

## 183

### SPECIAL PROVISIONS

#### TREE PRESERVATION

##### **Tree Preservation**

The preservation of existing trees, shrubs and other vegetation where possible is an important aspect of this project, especially within Historic Sites and within the Historic Boundary, and will require the utmost care during the construction process. The contractor will assist the department by educating its employees, subcontractors and any utility companies conducting work in the vicinity of the tree preservation, of the efforts and the preservation measures required herein.

**General Requirements and Restrictions:** All construction unless approved by the Engineer will occur outside the tree preservation fence. *Do not trespass* with vehicles or machinery in the areas indicated for tree preservation. Do not park, refuel, repair or maintain vehicles or equipment in the tree preservation areas. Do not stockpile materials or store equipment in the tree preservation areas.

Do not release petroleum products, fuels, paints, or lubricants anywhere within this project in the vicinity of the tree preservation areas or in areas that drain into this vicinity. Do not apply or release herbicides, fertilizers or chemicals of any kind that may be toxic to plant life and do not 'clean out' concrete trucks in the vicinity of the tree preservation areas, or into areas that drain into this vicinity. Do not burn trash, debris or vegetation in the vicinity of tree preservation areas.

Demolition, ground disturbing activities or construction that occurs within the drip line of the tree(s) or within a radius three times the drip line of the tree(s) will be done with utmost care. All grading will be accomplished in such a manner to avoid standing water or saturated soils around root systems of trees that are to remain. Install erosion control devices in a timely manner to prevent sedimentation from accumulating around the root zone in the tree preservation areas and the surrounding vicinity. In areas to be 'cut' by grading or where utility trenches or building footings occur, prevent shredding, tearing or exposing roots by excavating a trench not less than 6" wide and to the maximum depth of the cut up to 24" deep. Hand saw any roots 2" or greater in diameter that are encountered to make a clean smooth cut. If necessary, dig out enough soil to reach an undamaged portion of the root to make the smooth cut. To prevent drying out of roots, immediately cover any exposed root surfaces with 6" of approved mulch or soil until 'finish' construction operations dictate removal. Water as directed by the Engineer.

Branches that protrude into the construction area that interfere with construction operations will be tied back if possible or if not, pruned. Follow proper pruning techniques as established in American National Standards Institute ANSI Z133.1 and perform pruning by a professional arborist. Submit description of proposed work along with arborist credentials to the Engineer for approval prior to conducting work.

Violation of any of these tree preservation measures will result in suspension of all work until the violation is resolved or repaired to the satisfaction of the Engineer. Such suspension of work will not be considered justification for additional compensation in accordance with Section 104 of the Standard Specifications or extension of the contract time.

All measures described herein are incidental to the project construction and there will be no direct compensation.

### **TREE PROTECTION FENCE**

**General:** "Tree Protection Fence" consists of furnishing, installing, maintaining, and removing wood or steel post, wood slat fence or orange poly-barricade fence fabric and signs at locations shown on the plans and as directed by the Engineer in the field and in accordance with the special provisions included herein. Tree protection fence will be installed after the slope-stake line is staked and prior to all other work.

**Materials:** Use *wood posts* that are nominal 4" x 4" (102 mm x 102 mm), length as required, structural light framing, grade No. 2, Southern Pine or *steel posts* that are a minimum of 1 3/8" (35 mm) wide measured parallel to the fence, with a weight of 1.25 lb./ft. (1.9 kg/m) of length. Post must have a means for retaining wire in desired position without displacement. Use of steel posts will be required in any area where the tree protection fence is in close proximity to the tree's trunk or any major roots.

Use orange polyethylene or polypropylene prefabricated barricade type fence fabric that is a minimum of 48 inches (1220 mm) high and approved by the Engineer or wood slat prefabricated sand or snow fence that is a minimum of 48 inches (1220 mm) high and that conforms to the following requirements. The fabric will be constructed of wood slats and twisted wire cables. Vertical slats will be 3/8" to 3/4" (10 to 20 mm) thick and from 1 1/4" to 2" (32 to 51 mm) wide and shall comprise 33% to 50% of the surface area. Slats will be connected by means of a two line twisted cable for each foot of fabric height or fraction thereof. The twisted cable will be a minimum of 13 gauge (2.32 mm) galvanized wire.

Treat wood posts and wood slat fence fabric with a preservative in accordance with Section 1082-3 of the Standard Specifications.

Use a durable, weatherproof lightweight material to fabricate 'Tree Protection Area' signs. Signs will be a minimum of five square feet (0.46 square meter) and lettering will be a minimum of two inches (51 mm) tall and text will be clearly legible. Each sign will contain the following wording

# 185

## Tree Protection Area Do Not Enter

and it will be repeated in Spanish on the same sign. Use a red background with white lettering. **Submit sample sign to the Engineer for approval prior to installation.**

**Installation:** Erect fence to conform to the general contour of the ground. Do not remove existing plant material or perform any grading unless indicated on the plans or directed by the Engineer. Avoid soil compaction within tree protection area; do not use heavy equipment and stay outside the perimeter of the tree protection area where possible.

Install posts and maintain in a vertical position. Post may be hand set or set with a post driver. If hand set tamp backfill material thoroughly. Power driven wood posts may be sharpened to a dull point. Remove and replace posts damaged by power driving prior to final acceptance. At the direction of the Engineer use steel post instead of wood post when installing fence in close proximity to a tree's trunk or any major roots.

Stretch orange poly-barricade fence fabric or wood slat fence fabric taut and attach to post with appropriate means according to post type used. In sections where signs will be located, if orange poly-barricade fence fabric is used reinforce top of fabric by weaving a 12 gauge (2.68 mm) galvanized wire in the fabric and firmly attach to a post at each end of the section. Attach signs to fence fabric at all four corners using appropriate method for fence fabric and sign material that is chosen. Locate signs every one hundred feet, at all corners, changes in direction and as directed by the Engineer.

**Maintenance:** Maintain tree protection fence with required signs in good condition, fully upright with no loose attachments or missing links for the duration of the project. Signs must be visible and legible throughout the duration of the contract. *The Engineer must approve in writing, prior to entering the tree protection area, access for the contractor and subcontractor for anything other than routine vegetation maintenance and liter pick-up.* Approval must be made for each access occurrence.

**Removal:** As a last item of work after construction and all related work is complete, and at the direction of the Engineer, remove the tree protection fence, backfill post holes and remove, and properly dispose of fence materials off the construction site. While performing this work do not use heavy equipment and stay on the outside perimeter of the tree protection area where possible to avoid soil compaction within root zone.

**Method of Measurement:** Tree protection fence to be paid for will be the actual number of linear feet (meter) installed in place and accepted.

**Basis of Payment:** The quantity of tree protection fence will be paid for at the contract unit price per linear foot (meter). Such payment will be full compensation for the work

**186**

as described above, including but not limited to furnishing, installing, maintaining and removing the tree protection fence and signs.

*Payment will be made under:*

**Tree Protection Fence.....LF**

**TREE TRUNK BUMPER**

**General:** The 'Tree Trunk Bumper' is intended to protect the trunk and buttress roots of a specimen tree(s) to be preserved and that are located within the construction zone and will be exposed to equipment operating in close proximity. Install tree trunk bumper as indicated on the plans or as directed by the Engineer in the field, prior to conducting any work in the vicinity of the tree(s) to be preserved. The contractor will inform all workers, subcontractors and utility company workers of the necessity to avoid any damage to the trunk, branches and root system of any such tree(s).

Install according to the 'Tree Trunk Bumper Detail' or an approved equivalent device at the direction of the Engineer in the field. The tree trunk bumper will be maintained in satisfactory condition throughout the contract and will not be removed for any reason without written approval of the Engineer until such time all work has been completed.

**Method of Measurement and Basis of Payment:** The tree trunk bumper will be paid for at the contract unit price each for the actual number installed in place and accepted.

Such payment will be full compensation for the work described above, including but not limited to furnishing, installing, maintaining and removing the tree trunk bumper.

*Payment will be made under:*

**Tree Trunk Bumper.....EA**