

**SECTION 02930  
PLANTS AND PLANTING**

**PART 1 - GENERAL**

**1.1 WORK INCLUDED**

- .1 Furnishing of all labour, tools, materials, and equipment necessary for the replacement of plants and planting affected by the work and as shown on the drawings, described herein, and/or as necessary to complete the project. Work will include, but is not necessarily limited to planting, guying, fertilizing, and mulching.

**1.2 RELATED WORK**

- .1 Soil Preparation and Placement: Section 02912.

**1.3 QUALITY ASSURANCE**

- .1 All materials and execution shall conform to the latest edition of the following standards or as otherwise specified:
  - .a BCNTA Standard for Container Grown Stock.
  - .b BCNTA/BCSLA British Columbia Landscape Standard.
  - .c The applicable Province of British Columbia laws pertaining to the horticultural inspections, commercial fertilizers, herbicides, and pesticides.
  - .d All plant materials to be legibly tagged according to general nursery standards using Standardized Plant Names. All plant materials to be guaranteed true to tagged names.
- .2 Obtain approval of plant material at source.
- .3 Notify Consultant of source of material in advance of shipment. No work under this Section is to proceed without written approval. Extend search for plant material to Washington, Oregon, and B.C.
- .4 Acceptance of plant material at source does not prevent rejection on site prior to or after planting operations.
- .5 Imported plant material must be accompanied with necessary permits and import licenses conforming to federal and provincial regulations.

**1.4 SUBMITTALS**

- .1 Submit inspection certificates as required by law for each shipment of plant material.
- .2 Provide a written guarantee stating that plant material is guaranteed against defects for a period of 1 year from the date of Substantial Completion.
- .3 The Contractor shall verify and certify the availability of quantities of plant materials ten percent greater than contract quantities for possible replacement until certificate of total performance is issued for all planting.

**1.5 DELIVERY AND STORAGE**

- .1 Dig and handle all plant material in a manner suitable for each species to prevent injury to or removal of fibrous roots. All plant material arriving on site with broken or loose root balls or containers will be rejected. Take precautions to avoid burning of plants by sun or wind during handling and shipping.
- .2 Keep root balls and container soil moist before planting by covering with bark mulch or soil. Protect fertilizer against moisture.
- .3 Obtain approval of delivery schedule from Consultant 7 days prior to shipment of plant material.

**1.6 PROTECTION**

- .1 Verify existence and location of any on-site utilities. Consult the Architect immediately for directions as to procedure should any piping or utilities be encountered during excavation.
- .2 Protect existing buildings, equipment, sidewalks, landscaping reference points, monuments, and markers. Make good all damage incurred during this work.
- .3 Make every effort to protect existing plants and trees adjacent to any construction work.
- .4 Erect temporary continuous barriers where necessary to ensure safety of existing plants and trees.
- .5 Replace, at no expense to the Owner, any trees and plant material damaged as a result of this work.
- .6 Protect plant material from frost, excessive heat, wind, and sun during delivery.

**1.7 INSPECTION**

- .1 Make all plant material available at one location ten (10) days prior to scheduled planting time for inspection by the Consultant or their appointed representative.
- .2 Notify the Consultant when plants are available for inspection, 3 days in advance of delivery. All plants are subject to inspections and may be rejected for failure to comply with this specification at any time. Replace rejected material and remove from the site at no cost to the Owner.
- .3 Notify the Architect at the completion of work for an Inspection for Substantial Performance.
- .4 Final inspection of all planting will be made at the end of the 60 day maintenance period. For release from the Contract, all plant materials supplied or transplanted by the Contractor must be alive and in a healthy, satisfactory, growing condition at the time of inspection. For any specified plant, the Consultant reserves the right to extend the Contractor's responsibility for another growing season, if in his opinion, leaf development and growth is not sufficient to ensure satisfactory future growth.
- .5 The Consultant may waive one or more inspections, but this shall not impair the right of the Consultant to inspect work or materials which have been damaged or in any way do not conform to the specifications.
- .6 The Contractor or his authorized representative shall be present during all required inspections as specified or as may be required by the Consultant:
  - .a Prior to final inspection, all dead or dying plant material shall be replaced.
  - .b Concurrent with the request for Final Inspection, the Contractor is to submit a statement that he has reviewed in detail the drawings and specifications and that to the best of his knowledge, all conditions of the Contract have been met.

**1.8 REPLACEMENTS**

- .1 Replace all plant material found dead, or not in a healthy, satisfactory growing condition, or which in any other way do not meet the requirements for the specifications, at own expense, where maintenance during the guarantee period is the responsibility of the Contractor.
- .2 The cost of replacements resulting from theft, accidental damage, vandalism, carelessness or neglect on the part of others, or any cause due to circumstances beyond the control of the Contractor, shall be borne by the Owner.
- .3 All required replacements shall be plants of the same size and species as specified on the plant list, and shall be supplied and planted in accordance with the drawings, specifications, and change orders thereto.
- .4 Guarantee plant material after final acceptance for one full year. Plant material installed prior to June 30 shall be guaranteed until June 30 of the following year.

- .5 Replace each defective or dead plant during the next planting season and continue to replace each plant until it has established itself to the satisfaction of the Consultant.
- .6 The Consultant reserves the right to extend Contractor's warranty responsibilities for an additional one year if, at the end of the initial warranty period, leaf development and growth is not sufficient to ensure future survival.
- .7 End of warranty inspection will be conducted.

#### **1.9 SUBSTITUTIONS**

- .1 If a plant material listed on the drawings is unobtainable, the Contractor may be permitted to suggest substitutions with types and variations possessing the same characteristics. The Contractor must request any substitutions in writing at least two weeks prior to planting, which must be approved by the Consultant.

#### **1.10 MAINTENANCE**

- .1 Maintenance of plants shall begin immediately after planting and shall continue until final acceptance of the work. Final acceptance will not be made until 60 days after the issuance of a Certificate of Substantial Completion or until plants are in a healthy growing condition. When planting takes place in the fall, the maintenance period shall be extended to late spring to ensure that trees and shrubs are growing.
- .2 Maintenance includes necessary watering, cultivation, weeding, pruning, mowing, aerating, wound dressing, disease and insect control, protective spraying, replacement of unacceptable material, straightening plants which lean or sag, adjustment of plants which settle or are planted too low, and any other procedures consistent with good horticultural practice necessary to insure normal, vigorous, and healthy growth of all work under this Contract.
- .3 Water plants immediately after planting. During dry weather conditions, thoroughly water at 3 day intervals.
- .4 Maintain all accessories such as tree stakes, etc., in good condition including adjustment to keep tree stakes tight and repair or replace all such accessories when required.

### **PART 2 - PRODUCTS**

#### **2.1 PLANT MATERIAL**

- .1 Conform to the British Columbia and Canadian Nursery Trades Association "Standard for Container Grown Stock". In particular:
  - .a Nursery stock shall be true to name and of the size or grade stated.
  - .b Quality shall be normal for the species when grown under proper cultural conditions; viable, substantially free from pests and disease, and undamaged.
  - .c Roots shall not be subject to long exposure to drying winds, sun or frost between digging and delivery.
  - .d Root balls shall be free from pernicious perennial weeds.
- .2 Transplanted or root-pruned at least once within the year prior to planting:
  - .a Plants shall have been grown in the containers for a minimum of 3 months and shall have a well established root system. No plant material shall have grown in one gallon containers in excess of two growing seasons.
  - .b Plants in larger size containers may, in some cases, be grown for a longer period than two years, depending on species, providing the root system is not bound to hamper future normal plant development.

- .3 Take precautions during digging, handling, and shipping of plant material to avoid injury to plants and root systems.
- .4 All plants, typical of their species or variety, have a normal habit of growth and shall be first quality, sound, healthy, vigorous, well branched, and densely foliated, free of disease, insect pests, eggs or larvae, healthy well furnished root systems.
- .5 Conform to the measurements specified in the plant list. Measurements specified are minimum size acceptable for each variety. Plants that meet the requirements specified in the itemized plant list, but that do not possess a normal balance between height and spread, will not be accepted. Plants for use when symmetry is required shall be matched as nearly as possible. Do not prune prior to delivery.
- .6 All plants and all tree trunks shall be measured when the branches are in the normal position. Dimensions for height and spread, as contained herein, refer to the main body of the plant and not from branch tip to branch top. The height of tree trunks need not be as specified if the required height can be obtained by pruning the lower branches without leaving unsightly scars or otherwise damaging the trunk. Do no pruning of branches to obtain the required height before the plants are delivered to the site unless so approved in writing by the Consultant.
- .7 All trees must have straight trunks with a single leader intact. There shall be no abrasion of the bark and no fresh cuts of limbs over 30 mm which have not completely calloused over.
- .8 All root ends must be cleanly cut, flush with the sides of the root ball.
- .9 The least possible time shall be allowed to elapse between digging and planting. Branches shall be tied separately and trunks of trees shall be protected against damage during transit.
- .10 Any tree or shrub not conforming with the specifications may be rejected.

## **2.2 RELATED MATERIALS**

- .1 Tree Stakes: Dressed 4 sides 50 mm x 50 mm treated fir stakes, lengths as detailed.
- .2 Tree Ties and Guy Wires: 2.64 mm diameter galvanized wire, covered with new black garden hose, 2-ply, reinforced, and of at least 12 mm diameter, or approved equal.
- .3 Deadmen: 100 mm x 150 mm treated construction grade lumber. Lengths to be determined on site.
- .4 Plastic Strapping: Plastic straps shall be 50 mm wide.
- .5 Mulch: Peat Moss shall be as specified in Section 02212.
- .6 Fasteners: All fasteners shall be hot-dipped galvanized.
- .7 Planting Tablets: Prolonged-release fertilizer tablets containing 20% nitrogen, 10% phosphoric acid, and 5% potash (20-10-5), Agriform or pre-approved equivalent. Store in weatherproof storage space.
- .8 Pre-emergent Herbicide: Eptam or approved equal.

## **PART 3 - EXECUTION**

### **3.1 PRE-EMERGENT HERBICIDE**

- .1 Work Eptam at the manufacturer's suggested rates into 50 mm of growing medium.

### **3.2 TREE PITS ON GRADE**

- .1 Tree pits on grade shall be of following minimum standard:
  - .a Two times the diameter of root ball with the tree in the centre of the tree pit.
  - .b 300 mm deeper than the root ball for the entire tree pit.

**3.3 PLANTING SEASON**

- .1 Plant only during the season or seasons which are normal for such work determined by weather conditions and as approved by the Consultant.
- .2 Do not plant during freezing and/or abnormally hot, dry weather.

**3.4 PLANT LAYOUT**

- .1 Locate plants according to the Planting Plan and according to locations determined by the Consultant for approval of plant locations and orientation. The Consultant may make adjustments in plant location and orientation prior to planting.
- .2 Stake location of all major trees for approval prior to positioning. Call the Consultant to be present during planting of major trees to ensure proper orientation and location.

**3.5 PLANTING PROCEDURE**

- .1 All trees and shrubs shall be planted with roots placed in their natural growing position. Burlap, when used, shall be loosened around the top of the ball, cut away or folded back. The burlap shall not be pulled from underneath the ball. Containers shall be cut on two sides without injuring the root balls. The container shall then be removed carefully.
- .2 During backfilling, the topsoil shall be thoroughly tamped around the root system in 6 in. layers leaving no air voids. When 2/3 of the topsoil has been placed, the hole shall be filled with water. After the water has completely penetrated the topsoil, the remainder of the backfilling shall be done.
- .3 When planting has been completed, the surface around the plant shall be given a dressing of complete fertilizer in accordance with the manufacturer's directions. The fertilizer application shall be thoroughly mixed with a top layer of the topsoil and well watered in.

**3.6 FERTILIZER APPLICATION**

- .1 Place planting tablets at the following rates in prepared planting holes. Spread the tablets in each hole before planting.

PLANT SIZE/	TABLET	TABLETS	
CONTAINER SIZE		SIZE	PER PLANT
Trees		21 g	1/25 caliper
45 cm tub		21 g	3
35 cm pot		21 g	3
27 cm pot		21 g	2
21 cm pot		21 g	1
15 cm pot		21 g	1

- .2 Other shall be in accordance with the manufacturer's recommendations.

**3.7 MULCHING**

- .1 Mulch all shrub and ground cover planting areas to a 2 in. depth.

**3.8 GUYING AND STAKING**

- .1 Guy and stake all trees immediately after planting. Plant material not guyed or staked immediately shall be replaced if damaged.
- .2 Drive one (1) stake per tree vertically into the ground to a depth of approximately 30 in. in such a manner so as not to injure the root or root ball.
- .3 Place stakes away from the trunk on the prevailing wind side.
- .4 Where trees to be staked are in a straight line or on a grid system, place stakes at the same location and height relative to each tree.
- .5 Fasten tree to the crotch and midway between the crotch and the ground with galvanized wire protected by hose.
- .6 Trees to stand plumb upon completion of this operation.
- .7 Where soil depths are not adequate for staking, provide guy wires as specified or provide alternate means of support.

**3.9 PRUNING, PAINTING AND SPRAYING (SHRUBS)**

- .1 All trees and shrubs shall receive a proper pruning to compensate for any loss of root suffered during transplanting.
- .2 Pruning shall be a proper thinning of growth and never a heading back by means of chopping the ends of branches. The natural habit or shape of the plant shall not be changed.
- .3 Only approved tools may be used in order to obtain sharp clean cuts.
- .4 The Consultant reserves the right to reject any material pruned in an unsatisfactory manner.
- .5 Where clipped hedges are indicated, a maximum of 1/2 of the top current years growth and sufficient of the side current years growth shall be removed to form a hedge-like appearance.
- .6 Paint over pruning cuts over 3/4 in. diameter with tree paint on all exposed tissue.
- .7 Immediately after pruning, spray all plant material with fungicide and insecticide using an approved sprayer to apply an adequate film over trunks, branches, twigs and/or foliage to the satisfaction of the Consultant. Spray only in dry weather.
- .8 Final pruning of all material including dead branches and shaping to be conducted prior to final acceptance of work to the satisfaction of the Consultant.

**3.10 PROTECTIVE WRAPPING FOR TREES**

- .1 Immediately after planting as designated, the trunks of all deciduous thin barked trees shall be wrapped spirally from the ground line to the height of the second branches.
- .2 Wrapping material shall be new, clean, plain burlap or equivalent at least 250 g. in weight and not less than 6 in. wide. The burlap shall be tied securely with suitable cord at top and bottom and at 2 ft. intervals. The wrapping shall be neat, snug, and overlapped by 2 ft.

**3.11 CLEAN-UP**

- .1 Remove from the site all cans, surplus material and other debris resulting from planting operations.
- .2 Neatly dress and finish all planting areas and flush all walks and paved areas clean to the satisfaction of the Consultant and the Owner.

END OF SECTION