

## **SECTION 21 STREET TREES**

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### **21-01 GENERAL**

This work shall consist of furnishing and installing street trees in accordance with the Plans and these Standard Specifications.

### **21-02 MATERIALS**

#### **21-02.01 Trees**

Trees shall be well-established, fifteen (15) gallon size, nursery stock, measuring a minimum of six feet (6') in height. The type of tree shall be shown on the Plans. In the event the trees specified are not available, it shall be the Contractor's responsibility to obtain a substitute that has been approved by the Engineer.

All trees shall have a growth habit that is normal to the species, have straight trunks with a single leader intact, be uniform in size, be sound, healthy, vigorous and free from insect pests, plant disease, sun scald, fresh abrasions of the bark, excessive healed abrasions, broken branches and other objectionable disfigurements. Tree trunks shall be sturdy and well hardened off. All trees shall have normally well developed branch systems, where applicable. All trees shall have vigorous and fibrous root systems that are neither root nor container bound, nor so recently canned that the root system is not developed throughout the container.

Random samples of the trees will be closely inspected upon delivery before being accepted. All trees not meeting the above standards will be rejected. If any rootbound trees are found, the Contractor will be required to open all cans for inspection or the entire lot will be rejected. It is the Contractor's responsibility to schedule this inspection prior to planting.

#### **21-02.02 Stakes**

Stakes shall be Lodge-Pole pine, clear redwood, or equivalent, 2" x 2" x 10' or two inch (2") diameter by ten foot (10') pressure-treated C.C.A.

#### **21-02.03 Tree Ties**

Tree ties shall be one and one-half inch (1-1/2") rubber tree straps with a No. 14 gauge wire tied to both ends, or equivalent approved by the Engineer.

#### **21-02.04 Backfill Mix**

Backfill mix shall consist of one-third (1/3) Nitrohumus, one-third (1/3) Olympia bend sand and one-third (1/3) native soil. Contractor shall furnish vendor's tags or invoices as to material.

### **21-02.05 Slow-Release Fertilizer**

Agriform tree pellets, Osmocote 18-6-12, or approved equivalent.

### **21-02.06 Root Barriers and Root Shields**

Deep root control planter, or approved equivalent.

## **21-03 CONSTRUCTION**

### **21-03.01 Installation of New Trees**

Dig holes twice as large in diameter and one and one-fourth (1-1/4) times as deep as container in which plant was delivered and scarify sides of holes. Build six inch (6") berm of native soil.

Fill hole with one hundred percent (100%) backfill mix to level appropriate to allow the plant's soil level to be slightly above finished grade.

Install root barrier, drain pipe, or both, as necessary.

Remove root ball carefully from container by supporting it from below. Sever any circling roots (3/16" diameter or greater) with sharp shears or knife, rootbound trees shall be rejected. Do not pull root ball apart. The severing of large roots will encourage new growth at cuts.

Fill half way with backfill and put slow release fertilizer on this surface, use three (3) Agriform tree pellets, one-quarter (1/4) pound Osmocote 18-6-12, or approved equivalent per 15-gallon tree. Continue to fill hole with backfill and tamp.

Water tree thoroughly, fill basin and allow water to settle; repeat this process two (2) more times.

Install stakes. Secure tree using specified tree ties.

Attach "Tree Care" tag provided by City.

Add a two-inch (2") layer of medium-size redwood chips.

### **21-03.02 Protection of Existing Trees During Construction Activities**

All existing significant trees and designated trees on the job site require protection from construction activities within the drip lines. Temporary chain-link fencing and plastic construction fence are acceptable as protective barriers for tree protection purposes. Fencing shall be minimum five feet (5') high. Tree protection shall remain in place until all construction is complete. The City reserves the right to issue a stop-work notice if the tree protection devices are not installed or if the devices are not maintained.

No excavations within the tree protection area are allowed unless approved by the City and under the supervision of a licensed arborist. Any filling within the tree protection area shall be done in accordance with a detailed improvement plan approved by the City. No trimming, cutting or pruning of designated trees can occur without approval by the City and supervision of a licensed arborist.

No storage of materials; disposal of paints, solvents or other noxious materials; operation of equipment, parked cars, unnecessary trenching, grading or compaction shall be allowed within the drip line of any trees.

### **21-03.03 Removal of Tree Roots Encountered During Construction Activities**

Cutting and removal of roots smaller than two inches (2") in diameter shall be done by chain saw or hand saw to provide a flat and smooth cut and cause the least damage possible to the root and tree's health. Cutting roots by means of tractor-type equipment or other than chain saws and hand saws will not be permitted. Proper pruning technique shall encourage callusing of the roots. Root cutting and removal shall not exceed thirty-five percent (35%) of total root surface. The Contractor shall remove any wood chips or debris that may be left over from root removal that may affect the construction of improvements as directed by the Engineer.

If any roots over two inches (2") in diameter are severed during any excavation, the following procedure shall be followed:

1. Tree roots shall be shaded by immediately covering the entire trench with plywood, or by covering the sides of the trench with burlap sheeting that is kept moist with twice-a-day wettings.
2. When ready to backfill, each root shall be severed cleanly with a handsaw. Where practical, they should be cut back to a side root. Immediately, a plastic bag shall be placed over the fresh cut, and secured with a rubber band or electrical tape. Shading should immediately be placed until backfilling occurs.
3. Plastic bags shall be removed prior to backfilling. Backfill shall be clean, native material free of debris, gravel or wood chips.

If roots three inches (3") in diameter, or larger, are encountered during excavation, Contractor shall contact the Engineer's inspector immediately and request a field inspection by the Engineer and the City Tree Supervisor, or their designated representatives, and obtain instruction as to how the roots should be treated. No roots three inches (3") in diameter, or larger, shall be cut and removed without prior approval from the Engineer or designated representatives. Failure to notify the Engineer for root inspection will result in the Contractor paying for damages and/or replacing the damaged tree as determined by the Engineer.

#### **21-03.04 Maintenance**

All new trees installed shall be maintained for a minimum period of ninety (90) days after the last tree is planted and installation is approved by the Engineer. Said period shall not be shortened by the acceptance by the City of the balance of the street improvement construction. Should this period expire before final acceptance of the project by the City, maintenance shall continue to said acceptance.

During the maintenance period, all trees that die or that are in an unhealthy condition will be replaced. This shall be done just as soon as it is reasonably possible after the unsatisfactory condition is evident, and shall not be postponed until the end of the maintenance period.

At the conclusion of the maintenance period, an inspection of the Work will be made to determine maintenance work needed to be done and to determine the condition of all trees. Any trees missing or not in a healthy condition will be noted and these trees are to be removed from the site and replaced. Any deficiencies in maintenance shall be corrected. Replacement of trees shall be made promptly and in the same manner as specified in the original planting and at no extra cost to the City. The maintenance period for any replacement trees will extend a full ninety (90) days.