

Section 12: Technical Specifications

12.01 Description

The work shall consist of the pruning and removal of trees and stump removals on a routine basis and emergency tree work services.

A list of routine tree pruning, removals and stump removals will be provided to the contractor in blocks of a minimum of one work-days work. This work will be paid on a per tree unit basis based on tree diameter at breast height (4 ½ feet above grade). The contractor will have 30 calendar days to complete this work.

The contractor shall be required to respond within four (4) hours for emergency tree work services. This work will be paid at an hourly rate. The contractor will be paid a minimum of four (4) hours for responding to emergency requests.

Prevailing wage rates will be required to be paid for routine tree and stump removal services and emergency tree work services, however, are not required for tree pruning services.

12.02 General

A. Damages

The contractor is responsible for all damages that may result directly or indirectly from tree pruning, removal, and stump removal or emergency tree work service activities.

B. Maintenance & Protection of Traffic

Maintenance and protection of traffic shall be in compliance with the NYSDOT Standard Specification S619. The contractor shall be responsible to protect the public from damages to person or property that may result directly or indirectly from work activities. Control devices and work zone layout shall comply with the NYS Manual of Uniform Traffic Control Devices.

Street closings must be pre-approved by the Director of Engineering and Public Works or authorized representative. Cones, barricades or signage shall delineate the perimeter of the work zone. If a sidewalk or street must be closed, sidewalk and/or street closed signs shall be placed at both of the intersections of the nearest cross street. Two-way vehicular and pedestrian traffic must be maintained at all times. No work is permitted within posted School Zones during arrival and departure times.

C. Disposal of Debris

The contractor shall be responsible for the removal and disposal of all debris create by work activities

All wood, limbs and brush shall be removed and the area cleaned up daily. Brush will not be allowed to accumulate such that it creates a hazard.

D. Site Restoration

1. Lawn damage caused by tree pruning and removal activities, and stump removals shall be restored with specified materials and as specified or to the satisfaction of the Director of Public Works and Engineering or designated representative.

E. Penalties for Non-performance

1. Contract Specifications

Contractors may be fined \$100 per infraction of failing to meet a contract specification as determined by the Director of Public Works and Engineering or designated representative. Fines will be deducted from the contractor's payment for services.

2. Tree Loss

If as a result of the contractors actions, a tree is considered a loss as determined by the Director of Public Works and Engineering, the contractor may be liable for the value of the tree as determined by the most current version of the Council of Tree and Landscape Appraiser's methodology.

12.03 Tree & Stump Removal Specifications

Standard

Tree and stump removal work shall be completed by qualified personnel in accordance all Federal, State and local regulations, the most current edition of the American National Standards Institute's ANSI Z133.1; Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush – Safety Requirements and the following specifications.

Specifications

A. Tree Removal

1. Trees or limbs being removed that are large enough to cause hardscape or structural damage on impact shall be lowered using roping and rigging techniques. The tree stump shall be flush cut as close as possible with the existing tree lawn grade.

2. Site Restoration

The area shall be raked clean of all debris. All lawn damage created as a result of the tree removal operation shall be restored with topsoil and grass seed.

B. Stump Removal

1. Underground Utility Locate

The contractor is required to have an underground utility locate prior to removing the stump by calling the Underground Facilities Protection Organization (UFPO) at 1-800-962-7962.

2. Maintenance & Protection of Traffic

Skirts on the stump grinder are required and barricades may be necessary to prevent debris being thrown from the work area.

3. Stump Removal

Stumps shall be ground to a minimum depth of twelve (12) inches below normal grade level (See Figure 1) or to a six (6) inch depth within two (2) feet of an identified underground utility. All adjoining surface roots shall be ground to a depth of twelve (12) inches or chopped out with an axe. All grindings shall be placed back in the stump hole if the site restoration is not completed at the same time as the grinding. Adjacent to a sidewalk, roots shall be removed to the edge of the sidewalk without damaging the sidewalk.

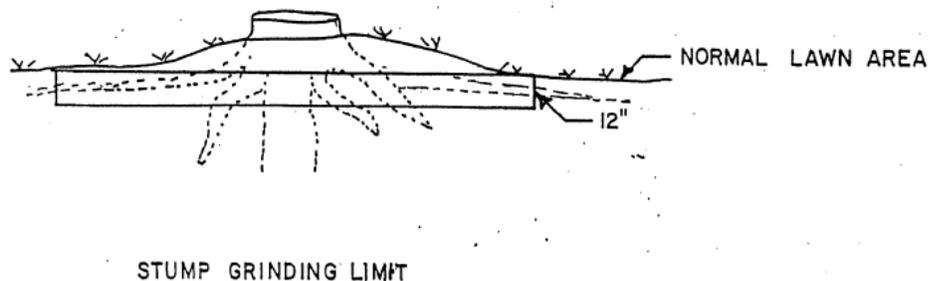


Figure 1

4. Site Restoration

All stump grindings shall be removed from the stump hole and the site raked of all debris. The area shall be graded such that the entire area is level with the normal tree lawn area (See Figure 1). Irregularities that form low places that will hold water or high places such as created by root crowns shall be eliminated and graded level. Areas requiring topsoil shall be completely tamped using mechanical or hand tamper.

12.03 TREE PRUNING SPECIFICATION

Standard

Tree pruning shall be completed by qualified tree workers and at a minimum supervised by ISA Certified Arborists, and qualified in accordance with current Federal, State and Local laws. The work shall be completed in accordance with the most current editions of the American National Standards Institute's ANSI A300 "Tree, Shrub and Other Woody Plant Maintenance – Standard Practices"; American National Standards Institute's ANSI Z133.1; Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush – Safety Requirements and the following specifications.

Specifications

1.0 General

- a. No more than 25% or one-fourth (1/4) of the live crown shall be removed unless limbs present a hazard.
- b. All cuts shall be made with sharp pruning tools as close as possible to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub.
- c. All branches too large to support by one hand shall be pre-cut to avoid splitting or ripping of the bark. When necessary, ropes or other equipment shall be used to lower large branches or stubs to the ground.
- d. The use of climbing spurs or hooks is prohibited.
- e. Drop crotch pruning should be avoided. Removing the entire limb is preferable. Where drop crotching may be considered, the whole limb or leader shall be removed to the parent leader or limb, unless the ratio of the live wood to leaf area of the limb or leader is sufficient to support that limb or leader. If more than 1/4 leaf surface

area of the limb or leader needs to be removed, remove the whole limb.

- f. When removing a parent leader or limb to a lateral (drop crotching), the lateral shall be at least one-third (1/3) the diameter of the parent leader or limb being removed.
- g. **Priorities for pruning.** The following priorities shall be followed to assist in the decision process for limb removal:
 - Crown Cleaning
 - Crown Raising
 - Crown Restoration
 - Structural
- h. **Crown Raising.** Crown raising is specified in two diameter ranges. These are guidelines. Crown raising shall be completed to provide adequate clearance based on the site conditions and location of the tree. Limb removal decisions should be based on the goal of reaching clearance standards through whole limb removal and the health of the tree. Generally, lateral branches should not be removed below one- third the total height of the tree.
- i. **Private Trees**

Trees located on private property that have hazardous limbs that may fail into the right-of-way, are blocking traffic control devices or do not meet the clearance standards as detailed below shall be pruned to correct these problems. The safety prune specification shall be used in these cases and work completed shall be restricted to pruning the portions of the tree that present a risk to the Village right-of-way.

2.0 Safety Prune

- Objective The purpose of this pruning is to remove hazards, prune storm damage, provide adequate clearance from permanent structures and elevate for under canopy clearance.
- a. **Crown Cleaning - Hazardous limbs to be removed.**
 - Broken limbs lodged in the tree.
 - Broken hanging limbs in the tree.
 - Dead or split branches one (1) inch in diameter or greater.
 - Decaying branches with less than 33% sound wood one (1) inch or greater in diameter.
 - b. **Crown Restoration – Storm damaged branches to be removed.**

Broken lateral branches and leaders living or dead one (1) inch or greater in diameter.

Waterspouts – Where removing an entire lateral or leader with spouts may not be desirable, leave one to three sprouts. More vigorous sprouts should be thinned or headed to control length growth or ensure adequate attachment for the size of the sprout.

- c. Crown Raising – Clearances over the right-of-way, and from buildings, traffic control devices, signs and streetlights.

Trees six (6) to twelve (12) inches in diameter at breast height;

Limbs shall be removed to provide five (5) feet clearance over and from the side of permanent structures.

Limbs shall be removed from the lower one-third of the tree to provide under canopy clearance.

Trees thirteen (13) inches or greater in diameter at breast height;

Limbs shall be removed to provide ten (10) feet clearance over and from the side of permanent structures.

Limbs shall be removed to provide an overhead clearance of fifteen (15) feet over the street.

Limbs shall be removed to provide an overhead clearance of ten (10) feet over the sidewalk and under the canopy.

3.0 Crown Reduction Prune

Objective- Reduce the structural stresses on limbs or leaders with decay present or codominant stems with included bark by reducing the length or height of limbs or leaders.

- a. Where specified or if defects are revealed while pruning the tree, reduce the height or length of limbs or leaders by one-third using proper drop-crotch pruning techniques as specified above in section 1.0, e & f.
- b. Perform a safety prune as specified.

4.0 Train Prune

Objective - To promote a single leader, strong scaffold branch structure and suitable permanent branch selection for

clearance requirements at maturity on trees less than six (6) inches in diameter.

- a. Remove broken, dead, diseased or dying branches.
- b. Trunk Development – One Central Leader
Branches forming multiple leaders in a single leader type tree shall be removed. Leave the most dominant leader. If you cannot remove a leader make a proper thinning cut to reduce the height of the less dominant leader.
- c. Crown Raising
At least one half ($\frac{1}{2}$) the foliage should originate on branches in the lower $\frac{2}{3}$'s of the tree. Remove branches that are below the height of the tree that will maintain this proportion.
- d. Permanent Branches – Branches attached to the trunk that will remain on the tree throughout its lifetime.
The lowest branches should be selected on each side to the tree to meet clearance standards.
Permanent scaffold branches should be spaced 6-12 inches apart by thinning for the first 5 years then 18 inches apart. Branches directly above should be spaced 15-36 inches for small to medium sized trees and 60 inches for large trees
A permanent branch should be less than $\frac{1}{2}$ the diameter of the parent limb.
Remove branches to meet these desired spacing or if this will require removing too much leaf area, prune them as temporary branches.
- e. Temporary Branches – Branches that will be left at this pruning, but will eventually be pruned in later pruning
Head or thin these branches to suppress they're growth and allow the permanent branches to develop.

12.04 Materials

A. Top Soil

Topsoil shall be natural, fertile agricultural soil, capable of sustaining vigorous plant growth. It shall be of uniform composition throughout and without admixtures of subsoil. The topsoil shall be screened free of stones, lumps, plants, roots, sticks or other extraneous matter. The topsoil shall have a ph of 6.5 to 7.2, it shall have an organic content of not less than 2%, nor more than 20%, and the texture shall be sand/loam composition. In most situations, native soil may be used when available.

B. Grass Seed

a. General

Seed shall be of current crop year with a germination rate of no less than 85%, must be certified, and have a purity of no less than 95%. Certified seed tags shall be available for inspection on site.

b. Composition

Seed composition and types shall be in the following mixture: 60% Fine Fescue, 20% Perennial Ryegrass, 20% Kentucky Bluegrass Blend. Acceptable varieties of Fine Fescue include: Spartan, Bilgart, Aurora, Ensylva, Reliant, Shadow, JamestownII, SR3100, and SR5000. Acceptable varieties of Perennial Ryegrass include: Palmer II, Preludell, Repell II, Affinity, Manhattan II, and SR4200. Acceptable varieties of Kentucky Bluegrass Blend include: Midnight, Touchdown, Ram I, Adlphi, Rugby, Glade, Eclipse, Challenger, and Merit.

12.05 Basis of Payment

The unit price or hourly cost shall include all labor, materials and equipment necessary to complete the work as specified or to the satisfaction of the Director of Engineering and Public Works or designated representative.

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The contractor shall be required to respond within four (4) hours for emergency tree work services. This work will be paid at an hourly rate. The contractor will be paid a minimum of four (4) hours for responding to emergency requests.

Prevailing wage rates will be required to be paid for routine tree and stump removal services and emergency tree work services, however, are not required for tree pruning services.

A. Tree & Stump Removal

| Diameter (DBH) | Estimated # of Units | Unit Cost \$ | Total Cost \$ |
|----------------|----------------------|--------------|---------------|
| 1-6 | | | |
| 7-12 | | | |
| 13-18 | | | |
| 19-24 | | | |
| 25-30 | | | |

| | | | |
|-------|--|--|--|
| 31-36 | | | |
| 37-42 | | | |
| >42 | | | |

a. Stump Removal Only

| Diameter (DBH) | Estimated # of Units | Unit Cost \$ | Total Cost \$ |
|----------------|----------------------|--------------|---------------|
| 1-6 | | | |
| 7-12 | | | |
| 13-18 | | | |
| 19-24 | | | |
| 25-30 | | | |
| 31-36 | | | |
| 37-42 | | | |
| >42 | | | |

b. Tree Pruning

Train prune trees 1-6 inches in diameter. Safety prune trees 7 inches or larger.

| Diameter (DBH) | Estimated # of Units | Unit Cost \$ | Total Cost \$ |
|----------------|----------------------|--------------|---------------|
| 1-6 | | | |
| 7-12 | | | |
| 13-18 | | | |
| 19-24 | | | |
| 25-30 | | | |
| 31-36 | | | |
| 37-42 | | | |
| >42 | | | |

Crown Reduction and safety prune.

| Diameter (DBH) | Estimated # of Units | Unit Cost \$ | Total Cost \$ |
|----------------|----------------------|--------------|---------------|
| 25-30 | | | |
| 31-36 | | | |
| 37-42 | | | |
| >42 | | | |

c. Emergency Tree Work

| Unit | Hourly Rate | # of Units |
|------|-------------|------------|
|------|-------------|------------|

| | per Unit | Available |
|--|----------|-----------|
| One (1) aerial lift truck, one (1) brush chipper, two (2) qualified tree workers and equipment | | |
| One (1) boom loader truck and operator | | |