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December 11, 1995

Lynn Price
Public Works-Engineering Div.
747 Market St., Suite 520
Tacoma, WA 98402-3768

RE: Parkside View Management Plan

Dear Lynn:

I have completed the selective marking of the Tract A stand in the Parkside Viewshed. The trees marked in the field represent a more aggressive approach to reduction of the stand height than prescribed in the WFC report of September 27, 1993.

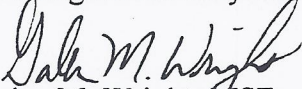
The plan utilizes coppicing, crown reduction pruning, and creation of wildlife snags to achieve the views, while maintaining or restoring the vigor of individual trees and the stand.

This management plan has been revised to incorporate data and opinions from the September 27, 1993 report, and supersedes all previous reports or letters.

Please give me a call if you have questions.

Respectfully submitted,

Washington Forestry Consultants, Inc.


Galen M. Wright, MSF
Certified Arborist/Certified Forester

attachment: view management plan

PARKSIDE VIEW MANAGEMENT PLAN

December 11, 1995

**Prepared for:
Lynn Price
City of Tacoma
Public Works-Engineering Division**

**Prepared by:
Galen M. Wright, CA/CF
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PARKSIDE VIEW MANAGEMENT PLAN

Scenic View Drive
Tacoma, WA

Prepared for: Lynn Price
Public Works-Engineering
City of Tacoma

Prepared by: Galen M. Wright, MSF
Certified Arborist/Certified Forester

Date: December 11, 1995

The purpose of this evaluation was to determine the condition of the Pacific madrone stand in Tract A and to develop a long-term management plan for thinning and pruning to protect views for the Parkside residents.

Site Description

The project area has a westerly aspect with 3-45% slopes. It is bounded by the Salmon Beach parking lot on the west, forest on the south, west, and north, and the Parkside residential subdivision on the east.

Soils.-- The soils appear to be fairly uniform across the project area. The surface layer is described as a black humus layer with a heavy mat of salal (*Gaultheria shallon*) and other plant roots extending throughout. A light brown gravelly sandy loam occurs below the humus layer. No further examination of the soil profile was completed.

Forest Canopy

The trees in the area are predominately Pacific madrone (*Arbutus menziesii*) with a few scattered Douglas-fir (*Pseudotsuga menziesii*), and bigleaf maple (*Acer macrophyllum*). The Pacific madrone are resprouts that resulted from a disturbance over 30 years ago. They occur as multi-stemmed clumps of 2-5 stems per clump with occasional single-stemmed individuals.

Tree Size.--The forest canopy in the area is contiguous (Figure 1) with several small gaps where trees have died or trees have been removed in the past. The Pacific madrone range in diameter from 2 to 15". The Douglas-fir range in diameter from 4-16", the crowns of the larger trees extending above the canopy of the Pacific madrone. The bigleaf maple resprouts are 2-8" in diameter.

Number of Trees.--There are an average of 432 trees per acre on the site.

Tree Condition.--The Pacific madrone and some of the Douglas-fir were topped in 1987 for view enhancement. Almost all of the bigleaf maple and some Pacific madrone were also removed by ground line cutting at that time.

The Pacific madrone trees were topped at the bottom of the live crown removing an estimated 80% of the live crown of most trees. This loss of crown resulted in or contributed to mortality of over 20% of the trees in the stand. The rule of thumb when pruning trees is that no more than 25% of the live crown should be removed in any year's pruning.

Removal of the crowns pre-disposed the trees to infection by pathogenic fungi. Two canker diseases were found to be infecting the trees in this stand. They are: *Botryosphaeria dothidea* and *Hendersonula toruloidea* (see Appendix I).

B. dothidea has been called a minor fungus, however it is opportunistic, attacking trees pre-disposed by other agents (e.g. the stress caused by topping). This disease is known as the 'madrone canker', begins on the branch tips and moves inward, creating a wedge-shaped, sunken canker that gives the appearance of being charred by fire.

H. toruloidea, called 'Hendersonula dieback', is characterized by dieback of leaves on scattered branches that wilt, turn brown, and cling to dead twigs. Branches die back to below the locations of the sooty appearing cankers.

Serious infections of either fungus coupled with other agents can cause tree mortality. Vigorous resprouts that result from coppicing (trees cut at 6") seem to be resistant to the fungi. This was the case with trees that were cut in 1987 and allowed to resprout. Little fungal infection was noted on the resprouts.

Understory Shrub Species

The understory of the Pacific madrone stand is predominately salal, followed by evergreen huckleberry (*Vaccinium ovatum*), Oregon grape (*Mahonia nervosa*), and bracken fern (*Pteridium aquilinum*). These shrubs form a dense mat of vegetation from 1 to 5' tall. Over 95% of the site is occupied by these shrub and the tree species.

View Protection

Regrowth of the surviving Pacific madrone has been approximately 2-5' since the previous topping. The trees have become heavily infected by the fungal diseases described above. If left alone, the trees will continue to experience dieback on scattered branches, some trees will die, and other trees will continue to grow at normal to reduced rates. Re-topping, besides being a poor pruning practice, will further spread the fungal diseases and the stand as a whole continue to decline.

The prescription to protect the views while restoring vigor to the trees in the viewshed, is to move the edge of the tree line downhill through tree removal, and to selectively remove declining trees or clumps of trees in the remaining stand.

This removal, called 'coppicing', will result in vigorous resprouts and over time a new stand of Pacific madrone on the site. Regrowth from low Pacific madrone stumps in research studies by Hughes et. al. (1989) found an average of 13 sprouts per stump, that were 10 feet tall and 7.6 ft. wide after 3 years. Resprouts on a better site averaged 15 per stump that were 22 feet tall and 10.1 ft. wide after 3 years. Resprouts in clearcuts grew faster than resprouts in partially cut stands.

Specific Prescription for 1996 Work

Trees recommended for coppicing are marked with orange flagging and/or orange paint. Trees marked with pink ribbons have specific pruning recommendations written on the ribbon. These include crown reduction pruning with limits indicated in feet, and creation of wildlife snags or wildlife recruitment trees (Douglas-firs), and the height of the snag.

The following are the specific recommendations for 1996:

1. Open 1 new view corridor (Corridor A) below 4954 Scenic View utilizing coppicing of the Pacific madrone and removal of several Douglas-firs (Figure 1).
2. Enhance the 2nd view corridor (Corridor B) to the south. Several trees occur that are unhealthy and should be coppiced. Selected sprouts from the 1987 work need crown reduction pruning to a height of 6-10'.
3. Selectively remove trees along the upper side of the stand, and selectively remove dead, diseased, or declining trees throughout the remaining stand. Some healthy trees were marked for coppicing where sprout clumps included 5 or more large diameter stems. One or more stems were marked to thin the clump. All Douglas-firs were marked to be converted to wildlife snags (all live limbs removed and a 20-30' snag created) or for creation of a wildlife recruitment trees (the top is removed to a height of 20-30' with enough live limbs left below to sustain the tree for 5-10 years after which the tree dies and becomes a snag).
4. Crown reduction prune Pacific Madrone resprouts. Trees larger than 10' tall should be crown reduced to laterals at approximately 10' in height. Trees smaller than 10' tall should be reduced to laterals at approximately 6' tall. All sapling Douglas-fir

should have tops removed leaving at least 2 whorls of branches. These trees will survive and can be maintained in a shrubby form for erosion control and screening.

5. An existing corridor below 4934 Scenic view was marked for widening to improve views along with coppicing and crown reduction pruning along the upper edge of the stand.

It is my opinion that this marking will achieve the desired views of the residents. Unobstructed views and filtered views of the water will be greatly improved. Resprouts of coppiced trees can be managed to maintain a lower canopy height (e.g. 10-15'). Sprouts from coppiced trees lower on the slope will replace other overstory trees that have died or are failing.

Cutting, slash and erosion control recommendations:

1. All stumps should be cut at a height of 6". No herbicide is to be used on the stumps. The stumps of the Pacific madrone should be protected from further damage to improve resprouting potential.
2. 80% of the Douglas-fir slash should be removed from the site and chipped.
3. All of the Pacific Madrone branches smaller than 1" should be removed from the site and chipped.
4. All larger branches and stems should be lopped and scattered in sections no longer than 3' and made to lie flat to the ground using care not to cover up healthy salal plants. All stems from previous cutting should be lopped and scattered similarly. This material is serving as a ladder for blackberry.
5. No climbing spurs should be used on trees to be pruned. Spurs can be used on trees to be removed and to be made into wildlife trees.
6. Reseeding of disturbed soils with a grass/legume mixture is recommended to prevent soil erosion (Appendix II).
7. The seeded areas should be fertilized at the time of seeding with 300 lbs. per acre of 20-10-10, or the equivalent levels of nitrogen with other formulations.

The viewshed should be re-evaluated four years after treatment and receive additional pruning and coppicing every 5th year (5 year cycle). This process of re-evaluation and treatment should be done in perpetuity. Modifications to the plan and timing of the plan will be made during re-evaluation by an Urban Forester. *This plan as with any long-term vegetation management plan, must be dynamic to adapt to changes in the plant community that result from management activity, weather, and other influences.*

Parkside View Management Plan

The 10 year goal of this management plan is to create a lower canopy (10-15' tall) of Pacific Madrone sprouts that will maintain soil stability, provide aesthetic amenities, wildlife habitat, and protect the views in the view sensitive area.

Management of this stand will be an ongoing process with activity required every 5 years to maintain views. This 5 year cycle length is based on regrowth response expected for Pacific Madrone resprouts.

The following table is designed to serve as a guide to management activity. Minor modifications are expected to be made at the time of the 5 year re-evaluation to consider unexpected tree or sprout responses such as faster or slower than normal growth, disease management, the need for additional thinning, replanting, or weed control.

If a wind, snow, or ice storm, a landslide, a major insect or disease infestation, or some other unforeseen malady impacts the project area and results in loss of a portion of the stand, this management plan will need to be revised to regenerate the stand and protect the soils.

Table 1. Long-Term Management Plan for Parkside Viewshed.

YEAR	MONTH	ACTIVITY BY:	MANAGEMENT ACTIVITY
1995	Dec.	Urban Forester	1. Creation of Management Plan
1996	Jan.-Feb.	Professional Tree Service	1. Refer to above recommendations.
1996	Feb.-March	Tree Planters	1. Plant 2-year old (2-0) Shore Pine seedlings along lower edge of Tract A to provide future screen of parking lot. 2. Interplant trees on 10' centers among existing trees. A 20' wide buffer will provide screening.
1999	Sept.	Urban Forester	1. Re-Evaluate Views. 2. Re-Evaluate tree and sprout growth. 3. Make recommendations for modifications to planned 2nd cycle activity or cycle length. 4. Mark additional trees to be coppiced or crown reduction pruned along view corridors and top edge of stand. 5. Mark hazard trees.
2000	Nov.	Professional Tree Service	1. <i>See Figure 2.</i> Coppice/Remove marked trees. 2. Crown reduction prune designated trees. 3. Trim 11-15' tall Pacific Madrone resprouts to laterals near 10' height. 4. Trim 7-10' tall Pacific Madrone resprouts to laterals at 6' height. 5. Thin sprout clumps back to 2-4 sprouts removing no more than 50% of the sprouts at once. Select sprouts (to save) free of disease that originate near the groundline of the stump. 6. Remove tops of Douglas-fir saplings at 6' to create shrubby, erosion control trees. 7. Cut blackberry back from desirable trees. 8. Dispose of slash according to 1996 recommendations. 9. All other recommendations regarding spurs, equipment, disturbed soils, etc. are the same as for the 1996 activity.

Table 1. (Cont'd).

YEAR	MONTH	ACTIVITY BY:	MANAGEMENT ACTIVITY
2004	Sept.	Urban Forester	<ol style="list-style-type: none"> 1. Re-Evaluate Views. 2. Re-Evaluate tree and sprout growth, and disease problems. 3. Make recommendations for modifications to planned 3rd cycle activity or cycle length. 4. Mark additional trees to be coppiced or crown reduction pruned along view corridors and top edge of stand. 5. Mark hazard trees.
2005	Nov.	Professional Tree Service	<p><i>See Figure 3.</i> Activity will be similar to 1996 with less tree removal and more sprout pruning and cultural activity to create a viable stand of trees.</p> <ol style="list-style-type: none"> 1. Coppice/Remove marked edge trees, willows, and bigleaf maples. 2. Trim all Pacific Madrone resprouts to laterals near 10'. 3. Selectively thin Pacific Madrone sprout clumps to achieve 2-4 sprouts per clump. Continue to select diseased sprouts for removal. 4. Thin entire stand of sprouts to provide growing space for individual sprout clumps. Maintain 2 sides of sprout clump 'free-to-grow'. 5. Continue to remove tops of all Douglas-fir saplings near 6' height. 6. Cut blackberry to release desirable trees. 7. Dispose of slash similar to 1996 recommendations.
2009	Sept.	Urban Forester	<ol style="list-style-type: none"> 1. Re-evaluate views and vegetation. 2. Prepare revised <i>management plan</i> based on condition of overstory and understory vegetation, soil erosion, disease problems, wildlife habitat management, and new technology.

Pruning Guidelines

All pruning should conform to the most current versions of the American National Standard *ANSI Z133.1* for safety of tree pruning operations, the *ANSI 300* standard practices, and the *Tree Pruning Guidelines* (1995) of the International Society of Arboriculture .

Tree Planting

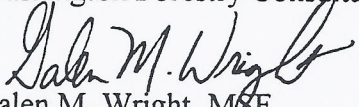
It is recommended that 2-year old Shore Pine (*Pinus contorta* var. *contorta*) be planted on 10' centers above the Salmon Beach parking lot in Tract A. Interplanting these trees among existing healthy trees will provide future screening of the parking lot. A buffer 20' wide will adequately screen the parking lot. Shore pine matures at a height of 30' so will not impact future views. Approximately 100 seedlings would be required.

Summary

This plan provides for improvement of existing views through selective pruning and tree removal. Prescriptions for work required to maintain views are included for 3 cycles, or 15 years. It provides the flexibility for re-evaluation and modifications to the prescriptions for work on each 5 year cycle. Management will be required in perpetuity to maintain views and is expected to be primarily small tree management after completion of the 3 cycles of management.

Respectfully submitted,

Washington Forestry Consultants, Inc.


Galen M. Wright, MSF
Certified Arborist/Certified Forester

References

Hughes, Thomas F., John C. Tappeiner II, and Michael Newton. 1989. Development of a young Pacific madrone-Douglas-fir stand in southwest Oregon. In *Silvics of North America: Volume 2. Hardwoods*. USDA Forest Service Agricultural Handbook 654. Page 128.

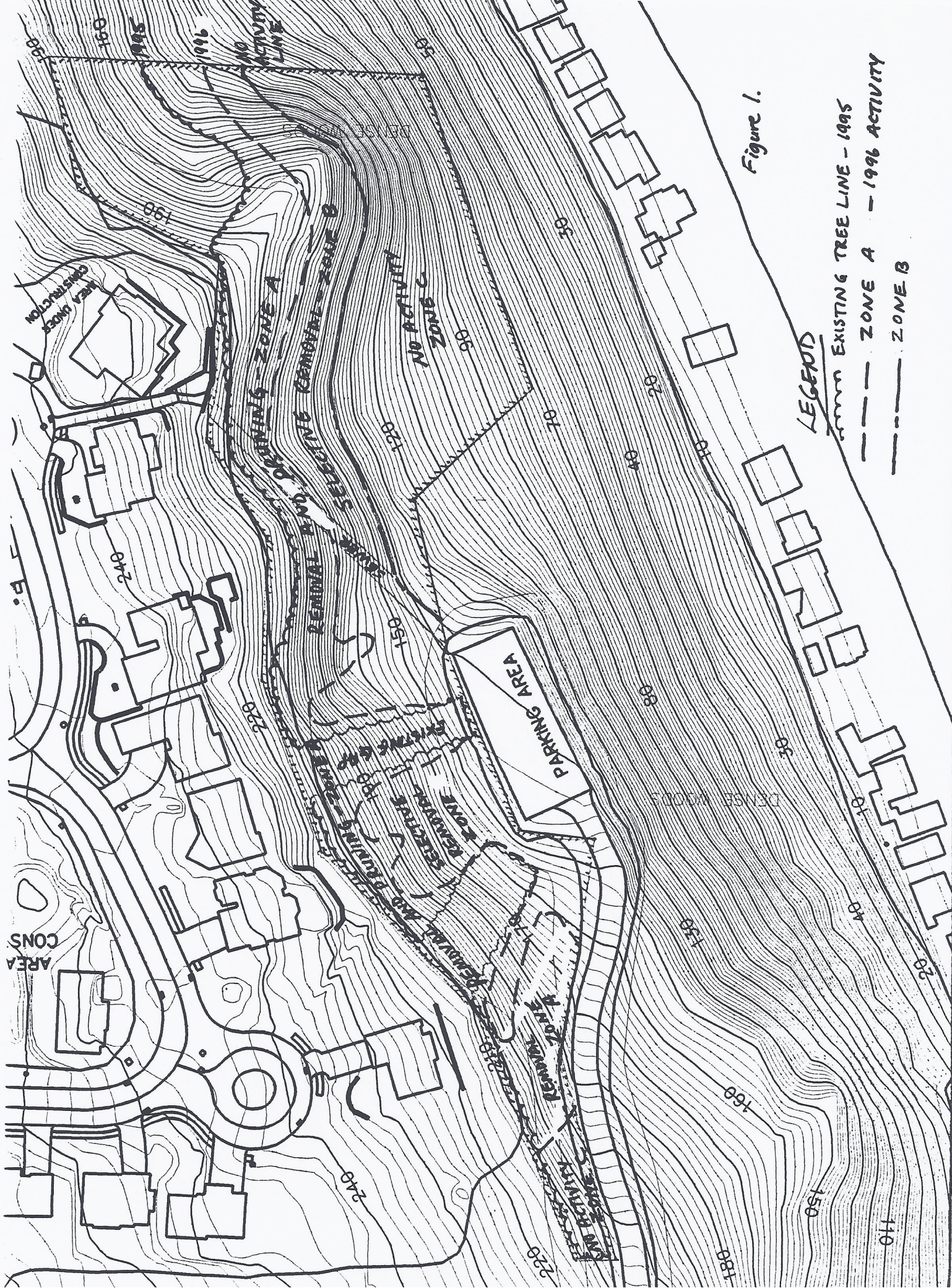


Figure 1.

LEGEND
 --- EXISTING TREE LINE - 1995
 --- ZONE A - 1996 ACTIVITY
 --- ZONE B

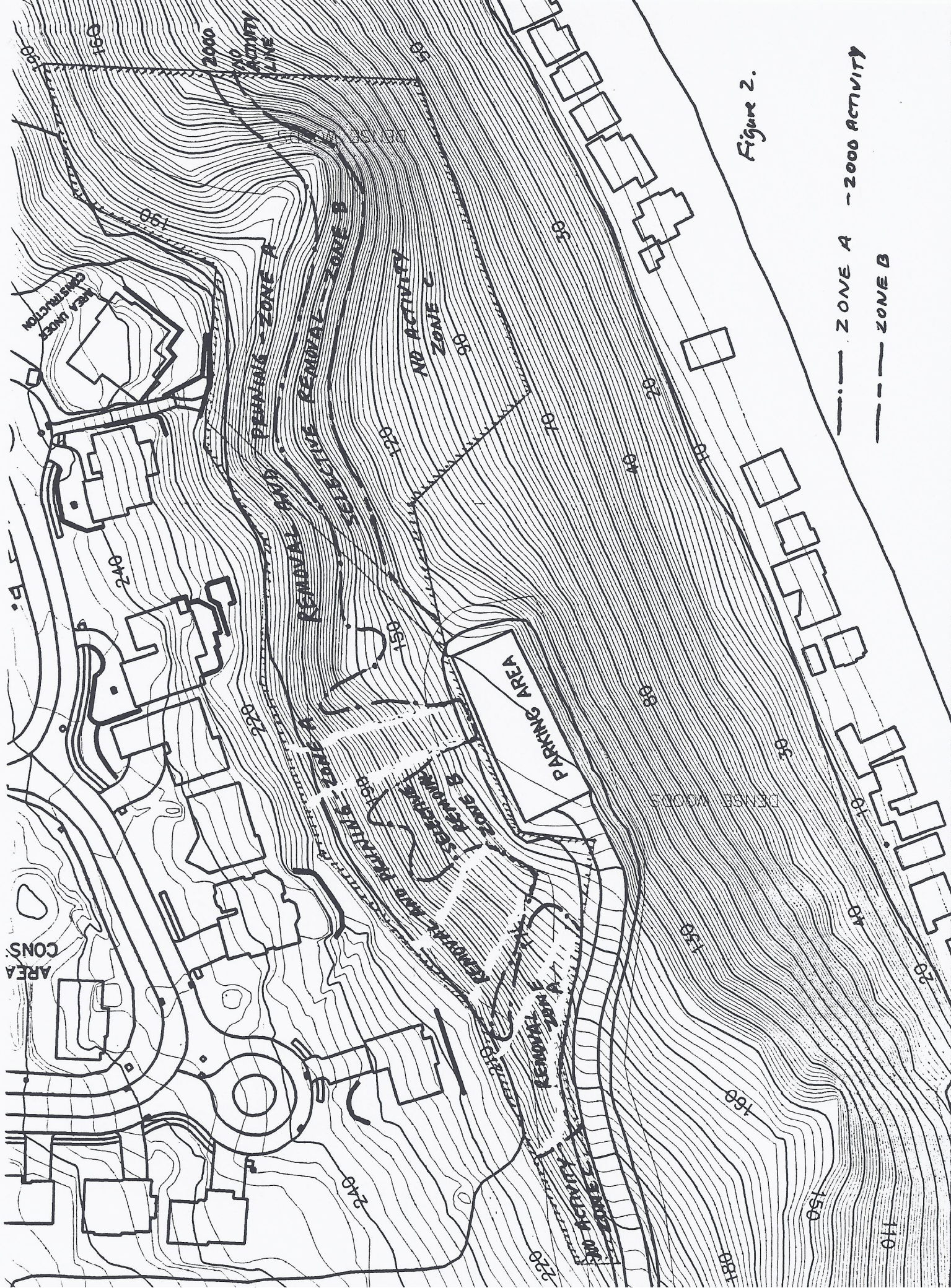


Figure 2.

- - - - ZONE A - 2000 ACTIVITY
 - - - - ZONE B



Figure 3.

~~~~~ ZONE A - 2005 ACTIVITY  
 - - - ZONE B



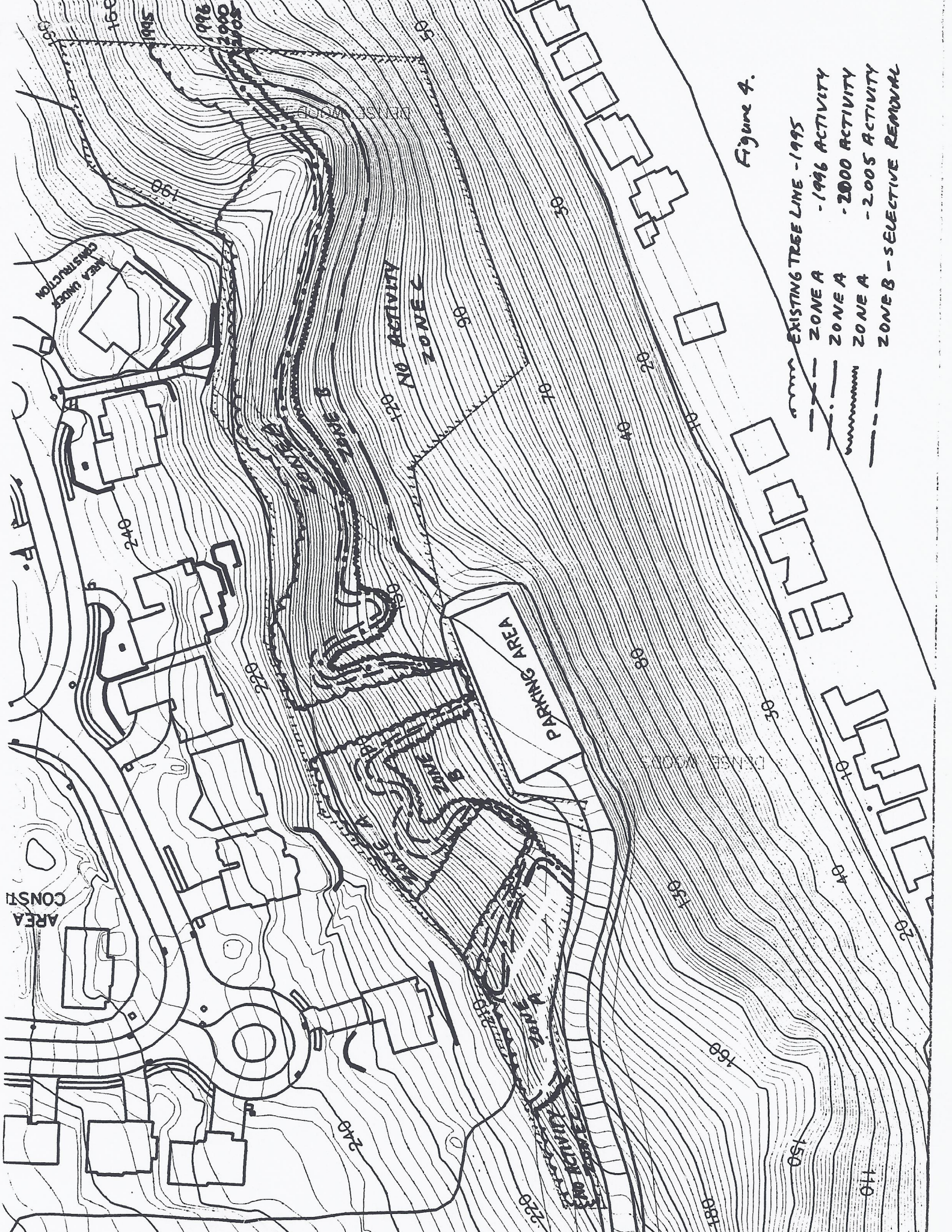


Figure 4.

- EXISTING TREE LINE - 1995
- - - ZONE A - 1996 ACTIVITY
- ... ZONE A - 2000 ACTIVITY
- ~~~~~ ZONE A - 2005 ACTIVITY
- - - ZONE B - SELECTIVE REMOVAL