

GENERAL

The work under this Item shall conform to the relevant provisions of Sections 644 and 771 of the MassDOT Standard Specifications and the following:

Work under this item consists of furnishing, installing, removing and resetting, and maintaining fence in a vertical and effective position at all times, and final removal of temporary fence.

The purpose of the fence is to prevent damage to tree roots, tree trunks, soil, and all other vegetation within a delineated Tree and Plant Protection Zone (TPPZ) as shown on the Plans, as required by the Engineer, and as described herein.

Protection shall be for the duration of the construction activities unless otherwise directed.

MATERIALS

Temporary Fence shall be such that it provides a minimum 48-inch-tall barrier that remains vertical and effective (not sagging) for the duration of period required. Fence shall be orange plastic safety fence (recommended where high visibility is necessary), wooden snow fencing, or other approved material.

Per the Engineer, additional posts, deeper post depths, and/or additional attachments will be used if the fabric or fence sags, leans or otherwise shows signs of failing to create a sufficient barrier to access.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

ESTABLISHMENT OF TPPZ

Fencing shall be used for construction areas, staging areas, and stockpile areas as shown on the Plans and as directed by the Engineer to establish the Tree and Plant Protection Zone (TPPZ).

Fence shall be located as close to the work zone limit and as far from the trunk as possible to maximize the area to be protected. Fence shall run parallel and adjacent to construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

When construction activities surround (or have the potential to surround) trees or plants to be protected, a circular enclosure shall be used. In these instances, the TPPZ limit

shall be the Drip Line of each tree or as close as possible to the Drip Line, and as shown on the Plans and details. The Drip Line is defined as the limit of tree canopy.

The Contractor shall not engage in any construction activity within the TPPZ without the approval of the Engineer, including operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets; and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks.

METHOD OF WORK

Fence shall be installed prior to any construction work or staging activities and shall be installed and maintained in a vertical and effective position at all times.

Fence shall be repositioned where and as necessary for optimum effectiveness. Repositioning shall be incidental to this item. Fence shall not be moved without prior approval by the Engineer.

The TPPZ shall be protected at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil with construction materials, debris, silt, fuels, oils, and any chemical substances.

After construction activities are completed, or when directed by the Engineer, fence, stakes, and other materials shall be removed and disposed off-site by the Contractor.

REQUIRED WORK WITHIN THE TPPZ

In the event that grading, trenching, utility work, or storage is unavoidable within the TPPZ, the Engineer shall be notified. Measures may be required for tree protection and preservation, including hand excavation, the use of six-inch depth of wood chips or approved matting for root protection, pruning of branches, and/or trunk protection. These protection measures will be paid under applicable items.

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where hand work is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

TREE AND PLANT DAMAGES OR LOSS

If the TPPZ is intruded upon, at the discretion of the Engineer, the Contractor will be required to provide a more durable barrier (e.g., Jersey Barriers) to secure the area. Cost of furnishing and installing additional or more durable barrier shall be borne by the Contractor.

If the Contractor intrudes into a TPPZ without approval, soil will be considered compacted and tree root damage will be assumed. Action will be taken as specified below.

In the event that trees designated for protection under this item are damaged, including root damage from unapproved trespassing onto the root zone, the Contractor shall, at his own expense obtain an Arborist. The Arborist shall be approved by the Engineer.

In the event of spills, compaction or damage, the Contractor shall take corrective action immediately using methods approved by the Engineer in coordination with the Arborist.

If, based on the recommendations of the Arborist, the Engineer determines that damages can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering, the damage will be repaired as soon as possible within the appropriate season for such work and according to industry standards.

If the Engineer determines that damages are irreparable, the Contractor shall pay for the damages in the amount of \$500.00 per diameter inch at breast height (DBH) per tree.

Additionally, if the Engineer determines that the damages are such that the tree is sufficiently compromised as to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood parts, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil.

Shrubs shall be replaced at the Contractor's expense with a plant of similar species and equal size or the largest size plants reasonably available. The Engineer will approve the size and quality of the replacement plant. Replacement shall include a minimum of one year of watering and care.

METHOD OF MEASUREMENT

Tree and Plant Protection Fence will be measured for payment by the linear foot of fence, complete in place.

BASIS OF PAYMENT

Tree and Plant Protection Fence will be paid for at the contract unit price per linear foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

Payment of 40 percent of value will be made upon installation of fence. The remaining 60 percent will be made when protection materials have been removed and disposed off-site.

No separate payment will be made for maintenance, costs of remedial actions, including addition of more durable barriers, final removal and disposal of the protective materials, or arborist services, but all costs in connection therewith shall be included in the Contract unit price bid.

In the event of irreparable damage to trees due to lack of proper protective measures being taken there will be no compensation in addition to the \$500.00 per diameter inch penalty.