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## PART 1- GENERAL

### 1.1 SUMMARY

- .1 Section Includes:
  - .1 Transplanting of forest seedlings.

### 1.2 REFERENCES

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).

### 1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

### 1.4 QUALITY ASSURANCE

- .1 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.
  - .2 Divert unused wood and mulch materials from landfill to recycling composting facility approved by Departmental Representative.

### 1.5 SCHEDULING

- .1 Obtain approval from Departmental Representative of planting schedule 2 days in advance of planting operation.

## PART 2- PRODUCTS

### 2.1 PLANT MATERIAL

- .1 Transplanted seedlings: 100mm - 500mm in height.

### 2.2 PLANTING SOIL

- .1 In situ local organic material or approved imported

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organic (80%).

## 2.3 MULCH

- .1 Leaf Litter, needles, twigs and branches that can be used to provide erosion control, used to help maintain moisture control for planted vegetation and used to add organic benefit to the soil, obtained from wooded areas adjacent to the trail corridor.

## 2.4 SOURCE QUALITY CONTROL

- .1 Obtain approval from Departmental Representative of seedlings supplier prior to digging.

## PART 3-EXECUTION

### 3.1 PRE-PLANTING PREPARATION

- .1 Do construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.

### 3.2 EXCAVATION AND PREPARATION

- .1 Transplanted seedlings:
  - .1 No mechanized equipment to be used outside the trail corridor.
  - .2 Identify hardwood and softwood seedlings 100mm -500mm height within a maximum 20 metres of trail corridor. Departmental representative to approve specific seedlings source location prior to excavation.
  - .3 Excavate around seedling with manual excavation tool to minimum 300mm depth. Carefully excavate to ensure a maximum amount of root structure remains intact.
- .2 Transport to planting site in planting bag or bucket along with wet burlap to keep the roots moist. Ensure all excavated plants can be transplanted within 24 hours. Seedlings may be held in at a temporary location provided roots are soil-covered and receive adequate moisture.
- .3 At planting site, remove subsoil, rocks, roots,

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debris and toxic material from excavated material that will be used as planting soil for seedlings. Level excess material around planting hole. At erosion control mat locations, carefully cut holes in matting to allow for excavation.

### 3.3 PLANTING

- .1 Ensure planting hole is deep enough to accommodate the full length of roots. Ensure good root to soil contact. Avoid large air pockets and prevent roots from bending in holes.
- .2 Seedlings to be transplanted within 24 hours of digging. Heal in and adequately water seedlings that are not transplanted within 24 hours.
- .3 Rake local leaf litter around newly planted seedlings.

END OF SECTION

## PART 1 -GENERAL

### 1.1 RELATED REQUIREMENTS

- .1 Section 31 14 11 Earthworks & Related Works.
- .2 Section 31 22 16.14 Trail Corridor Reshaping.

### 1.2 REFERENCES

- .1 ASTM International
  - .1 ASTM A 123/A 123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM D 4491M -17, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
  - .3 ASTM D 4595-17, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - .4 ASTM D 4716M-14, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
  - .5 ASTM D 4751-16, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-4.2 No. 11.2-M89 (R2013), Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).
  - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
    - .1 No.2-M85, Methods of Testing Geosynthetics - Mass per Unit Area.
    - .2 No.3-M85, Methods of Testing Geosynthetics - Thickness of Geotextiles.
    - .3 No.6.1-93, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
    - .4 No.7.3-92, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
    - .5 No. 10-94, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.
- .3 CSA International
  - .1 CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .4 Ontario Provincial Standard Specifications (OPSS)
  - .1 OPSS 1860-November 2010, Material Specification

for Geotextiles.

## 1.2 ACTION AND INFORMATIONAL 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 geotextiles and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:

.1 Submit following samples 4 weeks prior to beginning Work.

.1 Minimum length of 2 m of roll width of geotextile.

.2 Methods of joining.

.4 Test and Evaluation Reports:

.1 Submit copies of mill test data and certificate at least 4 weeks prior to start of Work.

## 1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Storage and Handling Requirements:

.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect geotextiles from direct sunlight and UV rays.

.3 Replace defective or damaged materials with new.

.3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 -Construction/Demolition Waste Management and Disposal.

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## PART 2 - PRODUCTS

### 2.2 MATERIAL - EROSION CONTROL MAT

- .1 Geotextile: fabric, supplied in rolls.
  - .1 Width: 2.4 m minimum.
  - .2 Length: 30.5 m minimum.
  - .3 Composed of: 100% hemp fibre sewn together with biodegradable thread and free from polypropylene netting.
- .2 Physical properties:
  - .1 Thickness: to ASTM D6525, minimum 10.2 mm.
  - .2 Mass per unit area: to ASTM D6475, minimum 300 g/m<sup>2</sup>.
  - .3 Tensile strength and elongation (in any principle direction): to ASTM D6818.
    - .1 Tensile strength: minimum 2.6 kN/m, wet condition.
    - .2 Elongation at break: maximum 31.3%.
- .3 Securing pins and washers: ground staples in accordance with manufacturer's recommendations. Ensure pins are biodegradable.
- .4 Factory seams: sewn in accordance with manufacturer's recommendations.
- .5 Thread for seams: in accordance with manufacturer's recommendations.

## PART 3 - EXECUTION

### 2.3 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for geotextile material installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

## 2.5 INSTALLATION

### - EROSION CONTROL MAT

- .1 The manufacturer's installation procedures shall be the standard of installation that shall be applied.
- .2 Protect installed material from displacement, damage or deterioration before, during and after placement of material layers.
- .3 Replace damaged or deteriorated mat to approval of Departmental Representative.

## 2.6 PROTECTION

- .1 Vehicular traffic not permitted directly on matting.

**END OF SECTION**