



City of Berkeley Tree Protection Instructions for Development Projects

General Information

(I) Introduction:

The purpose of this document is to guide the planning of construction projects that have the potential to impact any protected trees in the development area. The following information applies to the protection and preservation of trees during construction projects in Berkeley, California. Coast live oak (*Quercus agrifolia*) is the only protected tree species in Berkeley (Ordinance NO. 6,905-N.S.) on public and private property. This includes coast live oak that originate on adjacent properties, but have the potential to be impacted by the project. The City also requires tree protection for any other species of trees that are on public property which are to be preserved as part of the project approval. A report must be submitted by the project arborist for any projects with the potential to impact any protected trees in the development area. ***The development area is defined as anywhere on public or private property that movement or activity takes place to facilitate the construction project.*** This includes the area within the dripline area of any protected tree.

The project arborist must be a Registered Consulting Arborist (RCA), as designated by the American Society of Consulting Arborists (ASCA); an International Society of Arboriculture (ISA) Board Certified Master Arborist (BCMA); or an ISA Certified Arborist whose reports have been previously accepted by the City Arborist.

A list of Registered Consulting Arborists can be found at:

<http://www.asca-consultants.org>

A list of Board Certified Master Arborists can be found at:

<http://www.isa-arbor.com/findanarborist/arboristsearch.aspx>

Work is subject to all applicable laws and regulations.

(II) Initial Planning:

There is a significant benefit to involving the project arborist at the beginning of the project. The project arborist can address how particular designs may interact with any trees or roots in the prospective development area and provide their recommendations. Identifying potential tree conflicts early in the design phase can avoid costly changes. When the arborist has limited knowledge of the design plan, their reports often lack specific recommendations for tree protection and preservation. This can lead to delays and additional work.

City of Berkeley Tree Protection Instructions

For information and instructions regarding tree preservation during development, refer to:

- *Trees and Development: A Technical Guide to Preservation of Trees During Land Development (Matheny and Clark, 1998).*
- The current edition of the ANSI A300 (Part 5) and the companion publication, *ISA Best Management Practices, Managing Trees During Construction.*

(III) Basic Elements Included in an Arborist Report Regarding Development:

- a) An assessment of the relative condition of any trees in the development area.
- b) A Tree Protection Zone (TPZ) that includes the placement, material used, and construction design of the protective devices that will be installed. Who will install and monitor the TPZ?
- c) A plan for minimizing root compaction when the root zone is in the development area, but cannot be protected with fencing or other devices. This should include design and material recommendations.
- d) Provide a plan sheet or sketch that shows exact location of all existing and proposed utilities.
- e) Note what kind of foundation will be used (Example: Pier and grade beam; trenching for raised foundation; excavating for a slab foundation or driveway).
- f) Locate any roots 2 inches in diameter or greater that may need to be pruned to facilitate the project. This includes any trenching that will be done as part of foundation or utility installation. It is beneficial to perform exploratory trenching or dig pilot holes to learn if there are any roots where the proposed excavation or pier installation may take place. Exploratory trenching should be done with an air excavation tool, or carefully done by hand, so that no roots are damaged.
- g) Establish and note the minimum clearance needed for the construction activity, including the movement of people or equipment.
- h) When making any pruning recommendations, list the reason for the pruning and the minimum distance requirements for construction and related access. The installation of story poles may be required by the City Arborist.
- i) Trees referenced in the report should be numbered on a site plan or sketch within the report and included in the construction plans.
- j) Include landscape irrigation design.
- k) Include any tree planting recommendations.

Note: This is a list of some common issues that an arborist report addresses. However, it is only a guide and it is up to the project arborist to include any elements relevant to a particular project.

City of Berkeley Tree Protection Instructions

City of Berkeley Minimum Requirements

(I) Arborist Report:

- a) An assessment of the relative condition of any protected trees in the development area.
- b) A recommendation for preservation or other treatment of any protected trees in the development area, including tree protection.
- c) If making any pruning or removal recommendations, list the reasoning for the recommendation and the minimum distance requirements for construction and related access.
- d) Locate all protected trees on a site plan or sketch that is included in the report.
- e) Include a Civil Plan, Utility Plan, or other plan sheets that show the exact location of all existing and proposed utilities. When architectural drawings are not required by the Planning Department, alternative site plans or sketches may be used to show the exact location of all existing and proposed utilities. **This information is a requirement of the permit review process and a determination will not be made without it.**

(II) Tree Protection:

- a) All tree protection requirements and restrictions shall be included in the construction notes and printed on all copies of the plans.
- b) Include the name and phone number of the party that will monitor the site and ensure the tree protection measures are being followed; and what the monitoring schedule will be.
- c) Install 6 foot chain-link fencing to protect the area within the drip-line of any protected tree in the development area. Fencing shall be mounted to posts that are driven into the ground. Where this is not possible because of existing structures, tree roots, or other obstacles, chain-link panels mounted to stanchions and connected to each other may be approved. In areas where difficult terrain makes this impractical, orange construction fencing may be approved.
- d) All fencing shall have signage stating the requirements and restrictions, and the contact information for the project arborist.
- e) When any approved construction activity will occur within the drip line of a protected tree that is not surrounded by protective fencing, the trunk shall be protected by wrapping it with straw tubes (wattle) or vertical wood slats (ex. 2x4), up to a minimum of 8 feet from grade (see Figure 1, page 6). Slats shall be angled to protect the root flare at the base of the tree; and closed cell foam or equivalent material shall be used to protect the trunk of the tree where it contacts the slats. Lateral branches below 8 feet

City of Berkeley Tree Protection Instructions

shall also be protected. In addition, the area shall be covered with a 6 inch layer of mulch topped with 3/4 inch plywood that is fastened together. If any large or motorized equipment (mini excavator, Bobcat®, powered wheelbarrow) will travel over this area, the plywood must be a minimum of 1 inch and adequate for the weight of the equipment that will travel over it. If larger equipment (backhoe, tractor) will be used, consult the City Arborist. ***Construction activity refers to any movement of people, tools, or equipment; or storage of any tools, equipment, or supplies.***

- f) Locate and expose any roots 2 inches in diameter or greater that may need to be pruned to facilitate the project. This includes any trenching that will be done as part of foundation or utility installation. Contact the City Arborist in advance to lessen the amount of time that the roots will be exposed. If roots must be left exposed for more than three days, consult the City Arborist.
- g) No storage of building materials, refuse, excavated spoils, or dumping of poisonous materials, is permitted within the drip line of any protected tree. Poisonous materials include, but are not limited to, paint, petroleum products, concrete or stucco mix, dirty water, or any other material which may be deleterious to tree health.

Note: The 2 inch diameter threshold for roots is a guideline that may be adjusted by the City Arborist depending on the size and condition of the tree, and the location of the roots. The City Arborist may increase the TPZ, or impose other restrictions, when the dripline of a tree has been altered by pruning or unusual growth patterns.

(III) Tree Pruning and Tree Removal:

No pruning or removal of a public tree is allowed unless a Tree Pruning or Removal Permit has been submitted to the City, approved, and returned to the applicant. The Tree Pruning or Removal Permit is available at the following link:

https://www.cityofberkeley.info/pruning_removal/

No excessive pruning or removal of a private coast live oak tree is allowed unless a Coast Live Oak Pruning or Removal form has been submitted to the City, approved, and returned to the applicant. The Coast Live Oak Pruning or Removal form is available at the following link:

https://www.cityofberkeley.info/coast_live_oak/

(IV) Tree Planting:

The following tree planting guidelines apply to all trees planted as part of a development plan unless otherwise stated by the City Arborist. When trees must be removed as part of a development project, the City may require that they be replaced with three new 24" box trees for each mature tree that is removed. When this ratio is not viable, the City may require that a fewer number of larger trees be planted. Street trees shall have a single, dominant, central leader with well-spaced lateral branches and shall not have been headed in the nursery. Trees not having an acceptable structure shall be rejected.

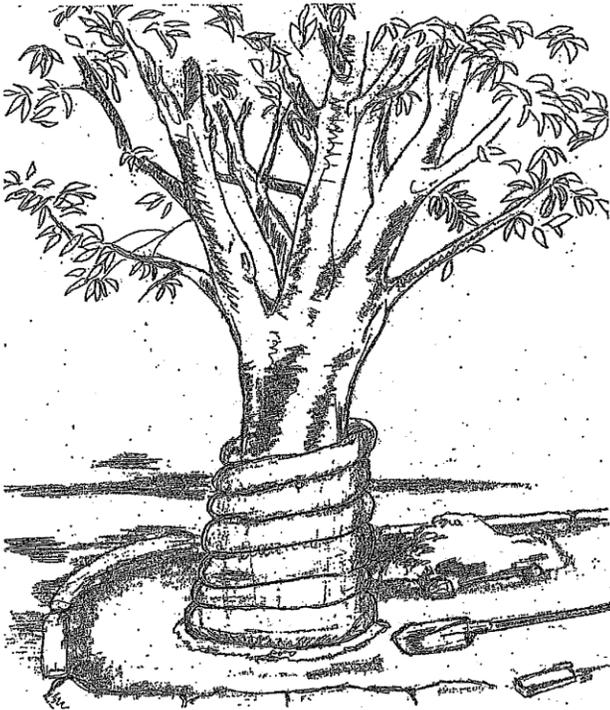
City of Berkeley Tree Protection Instructions

- a) The City's Arborist shall be notified prior to the delivery of the trees for inspection of their size and structure.
- b) The trees shall be properly planted at grade. Soil amendment is not recommended. No construction rubble or non-organic material shall be within the tree well.
- c) Each new tree shall have automatic irrigation including two tree bubblers that curve over the top of the trees' root ball and provide a minimum of 20 gallons per week between March 15 and October 15 for the first three years. Larger trees may require additional bubblers.
- d) Trees that die within the first three years must be replaced at the property owner's expense

Figure 1: Examples of Tree Trunk Protection

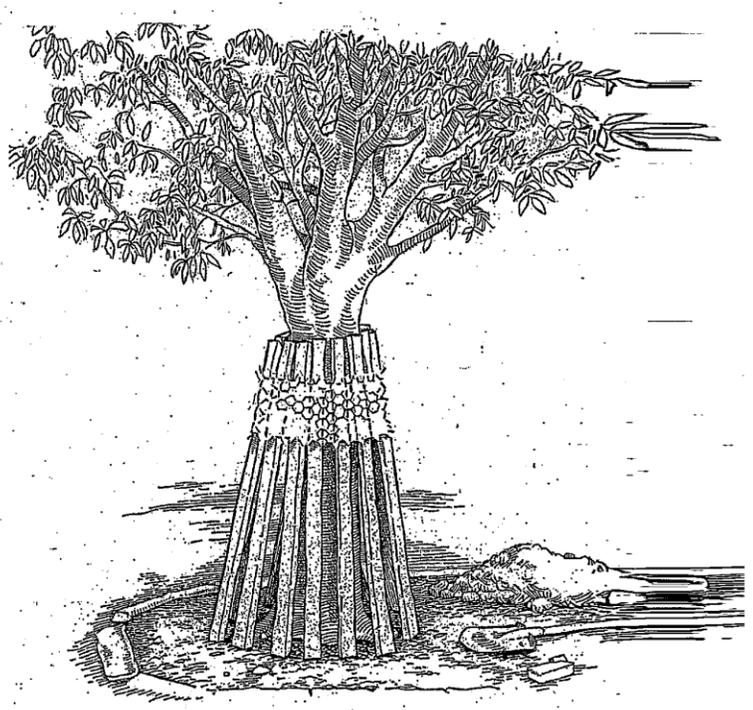
The following illustrations are examples of tree trunk protection measures. One of these examples shall be used when any approved construction activity takes place within the dripline of a protected tree that is not surrounded by protective fencing.

Example A – Straw tubing (wattle)



Example A. Illustration by Dwayne Walters

Example B – Wooden slats



Example B. Illustration from ISA Managing Trees During Construction, BMP

Minimum Requirements:

- Trees situated in a tree well or sidewalk planting strip shall have the trunk protected by wrapping it with straw tubes (wattle) or vertical wood slats (ex. 2x4), up to a minimum of 8 feet from grade.
- Wooden slats shall be angled to protect the root flare at the base of the tree and bound securely on the outside.
- Closed cell foam or an equivalent material shall be used to protect the trunk of the tree where it contacts the slats.
- Lateral branches below 8 feet shall also be protected.
- Contractor shall keep deleterious materials associated with project construction from contacting any part of the trees, or being placed or stored in the tree well or planting strip.