

## **CONSTRUCTION DETAILS**

### **SECTION 100**

### **EARTHWORK, GRADING, DEMOLITION, RODENT CONTROL AND BORINGS**

### **SECTION 101**

### **CLEARING AND GRUBBING**

#### **DESCRIPTION**

#### **101.20 General.**

This work shall consist of clearing, grubbing, cutting, removal and disposal of all vegetation and debris from areas either within or outside of the Right-of-Way as shown on the plans or designated by the Engineer. The work shall also include the preservation from injury or defacement of all vegetation and objects designated by the Engineer to remain.

#### **CONSTRUCTION METHODS**

#### **101.60 General.**

The burning of trees, brush, stumps, etc., will not be permitted. The Contractor shall provide other satisfactory methods of disposal without additional compensation.

The Contractor shall obtain written permission of the Engineer for use of storage areas within the Right-of-Way requiring clearing and grubbing or selective clearing and thinning. Any clearing for the Contractor's convenience shall be done at his/her own expense. All such areas shall be restored to a condition acceptable to the Engineer including necessary mulching, seeding, and planting without additional compensation.

The Engineer shall be provided with notarized copies of agreements between the Contractor and owners of land used as disposal or storage areas.

When fencing is installed outside normal clearing areas, every reasonable effort shall be made to preserve trees or shrubs whose removal is not essential to the installation of the fencing.

Acceptable material obtained on the project may be used to produce wood chip mulch. The Contractor shall use an approved chipper and 6 millimeter knife setting as described under Subsection M6.04.3, Wood Chip Mulch. Material obtained from Elm trees shall not be accepted for use.

Wood chips produced on the project from clearing and grubbing shall be stockpiled within the location and used where and as directed.

Except for materials used for making wood chip mulch, the Contractor shall make all arrangements and negotiations necessary for the satisfactory disposal of trees, shrubs, stumps, roots, dead wood and other litter, in areas outside the Right-of-Way and in such manner that no condition or accumulation of material shall be permitted to disfigure or mar the finished landscape.

#### **101.61 Clearing and Grubbing.**

The stumps of all trees, brush and major roots shall be grubbed and removed in all excavation areas and under all embankments where the original ground level is within 1 meter of the subgrade or slope of embankments.

All trees, stumps, and brush shall be cut off within 150 millimeters of the ground in embankment areas where the original ground level is more than 1 meter below the subgrade or slope of embankments.

Trees and shrubs that are specifically designated by the Engineer not to be cut, removed, destroyed or trimmed shall be saved from harm and injury.

All damage done to trees by the Contractor's operation and all branches of trees extending within the roadway shall be trimmed and painted where cut as directed to provide a 6 meter minimum vertical clearance including selective trimming of such trees as directed.

#### **101.62 Selective Clearing and Thinning.**

##### **A. General.**

The work under this item shall consist of the removal of hazardous growth and dead, dying or diseased plant material; the removal of groups and individual plants which interfere with the growth of more desirable types of trees and the clearing away of lesser growth that may obscure outstanding trees, tree groups, or scenic views. Any part of tree trunks or base of plant material located on the Location Lines shall be considered within the State Highway Limits.

Densely wooded areas shall be thinned to provide space for healthy growth by eliminating thinner, weaker trees and the reduction of number of varieties.

The Contractor's attention is called to the requirements for work under this item. The desired appearance to be attained in certain areas of heavy growth may require three or more operations. First, the obvious dead, dying and diseased trees and undergrowth shall be cut and cleared out of the area. This work includes removal of any previously fallen trees, branches, uprooted stumps and other debris as directed. Next, the area is to be thinned out, as directed, by removing the less desirable trees and brush which interfere with the growth of the better plant material. Finally, clear out lesser growth which may obscure outstanding trees, tree groups or scenic views.

Tree up-branching and shaping under this item will be restricted to trees which have limbs and branches restricting sight distance, extending over roadways, shoulders, turn outs, etc. Up-branching or trimming will be required to produce a 6 meter minimum vertical clearance over all locations described hereinbefore, and the removal of limbs and branches involved in this operation shall be accomplished as outlined hereafter.

##### **B. Prosecution of Work.**

(Supplementing Subsection 8.03.) Quality of work must conform with accepted tree trimming practices.

All trimming and pruning shall conform to recognized tree surgery practices, and particular note should be made that painting with an approved tree dressing or paint will be required on all cuts 50 millimeters or over in diameter.

The dressing or paint shall be applied no later than two days after the cuts are made.

Recognized tree surgery practices include among many others, the fact that all limbs and branches which require removal and all stubs regardless of age must be cut flush either to a union with the next larger sound limb or branch or flush to the trunk of the tree.

The cutting shall be performed by experienced woodsmen. Trained tree climbers are required for pruning of tall growth. Care shall be exercised by the Contractor to prevent injury to trees and shrubs designed to be preserved. Any injury to limbs, bark or roots of such plants shall be repaired by the Contractor, as directed, or the plants replaced without additional compensation for such repair or replacement.

##### **C. Cutting and Treatment of Stumps and Stubble.**

Standing trees, undesirable brush and existing stumps to be removed shall be cut flush with the ground and a 50 millimeter tolerance permitted and the resulting stumps or stubble then brushed or sprayed with a chemical spray material conforming to the requirements of Subsection M9.02.0 of Division III, Materials.

Application shall be by brush or spray so as to give complete coverage and wetting to the point of runoff.

This application shall be completed within two days after the cutting.

As the specified chemical herbicide is harmful to desirable roadside growth, the Contractor shall apply the chemical in such a manner that damage will not occur either from the direct spray or from drift of the chemical to any

desirable growth.

The Contractor shall use all necessary precautions to prevent injury to crops or damage to other desirable growth on private abutting property, as well as to those within the Right-of-Way, and shall assume full responsibility for any damage.

**D. Disposal of Cuttings.**

The Contractor may dispose of cut material by processing into a wood chip mulch as described in Subsection M6.04.3 and spreading uniformly throughout the cleared and thinned areas as directed by the Engineer.

**101.63 Disposal of Trees.**

All trees to be cleared shall become the property of the Contractor, and the satisfactory disposal of the wood in such trees outside the Right-of-Way shall become his/her responsibility.

The trees, including cuttings and slash, shall be disposed of after cutting as soon as practicable and in such a manner as not to detract from the appearance of the roadside.

If the existing ground in the area is disturbed by any of the work or equipment, the Contractor shall rough-grade and loam and seed if necessary the disturbed areas, if so directed, without additional compensation.

**101.64 Disposal of Stumps and Brush.**

After removal, all stumps including the major root system shall be disposed by the Contractor at his/her own responsibility outside the layout where the material will not cause obstruction to streams and will not detract from the appearance of the roadside.

**101.65 Disposal of Dutch Elm Diseased Wood.**

Dutch Elm diseased wood shall be disposed of in accordance with the provisions of General Law, Chapter 87, Section 5 and Chapter 132, Sections 8 and 11, as amended, and in accordance with any additional local regulations.

Where the work includes the removal of elm trees or the limbs of elm trees, such trees or limbs thereof shall be disposed of immediately after cutting or removal and in such a manner as to prevent the spread of Dutch Elm disease. This shall be accomplished by covering them with earth to a depth of at least 150 millimeters in areas outside the highway location where the Contractor has arranged for disposal.

Where the work includes the removal and disposal of stumps of elm trees, such stumps shall be completely disposed of immediately after cutting in the manner specified above.

**COMPENSATION**

**101.80 Method of Measurement.**

Clearing and grubbing shall be measured by the horizontal plane area and will be the number of hectares within the limiting stations of the project and/or as designated by the Engineer and the outside limits of measurement shall extend to a point 1.5 meters beyond the top or bottoms of slopes, excluding existing roadway and shoulder surfaces, streams or bodies of water.

Areas outside of the limits specified above, when cleared and grubbed in connection with the construction of fences shall be computed on the basis of a three meter width multiplied by the total length of fencing installed, and when done in connection with excavating ditches or trenches the width shall be limited to 1.5 meters beyond the outer edges of the excavation.

Measurement of selective clearing and thinning will be based on the actual number of hectares which receive the required attention. Approximate locations will be shown on the plans or detail sheets and as designated in the field by the Engineer.

Only such trees as have a shortest diameter of at least 250 millimeters and less than 600 millimeters shall be included in the item of Trees Removed (Diameter Under 600 Millimeters). Only such trees as have a shortest diameter of

600 millimeters or more shall be included in the item of Trees Removed (Diameter 600 Millimeters and Over).

The item of Stumps Removed shall include the removal and satisfactory disposal of all tree stumps which remain in their original position and measure 250 millimeters or more in shortest diameter at the cutoff point, where the trees have been previously removed by others. A stump shall not be construed as a tree under these specifications unless the trunk extends over 2 meters above the average ground.

Trees or stumps to be removed which have the shortest diameter specified for payment will be measured in place by the following procedure:

Where the tree consists of a single trunk extending more than a 1 meter vertical height above the average natural ground line, the shortest diameter shall be measured at the 1 meter level above the average elevation of the original ground.

Any tree whose main trunk separates into multiple trunks or which has limbs or branches growing out from the main trunk below the 1 meter level defined hereinbefore shall have its shortest diameter measured at the lowest point on the main trunk where multiple growth or branching out begins.

The shortest diameter of a stump shall be measured at the cutoff except that where multiple growth begins below cutoff, the shortest diameter shall be measured at the main trunk where multiple growth begins.

Measurement for payment under the respective items shall be such that any individual growth to be classed as a tree stump shall be measured in a manner to limit payment to one single tree or stump at each particular location of the individual growth. When multiple trunks with a common root system are separated at ground level each separate trunk shall be considered as an individual growth under these specifications.

The quantity of trees or stumps to be paid for will be the number actually removed by the Contractor in the completed and accepted work as determined by count.

Wood chip mulch produced from Clearing and Grubbing will be measured by the cubic meter (truck load measure) at time of spreading.

#### **101.81 Basis of Payment.**

Clearing and Grubbing and Selective Clearing and Thinning will be paid for at the contract unit price per hectare.

When Clearing and Grubbing is not included in the Proposal as a payment item, payment for any such work will be included in the items of Earth Excavation or Borrow except as herein provided for the removal of trees and stumps.

The removal of trees, including the stumps thereof and required spray material will be paid for at the contract unit price each for the particular kind of work involved, as defined hereinbefore when a quantity is given in the Proposal under their respective items, otherwise this work will be paid for at the contract unit price for excavation or at the contract unit price per hectare of Clearing and Grubbing or Selected Clearing and Thinning, whichever is applicable. The contract unit price shall include the cost of all arrangements and methods required to protect from harm all existing overhead or underground installations. The contract unit price for the respective items shall not include any trees or stumps removed from the area paid for under the item of Clearing and Grubbing or Selected Clearing and Thinning.

No payment shall be allowed for preparation and spreading of wood chip mulch used from areas included under Selective Clearing and Thinning. Wood chip mulch directed to be produced from Clearing and Grubbing shall be paid for complete in place at the contract unit price.

Only such trees or stumps as have a shortest diameter of 250 millimeters and over, measured as stipulated in Subsection 101.80 shall be included for payment.

#### **101.82 Payment Items.**

|      |  |         |
|------|--|---------|
| 101. | Clearing and Grubbing                            | Hectare |
| 102. | Selective Clearing and Thinning                  | Hectare |
| 103. | Tree Removed (Diameter Under 600 Millimeters)    | Each    |
| 104. | Tree Removed (Diameter 600 Millimeters and Over) | Each    |
| 105. | Stump Removed                                    | Each    |

767.4 Wood Chip Mulch

Cubic Meter

**SECTION 112**  
**DEMOLITION OF BUILDINGS, STRUCTURES AND BRIDGES**  
**DESCRIPTION**

**112.20 General.**

The work to be done consists of demolishing completely such buildings and structures as are listed in the Proposal.

Said demolishing of the buildings shall be done on the site. Buildings as such shall not be removed intact from the site by the Contractor nor shall they be sold to others for such removal.

“Buildings” or “Structures” shall be considered interchangeable terms within the scope of these Specifications.

The Contractor shall not proceed with the demolition of any building or structure unless and until he/she receives written approval.

Structures which must be removed and which are not listed in the Proposal will be removed by others at the direction of the Department. The Contractor’s attention is directed to the relevant provisions of Subsections 8.04, 8.08 and 9.05 wherein it is stipulated that he shall have no claim for damages for any delay in the prosecution of the work under any of these items, or for the omission of any one or more of the items scheduled in the Proposal.

The Department may withdraw from the Contract any or all of the structures which are scheduled for demolishing and for which items are included in the Proposal, and the Contractor shall, in this case, have no redress against the Department for any loss in anticipated profits. The Contractor’s attention is further directed to the probability that delay may be encountered in the prosecution of demolition or removal work and that as stipulated in said Subsections 8.04 and 8.05 he shall have no claim for damages for any delay in the prosecution of work hereunder, except as provided.

The Contractor shall be solely responsible for making all necessary arrangements and for performing any necessary work to the satisfaction of the Utility Companies and Municipal Departments involved in connection with the discontinuance or interruption of all public utilities or services, such as gas, water, sewer, electricity, and telephone, which will be affected by the work to be done under the Removal items specified in the Proposal.

**CONSTRUCTION METHODS**

**112.60 Demolition of Buildings and Structures.**

Each item for demolition includes the demolition of the building or buildings as identified, and described under the particular item listed in the Proposal, and the satisfactory disposal of the buildings and all contents therein. Basements shall be completely cleaned of all unsuitable materials and debris, all partition walls, and supports for the appurtenances to the buildings.

The foundation walls of the structures shall be broken down to a depth of not less than 300 millimeters below the existing ground level.

Cellar floors shall be broken into pieces having an area not more than 0.25 square meter with well defined cracks through the full depth of the floor.

Holes having an area of not less than 0.1 square meter shall be made through the floor at intervals of not more than 3 meters lengthwise and crosswise, to provide vertical drainage.

Buildings without basements or cellars having concrete or masonry floors or slabs at ground level, when demolished, shall be removed to the ground floor grade. The floor or slab shall be removed and the area graded as directed.

All fences, debris, etc., on the parcel on which the building that is demolished is located shall be removed and the parcel left in a reasonably neat and safe condition.

In case the building to be removed is served by a septic tank or cesspool, or underground fuel tanks, such