operation is

completed provided that plant material exhibits healthy growing condition and is free from disease, insects and fungal organisms.

- .2 Plant material installed less than 90 days prior to frost will be accepted in following spring, 30 days after start of growing season provided that acceptance conditions are fulfilled. The Landscape Architect may extend the Contractors responsibility for another growing season if bud formation is not sufficient to ensure future growth.

### 3.7 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform the following maintenance operations from time of planting to acceptance by Consultant.
  - .1 Water to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion.
    - .1 For evergreen plant material, water thoroughly in late fall prior to freeze-up to saturate soil around root system.
    - .2 Remove weeds monthly until end of Warranty Period.
    - .3 Replace or respread damaged, missing or disturbed mulch.
    - .4 For non-mulched areas, cultivate as required to keep top layer of soil friable.
    - .5 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Consultant prior to application.
    - .6 Remove dead or broken branches from plant material.
    - .7 Keep trunk protection and guy wires in proper repair and adjustment.
    - .8 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.

### 3.8 MAINTENANCE DURING WARRANTY PERIOD

- .1 From time of acceptance by Consultant to end of warranty period, perform following maintenance operations.
  - .1 Water to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
  - .2 Reform damaged watering saucers.
  - .3 Remove weeds monthly, or as required.
  - .4 Replace or respread damaged, missing or disturbed mulch.
  - .5 For non-mulched areas, cultivate monthly to keep top layer of soil friable.
  - .6 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Departmental Representative prior to application.
  - .7 Apply fertilizer in early spring as indicated by soil test.
  - .8 Remove dead, broken or hazardous branches from plant material.
  - .9 Keep trunk protection and tree supports in proper repair and adjustment.
  - .10 Remove trunk protection, tree supports and level watering saucers at end of warranty period.
  - .11 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
  - .12 Submit monthly written reports to Consultant identifying:
    - .1 Maintenance work carried out.
    - .2 Development and condition of plant material.
    - .3 Preventative or corrective measures required which are outside Contractor's responsibility.

**3.9 MEASUREMENT**

- .1 The work shall be measured per number of plants in-place including planting beds, mulch, watering, maintenance, etc.
- .2 Planting beds for annual planting (by others) shall be measured per square meter of planting bed in place.

**3.10 PAYMENT**

- .1 Payment for this work shall be at the contract unit price for plant material preparation and placement. Payment for annual planting beds shall be at the contract unit price for annual planting beds.
- .2 All work to be done by the Contractor for which specific unit prices are not named in the contract or not specifically mentioned but obviously necessary for the proper completion of the work, shall be considered as incidental and as being a part of and included with the work for which prices are given in the contract.

**END OF SECTION**

## **1 General**

### **1.1 REFERENCES**

- .1 PEI Department of Transportation, Infrastructure and Energy, General Provisions and Contract Specifications for Highway Construction:
  - .1 Section 100 - General Provisions, P.E. Department of Transportation, Infrastructure and Energy's General provisions and Contract Specifications for Highway Construction.
  - .2 American National Standard Institute (ANSI)
    - .1 ANSI A300 (Part 1)-2001, Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices (revision and re-designation of ANSI A300-1995) (includes supplements).
    - .2 ANSI A300 (Part 2)-1998, Tree Care Operations - Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices - Part 2 - Fertilization.
    - .3 ANSI A300 (Part 3)-2000, Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance: Standard Practices - Part 3 - Tree Support Systems (a. Cabling, Bracing, and Guying) (supplement to ANSI A300-1995).
  - .3 Canadian Nursery Landscape Association (CNLA)

### **1.2 DEFINITIONS**

- .1 Crown Cleaning: consists of selective removal of one or more of following items: dead, dying or diseased branches, weak branches and water sprouts.
- .2 Crown Thinning: consists of selective removal of branches to increase light penetration, air movement and reduce weight.
- .3 Crown Raising: consists of removal of lower tree branches to provide clearance.
- .4 Crown Reduction or Crown Shaping: decreases tree height and/or spread.
- .5 Vista Pruning: is selective thinning of framework limbs or specific crown areas to improve views.
- .6 Crown Restoration: improves structure, form and appearance of trees that have been severely headed or vandalized.

### **1.3 QUALITY ASSURANCE**

- .1 Certification: provide Canadian Nursery Landscape Association certification.
- .2 Field Samples: do sample pruning in manner to enable Consultant/Owner to identify:
  - .1 Knowledge of target areas including branch bark ridge and branch collars.
  - .2 Technique for selection process and pruning used to establish desired form and shape for each species.
- .3 Acceptance of Work will be determined by Consultant/Owner from field sample.
- .4 Health and Safety Requirements: do construction occupational health and safety in accordance with Item 49 Safety.

### **1.4 TOOL MAINTENANCE**

- .1 Ensure that tools are clean and sharp throughout pruning operation: do not use tools that crush or tear bark.
- .2 Disinfect tools before each tree is pruned.
- .3 On diseased plant material disinfect tools before each cut.

## **2 Products**

### **2.1 DISINFECTANT**

- .1 20% solution of sodium hypochlorite or 70% solution of ethyl alcohol.



### 3 Execution

#### 3.1 APPLICATION

- .1 Manufacturer's instructions: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

#### 3.2 GENERAL

- .1 Prune in accordance with Prince Edward Island Department of Agriculture and Forestry Forests, Fish and Wildlife Division's Ecosystem-based Forest Management Standards Manual, and as directed by Consultant/Owner. Where discrepancies occur between standard and specifications, specifications govern.
- .2 Notify immediately Consultant conditions detrimental to health of plant material or operations
- .3 Prune during plant dormant period or after leaves have matured. Avoid pruning during leaf formation, at time of leaf fall, or when seasonal temperature drops below minus 10 degrees C.
- .4 Retain natural form and shape of plant species.
- .5 Do not:
  - .1 Flush cut branches.
  - .2 Crush or tear bark
  - .3 Cut behind branch bark ridge.
  - .4 Damage branch collars.
  - .5 Damage branches to remain.

#### 3.3 PRUNING

- .1 Remove dead, dying, diseased and weak growth from plant material to provide crown cleaning, crown raising, vista pruning in order to promote healthy growth.
- .2 Remove live branches that:
  - .1 Interfere with healthy development and structural strength including branches crossed or rubbing more important branches.
  - .2 Are of weak structure including narrow crotches.
  - .3 Obstruct development of more important branches.
  - .4 Are broken.
- .3 Remove live branches to re-establish natural species form including:
  - .1 One or more developing leaders.
  - .2 Multiple growth due to previous topping.
  - .3 Branches extending outward from natural form.
  - .4 Undesirable sucker growth.
- .4 Remove loose branches, twigs and other debris lodged in tree.
- .5 Remove vines.
- .6 For branches under 50mm in diameter:
  - .1 Locate branch bark ridge and make cuts smooth and flush with outer edge of branch collar to ensure retention of branch collar. Cut target area to bottom of branch collar at angle equal to that formed by line opposite to branch bark ridge.
  - .2 Make cuts on dead branches smooth and flush with swollen callus collar. Do not injure or remove callus collar.
  - .3 Do not cut lead branches unless directed by Consultant / Owner.
- .7 For branches greater than 50 mm in diameter:
  - .1 Make first cut on lower side of branch 300 mm from trunk, one third diameter of branch.

- .2 Make second cut on upper side of branch 500 mm from trunk until branch falls off.
- .3 Make final cut adjacent to and outside branch collar.
- .8 Ensure that trunk bark and branch collar are not damaged or torn during limb removal.
- .1 Repair areas which are damaged, or remove damaged area back to next branch collar.
- .9 Remove additional growth designated by Consultant.

### **3.4 ROOT GIRDLING**

- .1 For girdling roots one-quarter size of trunk diameter or larger, V-cut girdling root one-half way through at point where root is crossing.
- .2 Remove exposed portion of girdling root as directed Consultant after cleanly cutting root flush with grade on each side of parent root. Do not injure bark or parent root.

### **3.5 CARE OF WOUNDS**

- .1 Shape bark around wound to oblong configuration ensuring minimal increase in wound size. Retain peninsulas of existing live bark.

### **3.6 CLEAN-UP**

- .1 Collect and dispose of or compost/recycle whenever applicable pruned material daily and remove from site.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

### **3.7 MEASUREMENT**

- .1 The work shall be measured as a lump sum of all required tree pruning including removal and disposal of limbs.

### **3.8 PAYMENT**

- .1 Payment for this work shall be at the contract lump sum price for tree pruning.
- .2 All work to be done by the Contractor for which specific unit prices are not named in the contract or not specifically mentioned but obviously necessary for the proper completion of the work, shall be considered as incidental and as being a part of and included with the work for which prices are given in the contract.

### **END OF SECTION**