



THE CITY OF WINNIPEG

**TREE PLANTING
AND MAINTENANCE
SPECIFICATION**

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SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to all tree planting Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed in Form B Prices, shall apply to the Work.
- (a) *The City of Winnipeg Standard Construction Specifications* is available on the information. Connection page at the City of Winnipeg Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- (b) The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.3 For work on projects governed by a Development Agreement, the following additional information shall apply:
- (a) For boulevard tree planting applications, these specifications shall be considered along with the *Boulevard Tree Planting Guidelines*, and it's associated references, which includes but is not limited to *Acceptable Tree Species for Boulevard Planting*. All relevant documents are available on the City of Winnipeg Urban Forestry Branch website: http://www.winnipeg.ca/publicworks/Forestry/Tree_Planting_with_Development_Agreements.aspx
- (b) All references to the above documents shall be understood to mean the latest version of that document.
- (c) For Park/ Public Reserve applications, the latest version of "*Submission and Approval of Plans for Parks/Public Reserves Sites governed by Development Agreements*" should also be consulted.
- E1.4 The following Drawings are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
SCD 517	STANDARD DETAIL FOR TREE PLANTING
SCD 518	SPECIAL DETAIL FOR TREE PLANTING WITH TREE SPADE EXCAVATED PIT
SCD 519	SPECIAL DETAIL FOR TREE PLANTING IN RESTRICTED SITES.

E2. PUBLIC SAFETY AND TRAFFIC CONTROL

- E2.1 In accordance with the Manual of Temporary Traffic Control, the Contractor ("Agency" in the manual) shall make arrangements with the Traffic Services Section of the City of Winnipeg to place all temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices by the Traffic Services Section of the City of Winnipeg in connection with the works undertaken by the Contractor. The requirements shall include the following:
- (a) The Contractor shall barricade the sidewalk surrounding the Work;
- (b) The Contractor shall maintain traffic flow and ensure that protection is afforded to the road user and that the Contractor's operations shall in no way interfere with the safe operation of traffic.

E3. AFTER HOURS WORK

- E3.1 Further to Clause GC.& 7.01 of the General Conditions, the Contractor shall obtain written permission from the Contract Administrator for any Work to be performed outside regular working hours including any Sunday or Statutory Holiday. Regardless of the Contract Administrator's approval, any such Work done by the Contractor between these hours shall conform to all applicable Laws, By-Laws and Ordinances.

TREE PLANTING

E4. GENERAL

- E4.1 This specification shall cover the supply and installation of nursery grown trees in accordance with the working drawings and the Contract documents on all properties that are owned by, or under the jurisdiction of, the City of Winnipeg.
- E4.2 The Contractor shall ensure only experienced personnel, under the direction of a skilled supervisor, shall execute all of the Work. The supervisor shall be on Site at all times during the Work and shall be authorized to make binding decisions on behalf of the Contractor.
- E4.3 It is understood that the Contract Administrator shall consult with the City Forester on matters which do not conform to, or which are not addressed by, these Specifications or the associated reference documents identified in E1.

E5. TREE PLACEMENT & LAYOUT

- E5.1 Tree placement locations are to be determined on site by the Contract Administrator or designate.
- E5.1.1 For Boulevard Trees, locations shall be in compliance with *Boulevard Tree Planting Guidelines*,
- E5.2 The Contractor shall obtain all necessary utility clearances prior to the commencement of planting and in a timely manner so as not to jeopardize the schedule of the complete tree planting operation.
- E5.2.1 The Contractor is to comply with the instructions on the utility clearance sheets.
- E5.2.2 Where a specified tree placement location conflicts with underground utilities, the Contractor may modify the precise location in compliance with the utility clearances and the following Minimum Distance Guidelines: (see also Clause 4 of the *Boulevard Tree Planting Guidelines*):
- (a) Street Intersections: 6m
 - (b) Private approaches: 1.5m;
 - (c) Light standards, hydro poles, hydrants, manholes and sewer grates: 3m
- E5.2.3 Where a tree placement location must be modified by more than 1 metre, the Contractor must receive prior approval from the Contract Administrator or designate.

E6. SUPPLY & PREPLANTING CARE OF TREES

- E6.1 The Contractor shall be responsible for supplying and transporting trees to the appropriate placement locations.

- E6.2 The Contractor shall coordinate the shipping of trees and excavation of tree pits to ensure no more than a maximum of a 24 hour time lapse has occurred between the plant material arriving on Site and the installation of that plant material.
- E6.2.1 Trees shall be transported with care taken to prevent damage:
- (a) Protect trees against abrasion, exposure and extreme temperature change during transit;
 - (b) Avoid binding of trees with rope or wire that would damage bark, break branches or destroy natural shape of tree;
 - (c) Point of contact with equipment shall be padded;
 - (d) Give full support to root ball of trees during lifting:
 - (i) Each balled specimen shall be handled with sufficient care, so that the root balls shall not be broken;
 - (ii) Broken root balls or root ball consisting of loose soil will not be accepted and shall be replaced;
 - (iii) Broken roots of deciduous stock shall be pruned back prior to planting.
- E6.2.2 Trees with broken or damaged trunks or branches are not acceptable. Trees with damaged trunks, however caused, will be rejected. No exceptions shall be made in this respect.
- E6.2.3 Keep roots moist and protected from sun and wind:
- (a) Trees that cannot be planted immediately shall be well protected against damage and drying out; if necessary, trees shall be heeled-in in a shaded area and watered well.

E7. LOCATION AND SCHEDULE OF WORK

- E7.1 The Contractor's operations shall be limited to the minimum encroachment on private properties necessary for undertaking the Work.
- (a) The Contractor shall be responsible for all damage resulting from Work on or over private property.
- E7.2 The Contractor shall take such measures as are necessary to ensure safe and convenient pedestrian ingress and egress are maintained to residences.
- E7.3 The Contractor shall promptly report any delay or change that may affect an agreed commencement and/or completion date to the Contract Administrator.

E8. MATERIALS

E8.1 General

- E8.1.1 The Contractor shall be responsible for the supply of:
- (a) plant material,
 - (b) the safe handling, pick up and delivery of trees to the planting Sites,
 - (c) the supply of soil, water, trunk protection, and tree supports as set forth in these Specifications.
 - (i) Further to (a), the City of Winnipeg may, at its option, supply the plant material. If the City is supplying the trees, this shall be reflected in the bid price.
 - (ii) The City shall indicate who is to supply the trees in Form B: Prices of this contract document.
- E8.1.2 All materials supplied by the Contractor under these Specifications shall be subject to random inspection and testing by the Contract Administrator.

- (a) The Contract Administrator may reject any material(s) that do not comply with this specification.
- (b) There shall be no charge to the City for any material samples taken for testing by the Contract Administrator.

E8.2 Trees

- (a) Trees shall be of the species and sizes noted in *Acceptable Tree Species for Boulevard Planting*. Plant material which does not have the caliper or root ball diameter specified will be rejected.
- (b) All nursery stock supplied shall be from a Canadian prairie nursery grown root or seed stock. Quality shall be in accordance with the *Acceptable Tree Species for Boulevard Planting*.
- (c) Any nursery stock dug from native stands, wood lots, orchards or neglected nurseries and which have not received proper cultural maintenance as advocated by the Canadian Nursery Landscape Association shall be designated as “collected plants”. The use of “collected plants” will not be permitted unless approved by the Contract Administrator.
- (d) The Contract Administrator reserves the right to inspect the plant material at their original source, and to instruct the supplier on root and branch pruning requirements.
- (e) Nomenclature of specified nursery stock shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of Hortus Third. The names of varieties not named therein are generally in conformity with the names accepted in the nursery trades.
- (f) Plants larger than specified may be used if approved by the City Forester or designate. The use of such plants shall not increase the Contract price.
- (g) All nursery stock shall be measured when the branches are in their normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip.
- (h) Where trees are measured by caliper (cal.), reference is made to the diameter of the trunk measured 150 mm above ground as the tree stands in the nursery.
- (i) All nursery stock shall be well branched, true to type, structurally sound, possess a well developed, undamaged root system and shall be free of disease, insect infestations, rodent damage, sunscald, frost cracks and other abrasion or scar to the bark. All parts of the nursery stock shall be moist and show live, green cambium when cut.
- (j) All trees shall have one only, sturdy, reasonably straight and vertical trunk and a well balanced crown with fully developed leader. All evergreens shall be symmetrically grown and branched from ground level up, and must be balled and burlapped unless noted otherwise on the plant list.
- (k) At least one plant of each variety supplied shall bear a tag showing both the botanical and common name of the plant.
- (l) Protection of Stock
 - (i) All nursery stock shall be well protected from damage and drying out from the time of digging until the time of planting on site. All roots shall be cleanly cut; split roots are not acceptable.
 - (ii) Nursery stock shall be transplanted with care to prevent damage. Points of contact with equipment shall be padded. All nursery stock, which cannot be planted immediately upon arrival at the site, shall be well protected to prevent drying out and shall be kept moist until commencement of planting.
- (m) All nursery stock is to meet the requirements of this specification regardless as to whether it is supplied by the City or the Contractor.

E8.3 Planting Soil

- (a) The planting soil shall be topsoil that complies with CW 3540, Section 5.2.
 - (i) Further to CW 3540 Section 5.2, planting soil shall contain maximum ten percent (10%) organic matter (peat, rotted manure or composted material).
- (b) At the discretion of the Contractor Administrator, planting soil may be subject to tests for nitrate, phosphate, potassium, sulphate, pH, E.C. (salinity), and volume of organic matter, by a testing laboratory designated by the Contract Administrator.
- (c) The Contract Administrator reserves the right to reject planting soil not conforming to the requirements of these Specifications.

E8.4 Water

- (a) The Contractor shall provide water, so that:
 - (i) All costs to provide water for the watering operation and all associated costs shall be borne by the Contractor. These costs may include hydrant permit and meter rental fees.
 - (ii) Further to clause 3.7 of CW 1120-R1, the Contractor shall pay for all costs associated with obtaining water in accordance with the Waterworks By-law. Sewer charges will not be assessed for water obtained from a hydrant.
- (b) Water shall be free of oils, acids, alkalis, salts and other substances that may be detrimental to plant growth. Water suitable for human consumption shall be acceptable without testing.
- (c) Water from rivers and streams shall not be used without prior approval of the Contract Administrator.
- (d) Should the Contract Administrator determine that water quality testing is necessary, an approved testing laboratory shall perform the test at the sole expense of the Contractor.

E8.5 Trunk Protection and Tree support

- (a) Upon completion of the planting operation, the Contractor shall install trunk protection by slicing open a 100 mm diameter x 600 mm long section of plastic weeping tile material and placing it around the base of each tree trunk.
- (b) Tree support stakes shall be T-rail iron stakes 40 x 40 x 5 x 1540 mm long, primed with 1 brush coat of zinc rich plant paint to CGSB 1-GP-191B. Stakes shall be uniform in style and colour.
- (c) Other products may be used with prior permission in writing from the Contract Administrator.
- (d) The guying straps shall be attached in accordance with the drawings referenced in E1.4 and shall be of a material that is non-abrasive to the tree to prevent girdling injury:
 - (i) Hose-covered wire, flexible belting or any strong, soft wide strips of material is acceptable.
- (e) Where wire is used, ensure ends are twisted tight
 - (i) Protruding ends are unacceptable.

E8.6 Mulch

- (a) The Contractor shall provide mulch. Mulch shall:
 - (i) be a clean bark or wood chip with minimal amount of leaves, branches and other extraneous matter; and
 - (ii) not contain adhesives, wood preservatives or any other chemical contaminants, and
 - (iii) consist of chips not less than 15 mm nor larger than 75 mm in size and not more than 20 mm thick.

PLANTING PROCECURES

E9. TREE PITS

- E9.1 Tree Pits shall be excavated using the following methods:
- (a) The preferred method of excavation is by backhoe or hand shovel (see SCD 517),
 - (b) Tree pits shall be minimum 2 times the diameter of the minimum accepted root ball diameter noted in *Acceptable Tree Species of Boulevard Planting*.
 - (c) Pit depth shall be such that the top of the root ball is even with the final grade
 - (d) Further to E9.1(b) if the Contractor chooses to use a tree spade to excavate tree pits, E9.2 shall apply.
 - (e) If the planting site is in a restricted space, E9.3 shall apply.
- E9.2 Tree pits excavated using a tree spade shall employ the following methods (see SCD 518):
- (a) Tree pits excavated with tree spades shall be a minimum of 2 times to diameter of the minimum accepted root ball diameter noted in *Acceptable Tree Species of Boulevard Planting*.
 - (b) Pit depth shall be the same as stated in E9.1(c).
 - (c) One cubic foot of soil around the edge of the tree pit shall be turned and sufficiently loosened with a shovel to scarify pit.
- E9.3 Tree Pits in Restricted Sites shall be excavated using the following methods (see SDC 519):
- (a) Tree pit diameter on the axis parallel to the street or other hard surface shall be a minimum of 1.5 times the diameter of the minimum accepted root ball as noted *Acceptable Tree Species of Boulevard Planting*.
 - (i) Pit diameter on the axis perpendicular to the street or other hard surface shall be 300 mm (12") greater than the minimum accepted root ball diameter as noted in *Acceptable Tree Species of Boulevard Planting*.
 - (b) Pit depth shall be the same as stated in E9.1(c)
 - (i) Tree pits are not to be dug within 1.5 m of an existing private approach.
 - (ii) Tree pits are not to be dug within 1 m of existing underground utilities.
 - (i) The contractor may dig a smaller tree pit to conform to this minimum distance guideline when necessary.
 - (iii) If the planting location contains a stump with a diameter less than 150 mm (5"), the stump shall be removed.
 - (c) The sides of all tree pits shall be scarified to the depth of one shovel blade.
 - (d) The bottom of all excavations shall be protected against freezing.
 - (e) Tree pits shall be left open for a maximum of 24 hours.
 - (i) Pits that are left open overnight must be covered with a sheet of plywood and be marked with a minimum of one (1) safety cone.
 - (i) Plywood shall be a minimum thickness of 15mm (5/8").

E10. PLANTING PERIOD

- E10.1 The Contractor shall not plant trees during periods of extreme heat, at the discretion of the Contract Administrator.
- (a) The City of Winnipeg reserves the right to refuse acceptance of any or all trees failing to meet the above timing restrictions

E11. PLANTING

E11.1 The Contractor is expected to plant trees as follows:

- (a) all trees shall be set plumb and shall be placed in the centre of the tree pit;
- (b) trees shall be placed on undisturbed soil and to a depth equal to that at which they were originally growing at the nursery, such that the first order of roots are just below grade.
- (c) once the tree has been set in its final position, burlap on the root ball shall be cut from the top 1/3 of the root ball:
 - (i) If a wire basket has been used, it shall be folded back or cut off from the top of the root ball.
 - (ii) All twine shall be removed from the root ball.
- (d) after the root ball is prepared, fill tree pit with planting soil as per E8.3, in layers of 150 mm depth and compact the independent layers of soil by tamping;
- (e) tamp soil around root system to eliminate air voids;
- (f) grade the area around the tree according to the drainage type; and
- (g) All planting areas shall be levelled, raked and edged to give a neat appearance.

E11.2 Upon completion of the planting operation, the Contractor shall:

- (a) install tree trunk protection (as per E8.5(a) around the base of each tree trunk);
- (b) install stakes and straps (see E8.5(b) through E8.5(e)), if deemed necessary;
- (c) if, upon inspection by the Contract Administrator or designate, it is determined that a stake is necessary (e.g. excessive wind) the Contractor shall be responsible for installing the stake and strap as requested;
 - (i) Avoid damaging root ball with stake.
- (d) form a water dish from the soil around the outside edge of the root ball with a berm 100 mm in height:
 - (i) Soil shall not be piled around the tree trunk.
- (e) Install mulch (as per E8.6);
- (f) administer watering:
 - (i) watering must be done slowly to ensure that water does not run away from the root zone and so the top 300 mm of the soil around the root system of the tree are well saturated;
 - (ii) use a low-pressure open flow nozzle and hose; and
 - (iii) The water stream must not gouge out a hole in the soil or mulch.

E12. SITE CLEAN UP

E12.1 During the planting operations, all sidewalks, streets, approaches, driveways and properties near or about the planting operations, shall be kept clean at all times by the Contractor.

E12.2 All clay and in-situ material shall be removed from the Site by the Contractor by the end of the Working Day (if piled in the street) or within 48 hours (if piled on boulevards or in parks).

E12.3 Upon completion of the Work, the Contractor shall immediately remove all excess material and debris from the Work Site and shall leave the Site in a clean and orderly manner.

LONG TERM MAINTENANCE OF NEW TREE PLANTINGS

E13. GENERAL

- E13.1 The Contractor shall be responsible for the maintenance of all plant material for a period of two (2) years, or as specified in the Development Agreement, from date of acceptance. Plant material shall be accepted to start warranty when installation in accordance with the Drawings and Specifications is complete and there is no sign of wilting, chlorosis, pest infestation, transplant shock or any conditions deleterious to longevity and appearance. Defective plants shall be replaced within thirty (30) days of notification to the Contract Administrator and shall be further maintained for the established maintenance period.
- E13.2 The Contractor shall furnish all labour, materials, equipment and services necessary to perform ongoing care of the plant material, which shall include but not be limited to:
- (a) Mulching, in accordance with E8.6 and E14.1(d);
 - (b) Watering, in accordance with E8.4 and E14.1(e);
 - (c) Weed Control, in accordance with E14.1(f).

E14. METHODS

- E14.1 The Contractor shall:
- (a) program the timing of operations to plant growth, weather conditions and use of the Site;
 - (b) do each operation continuously and complete within a reasonable time period;
 - (c) store equipment and materials off-site;
 - (d) add additional mulch as required to maintain minimum constant depth of mulch;
 - (i) clean up edges and contain mulch within the designated area;
 - (e) water trees as follows:
 - (i) immediately upon being planted and every week for the first three (3) weeks after planting;
 - (ii) thereafter, watering shall be done every 7 – 14 days between May and October or as frequently as necessary (compensating appropriately for weather) to sustain vigorous plant growth;
 - (iii) by watering slowly to ensure that water does not run away from the root zone and so the top 300 mm of soil around the root system of the tree is well saturated;
 - (iv) by using a low pressure open flow nozzle and hose. The water stream must not gouge out a hole in the soil or mulch;
 - (v) by using the recognized standard for tree watering as approximately 8-10 times during the growing season with the following amounts of water depending on the caliper of the tree – the rule of thumb is 40 litres of water per 25 mm caliper;
 - (vi) by recognizing watering requirements of trees are dependant upon on a number of variables such as tree species, soil type, when planted, and weather including precipitation. These watering requirements are a minimum standard and shall be followed unless otherwise directed by the Contract Administrator or designate.
 - (vii) by applying a final watering for all trees, regardless of when planted, that shall be completed after temperatures fall below freezing to ensure adequate moisture in root zone at freeze-up;
 - (f) maintain surface of tree pit by hand weeding during the watering process as follows:
 - (i) do not allow weeds to establish for a period longer than two (2) weeks; and
 - (ii) do not use any herbicides for weed control near trees unless authorized by the Contract Administrator.

- E14.2 The Contractor must inform the Contract Administrator of watering progress and schedule by 9:00 AM each day of watering.
- E14.3 The Contractor must inform the Contract Administrator immediately of any equipment breakdown or delay in watering and maintenance. Once a watering cycle is completed, submit a log-sheet to the Contract Administrator identifying the following:
 - (a) the location where maintenance Work is carried out; and
 - (b) preventative or corrective measures required which are outside Contractors' responsibility.
- E14.4 Any trees planted to replace trees that have died during the maintenance period will receive full 2 years maintenance from the date that the replacement tree was accepted.

E15. TREE PROTECTION/SUPPORT

- E15.1 Ensure trunk protection collars (weeping tile) and tree supports (staking) are maintained in good condition, serving their intended function and posing no threat to public safety.
- E15.2 The tree protection collars (weeping tile) shall be left on trees after the maintenance period is completed.
 - (a) The Contract Administrator shall assume responsibility for collar removal.
- E15.3 Tree supports shall be removed or left in place at the end of the warranty period as directed by the Contract Administrator.

E16. SITE SAFETY AND TRAFFIC CONTROL

- E16.1 Site Safety and Traffic Control measures shall be carried out in all areas on or adjacent to roadways (see E2).

E17. DAMAGE TO PROPERTY

- E17.1 The Contractor shall take every precaution not to damage, injure or mark any existing structures or landscaping on the street allowance or adjacent properties.
- E17.2 Should any damage be caused by the Contractor, their employees or equipment, it shall be restored or replaced at the Contractor's expense and to the satisfaction of the Contract Administrator. This applies even if damage results from work done in the process of correcting deficiencies.

E18. TREE MORTALITY

E18.1 City Supplied Trees

- (a) If a City-supplied tree dies and the Contractor has not been submitting the regular maintenance records in accordance with this contract document, then the cost to supply, plant and maintain a replacement tree, as originally indicated in the contract document, shall be at the sole expense of the Contractor.
- (b) If a City-supplied tree dies and the Contract Administrator confirms that the tree has been maintained in accordance to this Specification, that tree will be replaced by the City and added to the Contract at the originally specified bid price to be planted and maintained by the Contractor in accordance with this specification.
- (c) Replacement trees shall receive 2 years maintenance as outlined in the contract document, from the date of replacement.
- (d) Inspections of replacement trees will be conducted by City of Winnipeg staff.

E18.2 Contractor Supplied Trees

- (a) If a Contractor-supplied tree dies and the Contractor has not been submitting the regular maintenance records in accordance with these specifications, then the cost to supply, plant and maintain a replacement tree as originally indicated in the contract document, shall be at the sole expense of the Contractor.
- (b) If a Contractor-supplied tree dies and the Contractor has been submitting the regular maintenance records in accordance with these specifications, that tree will be added to the Contract at the originally specified bid price to be supplied, planted and maintained by the Contractor in accordance to this specification.
- (c) Replacement trees shall receive 2 years maintenance as outlined in the contract document, from the date of replacement.
- (d) Inspections of replacement trees will be conducted by City of Winnipeg staff.