

## *Potential Hazard Review*

### Physical Hazards

- Flying object/struck by: Laceration, cut, puncture, foreign object in eye, abrasion
- Noise: Hearing loss
- Thermal stress: Hypothermia, heat-related illness
- Slips/fall: Bruise, contusion, sprain, strain, fracture from fall and impact
- Striking against: Laceration, puncture, abrasion
- Caught in/on/between; pinch points: Crush, amputation
- Electrical: Shock, burn, cardiac arrest, death

### Ergonomic Hazards

- Contact stress: Irritated nerves, constricted blood vessels, cumulative trauma disorder
- Awkward postures: Stress on joints and spine, cumulative trauma disorder
- Forceful exertions: Back strain, cumulative trauma disorder, physical stress
- Repetition: Pain, impairment of bodily capacity, cumulative trauma disorder
- Vibration: Swelling, inflammation

### Biological Hazards

- Plant and insect poisons: Dermatitis, allergic reaction, poisoning

## *Related Safe Work Practices*

- Aerial Lifts
- Chainsaws
- Chippers and Grinders
- Electrical Safety
- Fall Protection
- Fuel Safety
- Injury and Illness Prevention
- Lifting, Body Mechanics and Ergonomics
- Lockout and Tagout
- Machine Operation
- Traffic Safety

## *Personal Protective Equipment*

- Eye Protection
- Head Protection

- Hearing Protective Device
- Heavy duty gloves
- Leg Protection
- Safety boots
- Safety saddle/belt

*Authority*

CCR Title 8 Section 3420-3427

Prepared by:	Treetopper SWP Group
Approval by:	J. Bramlett, EHS Program Manager K. Gee, Director of Human Resources B. Palacio, Superintendent of Recreation and Community Services E. Andersen, Superintendent of Parks and Open Spaces W. Tarbox, Superintendent of Structural Maintenance K. Petrucione, Director of Administration and Finance D. Kern, Director of Operations P. Ginsburg, General Manager
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This Safe Work Practice (SWP) has been organized as follows:

1. General
2. Specific Tasks
  - a. Climbing and Access
  - b. Pruning, Trimming, and Tree Removal and Felling
  - c. Bucking

This SWP is dedicated to helping you avoid an injury or illness from known hazards. You are advised to follow these recommendations, read and follow this SWP and any related SWPs, complete any required or recommended training, and to obtain advice from a Qualified Tree Worker if you have any questions.

A Qualified Tree Worker is an employee who, through related training and on-the-job experience, has demonstrated familiarity with the techniques and hazards of tree maintenance, removal, and the equipment used in the specific operations involved.

A Qualified Person is a person **designated** by the employer; and by reason of **training**, experience, or instruction who has demonstrated the ability to perform safely all assigned duties; and, when required is properly licensed in accordance with federal, state, or local laws and regulations.

All tasks require that you:

- Use the equipment in accordance with the guidelines set forth by the manufacturer. This includes following all signs and labels, and reviewing any manufacturer's operating manuals.

- If the instructions provided in the operating manual conflict with this SWP, then follow the instructions in the manual. The manufacturer's instructions prevail over this SWP.
- Review the safety data sheets (SDSs) for each chemical.
- Be trained on this SWP and those listed above as related. Training on SWPs must be completed before initial assignment. It is also recommended that you complete refresher training every two years.

Tree operations, under the direction of the Arborist Technician classification should also comply with ANSI Z133-2012 Safety Requirements for Arboricultural Operations which include additional related operations.

## General

1. As per the Operations Policy Memorandum – *3417 Job Description and Task policy and procedure* Tree Work can be conducted by RPD employees as follows:
  - a. Gardeners (3417s) can do the following tasks:
    - i. Brush Clearing (see *Brush Removal* SWP). Gardeners perform all manner of brush clearing in a park landscape, including the removal of large shrubs and small trees. Although it is difficult to give specific size specifications among species for what would constitute a small tree, generally it will constitute a tree that is no taller than 15 feet high and has a trunk diameter no greater than 5 inches at breast height.
    - ii. Log Bucking. Gardeners can remove felled trees, once on the ground. This includes branch and limb removal and the bucking of the trunk and other larger pieces of the felled tree. This also applies to tree and limb failures that have fallen to the ground.
    - iii. Pollarding (see *Pollarding* SWP).
    - iv. Understory Lifting. Similar to brush clearing, Gardeners prune, lift, and otherwise trim low branches from trees for sight line clearance or horticultural purposes. This is all done from the ground.
    - v. Pole Pruning (see *Pruning* SWP). Gardeners prune small limbs and branches that are reachable from the ground using pole pruners.
  - b. All other tree work (removals, side trimming, and anything requiring tree climbing or rigging) is the work of the Arborist Technician classification.
2. Each work location where tree trimming, tree repairing or removal is to be done, shall be under the direction of a Qualified Tree Worker.
3. Employees shall be trained and instructed in areas that include, but are not limited to the following:
  - a. The hazards involved in their job assignments.

- b. The proper and safe use of all equipment, including, but not limited to, safety equipment and personal protective equipment.
  - c. The identification of, and preventive measures relating to, common poisonous plants and harmful animals.
  - d. Operations that include pesticide and fertilizer applications for employers whose employees are exposed to, or engage in, such operations.
  - e. The recognition and avoidance of electrical hazards applicable to employee job assignments for tree work performed in proximity to energized power lines and conductors.
4. A job briefing shall be conducted by a Qualified Tree Worker before each work assignment is begun. Such job briefing shall include the description of the hazards unique to the work assignment, the appropriate work procedures to be followed, the appropriate personal protective equipment needed, and any other items necessary to ensure that the work can be accomplished safely. Additional job briefings shall be held if significant changes which might affect the safety of the employees occur during the course of the work.
  5. All equipment shall be operated by Qualified Persons, or Qualified Tree Workers (if specifically required in this SWP).
  6. Power saws shall be operated and maintained in accordance with the manufacturer's instructions, and as follows:
    - a. Power saws weighing more than fifteen pounds (service weight) that are used in trees shall be supported by a separate line or tool lanyard, except when working from an aerial-lift device or during topping or removing operations where no supporting limb is available.
    - b. All power saws shall be equipped with a constant pressure control that will return the saw to idling speed when released.
    - c. Power saws shall be so adjusted that the chain drive will not engage at idling speed.
    - d. Power saw engines shall be stopped when carried for a distance greater than 100 feet, or in hazardous conditions such as slippery surfaces or heavy underbrush. Chain brakes shall be engaged or the saw engine stopped when the saw is carried a distance greater than 10 feet.
    - e. The saw shall be stopped for all cleaning, refueling, adjustments, and repairs to the saw or engine where practicable, except where manufacturers' instructions require otherwise.
    - f. Tree workers shall use a second point of attachment such as a work-positioning lanyard or double-crotched rope when operating a chain saw in a tree, unless the employer demonstrates that a greater hazard is posed by using a second point of attachment while operating chain saws in that particular situation.

- g. While a powered pole saw or brush saw is running, no one shall be permitted within 10 feet of the cutting head, except the operator.
  - h. Powered saws shall be equipped with a quick shutoff switch readily accessible to the operator.
7. Hand tools shall be used as follows:
- a. When climbing into a tree, tree workers shall not carry hand tools and equipment in their hands unless they are tools used to assist them in their climbing. Tools other than ropes or throwlines shall not be thrown into a tree, out of a tree or between workers aloft.
  - b. Employees shall maintain a safe working distance from other employees when using hand tools.
  - c. Chopping tools shall be swung away from the feet, legs, and body.
  - d. Chopping tools shall not be driven as wedges or used to drive metal wedges unless specifically designed to be driven or to be used to drive wedges.
  - e. Hand tools and equipment shall be properly stored or placed in plain sight out of the immediate work area when not in use.
  - f. Pole pruners, pole saws, and other similar tools shall be equipped with non-conducting poles and actuating cords.
  - g. Pole pruners and pole saws shall be hung securely in a vertical position to prevent dislodging. Pole pruners or pole saws shall not be hung on utility wires or cables, or left in the tree overnight. Pole saws shall be hung so that the sharp edge is away from the employee.
8. An adequate supply of potable water shall be provided.
9. Where vehicular or pedestrian traffic may endanger employees, traffic control shall be provided (see *Traffic Safety* SWP).
10. All vehicles and mobile equipment shall be equipped, maintained and operated in accordance with the manufacturer's recommendations, and as follows:
- a. Prior to the daily use of vehicles and mobile equipment, visual inspections and operational checks shall be made in accordance with the manufacturer's instructions.
  - b. No part of the employee's body shall be used to locate or attempt to stop a hydraulic leak.
  - c. Transportation of employees and materials shall be conducted in accordance with the Vehicle Operation SWP.
  - d. Vehicles shall not be operated at speeds which will endanger the driver or workers.

11. Establish rescue procedures and provide training in emergency response. Training in aerial rescue procedures shall be provided for employees whose job assignments may require them to perform aerial rescues.
12. For field work involving two or more employees at a work location at least two trained persons in first aid and CPR shall be available.
13. Maintenance or repair of any machines shall be performed in accordance with the Lockout and Tagout procedures (see *Lockout and Tagout SWP*).
14. Any stumps left unattended after a tree removal job in a high traffic pedestrian area shall be spray painted bright orange.
  - a. Submit a high hazard TMA request the same day to have the stump grinder brought onsite to remove the hazard.
  - b. If this cannot be done quickly then temporary controls may be required (e.g. cones, tape).

## **Climbing and Access**

15. Climbing equipment shall be used as follows:
  - a. Tree workers' saddles shall be approved for their intended use. All load bearing components of a climbing system shall have a minimum tensile strength of 5,000 pounds.
  - b. Equipment used to secure the tree worker in the tree or aerial lift shall not be used for anything other than its intended purpose (except for raising and lowering tools).
  - c. If a climbing line is used for any purpose other than to support the worker aloft or for use as permitted as above, it shall not be used again to serve as a tree worker's climbing line.
  - d. Climbing lines shall never be left in trees unattended when there is no Qualified Tree Worker at the job site location.
  - e. Rope and climbing equipment shall be stored and transported in a manner that prevents damage by contact with sharp tools and cutting edges, gas, oil and chemicals.
16. Prior to climbing the tree, the employer shall ensure that the tree, including the root collar, is visually inspected by a Qualified Tree Worker who shall determine and ensure a safe method of entry into the tree.
  - a. Only when a tree cannot be safely accessed by climbing or the use of aerial devices, a Qualified Tree Worker may be hoisted into position by using an approved tree worker's saddle secured to a crane's hook that shall be closed with a positive locking device.

- b. The tree worker's saddle shall also be secured to an independent line attached above the crane hook, and the following criteria shall be met:
  - i. All climbing equipment, lines and rigging shall have a minimum breaking strength of at least 5,000 pounds.
  - ii. The crane boom and load line shall be moved in a slow, controlled, cautious manner with no sudden movements when the Qualified Tree Worker is attached to the crane.
  - iii. The requirements for hoisting employees by crane in a personnel platform shall apply to the hoisting of a Qualified Tree Worker suspended in an approved tree worker saddle.
  - iv. Cranes used for tree work shall be equipped with a functional load indicating device.
  - v. The crane operator shall be familiar with the potential hazards and operational techniques encountered in tree work.
  - vi. The Qualified Tree Worker being hoisted shall be in continuous communication with the crane operator, or signals shall be relayed by a qualified signal person.
  - vii. The crane operator shall remain at the controls when the Qualified Tree Worker is attached to the crane.
  - viii. The Qualified Tree Worker shall be detached from the crane while the load is hoisted.
  - ix. The employer shall ensure that the crane operator and Qualified Tree Worker determine the weight of the load being lifted to prevent the crane from being overloaded.
  - x. The hoisting of a Qualified Tree Worker shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.
- c. The employer shall ensure that every Qualified Tree Worker involved in tree work utilizing a crane to position personnel into a tree receives instruction and training on such work and is competent in the following areas:
  - i. Safe work procedures and knowledge of the hazards applicable to tree work involving the use of cranes.
  - ii. The use of personal protective equipment required for tree work.
  - iii. The inspection and safe use of all climbing equipment, lines and rigging.
  - iv. Crane signals and communication requirements with the crane operator.
  - v. Instructions regarding electrical hazards.
  - vi. The safe use of chain saws in tree work.
  - vii. The conditions and criteria necessary to permit the use of a crane to provide access into a tree.
  - viii. The handling of loads and rigging techniques for tree work.
  - ix. Effective means for controlling pedestrian and vehicular traffic.
- d. Documentation of employee training shall be maintained.

17. When working aloft, employees shall wear a tree workers' saddle and have at least two means of being secured, such as a climbing line and a work positioning lanyard.
18. Employees shall be tied in or secured while ascending the tree and remain tied in or secured until the work is completed and they have returned to the ground.
19. Employees shall not work from or leave a ladder to gain access to a tree unless the employee is tied in or otherwise secured to the tree unless employees are working from a self-supporting ladder in accordance with the manufacturer's instructions.
20. The tie-in point shall be established on or around the main leader or a major upright branch of the tree as high as necessary using branches with a wide crotch to prevent any binding of the climbing line. The crotch selected for tying-in shall be over the work area as nearly as possible, but located in such a way that a slip or fall would not permit the employee to come in contact with any electrical conductor, equipment or other hazard.
21. The location of all electrical conductors and equipment within the work area shall be identified in relation to the work being performed
22. Ropes, climbing equipment, tackle blocks and pulleys shall be inspected for damage, cuts, abrasions and/or deterioration before each use that involves re-rigging or moving the climbing system.
  - a. Climbing lines shall be designed by the manufacturer to support the climber while aloft in a tree. Climbing lines shall be constructed from a synthetic fiber with a minimum rated tensile strength of 5,000 pounds (22.24 kilonewtons [kN]) and shall have a minimum diameter of 1/2 inch (12.7 mm). Maximum working elongation shall not exceed seven percent at a load of 500 pounds (2.22 kN).
  - b. Prusik loops, split tails, and work-positioning lanyards used in a tree climbing system shall meet the minimum strength requirements for tree climbing lines.
  - c. Rope ends shall be finished in a manner to prevent raveling (fraying).
  - d. Climbing rope shall not be spliced to effect repair.
23. Defective equipment and components shall be immediately removed from service.

### **Pruning, Trimming, and Tree Removal and Felling**

24. Prior to the start of any tree felling or removal operations, the hazards and relevant factors pertaining to the tree and the site are to be considered by undertaking actions that include, but are not limited to, the following:
  - a. Identifying potential hazards in the area surrounding the tree to be removed, including nearby trees.
  - b. Determining the species and shape of the tree.



- c. Evaluating the lean of the tree.
  - d. Evaluating the wind force and direction.
  - e. Identifying decayed or weak spots in the tree.
  - f. Inspecting for loose limbs and wood chunks, or other overhead material.
  - g. Providing a means to protect other persons, property, and electrical conductors.
  - h. Evaluating the terrain characteristics and/or limitations of the work area.
  - i. Identifying evidence of bees or other wildlife habitation in the tree that may present hazards.
25. The work area shall be cleared to permit safe working conditions, and an escape route shall be planned before any cutting is started.
26. A method of verbal or visual communication shall be established which shall be reviewed during the job briefing, prior to the start of pruning or removal operations.
- a. The verbal or visual communication system shall use an established command and response system or pre-arranged, two-way hand signals.
  - b. The communication method shall be clearly understood and used during all rigging operations.
  - c. The command “stand clear” from aloft and the response “all clear” from the ground are some terms that may be used for verbal communication.
27. A drop zone shall be established prior to the start of pruning or removal operations.
- a. Employees not directly involved in the pruning or removal operation shall stay out of the pre-established drop zone until it has been communicated by a Qualified Tree Worker directly involved in the operation that it is safe to enter the drop zone.
  - b. Employees shall be positioned and their duties organized so that the actions of one employee will not create a hazard for any other worker.
28. When a rigging system is necessary, a Qualified Tree Worker shall determine the appropriate rigging system for the removal project based on factors that include, but are not limited to, the species, size, weight, and length of tree sections or limbs being removed.
29. When it is necessary to remove branches or sections of a tree that will be removed, a Qualified Tree Worker who is trained and experienced in rigging operations shall determine whether the tree can withstand the strain of the lowering procedures. If the determination is that the tree cannot do so, other means of removing the tree shall be considered.
30. A notch and a back cut shall be used to establish a hinge when felling trees over 5 inches in diameter.
- a. The depth or penetration of the notch shall be about one-third the diameter of the tree.

- b. Notches and back cuts shall be made at a height that enables the chain-saw operator to safely begin the cut, control the tree or trunk, and have freedom of movement for escape.
  - c. The notch cut used shall be a conventional notch, an open-faced notch, or a Humboldt notch.
  - d. The back cut shall not penetrate into the predetermined hinge area.
  - e. The two saw cuts that form a notch shall not cross at the point where they meet.
31. Just before the tree or trunk is ready to fall, an audible warning shall be given to those in the area. Pre-arranged, two-way hand signals may also be used as a warning, provided that only qualified persons shall give such signals. All non-involved personnel in the vicinity shall be safely out of range before the tree or trunk falls.
32. Wedges, block and tackle, rope, and other lowering devices shall be used when there is a danger that a tree or trees being removed may fall in the wrong direction or damage property.
33. All limbs and sections shall be removed to a height and width sufficient to allow the tree to fall clear of any wires or other objects in the vicinity.
34. Only Qualified Tree Workers directly involved in the operation shall be permitted in the drop zone when a load is being suspended by a rigging system.
35. Separate ropes for lowering limbs shall be attached to limbs which cannot be dropped or are too heavy to be controlled by hand. Climbing lines shall not be attached to the same crotch as ropes used for lowering limbs.
36. Cut branches (hangers) shall be removed from the tree prior to leaving the job site.
37. When an employee is elevated above 12 feet in any tree work operations including climbing ladders, climbing into the tree or using an aerial device, a second employee shall be present to render immediate assistance.
38. Palm frond skirts shall be removed from the top down. Qualified Tree Workers performing this work shall be supported by a climbing line and a false crotch attached above the frond skirt, or they shall work from an aerial device.
- a. Fronds may be trimmed from below the dead frond accumulation only when a Qualified Tree Worker who is competent and experienced in palm tree work and the hazards associated with removing dead fronds makes a determination that this task can be safely performed from below.
  - b. Because palm frond skirts have the potential of unexpectedly releasing onto a worker below, tree workers shall never attempt to remove palm frond skirts of

- three years or more growth by positioning themselves below the work areas while being supported by a lanyard.
- c. When dry conditions exist, no employee shall smoke in or near dead palm fronds. All chain saws used under such conditions shall have mufflers and spark arresters in good working condition.

## **Bucking**

39. The employee shall work from the uphill side whenever possible during limbing or bucking operations.
40. The employee shall block the log during bucking operations to prevent rolling, when necessary.
41. When bucking trunks of trees, wedges shall be used when necessary to prevent binding the chain saw guide bar or chain.

**For any questions, please contact EHS at 415-831-2780.**