

Arborist Report

To: Shane Katsoolis
Site: 6202 SE 22nd St, Mercer Island, WA 98040
Re: Retroactive Tree Assessment
Date: March 25, 2024
Project Arborist: George White,
ISA Certified Arborist #PN-8908A
ISA Qualified Tree Risk Assessor
Reviewed By: Katherine Taylor
ISA Certified Arborist #PN-8022A
ISA Qualified Tree Risk Assessor
Referenced Documents: Proposed Drainage Plan (EightBlox Studios, 2.23.2024)
Site Levels Plan (EightBlox Studios, 2.23.2024)
Landscape Plan (EightBlox Studios, 2.23.2024)
Attached: Watering Guidelines (Tree Solutions Inc., 2021)

Summary

This arborist report is a retroactive tree assessment requested by the city after two trees were removed or impacted by the property owner as a result of adjacent earthwork.

No trees were assessed, inventoried, or tagged on-site. Based on the Mercer Island City Code (MICC) large (regulated) and exceptional trees are required to be assessed for development projects; however, no large trees were located on the subject property at the time of my site visit.

There were no adjacent trees that required documentation for this property. Trees on neighboring properties are typically documented if they appeared to be greater than 10 inches diameter and their driplines extend over the property line.

Based on analysis of publicly available aerial imagery, Google Street View, and provided photographs, I determined that both removed trees were likely less than 10 inches in diameter at standard height (DSH – measured at 4.5 feet above grade). I was also able to confirm that no large trees have existed on-site, or have been removed, in the previous 5 years.

Assignment and Scope of Work

This report outlines the site inspection by George White of Tree Solutions Inc, on March 6, 2024. I was asked to visit the site and provide a formal report including findings and management

recommendations. Shane Katsoolis, owner of the subject property, requested these services for project planning purposes.

This report is also intended to provide the requested documentation of the two trees removed by Mr. Katsoolis, and to determine their regulatory status.

Observations and Discussion – Site Visit

Site

This 12,000 square foot site is located on SE 22nd St. in northwest Mercer Island. According to King County iMap, no environmentally critical areas (ECAs) exist on-site. A one-story house currently exists on-site. This house was constructed in 1959 when the lot was originally developed.

Trees and Existing Vegetation

At the time of my site-visit, the site had been almost entirely cleared of vegetation (Photo 1) in preparation for proposed improvements. I was unable to observe the stumps of removed trees.

Based on conversations with Mr. Katsoolis, two trees had been removed on his property approximately two years prior as an inadvertent result of utility-related earthwork. He estimates that both removed trees were between 8 and 10 inches in diameter. He remembers both trees to be smaller evergreen species.

Mr. Katsoolis also recalls that the property contained several ornamental shrubs and hedges that were primarily in poor health condition prior to site clearing. He also mentioned the presence of invasive vegetation, most notably Himalayan blackberry (*Rubus bifrons*).

Proposed Plans

The most recent plans (Drainage Plan, EightBlox Studios, 2.23.2024) propose significant renovations to the existing structure, and the installation of new landscaping. No expansion of the existing building footprint is proposed.

Observations and Discussion – Analysis of Photographic Resources

I reviewed photographs provided by Mr. Katsoolis, the most recently available Google Street View images (dated Oct. 2018), photos from a 2020 real estate listing of the neighbor's house and Aerial imagery (dated 2019 and 2021) sourced from King County iMap.

Tree 1

Tree 1 was a small evergreen tree that was planted in the northeastern corner of the site. Based on review of provided photographs and publicly available images, I estimate that tree 1 was approximately 20-25 feet in height prior to removal (Photo 2). I determined this by comparing the height of tree 1 to referenced objects of known height such as the adjacent hedge, and neighboring house.

Based on review of provided photos, aerial imagery, and photos taken from a 2020 real estate listing, I was able to determine that Tree 1 was an ornamental cypress (*Cupressaceae*) variety. The very dense, scaled foliage and wide crown profile relative to height (Photos 2 and 3) led me to believe that tree 1 was most likely an Excelsa western redcedar (*Thuja plicata* 'Excelsa'). Excelsa western redcedars are a

densely foliated, dwarf cultivar of our native *Thuja* species. These trees are a common landscape tree in our area and are often planted on property edges as they provide excellent privacy screening.

While the trunk of tree 1 is not visible in any of the provided or publicly available photographs, I am confident that tree 1 was below 10 inches in DSH and is therefore unregulated under MICC. In my professional experience, the trunks of Excelsa western redcedar tend to be quite slender compared to their height and crown spread diameters. It is rare to encounter a specimen of this cultivar in excess of 10 inches in diameter.

Tree 2

After reviewing provided photos of tree 2, I was able to determine that this tree was a small Douglas-fir (*Pseudotsuga menziesii*) in poor structural condition. I identified the species based on the flat linear needles and furrowed bark visible in the provided photographs (Photo 4). The number of dead branches present in the provided photographs (Photo 4), and the shortened height of the tree lead me to believe that this tree was topped repeatedly and may have been hedged in the past. A Douglas-fir of this size would have been tall enough to see from the street if allowed to grow naturally, however this tree cannot be seen in Google Street View images from 2018 (Photo 5).

By extrapolating from the known dimensions of the ladder present in a provided photograph (Photo 4), I estimate that this tree was 7 inches in DSH prior to removal and was therefore not regulated as a large tree under MICC.

Additional Vegetation

I reviewed publicly available aerial imagery and historic Google Street View images of the site to evaluate the additional vegetation that existed on site prior to site clearing.

Observed plant species include Juniper (*Juniperus spp.*), Gold Mop cypress (*Chamaecyparis pisifera* 'Golden Mop'), Rhododendron (*Rhododendron spp.*), arborvitae (*Thuja occidentalis*) boxwood (*Buxus sempivirens*), and privet (*Lingstrum vulgare*). The majority of these species are shrubs, or hedge species and would not have met the definition of a tree under MICC.

One Florida dogwood (*Cornus florida*) tree is visible in the front yard of the site in Google Street View but appears well below 10 inches in diameter in the image from 2018.

Site History

Based on publicly available aerial imagery sourced from King County iMap (Photo 7), no additional trees approaching regulated size (aside from trees 1 and 2) can be seen in 2021 or in 2019. This leads me to conclude that no large trees have existed on the site in the previous 5 years.

Discussion – Regulatory Compliance

Required Tree Retention

MICC 19.10.060.A.2 requires the retention of 30 percent of the large trees located on-site. No large trees currently exist on-site, nor have any large trees been removed on the subject property in the previous 5 years, therefore the project is in compliance with this regulation.

Tree Replacement

All trees removed pursuant to a tree removal or development permit are required to be replaced per MICC 19.10.070. A total of three trees (including the dogwood visible in the front yard), were removed as a result of site clearing. In my professional opinion, these trees were all below regulated size. Trees below 10 inches in diameter are required to be replaced at a 1 to 1 ratio, therefore three replacement trees are required.

The landscape plan (Landscape Plan, EightBlox Studios, 2.23.2024) proposes a total of four replacement trees including three vine maples (*Acer circinatum*) and one cascara (*Rhamnus purshiana*) satisfying replanting requirements. All replacement trees must be planted in accordance with the standards outlined in MICC 19.10.070.B.

Supplemental irrigation and mulching are recommended to ensure successful establishment of replacement plantings. I have attached a watering guidelines handout to this report for reference.

Tree Protection

MICC 19.10.080 requires that all retained trees of regulated size (both on and off-site) be protected in accordance with the current ISA best management practices. As there are no large trees located on-site, no tree protection is required. No off-site trees currently overhang the site; therefore, it is my professional opinion that all off-site trees can be protected adequately if work is limited to within the subject property.

Recommendations

- Obtain all necessary permits and approval from the city prior to continuing site work.
- Ensure that all replacement trees conform to the tree replacement requirements outlined in MICC 19.10.070.B.

Respectfully submitted,

George White,
Consulting Arborist

Appendix A **Glossary**

DBH or DSH: diameter at breast or standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Council of Tree and Landscape Appraisers 2019)

exceptional tree: a tree measuring 36 inches DSH or greater or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table (MICC 19.16.010)

ISA: International Society of Arboriculture

large tree (regulated): A tree measuring 10 inches or greater DSH (MICC 19.16.010)

Visual Tree Assessment (VTA): method of evaluating structural defects and stability in trees by noting the pattern of growth (Mattheck & Breloer 1994)

Appendix B **References**

Accredited Standards Committee A300 (ASC 300). ANSI A300 (Part 1) Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Londonderry: Tree Care Industry Association, 2017.

Council of Tree and Landscape Appraisers, Guide for Plant Appraisal, 10th Edition Second Printing. Atlanta, GA: The International Society of Arboriculture (ISA), 2019.

Fite, Kelby and Dr. E. Thomas Smiley. Best Management Practices: Managing Trees During Construction, Second Edition. Champaign, IL: International Society of Arboriculture (ISA), 2016.

Mattheck, Claus and Helge Breloer, The Body Language of Trees.: A Handbook for Failure Analysis. London: HMSO, 1994.

Mercer Island Municipal Code (MICC) 19.16.010. Definitions

Mercer Island Municipal Code (MICC) 19.10. Trees

Appendix C Photographs



Photograph 1. Existing site conditions.



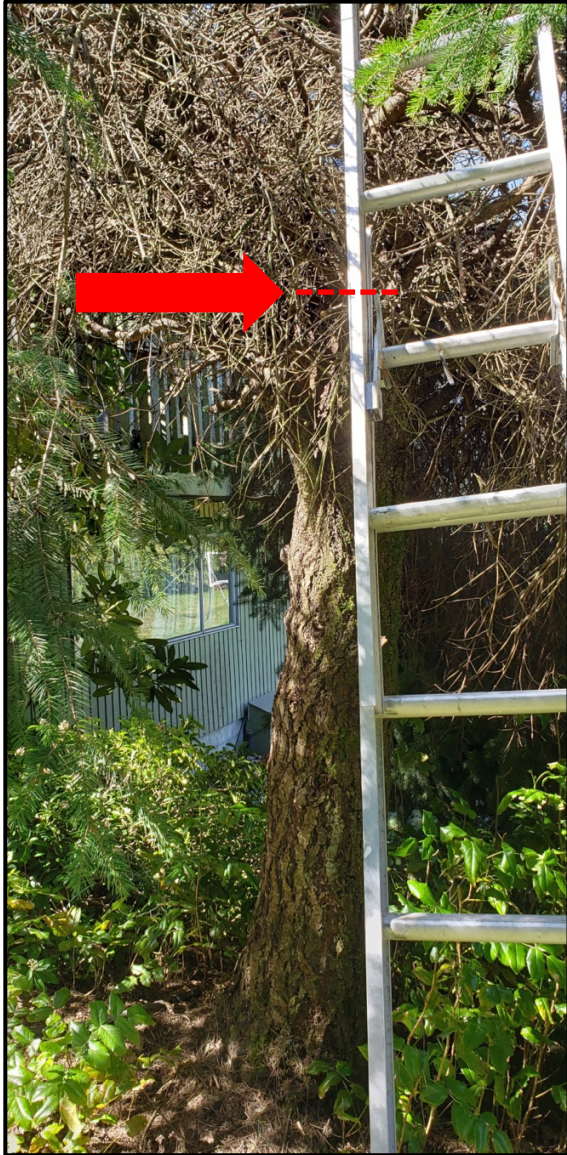
Photograph 2. Existing conditions in rear yard of the subject property looking toward the neighboring home.



Photograph 3. A photograph of Tree 1 provided by the client taken in 2021. The hedge to the left is approximately 7 feet tall. Extrapolating from the hedge height, I estimate that this tree was 20-25 feet tall. It should be noted that the house immediately behind tree 1 is two stories tall but is at a significantly lower grade.



Photograph 4. A photograph of the north neighbor's house taken from a real-estate listing when the house was last sold in 2020. The scaled foliage of tree 1 can be seen in the upper right-hand corner of this photo (outlined in red).



Photograph 5. A photograph of tree 2 provided by the client showing the furrowed bark and needles typical of Douglas-fir. Using the pictured ladder as a reference (rungs are typically 12-14 inches apart and 12-14 inches wide) I estimate that the diameter at standard height (indicated with red arrow) is approximately 7 inches.



Photograph 6. Google Street View imagery dated Oct 2018 showing the vegetation that existed on-site prior to site clearing. Only one of these species, the florida dogwood (red arrow) is capable of reaching regulated size. However, based on the height and maturity of this tree as seen in this image, I believe it is well below 10 inches in diameter.



Photograph 7. Aerial imagery sourced from King County iMap of the subject property. No tree removals can be seen in between 2019 (left) and 2021 (right). No trees of significant size other than trees 1 and 2 (red arrows) can be seen in either image.

Appendix D Assumptions & Limiting Conditions

- 1 Consultant assumes that the site and its use do not violate, and is in compliance with, all applicable codes, ordinances, statutes or regulations.
- 2 The consultant may provide a report or recommendation based on published municipal regulations. The consultant assumes that the municipal regulations published on the date of the report are current municipal regulations and assumes no obligation related to unpublished city regulation information.
- 3 Any report by the consultant and any values expressed therein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event, or upon any finding to be reported.
- 4 All photographs included in this report were taken by Tree Solutions, Inc. during the documented site visit, unless otherwise noted. Sketches, drawings and photographs (included in, and attached to, this report) are intended as visual aids and are not necessarily to scale. They should not be construed as engineering drawings, architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.
- 5 Unless otherwise agreed, (1) information contained in any report by consultant covers only the items 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, climbing, or coring.
- 6 These findings are based on the observations and opinions of the authoring arborist, and do not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described and assessed.
- 7 Measurements are subject to typical margins of error, considering the oval or asymmetrical cross-section of most trunks and canopies.
- 8 Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.
- 9 Our assessments are made in conformity with acceptable evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.

Appendix E Methods

Measuring

I measured the diameter of each tree at 54 inches above grade, diameter at standard height (DSH). If a tree had multiple stems, I measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the city of Seattle Director's Rule 16-2008 or the [Guide for Plant Appraisal, 10th Edition Second Printing](#) published by the Council of Tree and Landscape Appraisers. A tree is regulated based on this single-stem equivalent diameter value. Because this value is calculated in the office following field work, some unregulated trees may be included in our data set. These trees are included in the tree table for informational purposes only and not factored into tree totals discussed in this report.

Tagging

I tagged each tree with a circular aluminum tag at eye level. I assigned each tree a numerical identifier on our map and in our tree table, corresponding to this tree tag. I used alphabetical identifiers for trees off-site.

Evaluating

I evaluated tree health and structure utilizing visual tree assessment (VTA) methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts. An understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

Rating

When rating tree health, I took into consideration crown indicators such as foliar density, size, color, stem and shoot extensions. When rating tree structure, I evaluated the tree for form and structural defects, including past damage and decay. Tree Solutions has adapted our ratings based on the Purdue University Extension formula values for health condition (*Purdue University Extension bulletin FNR-473-W - Tree Appraisal*). These values are a general representation used to assist arborists in assigning ratings.

Health

Excellent - Perfect specimen with excellent form and vigor, well-balanced crown. Normal to exceeding shoot length on new growth. Leaf size and color normal. Trunk is sound and solid. Root zone undisturbed. No apparent pest problems. Long safe useful life expectancy for the species.

Good - Imperfect canopy density in few parts of the tree, up to 10% of the canopy. Normal to less than ¾ typical growth rate of shoots and minor deficiency in typical leaf development. Few pest issues or damage, and if they exist, they are controllable, or tree is reacting appropriately. Normal branch and stem development with healthy growth. Safe useful life expectancy typical for the species.

Fair - Crown decline and dieback up to 30% of the canopy. Leaf color is somewhat chlorotic/necrotic with smaller leaves and "off" coloration. Shoot extensions indicate some stunting and stressed growing conditions. Stress cone crop clearly visible. Obvious signs of pest problems contributing to lesser condition, control might be possible. Some decay areas found in main stem and branches. Below average safe useful life expectancy

Poor - Lacking full crown, more than 50% decline and dieback, especially affecting larger branches. Stunting of shoots is obvious with little evidence of growth on smaller stems. Leaf size and color

reveals overall stress in the plant. Insect or disease infestation may be severe and uncontrollable. Extensive decay or hollows in branches and trunk. Short safe useful life expectancy.

Structure

Excellent - Root plate undisturbed and clear of any obstructions. Trunk flare has normal development. No visible trunk defects or cavities. Branch spacing/structure and attachments are free of any defects.

Good - Root plate appears normal, with only minor damage. Possible signs of root dysfunction around trunk flare. Minor trunk defects from previous injury, with good closure and less than 25% of bark section missing. Good branch habit; minor dieback with some signs of previous pruning. Codominant stem formation may be present, requiring minor corrections.

Fair - Root plate reveals previous damage or disturbance. Dysfunctional roots may be visible around the main stem. Evidence of trunk damage or cavities, with decay or defects present and less than 30% of bark sections missing on trunk. Co-dominant stems are present. Branching habit and attachments indicate poor pruning or damage, which requires moderate corrections.

Poor - Root plate disturbance and defects indicate major damage, with girdling roots around the trunk flare. Trunk reveals more than 50% of bark section missing. Branch structure has poor attachments, with several structurally important branches dead or broken. Canopy reveals signs of damage or previous topping or lion-tailing, with major corrective action required.

Watering Guidelines

For Trees in the Pacific Northwest

Water is essential to maintaining landscape trees. In urban areas, trees depend on homeowners or managers to supply them with water. The amount of water needed for trees can vary greatly depending on age, species, growing conditions, location, and time of year. This guide will provide you with helpful tips for watering your favorite trees, and maintaining moisture in the soil for a lush, healthy landscape.

Watering Basics

New Trees	<i>*Planted within last 3 years</i>	<ul style="list-style-type: none"> ○ Water 2 x per week and at time of planting ○ Apply 15 to 20 gallons at each watering ○ Use drip irrigation, a 15- or 20- gallon water bag at the tree base, or several 5-gallon buckets with 1-2 small holes poked in the bottom to slowly release water ○ Focus on evenly wetting root ball and immediate surrounding area ○ Water consistently for 3 years (5 years if tree was >3" caliper at time of transplant) ○ Moisture requirements depend on species; research if your tree needs more than the average ○ Mulch to retain moisture in the soil
Established Trees	<i>*3 -10 growing seasons</i>	<ul style="list-style-type: none"> ○ Water 2 to 4 x per month during June-August. (April – Sept during drought) with drip irrigation ○ Apply water in a wide area around the entire zone beneath the canopy ○ Moisten to a depth of 6 - 12 inches ○ Monitor to ensure soils don't become saturated* ○ Mulch to retain moisture in the soil
Mature Trees	<i>*Fully established and rooted</i>	<ul style="list-style-type: none"> ○ Water during drought seasons or after disturbance (e.g., construction) * ○ Water 1 - 2 x per month April-September with drip irrigation** ○ Water below entire canopy area (and beyond if feasible) ○ Use enough to moisten to a depth of 6 - 12 inches ○ Monitor to ensure soils don't become saturated* ○ Mulch to retain moisture in the soil

* Water requirements vary; some species require weekly watering all summer regardless of age.

**Always choose slow-release watering methods, when possible, which allows soil to absorb water more readily.

Tree Solutions Inc. is a Seattle-based environmental consulting firm specializing in tree assessments. We provide a science-based, objective approach to tree evaluation and management grounded in years of experience with tree diagnostics, land development, construction, and challenge course installations.

Do

- **Install mulch** - always. It can be installed on top of drip tubing and soaker hoses.
- **Water slowly** - if you notice water pooling or running off, water for shorter periods of time with a break to allow absorption. 'Cycle and soak' is a common feature on many controllers.
- **Water deeply** - to encourage deep roots. Most roots in the Pacific Northwest are 12 to 18 inches below the surface.
- **Water early or late in the day** - to avoid water evaporation at the hottest time of day.
- **Use timers** - to ensure irrigation is consistently applied.
- **Check soil moisture** - to determine watering times.
- **Watch for symptoms of drought stress** - wilt, yellowing, dulling, dieback, insect pests, and disease.

Checking soil moisture:

- Check soil moisture 1 hour after watering.
- Dig a hole to a depth of 8 inches.
- If the soil at the bottom feels moist and holds together when you squeeze it, you have watered enough.
- If the soil feels dry, is dusty, or doesn't hold a form when squeezed, more **water** is needed.

Don't

- **Dig around trees** - digging disturbs soil, loses water, and kills roots.
- **Heavily prune the tree during late summer** - which can cause stress and a flush of weak new growth. It IS okay to remove broken, dead, or diseased branches.
- **Fertilize drought-stressed trees** - this can result in fertilizer burn from high salt content or stimulate additional weak growth that necessitates higher watering needs.
- **Plant grass under trees** - grass out-competes tree roots for water and leaves a dry zone below.
- **Wet tree trunks** - this can lead to bacterial/fungal infection and can cause bark to decompose on the tree.
- **Wet foliage** - this can often lead to foliar fungal infections.

Don't under-estimate the power of mulch.

Especially for young trees. Mulch keeps weeds from growing, keeps grass from competing with the tree, retains moisture in the soil, prevents compaction, and breaks down over time to build nutrient rich soil. Healthy soil absorbs water easily. The best mulch is untreated, coarse arborist wood chips. Avoid bark mulch, which repels water and does a poor job at suppressing weeds. The process is:

- Establish a circle of turf-free area around the trunk (3-ft radius minimum).
- Install mulch 3 to 4 inches deep throughout this circle.
- Maintain this depth by adding mulch to the top every 2 to 3 years as needed.

Additional resources:

<https://www.savingwater.org/lawn-garden/watering-irrigation/drip-irrigation-soaker-hoses/>, or
http://seattle.gov/util/cs/groups/public/@spu/@conservation/documents/webcontent/smartwate_200311261701453.pdf