

ITEM 661 PLANTING TREES, SHRUBS, AND VINES

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661.01 Description. This work consists of furnishing and planting trees, shrubs, vines, and other materials. All work and materials must comply with the current editions of the *American Standard for Nursery Stock ANSI Z60.1*, as published by the American Nursery and Landscape Association, and the American National Standard for Tree Care Operations, ANSI A300, published by the Tree Care Industry Association.

661.02 Plant Materials. Plant materials include all trees, shrubs, vines, and plants required for the project.

A. Provide healthy representatives of all plants, typical of their species or variety, and that exhibit a normal habit of growth. Provide hardy plants for local climatic conditions grown in nurseries located in the same hardiness zone or colder as the project location for at least two years. Provide Plants true to species and variety specified plants, nursery-grown in accordance with good horticultural practices. Provide plants freshly dug during the most recent favorable harvest season.

1. Unless specifically noted, provide plants of specimen quality, exceptionally heavy, symmetrical, unquestionably and outstandingly superior in form, structure, and symmetry. Provide sound, healthy, vigorous, well branched, well structured and densely foliated when in leaf plants; free of disease and insects, eggs, or larvae; and with healthy, well-developed root systems. Provide plants free from physical damage or other conditions that would prevent vigorous growth.

2. The City will reject trees with multiple leaders, unless specified. Do not provide trees with crowns headed back or cut back. The City will also reject trees with a damaged or crooked leader, bark abrasions, sunscald, disfiguring knots, insect damage, or cuts of limbs over 20 mm (3/4 in.) in diameter not completely closed.

3. Provide plants that conform to the measurements specified. The Contractor may use plants larger than those specified if approved by the landscape architect, at no additional cost to the City. Increase the root ball in proportion to the size of the plant, when using larger plants.

4. The City will not allow substitutions of plant materials unless authorized in writing by the engineer. If the Contractor submits written proof that it cannot obtain a specified plant specified, the City will consider using the nearest available size or similar variety, with a corresponding adjustment of the contract price.

B. Anti-Desiccants. Apply anti-desiccants, if specified, to plants in full leaf immediately before digging or as required by the landscape architect. Spray anti-desiccants in a manner that covers all leaves and branches with a continuous protective film.

C. Balled and Burlapped (B&B) Plant Materials. Dig trees designated B&B with firm, natural balls of soil retaining as many fibrous roots as possible, in sizes and shapes as specified in the *American Standard for Nursery Stock*. Wrap balls firmly with non-synthetic, rottable burlap and secured with nails and heavy, non-synthetic, rottable twine. Ensure that the root flare shows at surface of ball. The City will not accept trees with loose, broken, processed, or manufactured root balls, except with special written approval before planting.

D. Container Plants. Provide plants grown in containers of appropriate size for the container. as specified in the most recent edition of the *American Standard for Nursery Stock*, free of circling roots on the exterior and interior of the root ball. Provide container plants grown in the container long enough to establish roots throughout the growing medium.

E. Bareroot and Collected Plants. Provide plants designated as bareroot or collected plants that conform to the *American Standard for Nursery Stock*. Do not dig or install bareroot material after bud break or before dormancy. Immediately after harvesting plants, protect from drying and damage until shipped and delivered to the planting site. Check rootballs regularly and water sufficiently to maintain root viability.

F. Mechanized Tree Spade Requirements. The Contractor may move and plant trees with an approved mechanical tree spade. Limit moving trees with the tree spade to the smaller of either the maximum size allowed for a similar B&B root-ball diameter, according to the *American Standard for Nursery Stock*, or the manufacturer's maximum size recommendation for the tree spade used. Use only a machine approved by the landscape architect prior to use. Plant trees at the designated locations in the manner shown in the plans and in accordance with applicable sections of the specifications.

661.03 Labeling. Name and describe all plant as defined in *Hortus Third*. Attach legible labels to all specimens, or boxes, bundles, and other containers, indicating detailed information covering the botanical genus and the species name, the common name, the size or age of each species or variety, and the quantity contained in the individual bundles, boxes, and bales. Remove all labels before the completion of the establishment period.

661.04 Inspection. The Engineer may inspect plants for conformity to specification requirements and approval where grown and upon delivery. Approval of plants during

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these inspections will not impair the right of inspection and rejection during progress of the work.

The Engineer will inspect and seal all plant materials on the project site with City seals before use or planting. The Engineer will inspect all plants to ensure they are healthy, vigorous, and free from harmful defects, decay, disfigured stems and roots, plant diseases, and insect pests.

Provide certificates of inspection with the invoice for each shipment of plants as required by law for transportation. File certificates with the engineer prior to acceptance of the material. Inspection by federal or state authorities at the place of plant growth will not preclude rejection of the plants at the site.

The City will give final acceptance of all plant materials only after the materials are planted and have met all the requirements of this item. Remove the City seals from the plant materials after the final inspection.

661.05 Location and Source of Supply. Supply the Engineer with complete and detailed information concerning the source of supply for each item of required plant material within 15 days after receiving the notice of award of the Contract.

661.06 Scheduling. Plant deciduous materials in a dormant condition. If planted in-leaf, spray with an anti-desiccant prior to planting.

Place spring plantings from March 1 to May 31. Place fall plantings from September 1 through November 30. Obtain Engineer approval for planting times other than those indicated. Water according to Item 662.

661.07 Transportation, Storage, and Handling. Take all precautions customary in good trade practice in preparing plants for moving. The City will not approve workmanship that fails to meet the highest standards.

A. Dig, pack, and transport plants with care to ensure protection against injury. Protect all plants from drying out. Transport all plants from nursery sources to the project site with the entire load completely covered for protection from drying winds.

B. Properly protect plants not planted immediately upon delivery with soil, wet peat moss or in a manner acceptable to the Engineer. Water heeled-in plantings daily.

C. Do not bind plants with rope or wire in a manner that could damage or break the branches.

D Protect plants not planted immediately as follows:

1. Place or store plants within 3 days of site delivery.
2. To prevent drying out or freezing, store plants in a compact group completely covered with a suitable mulch placed around and between the balls.
3. Thoroughly water all plants that cannot be immediately planted so as to keep the roots continually moist. The Engineer may reject plants that are not adequately protected during transportation and storage. Handle all plant materials by the root ball or container.

661.08 Layout of Plant Materials. Before digging, use suitable staking to lay out the locations of all planting holes and beds. Obtain the Engineer's approval of these locations before digging.

661.09 Planting Holes. Dig planting holes that have sloped side walls 'bowl shaped'. Slopes of the side walls shall have a minimum of 1:1 side slopes. The top of the planting holes shall be two times the diameter of the root ball. Planting holes shall be dug to the same depth as the root ball structure. The earth under root balls shall be compacted or unexcavated soil to prevent settlement.

See 661.12 for depth of planting.

Dig planting holes for vines and perennials to a minimum depth and diameter of 6 inches (150 mm). Make planting holes for rooted cuttings and tree seedlings large enough to accommodate the root system.

661.10 Planting Beds. One month before cultivation, treat all planting beds that are to be developed in areas of existing turf with pre-emergent and post-emergent type herbicides. Use a State-licensed pesticide applicator to apply the herbicide according to the manufacturer's instructions.

Before planting, top dress all planting beds with a minimum of 2 inches (50 mm) of backfill mix, then cultivate it to a depth of 6 inches (150 mm) using a plow, disc, or roto-tiller. Remove all rock or other obstructions encountered while excavating.

661.11 Backfill Mix. Use existing soil unless otherwise specified in planting detail. When using imported topsoil, provide fertile, friable, natural topsoil of loamy character, without mixture of subsoil material, obtained from a well drained arable site, reasonably free of clay, lumps, coarse sands, stones, plants, roots, sticks and other foreign materials, with an acidity range of between pH 6.0 and 6.8.

- A. Identify source of proposed topsoil.
- B. The City will allow reuse of topsoil stripped from the site.

661.12 Planting.

A. Planting Balled and Burlapped Trees:

1. If not readily apparent, locate trunk flare by removing twine, burlap, and excess soil.
2. Dig tree hole at least two times wider than the root ball, with sides sloped to an unexcavated or firm base. Provide a hole deep enough such that the located trunk flare, at the first order lateral root, matches finished grade.
3. Lifting only from the bottom of the root ball, position tree in a straight position on a firm pad with the top of trunk flare level with the surrounding soil.
4. Remove all twine from the root ball. If present, remove and discard at least the top one half of the wire basket. Remove burlap from the top to a point halfway down the root ball and discarded. Remove all burlap and wire basket from the root ball if possible.
5. With clean, sharp pruning tools, prune off any secondary/adventitious, girdling, and potential girdling roots.

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6. Backfill planting hole with existing unamended soil, and thoroughly water.

B. Planting Containerized or Grow Bag Trees:

1. If not readily apparent, locate trunk flare by removing excess soil.
2. Dig tree hole at least two times wider than the root ball with sloping sides. Provide a hole deep enough such that the located trunk flare, at the first order lateral root, matches finished grade.
3. Create a firm soil mound at the bottom of the planting hole.
4. Remove tree from container or grow bag and select from option a or b:
 - a. Completely tease apart root system, repositioning any girdling or potentially girdling roots. Spread roots over soil mound so that trunk flare matches finished grade and results in a straight tree.
 - b. With a sharp saw, shave off the entire outer 1 inch (1") of the root ball. Place in planting hole so that trunk flare matches finished grade and results in straight tree.
5. With clean, sharp pruning tools, prune off any secondary/adventitious, girdling, and potential girdling roots.
6. Backfill planting hole with existing unamended soil and thoroughly water.

C. Planting Bare Root Trees:

1. Dig tree hole at least two times wider than the root ball with sloping sides. Dig hole to a depth so the located trunk flare, at the first order lateral root, matches finished grade.
2. Create a firm soil mound at the bottom of the planting hole.
3. Spread roots over soil mound so that trunk flare matches finished grade and results in a straight tree.
4. With clean, sharp pruning tools, prune off any secondary/adventitious, girdling, and potential girdling roots.
5. Backfill planting hole with existing unamended soil and thoroughly water.

D. Planting Seedlings, Groundcovers, Vines or Perennials: For planting seedlings, groundcovers, vines, or perennials in a planting bed see 661.10. Prior to planting seedlings, groundcovers, vines, or perennials in existing turf, remove all grass and weeds by scalping an area that has a minimum diameter of 12 inches (300 mm). Plant seedlings or perennials in the center of the scalped area using a spade or planting bar.

661.13 Mulch. Mulch the entire planting surface with composted bark applied no less than two inches (2") deep and no more than three inches (3") deep, leaving three inches (3") adjacent to the tree trunk free of mulch. Create a slight berm outside of the ball to help retain water.

Water thoroughly as per 661.17.

661.14 Pruning. Prune dead, damaged or broken branches only. Do not prune the central leader on trees. See Section 666 for pruning specifications.

661.15 Wrapping. Do not wrap trees unless specified in the planting detail.

661.16 Bracing. Brace all trees by staking as shown on the Standard Construction Drawing LA-1.2. Only flexible or biodegradable ties shall be used when staking trees. Staking should only be used in areas where mower damage, vandalism, or windy conditions are a concern or as directed by the Engineer. The ties shall be loose fitting, (as not to girdle the trunk) attached to the lower half of the tree, and allow trunk movement and growth. All staking and wrapping materials shall be removed at the end of the establishment period.

661.17 Period of Establishment. Before final inspection, place all plants and care for them for a period of establishment. The period of establishment begins immediately upon completion of the planting operations and continues until October 1. The minimum period of establishment is one growing season, June 1 through October 1.

During the period of establishment, follow standard horticultural practices to ensure the vigor and growth of the transplanted material. Water, remulch, restake, and cultivate as necessary. Perform at least two weeding and mowing programs (around trees, shrubs, and bed edges) of such intensity as to completely rid the planted and mulched areas of weeds and grasses. Begin the first program on or about June 15 and the second approximately 8 weeks later.

661.18 Warranty.

A. The guarantee period for trees, shrubs and vines begins at the date of Final Acceptance.

B. Guarantee healthy and flourishing plant material for a period of one year from the date of Final Acceptance.

C. Replace all plants determined by the Engineer to be dead or in an unacceptable condition during and at the end of the guarantee period as soon as weather conditions permit, and within a specified planting period, at no cost to the City. The City will consider acceptable plants free of dead or dying branches and branch tips and bearing foliage of normal density, size, and color. Replace dead or unacceptable plants with plants that closely match adjacent specimens of the same species. Provide replacements that satisfy all requirements stated in this specification.

D. Guarantee of all replacement plants shall extend for an additional period of one year from the date of acceptance after replacement. The City may elect subsequent replacement or credit for a replacement plant deemed unacceptable during or at the end of the guarantee period.

E. At the end of the guarantee, reset grades that settled below the proposed grades on the drawings.

F. Make periodic inspections during the guarantee period to monitor the condition of the trees. Water the trees as needed to maintain the trees alive and in an acceptable condition.

G. Perform a survival inspection, jointly with the City, in the first growing season before the end of summer. Meet with the City in the fall to compare lists, reconcile differences and develop a spring replacement list.

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H. Perform a survival inspection, jointly with the City, at the beginning of the second growing season in April. Meet with the City in April to amend the original replacement list.

I. Plant all replacements by the end of May of the second growing season of the original planting. If the Contractor fails to replace the trees by the designated date, provide the City with a credit for the cost of the tree.

661.19 Removal of Stakes and Wrapping. Remove all stakes and wrapping material from all plants just before the final inspection, with the exception of the replacement plantings that have not been in place for a full growing season. Take ownership of removed items. Use removed materials in the Work when the material conforms to the specifications; if not, then recycle or dispose of the material according to 105.16 and 105.19.

661.20 Method of Measurement. The City will measure the number of plant materials of each species and size, completed and accepted, in place.

661.21 Basis of Payment. The City will pay 50 percent of the bid price when delivered to the project site and the remaining 50 percent of the bid price when planted.

At the end of the establishment period, the City will make the final inspection and determine the actual number of living plants. The City will pay an additional 20 percent of the bid price for all plants living at the end of the establishment period. The City will not pay the additional 20 percent payment for plantings that did not survive the establishment period. Replace all plants not surviving the establishment period at no additional cost to the City. The City will extend the establishment period for all replacement plantings with no additional payment.

The City will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
661	Each	Tree Seedling, (Size), (Species)
661	Each	Perennials, (Size), (Species)
661	Each	Groundcover and Vines, (Size), (Species)
661	Each	Deciduous Shrub, (Size), (Species)
661	Each	Evergreen Shrub, (Size), (Species)
661	Each	Deciduous Tree, (Size), (Species)
661	Each	Evergreen Tree, (Size), (Species)