



ARBOR INFO LLC

2406 N Castle Way Brier, WA, 98036

**Tree Assessment
For
Sturman Architects
At
8413 SE 82nd St.
Mercer Island, Washington**



**Date
6/13/2024(rev 8/22/2024)**

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- I. Tree Location Map
- II. Site Development Plan with Tree Protections
- III. Tree Assessment Summary Table
- IV. Mercer Island Check list
- V. Mercer Island Tree Inventory Form
- VI. Tree Protection Signage Requirements

1. Introduction

I was contacted by John Magcawas at Sturman Architects to describe and assess the condition and viability of trees on and adjacent to 8413 SE 82nd St., Mercer Island, WA. This report summarizes my observations and conclusions.

2. Competence

- Certified Arborist (International Society of Arboriculture, ISA #23136, PN 0426 A)
- Registered Consulting Arborist (American Society of Consulting Arborists #499).
- Tree Risk Assessment Qualified (ISA).
- Certified forester (Society of American Foresters #951)
- Bachelor of Science degree in Forest Management from the University of Washington
- Licensed Washington State Real Estate Managing Broker #11534

3. Client

The client to whom this report is addressed is:

John Magcawas
Sturman Architects
9-103rd Ave NE, Suite 203
Bellevue, WA 98004

4. Assignment, Purpose and Use of Report

The assignment is to describe and assess the condition and viability of on-site and off-site trees adjacent to the subject parcel. Protection recommendations in conformance with the City of Mercer Island “Tree Submittal Check List” are included.

5. Limits of Assignment

The assignment is limited to the information gathered during the site visit April 15, 2022 (date of assessment) and references noted in this report. No excavation or sampling was undertaken to determine unseen defects. No inspection of trees not reported herein was made.

A site plan indicating the current condition of the property was provided and is included in the Addenda with tree locations noted.

6. Site Description

8413 – SE 82nd St. Mercer Island, WA
King County Parcel No. 3625600080, 16,386 square feet; 0.37 acres

The subject property is an irregularly shaped lot that contains a single-family residence on near level ground that drops off sharply on the SE end.

The existing house is planned for remodel on the site.

7. Methodology

Each tree was measured for diameter at 4.5-feet above ground, (or equivalent) total height, percentage of live green crown, and dripline (extent of live limbs).

Each tree was assessed as to its vitality, structure, vigor and viability:

Vigor or condition:

Vitality: Biotic

- Good: No evidence of fungal infection or decay;) Tree has sufficient photosynthetic capacity to reach expected normal life expectancy. (40-100 years) in this case
- Fair: Tree has initial fungal decay or evidence of insect habitat and is less likely to survive to normal life expectancy. . Some with minor defects, are rated viable because they have sufficient photosynthetic capacity to reach expected normal life expectancy,
- Poor: Tree has significant fungal decay and defects that render it not likely to survive three years.

Structural: Abiotic

- Good: no significant abiotic or mechanical defects
- Fair: less than preferred form, defects such as breaks in the bole, poor limb attachments, included bark, poor root contact, etc. May be rated non-viable.
- Poor: Broken or cracked bole or limbs; root plate compromised; generally rated non-viable.

Viability:

- A measure of whether the tree is likely to live to its “normal” life span or has defects limiting that potential or poses a risk to the residence or proposed development is a simple ‘yes/no’ rating.

8. Tree Description

Refer to the attached Tree Assessment Summary Form. There are a total of sixty-one on-site trees and nine off-site. A summary of the trees follows.

Table 1- Tree Category Summary – On site

<u>Category</u>	<u>Number</u>
Total	21
Total viable	21
36”+	2
24”+	9
Exceptional	6
Large Regulated	16
Large Regulated to be Removed	4
Percentage Retention	75%

Table 2- Tree Category Summary – Off site – Private

<u>Category</u>	<u>Number</u>
24”+	1
Exceptional	0
Large Regulated	9
Large Regulated to be Removed	0
Percentage Retention	100%

9. Tree Retention and Removals

Refer to Addendum II and Mercer Island City Code 19.10.060.

There are twenty-one trees on site with five proposed for removal, leaving 76-percent retention.

19.10.060.A.2. *Retention requirement.* Development proposals specified under subsection (a)(1) of this section shall retain trees as follows:

a .A minimum of 30 percent of trees with a diameter of ten inches or greater, or that otherwise meet the definition of large tree, shall be retained over a rolling five-year period.

The retention requirement is met.

The following Table 3 provides the likely root zone incursion and impacts for all trees.

Table 3 – Root Zone Impacts

Root Zone Impacts							
Tree #	Species	DBH (in)	Root Zone		Distance tree face to:		Impact
			Outer (ft)	Inner (ft)	Excavation (ft)	Percent Disturbance*	
On-site							
1	Shore pine	8.1	7	4	4'-10 1/2"	1%	Minor
2	Douglas-fir	30.5	23	12	16'-2 1/4"	30%	Remove - New driveway uplift
3	Douglas-fir	30.4	18	9	16'-10 1/2"	0%	Remove - Negatively impacting existing retaining wall
4	Douglas-fir	32.5	15	8	Within house foot print	30%	Remove - In garage excavation limit and footprint
5	Douglas-fir	37.5	26	13	12'-1"	8%	Minor
6	Beech	15.5	25	13	23'-9"	1%	Minor
7	Japanese maple	11.1	14	7	9'-2"	3%	Minor
8	Flowering cherry	9.5	10	5	Within house foot print	100%	Remove
9	Douglas-fir	36.5	24	12	5'-4"	38%	Remove--lower floor excavation
10	Bitter cherry	28.9	24	12	15'-0 1/2"	0%	Minor
11	Shore pine	15.8	9	5	18'-4 1/4"	0%	None--Outside dripline/root zone
12	Flowering cherry	12.2	16	8	24'-6 1/4"	0%	None--Outside dripline/root zone
13	Douglas-fir	34.4	22	11	NA	0%	None--Outside dripline/root zone
14	Flowerign cherry	8.1	12	6	NA	0%	None--Outside dripline/root zone
15	Douglas-fir	29.7	18	9	NA	0%	None--Outside dripline/root zone
16	Douglas-fir	24.5	17	9	NA	0%	None--Outside dripline/root zone
17	Douglas-fir	19.5	18	9	NA	0%	None--Outside dripline/root zone
18	Cherry	13.9	15	8	NA	0%	None--Outside dripline/root zone
19	Vine maple	7.6	14	7	NA	0%	None--Outside dripline/root zone
20	Katsura	10.4	14	7	NA	0%	None--Outside dripline/root zone
21	Shore pine	8.1	7	4	NA	0%	None--Outside dripline/root zone
Off Site							
A	Norway spruce	25	20	10			None--Outside dripline/root zone
B	Norway spruce	18	12	6			None--Outside dripline/root zone
C	Douglas-fir	17	12	6			None--Outside dripline/root zone
D	Douglas-fir	18	15	8			None--Outside dripline/root zone
E	Douglas-fir	22	16	8			None--Outside dripline/root zone
F	Leyland cypress	12	10	5			None--Outside dripline/root zone
G	Leyland cypress	12	9	5			None--Outside dripline/root zone
H	Douglas-fir	24	25	13			None--Outside dripline/root zone
I	Norway spruce	17	20	10			None--Outside dripline/root zone
J	Bay laural	10	6	3			None--Outside dripline/root zone

*A calculation of the total area (square feet) of proposed disturbance in the outer half of the tree's drip line divided by the total area of the outer half of the dripline (square feet) that cannot exceed 33 percent or 1/3 of the outer dripline.

Site Development impacts are rated as follows:

- None; Site Disturbance, Excavation and fill are beyond the Critical Root Zone
- Minor: Shallow Site Disturbance, will affect less than 15-percent of the Critical Root Zone –Careful excavation required
- Moderate: Site Disturbance will affect less than 30-percent of the Critical Root Zone with depths up to 12-inches – Careful excavation required
- Significant: Site Disturbance, Excavation and fill exceed the above limits: Tree not recommended for retention.

Table 4 following summarizes the proposed tree removals.

Table 4 – Tree Removal Summary

<u>Tree No.</u>	<u>Species</u>	<u>Diameter (in)</u>	<u>Classification</u>	<u>Purpose</u>
2	Douglas-fir	30.5	Exceptional	Driveway uplift potential hazard for new driveway concrete
3	Douglas-fir	30.4	Exceptional	Potential Hazard due to potential retaining wall failure
4	Douglas-fir	32.5	Exceptional	Within House foot print
8	Flowering cherry	9.5	Not Regulated	Within House foot print
9	Douglas-fir	36.5	Exceptional	W/in Building footprint-lower floor excavation

Within the Guidelines of MICC as excerpted following, trees 2,3,4,8 and 9 that are planned for removal meet the allowable removal criteria as demonstrated by unavoidable root zone impacts.

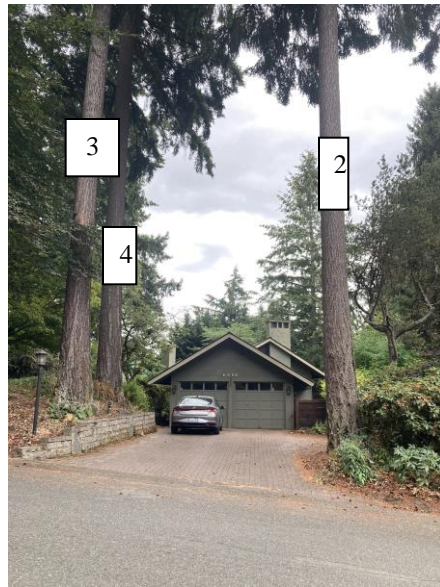
19.10.060.A.3 *Retention of exceptional trees.* Development proposals specified under subsection (a)(1) of this section shall retain exceptional trees with a diameter of 24 inches or more. Exceptional trees with a diameter of 24 inches or more that are retained shall be credited towards compliance with the retention requirements of subsection (A)(2) of this section. Removal of exceptional trees with a diameter of 24 inches or more, shall be limited to the following circumstances:

a. Retention of an exceptional tree(s) with a diameter of 24 inches or more will result in an unavoidable hazardous situation; or

b. Retention of an exceptional tree(s) with a diameter of 24 inches or more will limit the constructable gross floor area to less than 85 percent of the maximum gross floor area allowed under [chapter 19.02](#) MICC; or,

c. Retention of an exceptional tree(s) with a diameter of 24 inches or more will prevent creation of a residential lot through a subdivision or short subdivision that is otherwise allowed by this title.

Tree Removal, Additional Reasoning:



Tree 2:

The existing 30.5" Douglas Fir canopy and root zone overlap the existing driveway. There will be a new driveway installed and the concern is that the root system will crack the new concrete. We will not be expanding the driveway but will be following the existing footprint for the new concrete.



Tree No. 2 with existing driveway at the base.

Tree 3: The 32.5" Douglas Fir is substantially growing into an existing retaining wall. The trunk of the tree is within inches of the existing retaining wall which is showing signs of structural failure. The tree is proposed to be removed to ensure the stability of the wall.



Tree No. 3 and 4 growing atop block retaining wall

Tree 4: The 30.4" Douglas Fir is substantially growing into an existing retaining wall. The trunk of the tree is within inches of the existing retaining wall which is showing signs of structural failure. The tree is proposed to be removed to ensure the stability of the wall. The tree canopy and root zone will also be overlapping the new garage foundation.

Tree 8: The 9.5" flowering cherry is unregulated.

Tree 9: The 36.5" Douglas-fir will sustain significant root zone loss due to excavation for the lower floor.



Tree No. 9 to have substantial root loss due to excavation

10. Replacement Trees

Removal of four exceptional (2,3,4, and 9) trees, 24-36 inches requires replacement at a 6:1 ratio. (See Attached Tree Removal and Replacement Work sheet). Twenty-four replacement trees are required.

The project landscape architect will develop a tree planting plan including species and placement on the property.

11. Tree Protection

Trees to be retained must be protected per MIC 19.10.080.b. The following guidelines should be employed to protect all retained trees on and off site at this project location.

- Place no construction material or equipment within the protected area of any tree to be retained
- Tree protection fencing consisting of chain link at least 4-feet in height at the dripline
- “Tree Protection Area- Entrance Prohibited” at 15-foot intervals on the fence

- Prohibiting excavation or compaction of earth or other damaging activities within the barriers unless approved by the Planning Official and supervised by a qualified professional
- Approved landscaping in a protected zone shall be done by light machinery or by hand
- Any exposed roots should be cut cleanly and backfilled with soil as soon as possible
- Root zones should be protected by a 4-inch-deep layer of clean organic material (tree chips, etc.)

Detailed Tree Protection Signage requirements per Mercer Island Requirements are attached in Addendum V.

11. Summary

The tree retention, removal and protection plan described above meets the objectives of the 19.10.010 by retaining and protecting 75-percent of the onsite trees and 100-percent of the trees on adjacent property.

12. Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. Ownership of the subject trees as provided by the client is assumed to be correct. No responsibility is assumed for legal matters. No opinion as to the property line location is made.
2. Care has been taken to obtain all information from reliable sources. The consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
3. The consultant shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including additional fees.
4. This report and any values expressed herein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
5. The exhibits in this report are included to assist the reader and are not necessarily to scale.
6. Unless expressed otherwise, the information in this report covers only items that were examined and reflects the condition of those items at the time of inspection. The subject site was cleared of all vegetation at the time of inspection therefore the extent of removals is inferred from adjacent undisturbed areas. The inspection is limited to visual examination of accessible portions of the trees and plants.

7. Loss or alteration of any part of the report invalidates the entire report. Ownership of any documents related to this report passes to the client only.
8. The liability of ArborInfo LLC its contractors and employees is limited to the client only and only up to the amount of the fee actually received for the assignment.
9. *There is no warranty suggested for any of the trees subject to this report. Weather, latent tree conditions, and future man-caused activities could cause physiologic changes and deteriorating tree condition. Over time, deteriorating tree conditions may appear and there may be conditions, which are not now visible which, could cause tree failure. This report or the verbal comments made at the site in no way warrant the structural stability or long-term condition of any tree, but represent my opinion based on the observations made.*
10. *NEARLY ALL TREES IN ANY CONDITION STANDING WITHIN REACH OF IMPROVEMENTS OR HUMAN USE AREAS REPRESENT HAZARDS THAT COULD LEAD TO DAMAGE OR INJURY. THE ASSESSMENT IS VALID FOR TWO YEARS FROM THE DATE OF INSPECTION, ONLY.*
11. PERTINENT JURISDICTION RULES AND REGULATIONS SHOULD BE CONSULTED PRIOR TO THE REMOVAL OR ALTERATION OF ANY TREE.

Respectfully Submitted,



Thomas M. Hanson, CA, RCA

Addenda

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Glossary of Common Terms

DBH	Diameter at breast height, 4 ½' above ground level
Basal	In the vicinity of the root/trunk connection at ground level
Bole	The tree stem (Trunk)
Butt Swell	Abnormal swelling at the base of the tree
Canker	Localized diseased area on stems, roots and branches. Often shrunken and discolored.
Codominant	Two or more trunks originating from a single main trunk
Conk	The fruiting body of a fungus
Critical Root Zone	Variably defined as an area extending to or outside the dripline to as much as 1-foot per inch or 1.5 inches of trunk diameter at DBH
Crook	Abrupt bend in a branch or trunk
Crown	The live branches or live leaves or live needles of a tree
Crown ratio	The percentage of live green leaves or needles to total height
Dieback	Notable dead foliage, starting at the end of a branch or the top of a tree
Dripline	The extent of live limbs from the trunk
Epicormic	A shoot arising from a dormant bud following exposure to sunlight
Flat Side	Trunk of the tree has a flattened appearance on the side, sometimes an indicator of internal decay
Girdling Root	A root that winds around the stem at ground level
Included Bark	Bark that is pinched between codominant stems; a common weak point
Leader	The central stem tip
Leaf Spot	Diseased areas on foliage
Limb Collar	The swelling at the junction of the bole and limb

Photosynthesis The process of converting water, nutrients and CO₂ to carbohydrates (wood)

Pitchy Excessive sap exuding from the tree trunk; often an indicator of stress

Pruning The cutting and removal of limbs (**Crown Raising**)

Rotten knot Point of the stem where limb removal has allowed pathogen infection and decay (**Black knot**)

Root Disease Fungal decay of the root system often causing tree failure

Taper The ratio of diameter on different points of a trunk, stem or branch

Thin Crown Comparatively low live foliage percentage; often an indicator of root disease

Topping Removal of the main stem above live, green limbs

Trimming Shortening or cutting of limbs; sometimes called **heading**

Trunk Seam A seam in the trunk, suggests internal decay

Viable span A structurally sound and healthy condition, expected to live to normal life span

Vigor Tree health and growth rate

Vitality The suitability of the tree for the site.

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