PART 1 – GENERAL

1.1 RELATED SECTIONS

.1 311411 - Earthwork and Related Work - Short Form

.2 329121 - Topsoil Placement and Grading

1.2 BASIS OF PAYMENT

.1 Measurement Procedures:

.1 Item L-004: Deciduous Trees. Measure the supply, installation, of deciduous trees in unit prices including topsoil, all accessories, maintenance during the establishment and warranty periods, and all work and all work required for proper implementation, including excavation. The unit price bid will be for full compensation for all labour, materials and equipment to do the work.

.2 Item L-005: Evergreen Trees. Measure the supply, installation, of evergreen trees in unit prices including topsoil, all accessories, and maintenance during the establishment and warranty periods, and all work required for proper implementation, including excavation. The unit price bid will be for full compensation for all labour, materials and equipment to do the work.

.3 Item No. L=06: Evergreen Shrubs. Measure the supply, installation, of evergreen shrubs in unit prices including topsoil, all accessories, and maintenance during the establishment and warranty periods, and all work and all work required for proper implementation, including excavation. The unit price bid will be for full compensation for all labour, materials and equipment to do the work.

1.3 REFERENCES

.1 Agriculture and Agr-Food Canada (AAC).

.1 Plant Hardiness Zones in Canada-2014.

.2 Canadian Nursery Landscape Association (CNLA) (Association canadienne des pépiniéristes et des paysagistes - ACPP).

.1 Canadian Standards for Nursery Stock-2006.

.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).

.5 Ontario Ministry of Natural Ressources (OMNR)

.1 Southern *Ontario* Tree Seed *Zones.*

1.4 QUALITY CONTROL PLANT AT SOURCE OF SUPPLY

.1 Departmental Representative may need to verify Supply material at source of supply, and may need to approve purchase order.

.2 Plant material verified at source of supply may be declined on site before or after the planting.

.3 Contractor must inform Departmental Representative of source of supply at least seven (7) days prior to plant delivery. Contractor must obtain approval from Departmental Representative prior to starting work prescribed in this current section.

.4 Quality control at the source of supply does not relieve the contractor from his responsibility to ensure the quality of plant material during the 12 month warranty period.

.5 Species, size and production type of planted trees must be those defined in planting schedule.

.6 All trees must be single trunk. The trunk must be robust and straight and crown must be well balanced and uniformly distributed.

.7 All trees must be disease free and exempt of any pathogenic insects.

.8 Trees must be free of structural defects and injuries along the trunk, branches, and root system.

.9 Container grown trees should have been potted at least one year prior to the time they are planted. They must have been grown at least one year in the same container prior to their delivery on-site.

.10 Trees must be chosen at nursery or upon their reception at construction site by the Departmental Representative.

Trees approved at source may be denied on site if it turns out that they have been injured during transport and/or handling.

.11 Any request for substitution of trees or change of calliper size (or dimension) could happen only for very exceptional circumstances and must be approved in advance by the Departmental Representative.

1.5 DELIVERY

.1 Coordinate delivery of plant material and digging of plant pits so that the they occur roughly at the same time.

1.6 STORAGE AND EPROTECTION

.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 (3) three hours after arrival at site in storage location approved by Departmental Representative.

.3 Protect plant materials 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 Attach securely all branches of trees and shrubs and protect plants against friction and any significant variations in temperature during transport.

.4 Protect stored plant material from frost, wind and sun and as follows:

.1 For pots and containers, maintain moisture level in containers. Heel-in fibre pots.

.2 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.

.5 Store plants in a shaded area. Insure adequate humidity level for all plant material during storage.

.6 The mulch must be stored in such a way as not to grow mouldy.

1.7 PURCHASE ORDER

.1 Contractor must provide a letter guaranteeing the order, the purchase and reservation from a nursery for all plant material indicated on drawings to Departmental Representative.

.2 Plants provided by contractor must comply with the genus and species specified in planting list present on drawings. No substitutions will be accepted.

.3 Contractor must provide geographic origin of plant and seed stock which were used for their production.

1.8 SCHEDULING

.1 Obtain approval from Departmental Representative of schedule 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.

.4 Coordinate delivery of plant material in order to minimize the on-site storage. The prolongation of planting work due to an insufficient team will not be tolerated.

1.9 DOCUMENTATION

.1 Make submittals of following products to Departmental Representative for approval, 7 days prior to delivery of plant material:

.1 Fertilizer

.2 Mulch

.3 Anti-desiccants

.4 Wire Tighteners

.5 Trunk protection

.6 Stakes and saddles

PART 2 – PRODUCTS

2.1 PLANT MATERIAL

.1 Type of root preparation, sizing, grading and quality: comply to ''Canadian Standards for Nursery Stock''. (1996 edition), published by the Canadian Nursery Trades Association.

.1 Source of plant material: grown in Zone 5a in accordance with Plant Hardiness Zones in Canada. Plants that come from regions benefiting from a milder climate than that of place work site will not be accepted.

.2 Plant material must be planted in zone indicated as appropriate for its species.

.3 Trees: with straight trunks, well and characteristically branched for species except where specified otherwise. The branches, height, shape, and roots must be without cuts or breaks, to the satisfaction of the Departmental Representative.

.4 Seeds must come from zone 36, related to the South Ontario tree Seeds Zones.

.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 except where specified otherwise.

.4 Plants grown in the Ottawa area: size as specified in the in planting list on drawings, with well-developed Crown and characteristic branching structure of respective species. The height of the bole of the tree must not exceed 40% of the total height of the plant.

.5 Use plants that have strong and fibrous roots, without diseases, insects, defects, injuries, and well developed. Use trees with a straight trunk, a uniform canopy, characterizing each selected species. Tree roots must have been regularly cut, at the latest during the growing season that precedes the delivery and on-site planting.

.6 Plants can be refused on the construction site, before or after the planting occurs.

2.2 WATER

.1 Free of impurities that would inhibit plant growth.

2.3 FERTILIZER

.1 Natural fertilizer non-animal origin, type 1-2, 5-1 and mycorrhizal inoculum applied on roots and soil during planting and approved by Departmental Representative, including soil analysis provided by contractor.

2.4 MULCH

.1 Ramial chipped wood (shredded hardwood does not contain leaves, branches, nor tree trunks wood shredding) approved by the Departmental Representative.

.2 Properties:

.1 Well prepared and dried,

.2 Departmental Representative must verify to ensure that material is safe.

2.5 STAKES

.1 T-bar, steel, 40 x 40 x 5 x 2440 mm.

.2 Cables and accessories: cables, and wires used must be hot-dipped mill galvanized.

.3 Guying wire, 7mm diameter multi-wire galvanized steel cable.

.4 Guying collar: Tube: plastic, 12 mm diameter, nylon reinforced.

2.6 TRUNK PROTECTION

.1 Plastic: perforated spiralled strip.

2.7 ANTI-DESICCANT

.1 Wax-like emulsion.

2.8 SOURCE QUALITY CONTROL

.1 Obtain approval from Departmental Representative 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 regulations.

PART 3 – EXECUTION

3.1 PRE-PLANTING PREPARATION

.1 Ensure plant material acceptable to Departmental Representative.

.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.

.4 Indicate locations of the plants using wood pickets following indications on drawings. Await approval by the Departmental representative prior to excavating.

.5 Verify on drawings for presence of obstacles which might interfere with proper establishment of plant material on the site; aqueduct, sewer, tree stumps, overhead and underground wires, poles, sidewalks, existing landscaping, etc.

3.2 EXCAVATION AND PREPARATION OF PLANTING BEDS

.1 Establishment of sub-grade for planting beds is specified in Section 312313 Rough Grading.

.2 Preparation of planting beds is specified in Section 329121 Topsoil Placement and Grading.

.3 For individual planting holes:

.1 Stake out location and obtain approval from Departmental Representative prior to excavating.

.2 Excavate to depth and width as indicated.

.3 Remove 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.
.4 Scarify sides of planting hole.
.5 Remove water which enters excavations prior to planting. Notify Departmental Representative if water source is ground water.

3.3 TOPSOIL

.1 Place topsoil in accordance with section 329121-Topsoil Placement and Grading

3.4 PLANTING

.1 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.

.2 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.

.3 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.
.3 Minimal topsoil depth :
.1 Following section 32·91·21 – 329121-Topsoil Placement and Grading

.4 Water plant material thoroughly.

.5 Spread natural fertilizer of non-animal origin, type 1-2,5-1 including mycorrhizal inoculum applied on roots and soil when planting.

Apply following quantities of mycorhyzal innoculum

For plants with following pots or root balls dimensions:
No1 (1 gallon) : 65ml
No2 (2 gallon) : 125ml
No5 (5 gallon) : 250ml
No10 (10 gallon) : 750ml
No20 (20 gallon) : 1000ml

For trees with following caliper sizes :
25-40mm : 1000ml
41-50mm : 1500ml
51-65mm : 2000ml
66-75mm : 2500ml
76-100mm : 3000ml
101-175mm : 3700ml

.5 After soil settlement has occurred, fill with soil to finish grade.

.6 Dispose of burlap, wire and container material off site.

.7 Planting must occur starting from the thawing period until mid-June or from mid-August to late October. Planting in frozen or water-saturated soil will be denied. Plant when conditions are favourable to proper plant growth.

3.5 TREE SUPPORTS

.1 All trees must be secured in place using stakes, following specifications on plans.

.2 Install guying collars above branch to prevent slipping at approximately 2/3 height for evergreens and 1/2 height for deciduous trees. Collar mounting height not to exceed 2.5 m above grade.

.3 Place stake on prevailing wind side and 150 mm from trunk.

.4 Drive stake minimum 150 mm into undisturbed soil beneath roots. Ensure stake is secure, vertical and un-split.

.5 Install 150 mm long guying collar 1500 mm above grade.

.7 Thread guying wire through guying collar tube. Twist wire to form collar and secure firmly to stake. Cut off excess wire.

.8 After tree supports have been installed, remove broken branches with clean, sharp tools.

3.6 TRUNK PROTECTION

.1 Install trunk protection on deciduous trees as indicated by manufacturers specifications at height greater or equal to snow height. Protect trunk of coniferous trees with rodent repellent. Apply on the trunk and branches by means of spraying or painting before first snow when temperature is warmer than 5 degrees.

.2 Install trunk protection prior to installation of tree supports when used.

.3 Protect all trees.

3.7 MULCH

.1 Ensure soil settlement has been corrected prior to mulching.

.2 Spread mulch as indicated. Wet mulch if it may be carried away by wind and mix it wit a little bit of topsoil. Loosen the soil before spreading the mulch. Use a depth of minimum 80mm.

3.8 MAINTENANCE

.1 Perform maintenance work listed below from the time of planting, during the establishment period and until the end of the warranty period.

.2 Water soil in order to maintain a humidity level required to ensure proper establishment, growth and health of plants without causing erosion. Sprinkle evenly and several times a week to promote rooting of plants. The soil should always be wet up to a depth of 100 mm. A precipitation of more than 10 mm of rain replaces watering.

.3 Remove weeds monthly.

.4 Replace or re-spread damaged, missing or disturbed mulch monthly.

.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 Departmental Representative 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.

.9 For deciduous species, apply during springtime a fertilizer mistrue of 14-7-14 or 18-4-6 at the rate recommended by the manufacturer and according to provincial and federal regulations. Inform Departmental Representative 7 days prior to application.

.10 For the maintenance of conifers, apply during springtime a granular mixture of 14-7-14 or 18-4-6 at the rate recommended by the manufacturer. Do not apply fertilizer for conifers in the fall.

3.9 WORK SITE CLEANLINESS

.1 Keep work site clean. Immediately remove soil and other debris accumulated on hard surfaces (concrete, pavers, asphalt, stone dust, etc.). Avoid damaging existing landscape elements, otherwise repair all damage.

3.10 VERIFICATION

.1 Planting work will be verified by Departmental Representative.

.2 Verification requirements include :

- All plant material is installed in proper location, are in good health and meet normal growth conditions;
- All plants conform to the requirements of the planting list, and all sections of this current book of specifications;
- All plants are free of insects and diseases.

.3 Contractor is responsible for all plant material for a period of 12 months after provisional acceptance. During that period all dead plant material must be replaced monthly between May to October.

.4 A tree will can be considered inappropriate for one or more of the following reasons:

.1 If it carries 75% of foliage compared with the expected volume of foliage for a fully live tree of the same species at the same dimension.

.2 If leaves are not of normal dimension, and not well distributed in the crown, and present on branches or twigs that originate already formed buds.

.3 If the tree of which more than 25% of its living foliage is

developed on stems originating from dormant or adventitious buds, and even though the foliage expresses all the characteristics described in art. 3.10.4.1 above.

.4 If detached bark or old wounds - not visible at the acceptance of the tree by the Departmental Representative - are present on the trunk.

.5 If after pruning of some of braches the tree no longer matches the criteria set article 3.10.4.1 of the present specifications.

***** END OF SECTION *****