

ASWP 05 R0

Tree Removal



Revision History

Version	Revision Date	Brief Description of Revisions
R0	February 2016	Document has been updated to new format.

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Workplace Safety & Prevention Services wishes to express its appreciation to those who have assisted in the preparation of the **Arborist SafeWorkPractices** guide.

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1.0 Introduction

This document outlines the requirements for an arborist removing trees.

2.0 Hazards

The following hazards have been identified to aid in establishing and maintaining a safe work environment when arborist removing trees:

Biotic Conditions	Gravity
Chemical	Mechanical
Climatic Conditions	Pedestrian Traffic
Electrical Conditions	Vehicular Traffic
Ergonomics	

Note: The above list of hazards is not a complete list and a thorough job plan should be completed to identify existing hazards found at the work site.

3.0 Legislation / Safe Work Practices

The following information has been provided listing relevant arborist safe work practices and legislation requirements:

- ASWP01 General Legislation
- ASWP02 Work in a Safe Environment
- ASWP02 Protect Self and Others
- ASWP02 Arborist Job Planning
- ASWP12 Chain Saw Operation

Legislation	RRO / RSO	Section Referenced
Industrial	851 / 90	22, 23, 39, 42, 43, 45, 60, 73,79, 80, 81, 82, 84, 103,139
Construction	213 / 91	43, 52, 53, 54, 55, 67, 68, 69, 78, 79, 80, 81, 82, 83, 84, 93, 94, 95, 96, 112, 113, 183, 186

4.0 Mandatory Information / Work Practices

The following are the general mandatory requirements for an arborist removing trees. In addition to these requirements, the work practice contains specific requirements that must also be followed.

- All trees shall be inspected for hazards prior to cutting (Additional information found in ASWP03 Ascending Trees)
- All appropriate Personal Protective Equipment must be worn
- Escape Routes shall be cleared before felling operations
- All workers shall be notified that the "Back Cut" is being performed prior to starting the cut and all workers must confirm information has been received
- Workers shall stay outside of the Hazard Area with the exception of the saw operator and/or instructor/signal person
- Lodged trees shall not be left lodged
- Lodged trees shall not be climbed
- Work underneath or within striking distance of a lodged tree shall not be performed unless the work can be completed safely
- Other trees shall not be felled onto a lodged tree in an attempt to dislodge the tree
- When a tree is falling the worker should avoid turning their back to the falling tree
- Workers at the tree felling site shall be aware of all dangers
- Saw operator shall ensure there are no obstacles or hazards within the Hazard Area
- Notches should be used for all trees greater than 13 centimeters (5 inches) diameter at breast height (DBH)

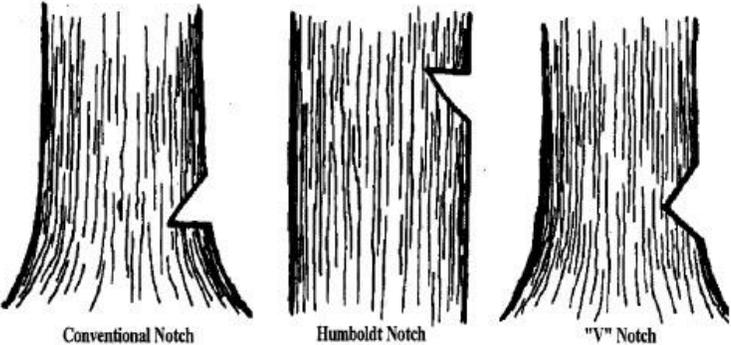
4.1 Site Inspection

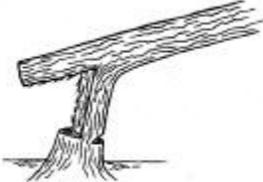
A thorough inspection of the work site should be completed identifying all hazards with a plan in place to perform tree removal (Refer to ASWP02 Job Planning for additional information).

Step	Action
<p>Inspect tree for hazards (Figure 1)</p> <p>Figure 1</p> 	<p>Inspect tree for hazards and obstacles, including but not limited to:</p> <ul style="list-style-type: none"> • Lean • Crown weight distribution • Insect damage • Foreign bodies in tree (staples, nails, wire, etc.) • Structural deficiencies such as decay, cavities, cracks splits, rot etc. • Overhead utilities • Broken tops or limbs
<p>Identify hazards within the Hazard Area</p>	<p>Inspect tree for hazards and obstacles, including but not limited to:</p> <ul style="list-style-type: none"> • Terrain • Dead trees / chicots • Overhead utilities

Step	Action
	<ul style="list-style-type: none"> • Pedestrian and vehicular traffic • Workers • Climatic conditions / wind, snow loading, etc. • Ground conditions / slope • Slips, trips and fall hazards
Set control measures	Barriers include but not limited to: <ul style="list-style-type: none"> • Maintaining appropriate Limits of Approach • Utilize traffic and pedestrian control measures • Removing dead trees / chicots • Lowering stumps • Ensure tools are inspected and maintained (refer to manufacturer's instructions)
Determine Escape Route	<ul style="list-style-type: none"> • Clear Escape Route of trip hazards etc.
Inspect tools and equipment to be used	<ul style="list-style-type: none"> • Ensure tools and equipment are free of defects and readily available (Refer to Manufacture's Instructions) • Ensure tools are sharp (Refer to Manufacture's Instructions)
Set rigging equipment if required	<ul style="list-style-type: none"> • Refer to ASWP03 Ascending Trees • Refer to ASWP06 Rigging Trees

4.2 Set Notch

Step	Action
Determine notch to use	Ensure an appropriate notch is used (Figure 2). <p style="text-align: center;">Figure 2</p> <div style="text-align: center;">  <p style="display: flex; justify-content: space-around; margin: 0;"> Conventional Notch Humboldt Notch "V" Notch </p> </div> <p>Consider:</p> <ul style="list-style-type: none"> • Lean of tree • Wind • Potential targets (e.g. fences, ornaments, etc.)

Step	Action
	<ul style="list-style-type: none"> • Condition of tree (e.g. decay, splits, cracks, foreign objects) • Size of tree • Length of chain saw bar
Secure tree to prevent Barber Chairing (Figure 3) Figure 3 	Consider options to prevent Barber Chairing: <ul style="list-style-type: none"> • Bind trees using chains / load binders • Use of a plunge cut • Use of alternate notch styles
Set notch	<ul style="list-style-type: none"> • Set notch in accordance with the type of notch used • Ensure notch direction is in the correct location • Inspect notch for rot or decay

4.3 Perform Back Cut

Step	Action
Determine location of Back Cut	<ul style="list-style-type: none"> • Back Cut locations should be in accordance with the notch location
Prepare to begin the Back Cut	<ul style="list-style-type: none"> • Communicate to workers that the “Back Cut” is going to be performed <p>Note: Ensure all workers understand that the Back Cut will occur prior to beginning the cut.</p> <ul style="list-style-type: none"> • Ensure all workers are clear of the Hazard Area
Perform Back Cut (Figure 4) Figure 4 	<ul style="list-style-type: none"> • Set notch in accordance with the type of notch used • Ensure notch direction is in the correct location • Inspect notch for rot or decay

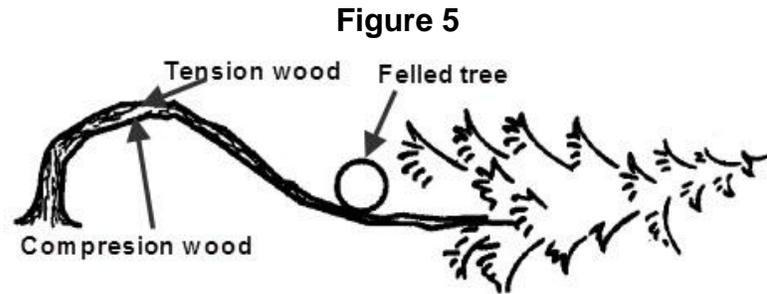
Step	Action
Monitor the tree as it falls	<ul style="list-style-type: none"> • Never turn your back to a falling tree • Watch for dead limbs and other objects falling from trees • Monitor the tree as it strikes the ground as the butt portion may move towards the saw operator • Ensure that the tree has completely settled before entering the Hazard Area • Ensure adjacent trees are secure before moving in to remove rigging or beginning bucking operations

4.4 Limbing Trees

Step	Action
Clear spring poles (refer to 4.4.1 Spring Poles)	
Determine pressure points on the limbs	<p>Note: Limbs bent over objects or angled severely will have explosive pressure associated with them and must be treated with caution.</p> <ul style="list-style-type: none"> • Determine tension and compression wood (Figure 5) before performing the cuts
Begin cut	<p>Note: Cut limbs slowly to help ensure a slow release of the tension.</p> <ul style="list-style-type: none"> • Ensure body parts are clear of limbs / trunk should the tree drop or roll after the limb is cut • Monitor the nose of the saw (kickback zone) which may be impeded by other limbs when removing limbs

4.4.1 Spring Poles

Spring poles (Figure 5) are small trees which are bent over from pressure of a felled tree, heavy snow weight, ice build-up, etc. Spring poles have explosive forces and should be removed carefully.



The following is an example for removing a spring pole.

Step	Action
Clear spring poles	<ul style="list-style-type: none"> Make several small cuts on the compression side to release the forces <p>Note: This should be completed slowly</p>

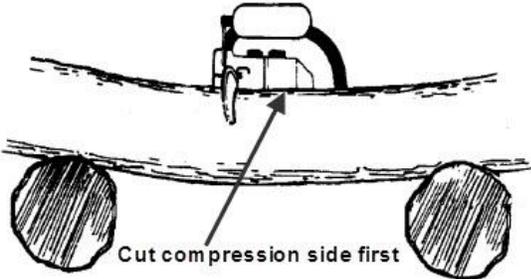
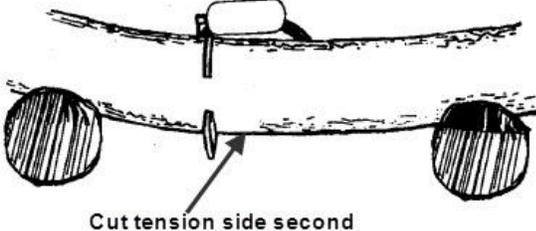
4.5 Lodged Tree Removal

The following are four examples for removing a lodged tree.

Step	Action
Cut tree from stump	<ul style="list-style-type: none"> Inspect lodged tree and supporting tree for broken limbs / hangers Sever lodged tree from stump <p>Note: Tree may roll free from stump once severed completely.</p>
Roll tree away from support tree	<ul style="list-style-type: none"> Inspect lodged tree and supporting tree for broken limbs / hangers Attempt to roll lodged tree off from support tree using either a cant hook or pull rope
Utilize a mechanical advantage to pull tree from lodged tree (e.g. trucks, crane, winch, etc.)	
Block lodged tree into smaller pieces	<ul style="list-style-type: none"> Inspect lodged tree and supporting tree for broken limbs / hangers Determine tension and compression wood before making cuts Cut small blocks from the base of the lodged tree

Note: Lodged trees may slip and move uncontrollably. Caution must be exercised to ensure that the worker does not stand in the fall direction.

4.6 Bucking-up Felled Trees

Step	Action
Determine the length required to cut the wood	<ul style="list-style-type: none"> Smaller blocks of wood are lighter and easier to carry
Determine pressure points	<ul style="list-style-type: none"> Cut compression side first (Figure 6) Figure 6  Cut tension side second (Figure 7) Figure 7  <p>Note: Trees bent over or weight applied to one end will create compression and tension on the log.</p> <p>Note: Tree logs may bind the saw when pressure is released.</p> <p>Note: logs under pressure can break suddenly and explosively. Cut log slowly to relieve pressure.</p>
Begin Cutting	<ul style="list-style-type: none"> Cut logs from the high side of the terrain (i.e. the log will roll away from the chain saw operator) <p>Note: Logs not under pressure may require two cuts, one from the top and then roll the log over to make a second cut.</p>