Lonnson Arbor Care 2616 169th Street SE Bothell, WA 98012 425-891-1741

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October 18, 2021

Brumbaugh Residence 4124 83rd Ave SE Mercer Island, WA 98040

Re: **Tree Report** for the address above (Parcel #36265000030).

To Whom It May Concern,

This report documents the inspection and identification of an "exceptional" tree on the property mentioned above. A site map of tree locations is included, along with an ISA Hazard Assessment Form for the exceptional tree. A planting plan is provided with the removal of the exceptional tree. A tree protection plan is discussed for trees along the south property line.

Subject tree (tag #1):

- Eastern White Pine (*Pinus strobus*).

Diameters at Breast Height (DBH):

- 12.1", 8.0", 13.0", 6.2", 18.4", and 26.2".
- Total DBH of all trunks is 38.0 inches (DBH = $\sqrt{[(DBH1)^2 + (DBH2)^2 + (DBH3)^2 + ...)}$].

Condition:

 Multi-trunked tree with included bark between trunks. The tree has a dead trunk down to the base indicating heartwood decay near the root collar. Side branches have severely rubbed into the trunk stem.

Mitigation:

The Eastern White Pine warrants removal because of structural defects that will require extensive pruning and cabling to lower risk without the guarantee of recovery. The total DBH of the tree is 38.0" which requires the planting of six (6) new trees under MICC 19.10.070. Conifer (evergreen) trees must be at least 6-feet tall when planted. Deciduous trees need to have a trunk caliper (base measurement) of 1.5 inches.

Eastern White Pine Pictures:



The picture above, taken at time of inspection, shows the base of the Eastern White pine. The red arrow points at the included bark between the trunks. This part of the trunk is likely to fail within the 5-year assessment time frame. The yellow arrow points at the dead stem which indicates root crown problems near the base of the tree. Severe branch rubbing is highlighted in yellow. The imbedded, rubbing branch has compromised the stem's structural strength and is likely to fail within the assessment period.

TS♠ Basic Tree Risk Assessment Form

| Address/Tree location 4124 83rd Ave. SE, Mercer Island Tree species Pinus strobus | Tree no. | Tree no. #1 Sheet 1 of Height 120' Crown spread dia. 30' | 1of1 | Targ | et | | , | andition(s) |
|--|---|--|--|--|--|--|--|--|
| Lonnie Olson PN-5427A | 3 | Camera Time frame | 5 years | (Target number or description) | ption) | Tree part | | of concern |
| Target Assessment | essment | | | | | | | |
| et number Target description | Target protection | ret within rip line set within 1 x Ht. set within 5.5 x Ht. 1 are 1 a | ctical to ve target? triction ctical? | 1 | | Trunk/Stem | Failur | Failure at base |
| 1 House 4124 | None | × | 0 | 2 | _ | Trunk/Stem | Failure | Failure at rubbing |
| | None | × 4 | no no | | | | | , |
| 3 | | | Н | | | | | |
| 4 | | | | | | | | |
| Site Factors | ctors | | | T | | | | |
| History of failures None | Topography i | Topography FlatIX Slope□% | Aspect | | | | | |
| Site changes None ☑ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe | ogy□ Root cuts□ Describe | | 1 | | | | | |
| Soil conditions: Limited volume Saturated Shallow Compacted Pavement over roots Compacted I shallow I compacted Saturated Shallow Shal | avement over roots□ % Snow□ Heavy rain Desc | Describe Fair | | | | | | |
| Prevailing Wind direction _ive _ common weather proving winds to rect. Show to heavy think a previous Prevailing Wind direction _ive _ common weather provide | Tree Health and Species Profile | | | | | | | |
| Normal ☑ High ☐ Foliage None (seasonal) ☐ | None (dead) Normal 80 % Chloroti | ° % | Necrotic% | | | | | |
| hes□ Trunk X Roots□ Describe Loss | structural strength. | | | Matrix I. Like | Matrix I. Likelihood matrix. | | | |
| Load | Load Factors | | | | | Likelih | Likelihood of Impact | |
| Wind exposure Protected ☐ Partial 🛭 Full ☐ Wind funneling ☐ | Relative | Relative crown size Small ☐ Medi | Medium X Large □ | Likelihood | Very low | Low | Medium | High |
| Crown density Sparse □ Normal M Dense □ Interior branches Few □ Normal M Dense □ Recent or expected change in load factors Seasonal winds | | Vines/Mistletoe/Moss □ | | of Failure | | | | |
| Tree Defects and Conditions Affecting the Likelihood of Failure | fecting the Likelihood of Failu | re | | of Failure Imminent Probable | | Somewhat likely Unlikely | Likely Somewhat likely | kely Likely |
| ı | Crown and Branches — | | | of Failure Imminent Probable Possible | Unlikely Unlikely Unlikely | Unlikely Unlikely | Somewhat likely Unlikely | Sor |
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| ber | Weak attachments | Cavity/Nest hole | g damage Juded bark | Likelihood of Failure Imminent Probable Possible Improbable Matrix 2. Risk | Unlikely So Unlikely Unlikely Unlikely Unlikely Unlikely | mewhat likely Unlikely Unlikely Unlikely Cons | Somewhat likely Unlikely Unlikely | Very III Wely Likel Somewha Unlikel Unlikel |
| Over-extended branches | Previous branch failures 🗆 | Similar branches present | Lightning damage included bark ty/Nest hole% circ. | Likelihood of Failure Imminent Probable Prossible Improbable Improbable Ulkelihood of Failure & Impa | Unlikely So Unlikely Unlikely Unlikely Unlikely Unlikely Unlikely Unlikely Unlikely Unlikely | ikely ikely | Somewhat iii Unlikely Unlikely sequences of F | Very III Likel Somewha Unlike Unlike |
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|--|--|--|--|--------------------|-----------------|--------------------------------------|-------------------------------------|------------|---------------------|
| | | | | Trunk/Stem | Trunk/Stem | Tree part | | | |
| | | | | Failure at rubbing | Failure at base | of concern | Condition(s) | | Risk Categorization |
| | | | | | | Improbable | | Г | tegori |
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| | | | | | | Minor | Consequences | | |
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Significant Severe
High Extreme
High High
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Low Low he included bark and dling) phloem cells n for the stem dieback. nent needed □No □Yes-Type/Reason ______ cess □Vines □Root collar buried Describe oderate ☐ High 🛭 Extreme ☐ Recommended inspection interval Residual risk None
Residual risk Residual ri

Page 2 of 2

Tree Protection Plan:

Protective fencing is recommended around the perimeters of the Tree Protection Zone (TPZ) for each retained tree during grading and construction. Chain-link fencing is recommended to preserve the trees from soil disturbance due to machines, foot traffic, and materials. Grading and construction should not be allowed within the TPZ of retained trees, unless described in this report.

The placement for tree protection fencing is shown on the property map (page 6). I allow the protection fencing to cut across part of the TPZ of trees along the south property line to provide room for building. This fencing plan results in less than 30% disturbance of the outer root zone area and protects the inner (critical) root zone area. The radius of the inner root zone is half the TPZ. The threshold for outer root zone disturbance is no more than 30% of the area, not including the inner root zone area. The area of allowable disturbance for each impacted tree is calculated below.

Douglas Firs with 18.0" DBH and TPZ radius:

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Inner root zone area = \pi r^2 = \pi (TPZ/2)^2 = \pi (9.0')^2 = 254.3 \text{ ft}^2.
Outer root zone area = \pi r^2 = \pi (TPZ)^2 = \pi (18.0')^2 = 1,017.4 \text{ ft}^2.
1,017.4 \text{ ft}^2 - 254.3 \text{ ft}^2 = 763.1 \text{ ft}^2.
763.1 \text{ ft}^2 \times 30\% = 228.9 \text{ ft}^2.
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Protective fencing for Douglas Firs with 18.0" DBH may expose no more than 229.0 ft² of the outer root zone and not intersect the inner root zone.

Pine with 12.0" DBH and TPZ radius:

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Inner root zone area = \pi r^2 = \pi (TPZ/2)^2 = \pi (6.0')^2 = 113.0 \text{ ft}^2.
Outer root zone area = \pi r^2 = \pi (TPZ)^2 = \pi (12.0')^2 = 452.2 \text{ ft}^2.
452.2 \text{ ft}^2 - 113.0 \text{ ft}^2 = 339.2 \text{ ft}^2.
339.2 \text{ ft}^2 \times 30\% = 101.7 \text{ ft}^2.
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Protective fencing for Pine with 12.0" DBH may expose no more than 102.0 ft² of the outer root zone and not intersect the inner root zone.

New Tree Recommendations:

Native trees are most preferred. Some of the larger native evergreen (conifer) trees include Douglas fir (*Psuedotsuga menziesii*), Red cedar (*Thuja plicata*), Western hemlock (*Tsuga heterphylla*), Grand fir (*Abies grandis*), and Engelmann spruce (*Picea Engelmanii*).

Ornamental native trees and near native trees more suited for landscape design may include Excelsior cedar (*Thuja plicata* 'Excelsior'), Mountain hemlock (*Tsuga mertensiana*), Shore pine (*Pinus contorta*), Alaskan weeping cedar (*Chamaecyparis nootkatensis*), and Pacific yew (*Taxus brevifolia*) for evergreen conifers. Deciduous trees include Serviceberry (*Amelanchier alnifolia*), Dogwood (*Cornus nutellii* or *Cornus* 'Eddie's White Wonder'), White oak (*Quercus garryana*), Crabapple (Malus fusca), and Vine maple (*Acer circinatum*).

Please reply if you have questions.

Thank you,

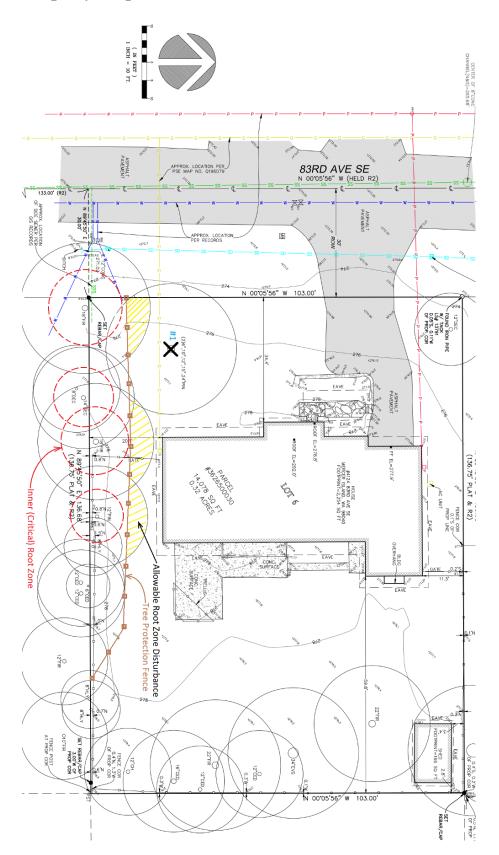
Lonnie Olson, Owner

Lonnie Olson

ISA Certified Arborist (PN-5427A) exp. 12/31/2023

Qualified Tree Risk Assessor (#697) exp. 7/23/2024

Property Map: 4124 83rd Ave. SE, Mercer Island.



Assumptions & Limiting Conditions

- 1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. The property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
- 2. All data has been verified insofar as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.
- 3. I shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee.
- 4. Loss or alteration of any part of this report invalidates the entire report.
- 5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.
- 6. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in my qualification.
- 7. This report and 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.
- 8. Sketches, diagrams, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
- 9. Unless expressed otherwise: (1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

Certification of Performance & Appraisal

I, Lonnie Olson, certify that all the statements of fact in this report are true, complete, and correct to the best of my knowledge and belief, and that they are made in good faith.

- □ I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the terms of assignment.
- □ The analysis, opinions, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- □ No one provided significant professional assistance to me, except as indicated within the report.
- □ My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing with the International Society of Arboriculture. I have been involved in the field of arboriculture in a full-time capacity for a period of more than 24 years.

| | Lonnie | Olson | |
|---------|--------|-------|--|
| Signed: | | | |