

**National Park Service, National Capital Region
Guidelines for Tree Preservation**

All trees shall be protected with a complete enclosure of an NPS approved protective fencing that encompasses the entire Root Protection Area. The Root Protection Area is defined as an area equal to a radius of 1.5 feet for each inch of trunk diameter measured 4.5 feet above the ground (ie: Diameter at Breast Height, dbh). Therefore, a 10 inch dbh tree will have a Root Protection Area equal to 15 feet from the main trunk in all directions.

The defined Limits of Disturbance shall be outside the Root Protection Area. Limited activity may take place within the Root Protection Area with the expressed permission of the National Park Service in areas determined to be safe from damage. When the NPS approves work within the Root Protection Area, the following conditions shall be met:

1. Work shall be confined to the smallest possible area and accomplished as quickly as possible. The work area and time frames for commencing and completing work shall be approved by the NPS before any construction activities begin.
2. No excavations can be conducted in the Root Protection Area without first root pruning the affected area(s). Areas to be root pruned, time frames, equipment to be used to perform root pruning shall be approved by the NPS. Excavations that will leave roots exposed for more than 24 hours may require additional mitigation to prevent erosion and root desiccation.
3. The area not involved with the principle work shall be fenced and/or barricaded as directed by the NPS.
4. At the completion of this work the entire Root Protection Area shall be secured with a complete enclosure of protective fencing.
5. All trees surrounding the site will be monitored during construction for health and stress by NPS Certified Arborists who possess technical competence through experience and related training to provide for the care of the trees impacted by construction activities. If so determined by the NPS, the implementation and execution of additional mitigation in accordance with accepted arboricultural industry standards shall be performed. Mitigation may include but is not limited to pruning, cabling/bracing, fertilization, treatment with endo and ecto mycorrhizal fungi and root bio-stimulants, aeration and mulching of the root zones to assist trees in overcoming stress due to construction impacts.

The contractor will be held responsible for ensuring that all work including, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with construction is confined to the defined Limit of Disturbance. Unauthorized trespasses into the Root Protection and/or

cutting or damage to trees will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers and the Mid-Atlantic Tree Species Rating Guide developed by the Mid-Atlantic Chapter of International Society of Arboriculture. The 2000 value is \$42.50 per cross sectional square inch putting a base value for a 32" "specimen" elm at \$34,600.

The following is how these guidelines have been translated into a specification under **SCOPE**.

WORK AREA:

Contractor shall confine his work, the storage of materials and equipment, the parking of vehicles, and all other operations in connection with this contract to the specified work areas approved by the COR. The Contractor shall not permit heavy equipment or vehicles or the stock piling of heavy materials off hard surface roads without the expressed permission of the COR. Limited activity may take place within the root protection area with the expressed permission of the COR in areas determined to be safe from excessive damage. The root protection area is defined as an area equal to a radius of 1.5 feet for each inch of diameter at breast height (dbh) (ie: a 10 inch dbh tree will have a root protection area equal to 15 feet from the main trunk in all directions). All damage resulting from such operations shall be repaired to its original condition or to the satisfaction of the COR at no additional cost to the Government.

RESPONSIBILITY REGARDING PLANT MATERIALS

The contractor shall preserve and protect all existing trees, and shrubs, and grass areas on or adjacent to the work area which do not reasonably interfere with work. The contractor shall be responsible for all unauthorized cutting or damage to trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass and other surfaced areas by equipment. Unauthorized trespasses into the Root Protection and/or cutting or damage to trees will be subject to liquidated damages in accordance with the *Guide for Plant Appraisal* (9th edition, 2000) authored by the Council of Tree and Landscape Appraisers and the Mid-Atlantic Tree Species Rating Guide developed by the Mid-Atlantic Chapter of International Society of Arboriculture. The 2001 value is \$42.50 per cross sectional square inch putting a base value for a 32" "specimen" elm at \$34,600.

The following is how these guidelines have translated into a specification under **EXECUTION**.

TREE PROTECTION FENCING

- A. The work to be performed under this section consists of the installation of fencing and/or hardwood mulch to protect trees from construction and/or visitor use activities.

- B. Unless indicated otherwise by the COR, the area to be protected shall be an area equal to a radius of 1.5 feet for each inch of diameter at breast height (dbh). Therefore, a 10-inch dbh tree would require protection 15 feet from the trunk in all directions.

3.10.2 Materials

- A. Stakes: Shall be 2" steel U channel posts a minimum of 5 1/2 ft. in length or 2 x 2 " hardwood stakes 6' in length.
- B. Fencing: Shall be 4-foot high wooden slat fencing
- C. Wire: Shall be 12 gauge-annealed zinc coated wire
- D. Mulch: Shall be shredded hardwood mulch derived from recycled wood products and yard waste, aged, dark brown to black in color, have a particle size not to exceed 1/2 x 6 inches, be neutral pH, and free of sticks, stones, clay or any other matter injurious to plant growth.

3.10.3 Execution

- A. Installation of Fence: A complete circular enclosure of fencing shall be erected around the defined root protection area. Steel posts shall be driven along the perimeter of the area 10-ft. on-center a minimum of 18" into the ground. Secure fencing to the fencing stakes with wire threaded around the stake and slat at the lowest and highest wires of the fencing and pulled beyond the fencing stake at least 1 foot. Both ends of the wire shall be wrapped around the stake twice and twisted back on itself with excess wire cut off.
- B. Spreading Mulch: If so directed mulch shall be placed to a loose measurement of 3 inches (16 cubic yards per 1000 square feet) to uniformly cover the entire protection area. No mulch shall be applied within 2 ft. of the trunk.
- C. Removal of Fencing and Mulch: When work has progressed to the point that these areas are no longer in need of protection as determined by the COR all fencing, stakes, wire, and mulch shall be removed and disposed of off site at the expense of the contractor.