



- Tree Protection Plan -

## AMERICAN CLASSIC HOMES

49xx 89<sup>th</sup> Ave. SE  
Mercer Island, WA

Prepared for: American Classic Homes  
Prepared by: Washington Forestry Consultants, Inc.  
Date of Report: January 7, 2021

### Introduction and Scope of Services

The project proponent is planning to build a new home on a vacant lot at 49xx 89<sup>th</sup> Ave. SE in Mercer Island. The proponent has retained WFCI to:

- Evaluate all trees within the project boundaries pursuant to the requirements of *Chapter 19.10 - Trees* for the City of Mercer Island, WA.
- Make recommendations for retention of significant trees along with required protection and cultural measures.

### Observations

#### Methodology

WFCI has individually evaluated each tree (10 inches DBH and larger) in the proposed project area and assessed the potential to be incorporated into the new project. The tree evaluation phase used methodology developed by Matheny and Clark (1998) in their text Trees and Development: A Technical Guide to Preservation of Trees During Land Development, published by the International Society of Arboriculture, Champaign, IL 1998.

In all cases, the overall health of the tree was considered relative to its ability to add value to the new project. The potential for incorporation into the project design has been evaluated as well. Trees that are retained near new construction must be carefully selected to make sure that they can survive construction impacts, adapt to a new environment and perform well in the landscape. Healthy, vigorous trees are better able to tolerate impacts such as root injury, changes in soils moisture regimes, and soil compaction than are low vigor trees.

Structural characteristics are also important in assessing suitability. Trees with significant decay and other structural defects that cannot be treated are likely to fail. Such trees should not be retained in areas where damage to people or property could occur.

**Site Description**

The project area consists of a single-family lot just south of an existing home at 4244 89<sup>th</sup> Ave. SE. The site is bordered to the north, east, and the south by other single-family homes, and by 89<sup>th</sup> Ave. SE to the west

The majority of the trees on the site were less than 10 inches DBH or were hazardous and had been removed.

**Tree Conditions**

Six trees remain in the project area. All but one tree are multi-stemmed. Species include Pacific dogwood (*Cornus nuttallii*), English-laurel (*Prunus laurocerasus*), bigleaf maple (*Acer macrophyllum*), and hawthorne (*Crataegus* spp.). Tree size ranges from 4.0 to 12 inches in diameter at breast height (DBH). When the DBH for these multiple stemmed trees is calculated, then the DBH’s for the trees on the site range from 11 to 24 inches DBH. Tree condition ranges from ‘Very Poor’ to ‘nearly dead.’ These trees are described in Table 1 below. Their locations are illustrated on the Aerial Photo in Attachment #1.

**Table 1. Summary of tree conditions.**

Tag #	Species	DBH (in.)	Calculated DBH (in)	Condition	Save based on Tree Condition Alone? Yes or No	Save Tree based on Site Plans? Save or Remove
322	Pacific dogwood	12.4	--	Nearly dead; Topped for powerline clearance – 50% dead;	No—not a long-term tree	Remove – under powerline and dying
314	English laurel	6,8,5	11.2	Very poor; Invasive species;	No	Remove
331	Bigleaf maple	10,6,10, 11,4,5,6, 5,5	22.0	Very Poor – 9 sprouts;	No	Remove – in footprint of home;
339	Bigleaf maple	8,10,8,8, 9,9,8,7	23.2	Very poor; 8 sprouts;	No	Remove – in footprint of home;

Tag #	Species	DBH (in.)	Calculated DBH (in)	Condition	Save based on Tree Condition Alone? Yes or No	Save Tree based on Site Plans? Save or Remove
330	Bigleaf maple	12,8,6,6,8,10,8,6,6	24.2	Very poor; 9 sprouts;	No	Remove – future hazard tree;
1	WA Hawthorne	6,7,4,3,3,2	11.1	Very Poor; structurally defective;	No	Remove – Noxious Species – Highly Defective

**Exceptional Trees**

The threshold DBH for a Pacific dogwood is 6 inches. However, tree #322 is growing under the powerline, has been topped for powerline clearance repeatedly, and over 50% of the remaining crown has died. This is a highly defective tree. It cannot be repaired by pruning. It should be removed and replaced with a quality tree in a coherent landscape design.



**Photo A. View of tree #322 – topped and dying Pacific dogwood.**

The Washington hawthorne (threshold of 9 inches DBH) is composed of 6 sprouts and rated as being in 'Very Poor' condition due to past breakage and/or poor pruning practices. It should not, in my opinion be considered to be an exceptional tree. Removal and replacement with a quality tree species in a coherent landscape design is the best short and long-term solution for this tree.

The bigleaf maples are all composed of stump sprouts growing from very low stumps. They will not make good long-term trees. As the sprouts increase in diameter, they will begin to exert pressure on each other, causing the stems to crack out and fail. Removal and replacement with quality trees in a coherent landscape design is the best short- and long-term plan for this site.



**Photo B. View of the stems of tree #339.**

No other trees meet the exceptional status. The English (cherry) laurel is excluded from consideration since it is severely defective and listed as a noxious weed in the State of Washington and the King County Noxious weed lists. It is also growing under the powerline.

### **Potential for Tree Retention**

It is my opinion that the best short- and long-term plan for this site is to remove the 6 remaining defective or dying trees and replace them with quality tree species in a coherent landscape design. The bigleaf maples are simply said, future hazard trees due to formation of tight-V crotches and failures of the stems. Unfortunately the Pacific dogwood has been mal-pruned for powerline clearance many times and is dying. It is not salvageable through pruning. The

hawthorne and English laurel are what I call ‘garbage’ trees that likely originated via bird droppings.



Photo C. View of the hawthorne #1. Defective tree.

**Off-Site Trees**

There are 7 trees on the perimeter of the project that may require tree protection fencing depending on the final grading plan.

**Table 2. Off-site trees.**

Tree #	Species	DBH (in)	Tree Distance From Property Line (ft)	Root Protection Zone Radius (ft) from Stem	Tree Protection Fence Location (ft) – Distance from Property Line
A	Western redcedar	30	9	12	3
B	Douglas-fir	28	18	18	0*
C	Cherry	12	15	10	0
D	Douglas-fir	20	20	8	0
E	Douglas-fir	22	20	13	0
F	Portuguese laurel	11	13	8	0
G	Douglas-fir	16	12	14	2

\*0 ft. = No tree protection fence necessary.



**Photo C. View of off-site western redcedar #A and Douglas-fir tree #G. Requires a tree protection fence 3 ft. inside ACH lot.**

Only trees #A and G require a tree protection fence to be located 2-3 ft. inside the project lot to protect the off-site trees. The remainder of the trees are buffered by root protection zone on the adjacent lots. Tree #C is deceptive in appearance on an aerial photo – it looks like the tree is on the property line, it is not. It leans to the north giving the appearance of being close to the property line.

### **Street Trees**

Currently there are no street trees along 89th Ave. SE. If street trees are planted, then there is only space for 2 trees, and those trees should be utility friendly tree species with a mature height of 15 ft. or less.

If trees are planted near the frontage and powerline, then they should be planted at least 25 ft. east of the inside phase of the powerline, and have a crown shape/diameter that will not conflict with the powerline in the future.

### Tree Protection Requirements

This plan suggests the removal and replacement of all of the 6 trees remaining on the lot since they are all severely defective or dying, and will not be good short- or long-term trees.

There are 2 off-site trees that may require tree protection fencing. Trees in the vicinity of grading and construction to be saved must be protected during construction by temporary orange plastic mesh fencing on driven posts (Attachment 2.), located at the edge of the critical root zone. The individual critical root zones are 1 foot radius for each 1 inch of DBH unless otherwise delineated by WFCI.

There should be no equipment activity within the critical root zone. No irrigation lines, trenches, or other utilities should be installed within the critical root zone. If roots are encountered outside the critical root zone, they should be cut cleanly with a saw and covered immediately with moist soil. Noxious vegetation within the critical root zone should be removed by hand. If a proposed save tree must be impacted by grading or fills, then the tree should be re-evaluated by WFCI to determine if the tree can be saved and mitigating measures, or if the tree should be removed.

### Tree Replacement Calculations

A total of 13 replacement trees are recommended based on the requirements of Chapter 19.10. These would be in addition to any trees required by the landscape ordinance.

**Table 3 – Replacement tree calculations.**

Tag #	Species	Actual DBH (in.)	Calculated DBH (in)	# Replacement Trees Required
322	Pacific dogwood	12.4	--	2
314	English laurel	6,8,5	11.2	2
331	Bigleaf maple	10,6,10,11,4,5,6,5,5	22.0	2
339	Bigleaf maple	8,10,8,8,9,9,8,7	23.2	2
330	Bigleaf maple	12,8,6,6,8,10,8,6,6	24.2	3
1	WA Hawthorne	6,7,4,3,3,2	11.1	2
	<b>Sum</b>			<b>13</b>

Conifer replacement trees must be at least 6 ft. tall and deciduous replacement trees must be at least 1.5 inch caliper balled and burlap or containerized trees. The trees should meet the ANSI Z60.1 standard for nursery stock, and the requirements of the City of Mercer Island code and planted to industry standards.

The recommended native tree species for replanting include: western redcedar, incense cedar, mountain hemlock, Rocky mountain maple, Pacific dogwood, serviceberry (tree form), Douglas maple, and vine maple.

### Summary

There are 6 trees on the property at 42xx 89<sup>th</sup> Ave. SE in Mercer Island. All but 1 (#322) are sprouts, with up to 9 sprouts on some trees. Tree #322 is dying due to repeated powerline pruning. There is no practical way to meet the 30% tree retention requirement since all trees are severely defective or dying.

In short, these 6 trees are defective or dying and are not good short- or long-term trees. It is recommended that all 6 trees be removed and replaced with the required 13 replacement trees. In 10 years, with a coherent landscape design, these new trees will be quality, attractive and valuable trees to the neighborhood and city.

No trees are considered to be 'Exceptional Trees' by the City of Mercer Island. Tree #322 a Pacific dogwood does meet the size threshold, but is dying due to repeated topping for powerline clearance.

Please give me a call if you have any questions.

Respectfully submitted,

Washington Forestry Consultants, Inc.

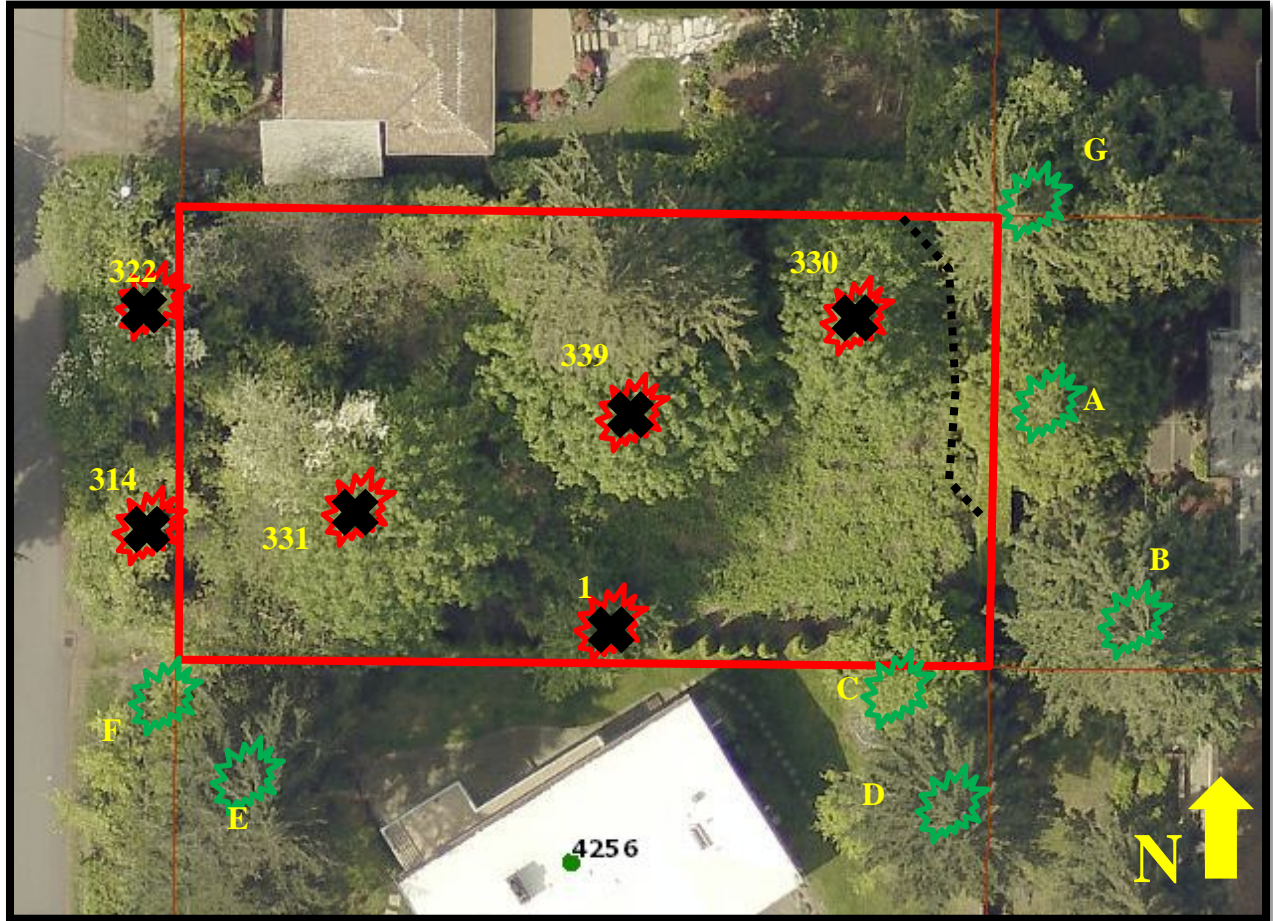






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**Attachment #1. Aerial Photo of 42xx 89<sup>th</sup> Ave. SE in Mercer Island with Tree Locations Indicated**

(2017 King County iMap)



-  Property Boundary
-  Location of Onsite Tree – Recommended Removal
-  Off-site tree – to be saved
-  Location of Tree Protection Fencing

**Attachment 2. Photolog (WFCI 12/1/20)**



**Photo D. View of tree #330. Not a quality tree – future hazard tree.**

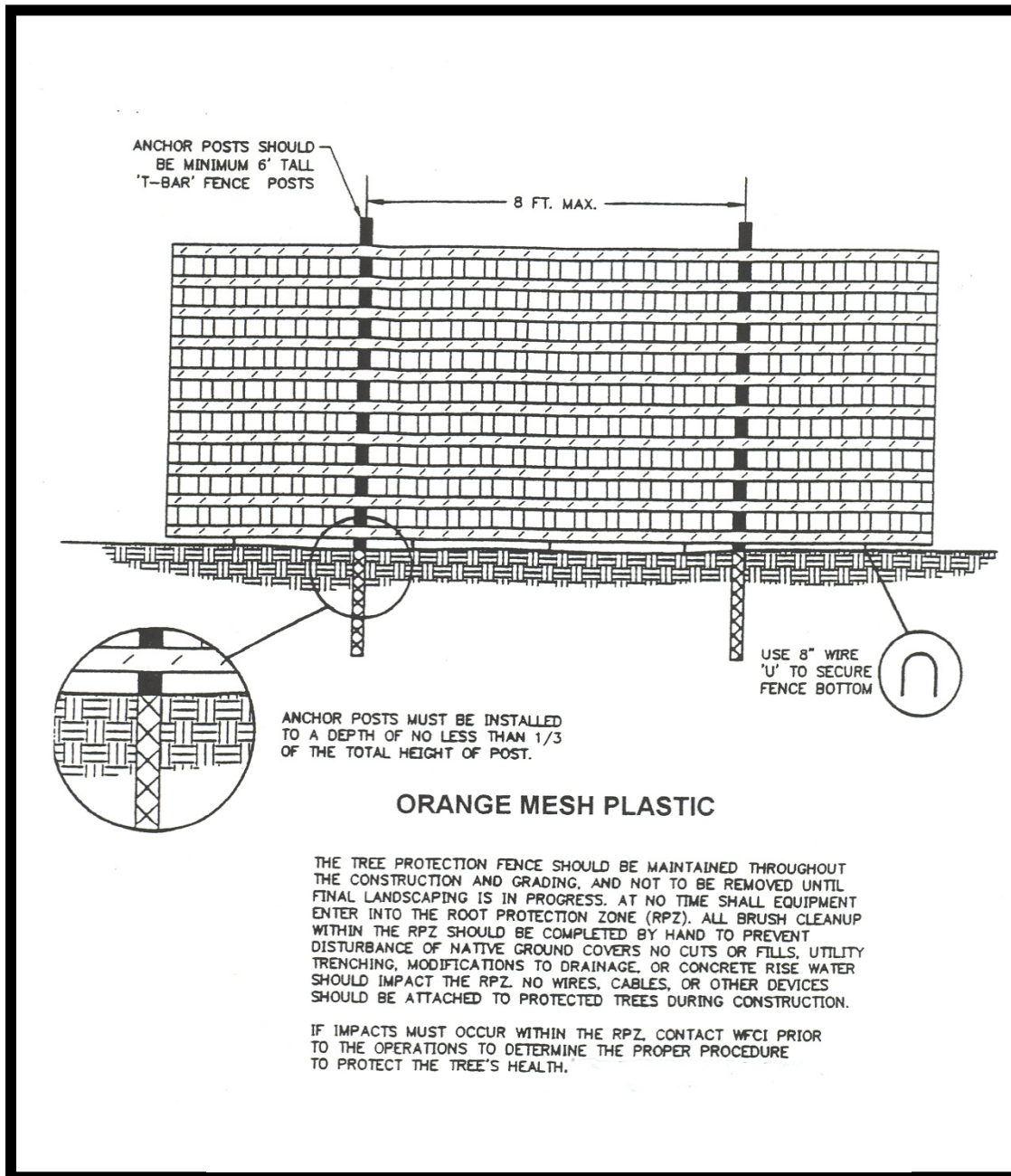


**Photo E. View of tree #314, the English laurel.  
Defective tree under powerlines.**



**Photo F. View of remains of tree #331.**

### Attachment 3. Tree Protection Fence Detail



## **Attachment 4. Description of Tree Evaluation Methodology**

The evaluation of the tree condition on this site included the visual assessment of:

1. Live-crown ratio,
2. Lateral and terminal branch growth rates,
3. Presence of dieback in minor and major scaffold branches and twigs,
4. Foliage color,
5. Stem soundness and other structural defects,
6. Visual root collar examination,
7. Presence of insect or disease problems.
8. Windfirmness: if tree removal will expose this tree to failure.

In cases where signs of internal defect or disease were suspected, a core sample was taken to look for stain, decay, and diameter growth rates. Also, root collars were exposed to look for the presence of root disease.

In all cases, the overall appearance of the tree was considered relative to its ability to add value to either an individual lot or the entire subdivision. Also, the scale of the tree and its proximity to both proposed and existing houses was considered.

Lastly, the potential for incorporation into the project design is evaluated, as well as potential site plan modifications that may allow otherwise removed tree(s) to be both saved and protected in the development.

Trees that are preserved in a development must be carefully selected to make sure that they can survive construction impacts, adapt to a new environment, and perform well in the landscape. Healthy, vigorous trees are better able to tolerate impacts such as root injury, changes in soils moisture regimes, and soil compaction than are low vigor trees.

Structural characteristics are also important in assessing suitability. Trees with significant decay and other structural defects that cannot be treated are likely to fail. Such trees should not be preserved in areas where damage to people or property could occur.

Trees that have developed in a forest stand are adapted to the close, dense conditions found in such stands. When surrounding trees are removed during clearing and grading, the remaining trees are exposed to extremes in wind, temperature, solar radiation, which causes sunscald, and other influences. Young, vigorous trees with well-developed crowns are best able to adapt to these changing site conditions.

## **Attachment 5. Glossary of Forestry and Arboricultural Terminology**

**DBH:** Diameter at Breast Height (measured 4.5 ft. above the ground line on the high side of the tree).

**Live Crown Ratio:** Ratio of live foliage on the stem of the tree. Example: A 100' tall tree with 40 feet of live crown would have a 40% live crown ratio. Conifers with less than 30% live crown ratio are generally not considered to be long-term trees in forestry.

**Crown:** Portion of a trees stem covered by live foliage.

**Crown Position:** Position of the crown with respect to other trees in the stand.

**Dominant Crown Position:** Receives light from above and from the sides.

**Codominant Crown Position:** Receives light from above and some from the sides.

**Intermediate Crown Position:** Receives little light from above and none from the sides. Trees tend to be slender with poor live crown ratios.

**Suppressed Crown Position:** Receives no light from above and none from the sides. Trees tend to be slender with poor live crown ratios.

## Attachment 6. Assumptions and Limiting Conditions

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*Note: Even healthy trees can fail under normal or storm conditions. The only way to eliminate all risk is to remove all trees within reach of all targets. Annual monitoring by an ISA Certified Arborist or Certified Forester will reduce the potential of tree failures. It is impossible to predict with certainty that a tree will stand or fail, or the timing of the failure. It is considered an 'Act of God' when a tree fails, unless it is directly felled or pushed over by man's actions.*