

SECTION 32 01 90
TREE AND SHRUB PRESERVATION

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes all work, materials, labor and equipment necessary to complete the Work of this section, and includes, but is not limited to:
 - 1. Tree and plant protection fencing.
 - 2. Pruning of any damaged limbs.
 - 3. All other tree and plant protection indicated.

1.02 RELATED SECTION

- A. Coordinate the Work of this section with the Work of other sections as required to properly execute the Work and as necessary to maintain satisfactory progress of the Work of other sections. Other sections containing related work include but are not limited to the following:
 - 1. Section 01 35 00, Environmental Protections and Special Controls.
 - 2. Section 02 41 00, Demolition.

1.03 SUBMITTALS

- A. Proposed methods, materials, and schedule for effecting tree and plant protection shall be submitted for approval.
- B. Certifications: Submit appropriate evidence of certification of all arborists to be employed on the Project.
- C. Licenses: Submit appropriate evidence of licensing of all chemical applicators to be employed on the Project.

1.04 QUALITY ASSURANCE

- A. Work of root pruning, fertilizing, spraying, and similar activities shall be undertaken only by certified Arborists and chemical applicators, as pertinent to the Work being performed.
 - 1. Application of chemicals shall be performed by licensed chemical applicators.
 - 2. Arborist shall be a professional Certified Arborist with a minimum 5 years' experience, who has successfully completed a certification program in the state of Arizona.

1.05 LIABILITY FOR DAMAGES

- A. For bidding and general Work guidelines prior to onsite tree protection conference, the Contractor shall assume all trees within the Limit of Work shall be saved unless specifically designated to be removed on the Contract Documents.
- B. Damage and/or disturbance to existing adjacent lands beyond the Limit of Work which, in Government's opinion, can be remedied by corrective action shall be repaired immediately to the satisfaction of the Contracting Officer, at no additional cost to the Government.
- C. Damaged trees which require removal and/or replacement shall be removed according to the Specification requirements for removals, including refilling and repair of ground surface, with such costs to be borne by the Contractor in addition to assessed charges described herein.

1.06 PREINSTALLATION MEETINGS

- A. Before the start of any work on the Site, preceding the arrival of equipment, materials or vehicles to the Site, and prior to the commencement of any clearing on the Site, the Contractor shall arrange a preconstruction conference on the Site with the Contracting Officer to identify trees that are to be protected or removed. Do no clearing without a clear understanding of existing conditions to be preserved. In addition to the responsibilities and penalties described in this section, the Contractor shall be held responsible for any and all clearing, damage or destruction to plant material that results from the Contractor's failure to schedule and attend the preconstruction conference onsite prior to any work.

PART 2 PRODUCTS

2.01 TREE PROTECTION

- A. Level I Fence Protection:
 - 1. Fabric: Fabric (6-foot height) shall consist of orange plastic fencing as shown on the Drawings and shall be woven with 2-inch mesh openings such that in a vertical dimension of 23 inches along the diagonals of the openings there shall be at least seven meshes.
 - 2. Installation Posts: Installation posts shall be a minimum of 72 inches long and steel "T" shaped with a minimum weight of 1.3 pounds per linear foot.
 - 3. Tie Wire: Wire for attaching the fabric to the T-posts shall be not less than No. 12-gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the "T" line posts.

4. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Contracting Officer, may be used.
- B. Level II Fence Protection: Materials same as Level I.
- C. Other Materials:
 1. Tree Dressing: Asphaltic Tree Wound Paint.

PART 3 EXECUTION

3.01 IDENTIFICATION OF TREES TO REMAIN

- A. Prior to starting site clearing operations, stake out all areas of trees to be saved as noted on the Contract Documents for approval by the Contracting Officer.
- B. Before any clearing is done, the Contractor shall arrange a conference on the Site with the Contracting Officer to identify trees that are to be protected or removed. Do no clearing or cutting of individual trees without clear understanding of existing conditions to be preserved and trees to be saved.
- C. The Contractor shall be responsible for the protection of all existing trees and plants designated to remain for the length of the construction period, including liability for all damages as specified herein. The placement of protection devices additional to those specified shall, however, be at the Contractor's discretion and with no additional cost to the Government.

3.02 PROTECTION OF EXISTING TREES

- A. The Contractor shall make every effort not to damage existing plant materials to remain. The Contractor is required to install protection as necessary to assure undamaged plant material and adjacent conditions.
- B. LEVEL I FENCE PROTECTION
 1. All trees and shrubs in the proximity of the construction site shall be protected prior to beginning any development activity.
 2. Protective fencing shall be erected outside the dripline at locations shown on the Drawings or as directed by the Inspector and/or Arborist or in accordance with the details shown on the Drawings at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the Contractor during site construction.
 3. The protective fencing shall be erected before Site Work commences and shall remain in place during the entire construction phase. Access to

fenced areas will be permitted only with the approval of the Contracting Officer.

4. The installation posts will be placed every 6 feet around the drip line or RPZ and embedded to 18 inches deep. Fabric attachment shall be attached to the installation posts by the use of sufficient wire ties to securely fasten the fabric to the "T" posts as to hold the fabric in a stable and upright position.
 - a. Do not clear, fill or grade in the RPZ of any tree.
 - b. Do not store, stockpile or dump any job material, soil or rubbish under the spread of the tree branches.
 - c. Do not park or store any equipment or supplies under the spread of tree branches.
 - d. Do not set up any construction operations under the spread of the tree branches. (e.g., pipe cutting).
 - e. Do not nail or attach temporary signs, meters, switches, wires, bracing or any other item to the trees.
 - f. Do not permit runoff from waste materials including solvents, concrete washouts, asphalt tack coats (MC-30 oil), etc. to enter the RPZ. Barriers are to be provided to prevent such runoff substances from entering the RPZ whenever possible, including in an area where rain or surface water could carry such materials to the root system of the tree.
5. The Contractor shall avoid cutting roots larger than 1 inch in diameter when excavation occurs near existing trees.
6. Excavation in the vicinity of trees shall proceed with caution.
7. Remove all trees, shrubs or bushes to be cleared from protected root zone areas as by hand.
8. Trees damaged or lost due to Contractor's negligence during construction shall be mitigated at the Contractor's expense and to the Contracting Officer's satisfaction.
9. Any tree removal shall be approved by the Contracting Officer prior to its removal.
10. Cover exposed roots at the end of each day with soil, mulch or wet burlap.
11. In critical root zone areas that cannot be protected during construction and where heavy traffic is anticipated, cover those areas with 8 inches of organic mulch to minimize soil compaction. This 8-inch depth of mulch shall be maintained throughout construction.
12. Water all trees, most heavily impacted by construction activities, deeply once a week during periods of hot dry weather. Spray tree crowns with water periodically to reduce dust accumulation on the leaves.
13. When installing concrete adjacent to the root zone of a tree, use a plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil. See related specifications.
14. When an excavation or embankment is placed within the dripline of any tree greater than 8 inches in diameter, a tree well shall be constructed to

protect the tree as indicated, when the cut or fill exceeds 8 inches. See related specifications.

15. Where paving or filling is necessary within the dripline of any tree 8 inches or greater, a permeable pavement and aeration system must be installed as indicated. See related specifications.

C. LEVEL II FENCE PROTECTION

1. Protective fencing shall be erected within the RPZ at locations shown on the Drawings or as directed by the Inspector and/or City Arborist or in accordance with the details shown on the Drawings at the drip line of trees (Root Protection Zone, RPZ) and/or landscape plant material including natural areas. Fencing shall be maintained and repaired by the Contractor during site construction.
2. Fabric: Fabric (6-foot height or 1.2 m) shall consist of orange plastic fencing as shown on the Drawings and shall be woven with 2-inch mesh openings such that in a vertical dimension of 23 inches along the diagonals of the openings there shall be at least seven meshes.
3. Installation Posts: Installation posts shall be a minimum of 72 inches long and steel "T" shaped with a minimum weight of 1.3 pounds per linear foot.
4. Tie Wire: Wire for attaching the fabric to the T-posts shall be not less than No. 12-gauge galvanized wire. Sufficient fastening material shall be furnished to provide for the securing of the fabric to the "T" line posts.
5. Used Materials: Previously-used materials, meeting the above requirements and when approved by the Contracting Officer, may be used.

3.03 PROTECTION MAINTENANCE

- A. After the tree and plant protection has been installed, and the Contracting Officer has inspected and given written approval of the tree and plant protection, will the Contractor be allowed to begin excavation. All tree and plant protection shall be maintained throughout the duration of the Project.
- B. If any fencing, barriers, staking or marking, which designates protected areas limits of demolition or work limits, is knocked down, moved or destroyed by the Contractor, the Contractor will immediately move the work operation to another area, or wholly or in part suspend work operations, until the fence or other protection is repaired to the Contracting Officer's satisfaction at the end of Contractor's expense. Time lost due to such stoppage will not be considered basis for adjustment of completion date nor additional payment.

3.04 ROOT PRUNING WITHIN DRIPLINE OF EXISTING TREE TO REMAIN

- A. Where construction will be in close proximity to existing trees designated to remain, the Contractor shall do all excavation within the root zones and drip line of the tree by hand using only hand-held equipment. This is to protect the tree from compaction of the root zone due to heavy equipment. This will allow individual major roots of the tree to be exposed without damage. When major roots are uncovered, the Contractor shall notify the Contracting Officer and ask for direction about that specific condition and how the root should be treated.

3.05 WATERING

- A. The existing trees shall be watered to keep the ground damp in periods of no rain within a week period of time. This condition shall be for the length of the entire Contract unless the temperature drops to less than 40 degrees.

3.06 REMOVAL OF TREE PROTECTION MATERIAL

- A. Contractor shall remove and discard in a legal manner all tree protection material, excavated soil, pruned vegetation and all debris and trash from the Site at the completion of the Contract.

END OF SECTION