

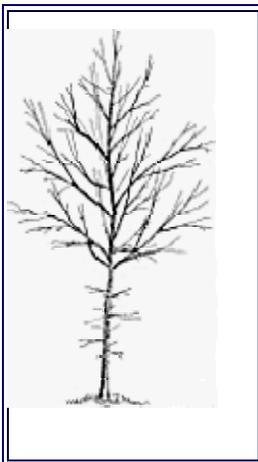
## 12. QUALITY ASSURANCE

### A. Source Quality Control

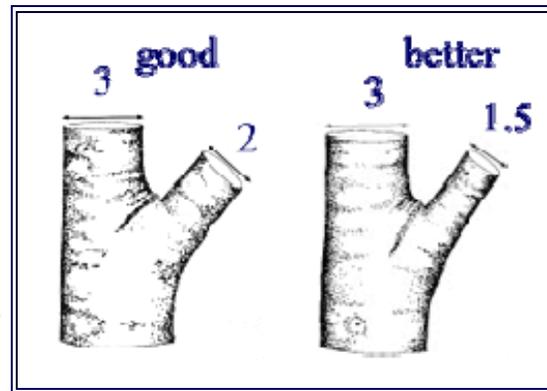
1. Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
2. If specified landscape material is not available, proposed substitutions shall be discussed at the Pre-Construction Conference.

### B. Tree Quality

Provide trees of quantity, size, genus, species and variety shown on plant list and/or drawings and scheduled for landscape work, complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Provide healthy, vigorous stock, grown in a recognized nursery and in accordance with good horticultural practice as per their standards, free of disease, insects, eggs, larvae, and defects such as knots, sun-scald, injuries, abrasions or disfigurement. Label at least one (1) tree of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.



**1)** There shall be no roots greater than 1/10 diameter of the trunk circling more than one-third the way around in the top half of the root ball. Roots larger than this may be cut provided they are smaller than one-third the trunk diameter. There shall be no kinked roots greater than 1/5 the trunk diameter. Roots larger than this can be cut provided they are less than one-third the trunk diameter.

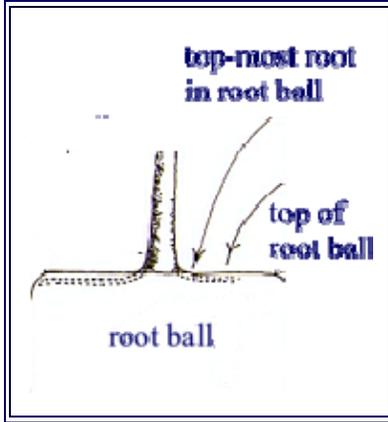


**2)** Trees should be rooted into the root ball so that soil or media remains intact and trunk and root ball move as one when lifted, but not root bound. The trunk should bend when gently pushed and should not be loose so it pivots at or below soil line.

**3)** The point where the top-most root in the root ball emerges from the trunk shall be within two inches of the soil surface. It can be exposed and visible at the soil surface (see illustration lower left).

**4)** The relationship between caliper, height and root ball size shall meet the ANSI Z60.1 standard.

**5)** There should be one dominant leader to the top of the tree with the largest branches spaced at least 6 inches apart (see illustration top-left). There can be a double leader in the top 50% of the tree on a quality plant or in the top 10% of the tree on a plant of exceptional quality.



6) The tree canopy should be mostly symmetrical and free of large voids. Clear trunk should be no more than 40% of tree height unless otherwise specified in the planting specifications.

7) Branches should be less than 2/3 the trunk diameter (see illustration top right).

8) Trees greater than 1.5 inches caliper should be able to stand erect without a supporting stake.

9) Open trunk and branch wounds shall be less 10% of the circumference at the wound and no more than 2

inches tall. Properly made pruning cuts are not considered open trunk wounds. There should be no conks or bleeding, and there should be no signs of insects or disease on more than 5% of the tree.

10) If any of the above conditions are not met, trees may be rejected.

### C. Inspection and Delivery of Trees

1. The City Forester reserves the right to pre-inspect nursery stock prior to shipping. The Contractor shall name nursery suppliers under Source of Supply, and inform the City Forester of proposed shipping dates once the contract is awarded. The City Forester may request digital pictures and dimensions of the stock, and shall determine the necessity of a pre-shipment visit to the nursery to confirm plant quality. The standards set out in B above shall be used as the guarantor of plant quality and health, as well as general specifications for the species. The City Forester will enforce the minimum grade standard.

Further, the City Forester shall inspect trees upon delivery prior to acceptance, and before planting, for compliance with requirements for genus, species, variety, size and quality. The City also retains the right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. If trees are rejected, they must be immediately removed from project site.

2. Deliver trees after preparations for planting have been completed and install within six (6) hours of delivery. If planting is delayed more than six (6) hours after delivery, set planting materials in a protected area, protect from weather and mechanical damage, and keep roots moist (The City does not provide pumps or any other assistance in this endeavor). Do not prune before delivery. Protect bark, branches and root system from sunscald, drying, sweating, wind whipping and other handling and tying damage. Do not drop trees during delivery.

### C. PLANT STANDARDS

1. Broad or single upright trees: are healthy, vigorous trees that are well shaped, well branched, and well foliated (subject to natural growth of the variety).

- Trunk and Branches - 1) Single, straight trunk, medium, well formed and sturdy; 2) Lateral branching fairly plentiful with medium distribution; 3) Sprouts cleanly removed; and 4) Pruning scars clean cut leaving little or no protrusion from the trunk or branch.
- Foliage - 1) Tree fairly well supplied with healthy, vigorous leaves of normal size, shape, texture and deep green color according to the season or degree of dormancy; 2) Maximum chlorosis 10% of total foliage; and 3) Pest or mechanical destruction not to exceed approximately 1/4 of individual leaves nor affect more than 1/4 of the total foliage. Deterioration of foliage caused by seasonal change expected.
- Root System - 1) Shall be sturdily established; 2) Shall not be excessively root bound.

2. Trunk and Branches -

- Well formed and sturdy;
- Good branching, uniformly distributed to form a well-balanced plant;
- Pruning scars clean cut leaving little or no protrusion from trunk or branch;
- Graft union healed 75% or better; and
- No extreme succulence.

3. Foliage -

- Well supplied with leaves of normal size, shape, color, and texture;
- No holes, cavities, or depressed areas caused by broken or dead foliage;
- Maximum chlorosis is very slight and not more than 10% of total foliage; and
- Pest damage confined to no more than a few individual leaves.

4. Root System -

- Sturdily established;
- Shall not be excessively root bound.

13. PLANTING OPERATIONS:

A. TREE LAYOUT: The XYZ COMMUNITY GROUP will give the Contractor the location of each tree to be planted prior to the planting operation.

B. TREE PITS:

1. The customary shape of pits shall be 3' X 10', or where it is necessary to use irregularly shaped pits the surface shall be at least six (30) square feet.

2. As part of the planting operation, all soil in the pit measuring 2' deep X 3' wide X 10' long shall be loosened prior to planting the tree.
  - a. Depth of tree pits shall be measured from finish grade.

C. **BACKFILL:** Depending on the type of tree and whether or not it is balled or bare-root, one of the following shall be used for backfilling the tree pit:

1. **Balled Deciduous Trees** - backfill with a mixture of 1 /3 humus and 2/3 topsoil by volume.
2. **Balled Evergreen Trees** - backfill with a mixture of 1 /4 humus and 3/4 topsoil by volume.
3. **Bare-root Trees** - backfill with a mixture of 1 /5 mushroom manure and 4/5 topsoil by volume.

D. **TREE PLANTING:** All trees shall be planted in pits as specified and shall be set at

such a level that, after settlement, they shall bear the same relation to the level of the surrounding ground as they bore to the ground from which they were dug. The root ball shall be positioned in the planting hole so the finished grade of the landscape soil is even with or slightly lower than the point where the top-most root emerges from the trunk. If the top most root in the root ball is deeper than 1" inside the soil of the ball, remove soil so that this root is within the top 1". DO NOT place soil over the top of the root ball.

1. **Balled trees (B & B)** shall be planted with the appropriate material specified carefully tapped around and under the base of each ball to fill the voids. Prior to backfilling, remove all ropes, wires, cloth, etc., from the top 1 /3 of the ball. No cloth shall be completely removed or pulled out from under the ball. Care shall be taken to avoid the formation of air pockets around the ball when planting. Upon completion of backfilling operations, a saucer 2" high capable of holding water shall be formed around each tree using soil from the planting hole.
2. **Bare-root Trees (B R)** shall have all broken or frayed roots cleanly removed prior to planting. Each tree shall be placed in the tree pit so that its roots are properly spread out and then the topsoil mixture specified carefully worked in among the roots. Before backfilling, incorporate five (5) pounds of 6-10-4 fertilizer, as specified, with each cubic yard of topsoil mixture and mix by hand or rotary mixer. Topsoil mixture shall be thoroughly settled around roots by tamping and watering. Upon completion of backfilling, a saucer, as specified for balled trees, shall be formed.

3. All trees shall be treated at the time of planting and initial watering with the Mycorrhizal product specified.
4. All balled trees shall be treated at time of planting and initial watering with the controlled release granular fertilizer specified.
5. All trees shall be mulched at time of planting with a minimum of two (2) inches of the shredded wood mulch material specified by the City Forester.