

Viewshed Plan

Conservancy Zone Lacamas Shores

Camas, Washington

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Exhibit I

Background

Lacamas Shores is an 86 acre planned residential neighborhood located on the south slopes of Lacamas Lake in Camas, Washington. (See figures 1 and 2).

As part of the overall plan, a conservancy zone paralleling the south shoreline was established. (See figure 2, Site Map). The intent was to preserve the natural character of the south shoreline while allowing public access by way of the Lacamas Heritage Trail for the purpose of recreational opportunities. In addition, it was the specific intent that view lots fronting onto the south edge of the conservancy zone be allowed to establish and preserve viewsheds consistent with appropriate care and management of the natural elements of the conservancy zone.

It is the general goal of the Viewshed Plan to provide guidelines for the establishment and management of viewsheds within the Lacamas Shores Conservancy Zone.

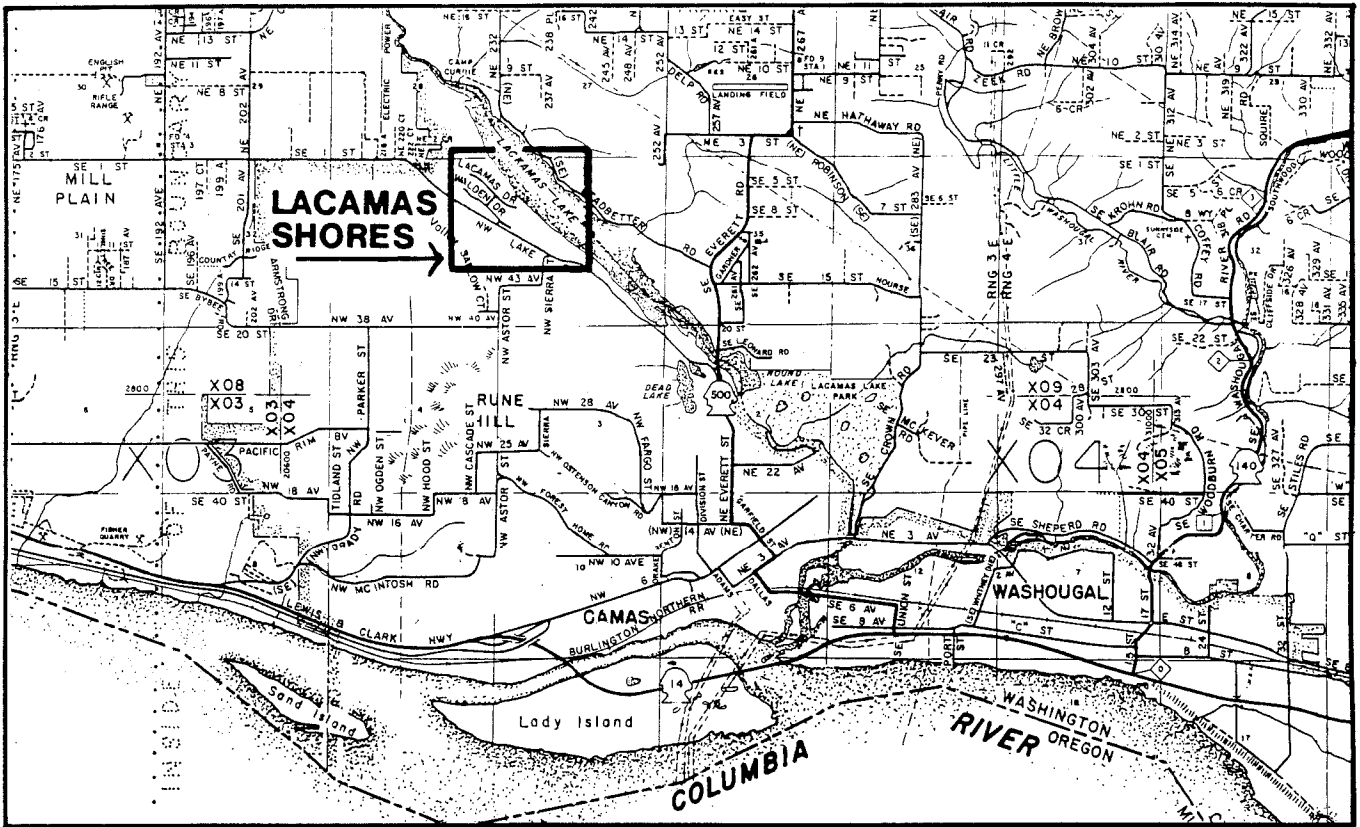


FIGURE 1

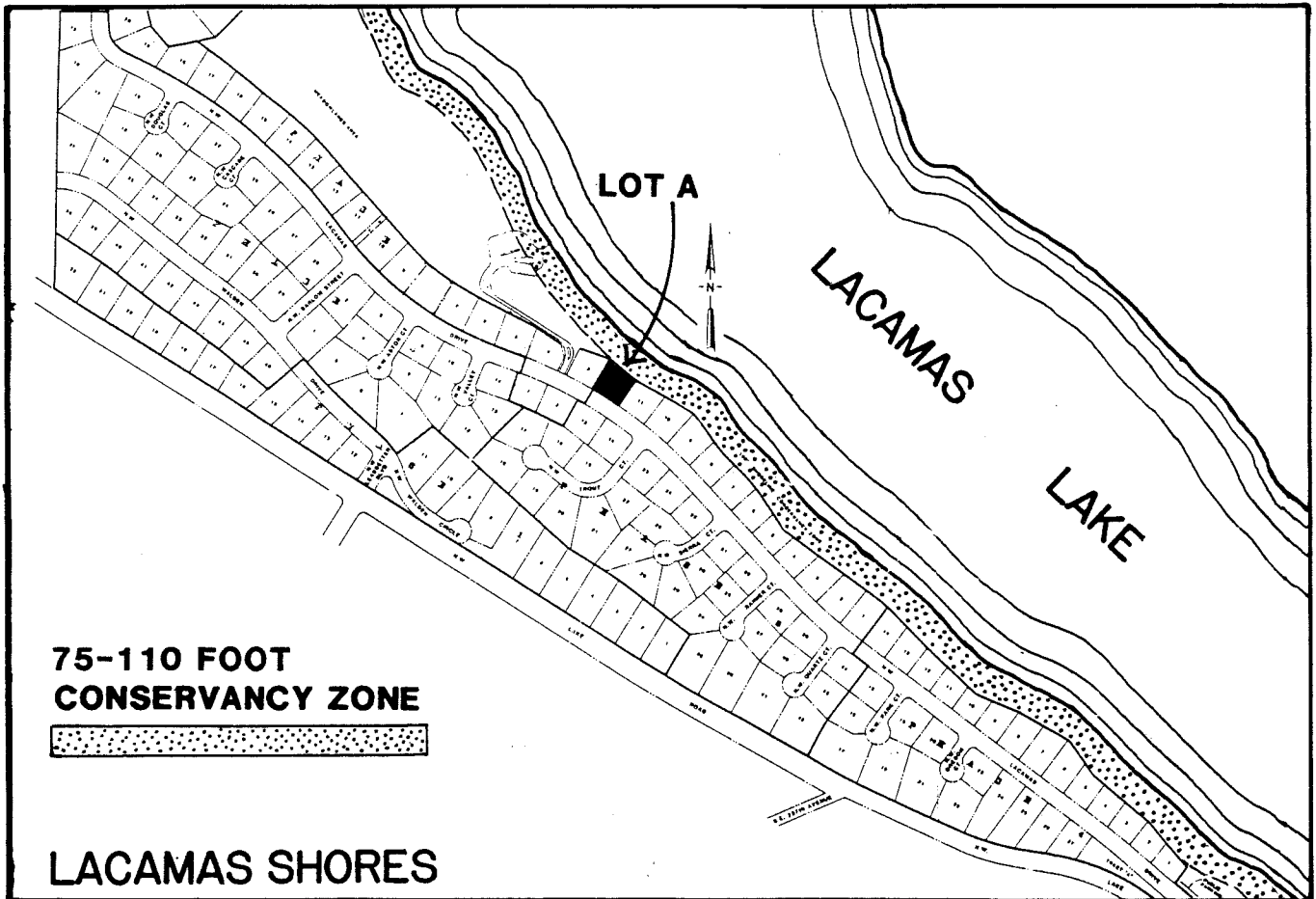


FIGURE 2

Conservancy Zone

Topography

The conservancy zone is a continuous linear strip of property stretching south approximately 75 to 110 feet from the ordinary high water line of Lacamas Lake. The eastern portion of the zone is steeply sloping, with a grade drop of approximately sixty feet from the top of the bank to the shoreline. In this area, the housing lots are immediately adjacent to the conservancy zone and in some cases, the steep slope continues some distance onto the northern portion of the lots.

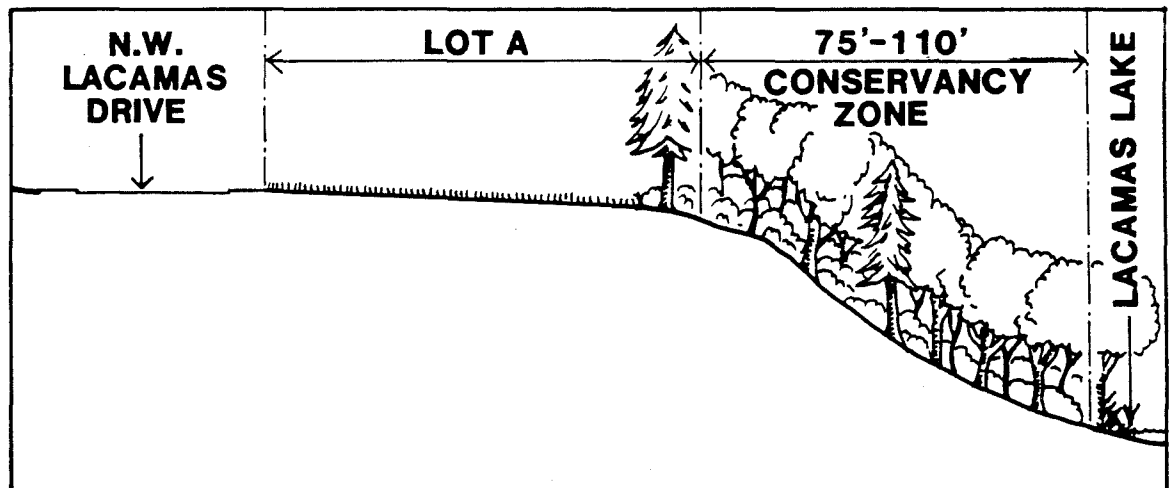
Vegetation

The existing vegetation within the Conservancy Zone is typical of Northwest riparian areas. There is a mix of deciduous and coniferous tree cover with openings of larger scale understory shrubs and of smaller scale trees. The north facing slope provides a shady, moist microclimate which promotes the growth of species favoring this type of environment. A partial listing of materials is included in the appendix. (See Exhibit B)

View Lots

Lot Type A

The lots with viewshed requirements are labeled Typical Lot A and noted in figure 5. These lots are immediately adjacent to the conservancy zone. A typical lot relationship to the zone is similar to the section illustrated in figure 3 below. Lots in this category are noted in figure 4.



SECTION (1" = 50')

FIGURE 3

Viewshed Definition

In order to establish a viewshed plan, it is important to define the nature and quality of specific view opportunities and to quantify the minimum obligations and expectations of the property owner. It should first be noted that the views afforded by different lots vary considerably. In general, type A lots have filtered views through existing conservancy zone vegetation that is growing immediately in the foreground of their view frame. (See figure 3.)

Depending on the lot location, this existing vegetation currently varies from a few scattered trees and no understory materials to a virtually solid screen of vegetation. The view potential from this type of lot is illustrated in figure 5. The views are noted as primary or secondary in nature and represent a typical condition. The view potential from various lots will vary but the minimal expectation of a property owner would be to establish and maintain one primary view and two secondary views. The primary view should be unobstructed. Secondary views would be obscured up to 30% by trees. It should be noted that the secondary views of Mt. Hood are not possible to attain from every lot due to topography and the presence of neighboring buildings.

Typical Lot Conditions

In order to illustrate typical view conditions and measures for establishing and maintaining views, a typical lot was selected. (See figure 4 for location.) The plan and section, shown in figures 6 and 7, illustrate the existing conditions and the relationship of topography and vegetation. In the subsequent illustrations, photographs of the view from the lot have been modified to illustrate the concept of establishing primary and secondary views. Although varying from lot to lot, the concept will remain similar to the illustrated views. This condition represents the minimal expectation of the property owner.

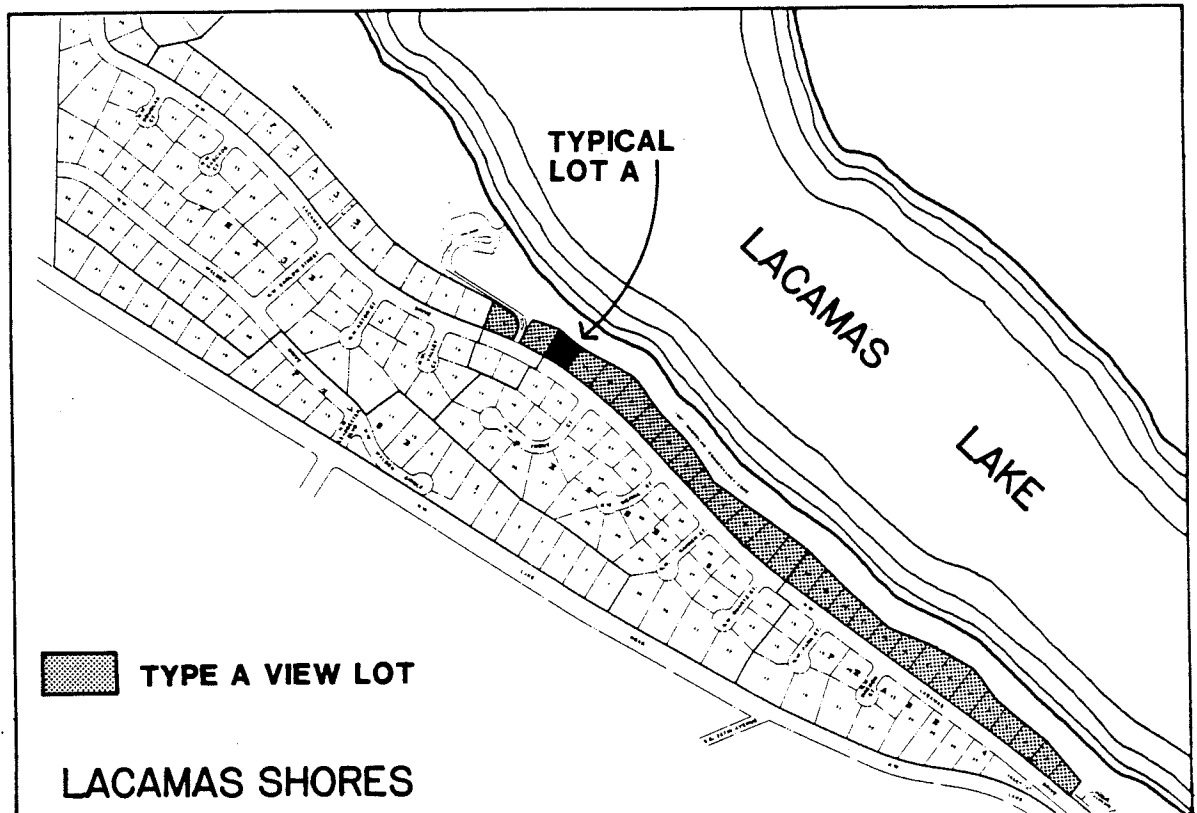
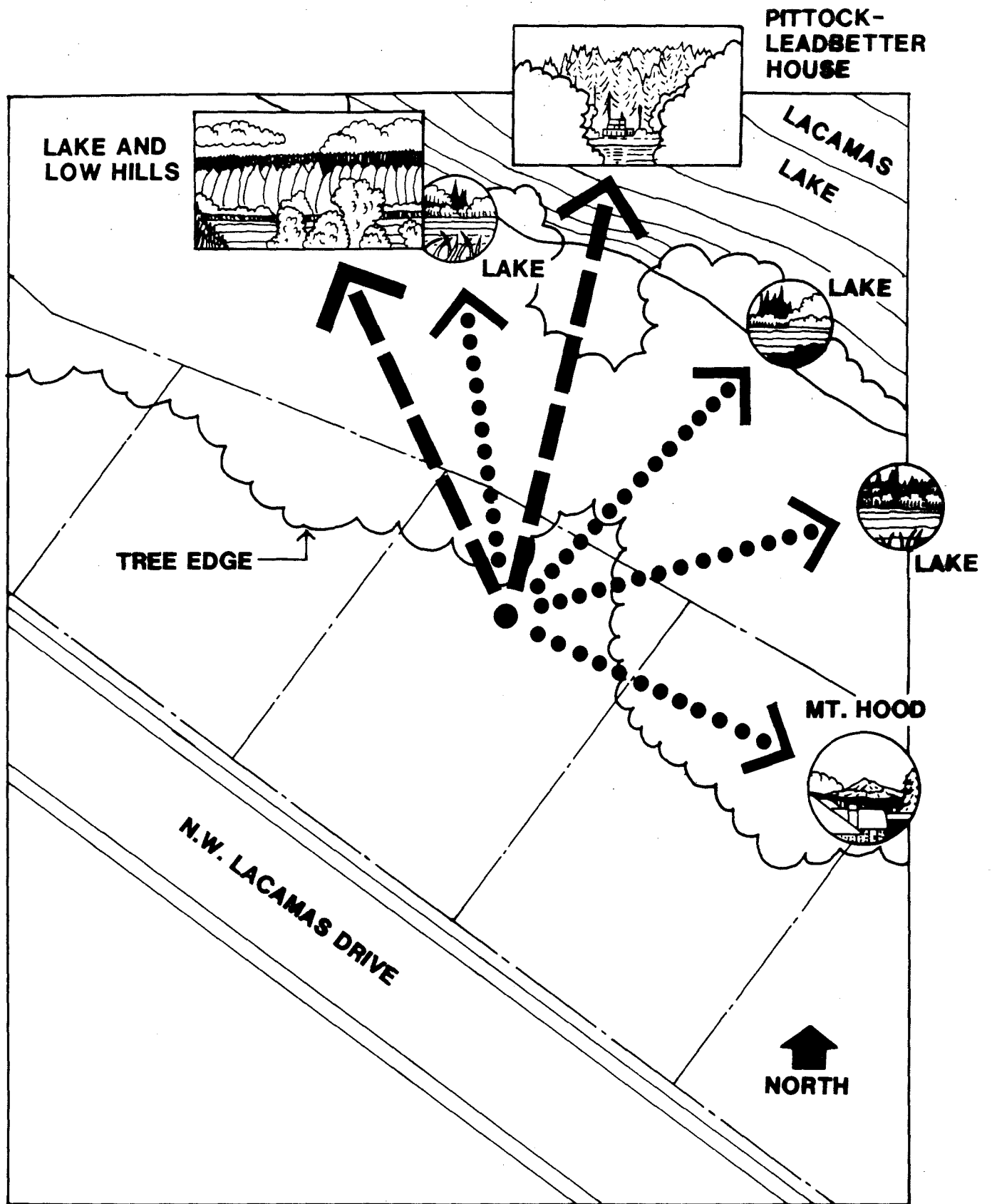


FIGURE 4



OPTIONAL VIEWS
FIGURE 5

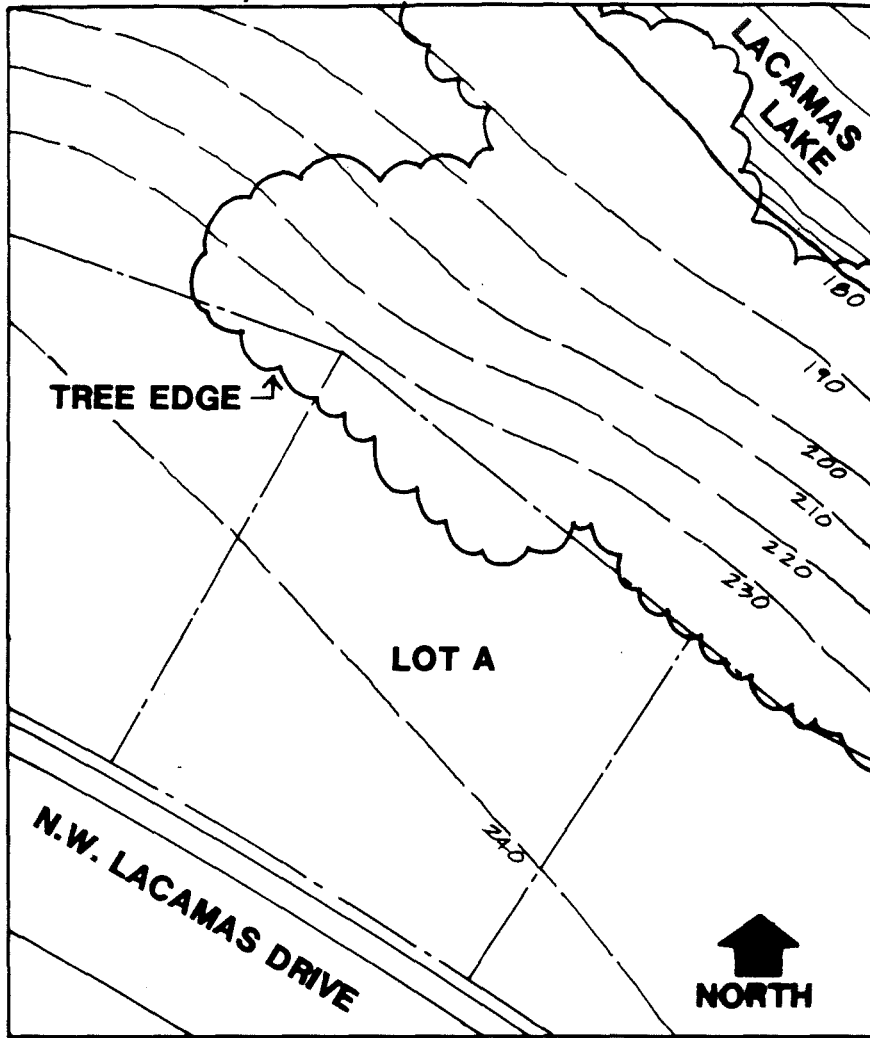
PRIMARY VIEW



SECONDARY VIEW

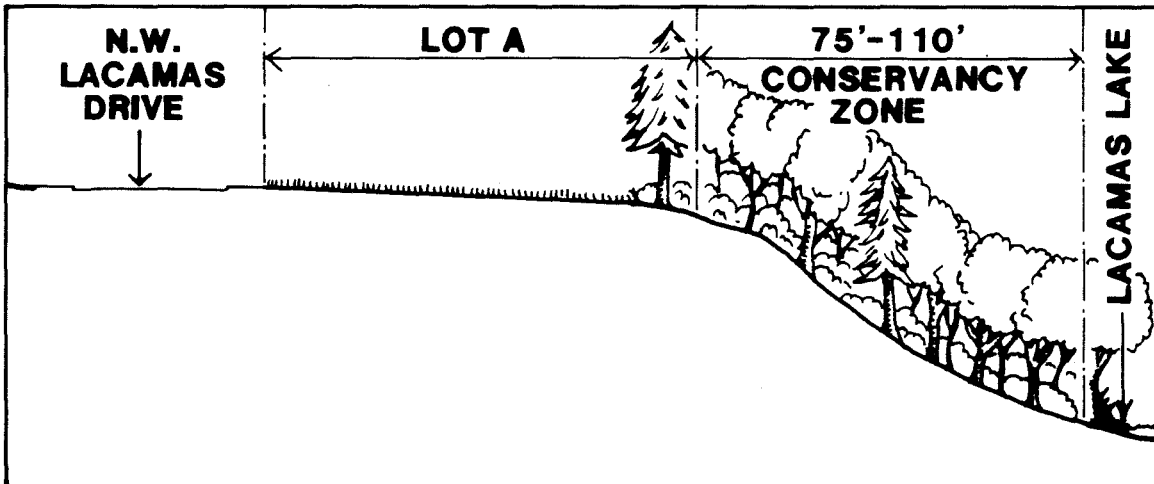


**TYPICAL LOT A
(LOT 12, PHASE 5, LACAMAS SHORES)**



PLAN (1" = 50')
FIGURE 6

**CONTOUR INTERVAL
10 FEET**



SECTION (1" = 50')

FIGURE 7

TYPICAL LOT A



**EXISTING CONDITION
FIGURE 8**



**POTENTIAL VIEWFRAMES
FIGURE 9**

PRIMARY AND SECONDARY VIEWS

TYPICAL LOT A



**EXISTING CONDITION
FIGURE 10**



**POTENTIAL VIEWFRAMES
FIGURE 11**

PRIMARY AND SECONDARY VIEWS

Vegetation Management

Management of the existing vegetation will be required to establish and maintain the desired views. The homeowner shall be responsible for the maintenance and replacement of vegetation required to comply with the viewshed plan.

Removal of vegetation to establish and maintain the viewshed will require measures to prevent soil erosion of the disturbed areas and contamination of the lake. The following guidelines establish the conditions for initial removal, periodic pruning and replacement of plantings.

General Guidelines

- Large scale removal of vegetation to create a lot condition markedly different from the natural setting will not be allowed.
- Clearcutting of both trees and understory vegetation is prohibited.
 - Trees may be selectively pruned in accordance with the plan.
 - Low shrubs and groundcovers may be pruned or trimmed no closer than 2 feet to the ground
- Vegetation or trees within 50' of the water's edge may not be removed.

Tree Removal

- Removal of any tree or trees will require a written approval from the City of Camas shoreline administrator.
- Trees may be removed (with written approval) under the following conditions:
 - when they are less than 12 inches in diameter at breast height.
 - when they are diseased or a safety hazard (as determined by an approved tree expert).
- When a tree is removed, a stump with a minimum height of 3 feet shall be retained to provide slope stability.

Tree Replacement

- Trees removed within the conservancy zone shall be replaced with trees designated for each area in accordance with the approved species list. (See Exhibit B.)
- Replacement of trees will be equivalent to 1.5 times the diameter of the removed tree. For example:
 - 12" diameter-replace with twelve 1.5" diameter trees, or eighteen 1" diameter trees, etc.
 - 18" diameter- replace with eighteen 1.5" diameter trees or twenty-seven 1" diameter trees, etc.

Limbing, Thinning and Pruning of Trees and Understory Vegetation

- Removal of limbs over 6" in diameter requires written approval by the City of Camas shoreline administrator. In non-typical situations, a registered landscape architect or other qualified professional may be required to make a determination. The cost of such service will be the responsibility of the homeowner requesting the action.
- All pruning shall follow National Arborist Association standards (as identified by Exhibit "A").
- Coniferous trees may not be topped, but can be limbed or pruned to obtain a primary or secondary view of the lake and/or of the opposite shore (as shown in figures 6, 9, and 11).
- Deciduous trees should be selectively trimmed rather than topped whenever possible. Topping is only permitted when selective thinning or limbing is not practicable.
- All branches and limbs resulting from thinning operations that are larger than 2 inches maximum diameter and over 6 feet long shall be removed from the site.
- Exposed and/or damaged areas shall be replanted with native vegetation suitable for the situation in order to re-establish plant cover. (See Exhibit B for plantings).

New Planting Requirements

- **Erosion Control**
Areas disturbed due to construction activities shall be stabilized immediately by party responsible for damage. Stabilization may be done with one of the following methods: reseeded, replanting, erosion matting or other methods approved by the city.
- **Plant Types**
Comply with Exhibit B regarding preferred planting types for appropriate location and natural setting.
- **Plant Materials**
 - **Name and variety:** Provide plant materials true to name and variety established by American Joint Committee on Horticulture Nomenclature "Standardized Plant Names," Second Edition, 1942.
 - **Quality:**
 - Δ Provide trees, shrubs and other plants that comply with the recommendations and requirements of ANSI Z60.1, "Standard for Nursery Stock" and as further specified. Cold storage plants are not acceptable.
 - Δ **Sizes:** provide trees and shrubs of the sizes shown.
 - Δ Plants shall not have cuts over 3/4" diameter which have not completely healed over. Leader shall be intact on all plants.
 - Δ Potted and container stock plants shall have been grown in the containers for a minimum of six months and a maximum of two years. Root ball shall fill the containers but show no evidence of being rootbound.
 - Δ The city representative reserves the right to inspect plant materials for compliance with requirements for name, variety, size and quality. A minimum of 30% of the plant inventory shall be labeled with name, variety and source. Plants not meeting standards or not grown under similar climatic conditions of the project will be rejected. Rejected plants shall be marked and removed immediately from the site.
- **Installation**
Trees are to be planted and staked according to detail shown in Exhibit B.
- **Maintenance**
 - Maintain plants for a minimum period of one year as follows:
 - Δ Maintain trees, shrubs and groundcovers by watering, pruning, cultivating and weeding as required for healthy growth.
 - Δ Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required.
 - Δ Cultivate to remove all weeds from planting area. Remove dead weeds and dispose legally off-site.
- **Inspection and Acceptance:**
 - When the project is completed, including maintenance, the city administrator will make an inspection to determine acceptability.
 - Where inspected landscape work does not comply with the requirements, replace rejected work and continue specified maintenance until reinspected.
- **Warranties:**
 - Guarantee trees, shrubs and groundcovers for a period of one year.
 - Within the first 60 days after installation, replace any new trees and understory vegetation that are unhealthy, vandalized, damaged or missing.
 - Remove and replace trees, shrubs and groundcover found to be missing, dead, winter killed, vandalized or in unhealthy condition during and at the end of warranty period. All replacement work shall be made within 30 days after receiving notification, weather permitting. In the event the property owner or responsible party does not make repairs accordingly, the city administrator without further notice, may provide materials and labor to make such repairs at the expense of the owner or responsible party.

Appendix

EXHIBIT A

NATIONAL ARBORIST ASSOCIATION

Pruning Standards For Shade Trees

(Revised 1979)

These standards are provided by the National Arborist Association to assist you in writing contract specifications. N A A. member companies are highly qualified to accomplish the pruning in compliance with the specifications that best satisfy your budget and other needs. It is recognized that regional practices may dictate variations in this standard.

*W. P. LANPHEAR, Chairman
Standard Practices Committee*

INTRODUCTION

Pruning is to be performed by tree workers who, through related training and on-the-job experience, are familiar with the techniques and hazards of this work including trimming, maintenance, repairing or removal, and equipment used in such operations. The use of climbing spurs or irons is not approved in pruning operations on live trees. This type of work is a potentially hazardous occupation and is to be undertaken only by trained personnel or under the supervision of trained personnel, all of whom are covered with workers compensation, property damage, public liability and completed operations insurance.

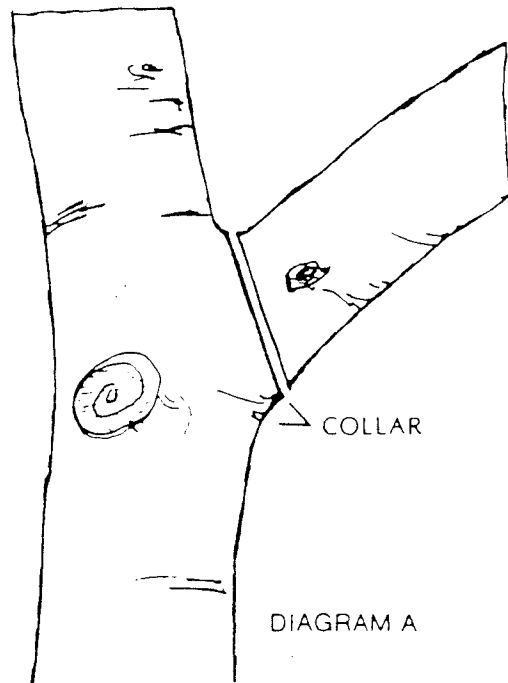
There are four classes of pruning:

CLASS I FINE PRUNING

Fine pruning shall consist of the removal of dead, dying, diseased, interfering, objectionable, obstructing, and weak branches, as well as selective thinning to lessen wind resistance. The removal of such described branches is to include those on the main trunks, as well as those inside the leaf area. An occasional branch, up to 1.2" diameter, as described above, may remain within the main leaf area to its full length when it is not practical to remove it.

The following specifications shall apply:

- a. All cuts shall be made sufficiently close to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. (See diagram A) Clean cuts shall be made at all times
- b. It is necessary to pre-cut branches too heavy to handle to prevent splitting or peeling the bark. Where necessary, to prevent tree or property damage, branches shall be lowered to the ground by proper ropes or equipment.
- c. Remove the weaker or least desirable of crossed or rubbing branches. Such removal should not leave large holes in the general outline of the tree



- e. On trees known to be diseased, tools are to be disinfected with methyl alcohol at 70% (denatured wood alcohol diluted appropriately with water) or Chlorox solution after each cut and between trees where there is known to be a danger of transmitting the disease on tools.
- f. Old injuries are to be inspected. Those not closing properly and where the callus growth is not already completely established, should be traced where appropriate. If desired, for cosmetic purposes, the wound may be treated with a thin coat of wound dressing

g. Where practical, all visible girdling roots shall be treated as follows:

1. Cut root at either end.
2. Notch root in center with a chisel.
3. Remove entire root without injuring the bark or parent stem.

h. The presence of any structural weakness, disease conditions, decayed trunk or branches, split crotches or branches, should be reported in writing to a supervisor and/or the owner, and corrective measures recommended.

CLASS II MEDIUM PRUNING

Medium pruning shall consist of the removal of dead, dying, diseased, interfering, objectionable and weak branches on the main trunks as well as those within the leaf area. An occasional branch up to one inch in diameter may remain within the main leaf area where it is not practical to remove it.

The following specifications shall apply:

- a. All cuts shall be made sufficiently close to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. (See diagram A) Clean cuts shall be made at all times.
- b. It is necessary to pre-cut branches too heavy to handle to prevent splitting or peeling the bark. Where necessary, to prevent tree or property damage, branches shall be lowered to the ground by proper ropes or equipment.
- c. Treatment of cuts and wounds, with tree wound dressing, is optional except where open wounds in certain trees may attract insects that carry disease or allow fungus invasion. If such treatment is made, materials non-toxic to the cambium layer must be used, and care taken to treat only the exposed wood with a thin coat of dressing.
- d. On trees known to be diseased, tools are to be disinfected with methyl alcohol at 70% (denatured wood alcohol diluted appropriately with water) or Chlorox solution after each cut and between trees where there is known to be a danger of transmitting the disease on tools.
- e. Old injuries are to be inspected. Those not closing properly and where the callus growth is not already completely established should be traced where appropriate. If desired, for cosmetic purposes, the wound may be treated with a thin coat of wound dressing.
- f. All girdling roots visible to the eye are to be reported to a supervisor and/or the owner.

The presence of any structural weakness, disease conditions, decayed trunk or branches, split crotches or branches, should be reported in writing to a supervisor and/or the owner, and corrective measures recommended.

CLASS III COARSE PRUNING

Coarse pruning shall consist of the removal of dead, diseased or obviously weak branches, two inches in diameter or greater.

The following specifications shall apply:

- a. All cuts shall be made sufficiently close to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. (See diagram A) Clean cuts shall be made at all times.
- b. It is necessary to pre-cut branches too heavy to handle to prevent splitting or peeling the bark. Where necessary, to prevent tree or property damage, branches shall be lowered to the ground by proper ropes or equipment.
- c. Treatment of cuts and wounds, with tree wound dressing is optional except where open wounds in certain trees may attract insects that carry disease or allow fungus invasion. If such treatment is made, materials non-toxic to the cambium layer must be used, and care taken to treat only the exposed wood with a thin coat of dressing.
- d. On trees known to be diseased, tools are to be disinfected with methyl alcohol at 70% (denatured wood alcohol appropriately diluted with water) or Chlorox solution after each cut and between trees where there is known to be a danger of transmitting the disease on tools.
- e. The presence of any structural weakness, disease conditions, decayed trunk or branches, split crotches or branches, should be reported in writing to a supervisor and/or owner and corrective measures should be recommended.

CLASS IV CUTTING BACK OR DROP CROTCH PRUNING

Cutting back or drop crotch pruning shall consist of the reduction of tops, sides, underbranches or individual limbs. This practice is to be undertaken only in cases of utility line interference, or where certain portions of the roots or root systems have been severed or severely damaged, or when there is unusual and rapid tree growth, where it is necessary to reduce the top sides or underbranches, or for specific topiary training or dwarfing.

The following specifications shall apply:

- a. All cuts shall be made sufficiently close to the trunk or parent limb, without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. (See diagram A) Clean cuts shall be made at all times.
- b. It is necessary to pre-cut branches too heavy to handle to prevent splitting or peeling the bark. Where necessary, to prevent tree or property damage, branches shall be lowered to the ground by proper ropes or equipment.

- c. Remove the weaker or least desirable or crossed or rubbing branches. Such removal should not leave large holes in the general outline of the tree.
- d. Treatment of cuts and wounds, with tree wound dressing, is optional except where open wounds in certain trees may attract insects that carry disease or allow fungus invasion. If such treatment is made, materials non-toxic to the cambium layer must be used, and care taken to treat only the exposed wood with a thin coat of dressing.
- e. Old injuries are to be inspected. Those not closing properly and where the callus growth is not already completely established should be traced where appropriate. If desired, for cosmetic purposes, the wound may be treated with a thin coat of wound dressing.
- f. Generally, in reducing size (cutting back), not more than one-third of the total area should be reduced at a single operation. When cutting back trees, only drop crotch as much as necessary. Where practical, avoid cutting back to small suckers. All effort should be made to cut back to a lateral, one-third of the diameter of the cut being made.
- g. In reducing overall size, attention is to be given to the symmetrical appearance. Top is to be higher and sides reduced in order to maintain a tree-like form.
- h. When cutting back trees, one should have in mind to make them shapely and typical of their species.
- i. On thin bark trees, just enough limbs shall be removed to get the effect wanted without admitting too much sunlight to the trunk of the tree or the top of large branches. Care should be taken with the following species: Lindens, maples, beeches, apple, oaks, and other trees susceptible to sunscald, growing in different geographical areas. The above damage may be minimized by doing work on susceptible species during the dormant season.
- j. In lifting the lower bottom branches of trees for underclearance, care should be given to symmetrical appearance, and cuts should not be made so large that they will prevent normal sap flow.
- k. Periodical drop crotching or cutting back of silver maples, poplars, and other trees with brittle and soft wood is an established practice and has proven beneficial in maintaining the safety of these trees over long periods of growth. Other trees with soft and brittle wood growing in different geographic areas may be specifically named when it is common practice to control the growth by cut-back.
- l. An alternate method in some situations for maintaining the safety of these trees would be cabling and bracing as described under that standard.

TERMINOLOGY

BRANCH COLLAR	Wood tissue that forms around the base of a branch between the main stem and the branch. Usually as a branch begins to die the branch collar begins to increase in size.	LIFTING	The removal of lower branches for underclearance.
CALLUS	New growth made by the cambium layer around all of a wound.	PARENT STEM	The main trunk system of the tree.
CAMBIUM LAYER	Growing point between the bark and sapwood.	PRECUT or PRECUTTING	The removal of the branch at least 6" beyond the finished cut, to prevent splitting into parent stem or branch.
CLOSURE	Refers to the roll of the callus growth around the wound area.	PRUNING	The removal of dead, dying, diseased, live interfering, objectionable and weak branches in a scientific manner.
THE CUT	The exposed wood area that remains after the branch has been removed.	SAP FLOW	The definite course assumed by sap in its movement through a tree.
CUT BACK	Specified reduction of the overall size of the tree or individual branches, but may include the overall reduction of the sides as well as the top of the tree.	SCARS or INJURIES	Natural or man-made lesions of the bark in which wood is exposed.
DORMANT	A condition of non-active growth. Deciduous trees are considered to be dormant from the time the leaves fall until new foliage begins to appear.	SUCKERS	Abnormal growth of small branches usually not following the general pattern of the tree.
GIRDLING ROOTS	Located above or below ground level, whose circular growth around the base of the trunk or over the individual roots applies pressure to the bark area, thereby choking or restricting the flow of sap.	THINNING OUT	The removal of live branches to reduce wind resistance and to create more space.
		TOPPING	Means the same as Cut Back.
		TRACING	Careful cutting of the bark along the lines of sap flow to encourage closure and to be the outline of the wound area.
		TRIMMING:	The same as pruning.

EXHIBIT B

Plant List

Trees

<u>Common Name</u>	<u>Botanical Name</u>	<u>Minimum Size</u>
Riparian (Moist shady lakeside zone)		
Big Leaf Maple	Acer macrophyllum	5'-6'
Red Alder	Alnus rubra	5'-6'
Oregon Ash	Fraxinus latifolia	5'-6'
Douglas Hawthorne	Crataegus douglasii	5'-6'
Vine Maple	Acer circinatum	5'-6'
Western Hazelnut	Corylus cornuta californica	5'-6'
Western Crabapple	Pyrus fusca	5'-6'
Hemlock	Tsuga heterophylla	3'-4'
Pacific Yew	Taxus brevifolia	3'-4'
Western Red Cedar	Thuja plicata	3'-4'
Open Sun (Upper slope)		
Big Leaf Maple	Acer macrophyllum	5'-6'
Pacific Madrone	Arbutus menziesii	5'-6'
Vine Maple	Acer circinatum	3'-4'
Wild Cherry	Prunus sp.	5'-6'
Douglas Fir	Pseudotsuga menziesii	3'-4'

Shrubs

Riparian (Moist shady lakeside zone)		
Salmonberry	Rubus spectabilis	1 gal.
Thimbleberry	Rubus parviflorus	1 gal.
Red-osier Dogwood	Cornus stolonifera	1 gal.
Red Currant	Ribes sanguineum	1 gal.
Indian Plum	Osmaronia cerasiformis	1 gal.
Open Sun (Upper slope)		
Elderberry	Sambucus sp.	1 gal.
Ninebark	Physocarpus capitatus	1 gal.
Oregon Grape	Mahonia aquifolium	1 gal.
Salal	Gaultheria shallon	1 gal.
Snowberry	Symphoricarpus albus	1 gal.
Serviceberry	Amelanchier alnifolia	1 gal.
Oceanspray	Holodiscus discolor	1 gal.
Nootka Rose	Rosa nutkana	1 gal.
Understory Shade (Upper slope)		
Oregon Grape	Mahonia aquifolium	1 gal.
Salal	Gaultheria shallon	1 gal.
Indian Plum	Osmaronia cerasiformis	1 gal.

Low Shrubs/Groundcovers

<u>Common Name</u>	<u>Botanical Name</u>	<u>Minimum Size</u>
Riparian (Moist shady lakeside zone)		
Western Buttercup	Ranunculus occidentalis	1 gal.
Lady Fern	Athyrium filix-femina	1 gal.
Deer Fern	Blechnum spicant	1 gal.
Wood Strawberry	Fragaria vesca bracteata	1 gal.
Open Sun (Upper slope)		
Kinnikinnick	Arctostaphylos uva-ursi	1 gal.
Salal	Gaultheria shallon	1 gal.
Understory Shade (Upper slope)		
Deer Fern	Blechnum spicant	1 gal.
Sword Fern	Polystichum munitum	1 gal.
Lady Fern	Athyrium filix-femina	1 gal.
Long Leaf Mahonia	Mahonia nervosa	1 gal.
Wild Ginger	Asarum caudatum	1 gal.
Oregon Oxalis	Oxalis oregona	1 gal.
Wood Strawberry	Fragaria vesca bracteata	1 gal.

