

SECTION 01535

TREE AND PLANT PROTECTION

PART 1 GENERAL

.01 SECTION INCLUDES

- A. Tree and plant protection.

.02 UNIT PRICES

- A. No separate payment will be made for work performed under this Section.
- B. All trees must be protected within the ROW in the work-zone area during the construction activity.

.03 PROJECT CONDITIONS

- A. Preserve and protect existing trees and plants to remain from foliage, branch, trunk, or root damage that could result from construction operations.
- B. Prevent following types of damage:
 - 1. Compaction of root zone by foot or vehicular traffic, or material storage.
 - 2. Trunk damage from equipment operations, material storage, or from nailing or bolting.
 - 3. Trunk and branch damage caused by ropes or guy wires.
 - 4. Root poisoning from spilled solvents, gasoline, paint, and other noxious materials.
 - 5. Branch damage due to improper pruning or trimming.
 - 6. Damage from lack of water due to:
 - a. Cutting or altering natural water migration patterns near root zones.
 - b. Failure to provide adequate watering.
 - 7. Damage from alteration of soil PH factor caused by depositing lime, concrete, plaster, or other base materials near roots.
 - 8. Cutting of roots larger than one inch in diameter.

.04 DAMAGE ASSESSMENT

- A. When trees other than those designated for removal are destroyed or badly damaged as a result of construction operations, remove and replace with same size, species, and variety up to and including 8 inches in trunk diameter. Tree larger than 8 inches in diameter shall be replaced with an 8-inch diameter tree of the same species and variety and total contract amount will be reduced by an amount determined from the following formula: $0.7854 \times D^2 \times \10.00 where D is diameter in inches of tree or shrub trunk measured 12 inches above grade. Contractor shall contact Owner prior to removing any tree. Owner must approve removal of any trees.

PART 2 PRODUCTS

.01 MATERIALS

- A. Asphalt paint: Emulsified asphalt or other adhesive, elastic, antiseptic coating formulated for horticultural use on cut or injured plant tissue, free from kerosene and coal creosote.
- B. Burlap: Suitable for use as tree wrapping.
- C. Fertilizer: Liquid containing 20 percent nitrogen, 10 percent phosphorus, and 5 percent potash.
- D. All necessary tree replacements shall be as approved by Owner Representative.

PART 3 EXECUTION

.01 PROTECTION AND MAINTENANCE OF EXISTING TREES AND SHRUBS

- A. Except for trees and shrubs shown on Drawings to be removed, all trees and shrubs within the project area are to remain and be protected from damage.
- B. For trees to be removed, as designated on the Drawings, perform the following:
1. Stake right-of-way limits and identify any tree of diameter greater than 4 inches which is to be removed. Mark trees prior to felling with an X in orange paint, clearly visible, on the trunk, and at eye level.
 2. After marking trees give a minimum of 48-hours notice in writing to the Owner Representative of intent to begin felling operations.
 3. Trees whose trunks are only partially in the right-of-way shall be protected and preserved as described in 3.01(C) below.
 4. Trees scheduled for removal shall be sawed down and debris hauled from the site the same day. The stump shall be ground to 6" below grade and

excess grindings shall be hauled from the site the same day, so that a pile of grindings is not left where the stump was ground. Enough grindings should be left so that an open hole does not remain.

5. Only those trees called out for removal in the drawings shall be removed. Should it be determined that any additional trees must be removed, a permit must be applied for and approved from the City.
6. Trees designated for removal shall be hauled off and removed at Contractors expense. Disposal methods are to be approved by Owner. Owner reserves the right to take possession of the removed trees.

C. For trees or shrubs to remain, perform the following:

1. Trim trees and shrubs only as necessary and in accordance with the recommendations of a licensed arborist employed by the Contractor.
 - a. Trees and shrubs requiring pruning for construction should also be pruned for balance as well as to maintain proper form and branching habit.
 - b. Cut limbs at branch collar. No stubs should remain on trees. Branch cuts should not gouge outer layer of tree structure or trunk.
2. Use extreme care to prevent excessive damage to root systems.
 - a. A licensed arborist shall be employed by the Contractor before any root damage occurs. Should root damage be unavoidable, with licensed arborist approval, the following should be followed:
 - (1). Roots in construction areas will be cut smoothly with a trencher before excavation begins. Do not allow ripping of roots with a backhoe or other equipment.
 - (2). Temporarily cover exposed roots with wet burlap to prevent roots from drying out.
 - (3). Cover exposed roots with soil as soon as possible.
3. Prevent damage or compaction of root zone (area below dripline) by construction activities.
 - a. Do not allow scarring of trunks or limbs by equipment or other means.
 - b. Do not store construction materials, vehicles, or excavated material under dripline of trees.

- c. Do not pour liquid materials under dripline.
4. Water and fertilize trees and shrubs that will remain to maintain their health during construction period.
 - a. Supplemental watering of landscaping during construction should be done once every 7 days in cold months and once every 4 days in hotter months.
 - b. This watering shall consist of saturating soils at least 6 to 8 inches beneath surface.
5. Water areas currently being served by private sprinkler systems while systems are temporarily taken out of service to maintain health of existing landscapes.
6. At option of the Contractor and with the Owner Representative's permission, trees and shrubs to remain may be temporarily transplanted and returned to original positions under supervision of a licensed arborist.

.02 PROTECTION

A. Protection of Trees or Shrubs in Open Area:

1. Install steel drive-in fence posts in protective circle, approximately 8 feet on center, not closer than 4 feet to trunk of trees or stems of shrubs.
2. Drive steel drive-in fence posts 3 feet minimum into ground, leaving 5 feet minimum above ground.
3. Mount steel hog-wire on fence posts.
4. For trees or shrubs in paved areas, mount concrete-filled steel pipe 2-1/2 inches in diameter minimum in rubber auto tires filled with concrete (movable posts).

B. Timber Wrap Protection for Trees in Close Proximity of Moving or Mechanical Equipment and Construction Work:

1. Wrap trunk with layer of burlap.
2. Install 2 x 4's or 2 x 6's (5-foot to 6-foot lengths) vertically, spaced 3 inches to 5 inches apart around circumference of tree trunk.
3. Tie in place with 12 to 9 gage steel wire.

.03 MAINTENANCE OF NEWLY PLANTED TREES

A. Water trees during dry periods.

- B. The Contractor guarantees that trees planted for this Project shall remain alive and healthy at least until the end of a one-year warranty period.
1. Within four weeks of notice from Owner, Contractor shall replace, at his expense, any dead trees or any trees that in the opinion of Owner, have become unhealthy or unsightly or have lost their natural shape as a result of additional growth, improper pruning or maintenance, or weather conditions.
 2. When tree must be replaced, the guarantee period for that tree shall begin on date of replacement of tree, subject to the Owner's inspection, for no less than one year.
 3. Straighten leaning trees and bear entire cost.
 4. Dispose of trees rejected at any time by Owner Representative at Contractor's expense.

END OF SECTION