ARBOR INFO LLC
2406 N Castle Way Brier, WA, 98036

Tree Assessment
For
Sturman Architects
At
Mounger Residence
4006 E. Mercer Way
Mercer Island, Washington

Date
8/28/2020

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Addenda

1. Introduction

I was contacted by Brad Sturman, Sturman Architects to describe and assess the condition, viability and protection of trees on and adjacent to the Mounger property at 4006 E. Mercer Way, 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:

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 trees and off-site trees potentially affected by development and to provide protection recommendations in conformance with the City of Mercer Island "Tree Submittal Check List", Attached.

5. Limits of Assignment

The assignment is limited to the information gathered during the site visit August 10, 2020 (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 a proposed development plan was provided and is included in the Addenda with tree locations noted.

6. Site Description
Lot 4, 5202 Forest Ave SE, Mercer Island, WA, King County Parcel No. 1410300063. The subject property consists of a single-family residence on 16,396 square feet.

A single-family residence is planned for 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 condition, or vigor and viability:

Vigor or condition:

Health: Biotic

- Good: No evidence of fungal infection or decay; expected to survive without disturbance to its 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,

- 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.

- Poor: Broken or cracked bole or limbs; root plate compromised

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. Trees not likely to survive 10 years are rated as "marginal".

8. Tree Description

Refer to the attached Tree Assessment Summary Form. A total of fifty-six on-site trees as indicated on the Site Plan provided were found. They are classified by the City Municipal Code (MICC) 19.10 –"Trees" as indicated following in Table 1.

Table 1- Tree Classifications-On site

Species	Exceptional	Large	Small	Total
W. red cedar	4	5	4	13
Douglas-fir	5	10	2	17
Port Orford cedar	1	3	1	5
Bigleaf maple		4	1	5
Sitka spruce	3			3
Ash		2		2
Holly			1	3
Cherry		1		1
Sequoia		1		1
Alder		1		1
White pine			1	1
Total	16	28	12	56

On-site trees 451,453,463,465,470,493 are non-viable due to health or structural defects. As well, offsite trees 442,443, 449, 452 are non-viable. However, these are small trees with no high value targets and are not recommended for removal at this time.

9. Root Zone Impacts

Only tree No. 1 and No. 2 will be removed. Tree No. 3 is measured at 11.5 feet east of the excavation zone. This encroachment into the root zone will affect less than about 15-percent of the that zone and is within acceptable standards. No other trees are planned for removal or within dripline distance to the excavation.

The limits of disturbance are determined on a case by case basis for each tree in consideration of the tree size, estimate of the extent of the root zone and consideration of the planned root zone disturbance. Distances from the face of each tree to the excavation limit were provided by the client. There appears to be little or not impact to the retained trees.

The root zone of Tree No. 500 is within the proposed access excavation area. Excavation, down-hill from the tree will remove 93 square feet of the total 462 square feet or about 20-percent. Considering the down-hill location and the subsequent rebuilding of the retention wall, in my opinion this tree will not be significantly affected.

Table 2 – Root Zone Impacts

No.	Species	Facing Dripline	Measured Distance to Excavation Limit	Excavation Type	Root Zone Impact
500	Douglas-fir	18’	4.7’	Site leveling	±20%

10. Discussion

Mercer Island Code does not specify root zone protection areas. The encroachment projected for Tree No. 500 is within the general tolerances for trees and it can be expected that it will remain viable. The remainder of the retention trees will not be affected by root zone/dripline encroachment.

11. Replacement Trees

Trees No. 501 and 502 are planned for removal. Tree No. 501 requires 2 replacement trees and tree No. 502 requires 1 replacement tree. (MCC 19.10.070)

Table 3 – Replacement Trees

Replacement Trees 501	Western red cedar	*Thuja plicata*
Replacement Tree 502	Pacific Dogwood	*Cornus nuttalli*

Per MCC 19.10.070 replacement trees must be at least 6-feet tall for the Western red cedar and 1.5-inches in diameter at the base for the Dogwood. These are to be maintained for a period of 5 years after establishment.

12. Summary

Forty-nine of the fifty-six on-site trees are healthy and structurally sound indicating full-term viability. Non-viable trees are not considered high risk hazards due to lack of high value targets. Of the forty-nine viable trees only two will be removed. One tree, No. 500 will have limited root zone excavation that will not significantly affect viability. Two trees (501 and 502) will be removed and three replacement trees will be planted.

The City of Mercer Island Tree Inventory and Replacement Form as well as the Tree Submittal Checklist are attached.

13. Tree Protections

Tree Protections

Retained Tree protections should include:

- Certified Arborist on site during excavation activities within the defined root zone of all trees.
- All trees to be retained are to be fenced at the edge of the recommended tree protection zone with 6-foot high cyclone type fencing.
- Utility lines should be bored. Bore access pits to be developed with 18" buckets or hand dug.
- Retaining wall footings to be minimally deep, no more than 12-inches.
- Tree roots over 1-1/2 inches in diameter encountered in all excavations are to be cut cleanly to the trench wall with clean sharp tools. Roots to be covered with soil or wetted burlap if they must remain exposed.
- Supplemental irrigation is to be provided during summer months (generally June-September) for all trees in the construction zones.
- Recommended protected tree root zones are to be covered with 4-inches of hog fuel at all times. Where machinery access is needed, the root zones should be covered with 12-inches of hog fuel, plywood or steel sheets.
- Stumps for trees to be removed are to be ground out (not excavated).

14. 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, 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 OF ANY TREE.

Respectfully Submitted,

Tom Hanson

Thomas M. Hanson, CF, RCA

I. Tree Location Map
II. Tree Assessment Summary Table
III. Root Zone Encroachment
IV. Mercer Island Check list
V. Mercer Island Tree Inventory Form

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 Variously 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 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.

Addenda

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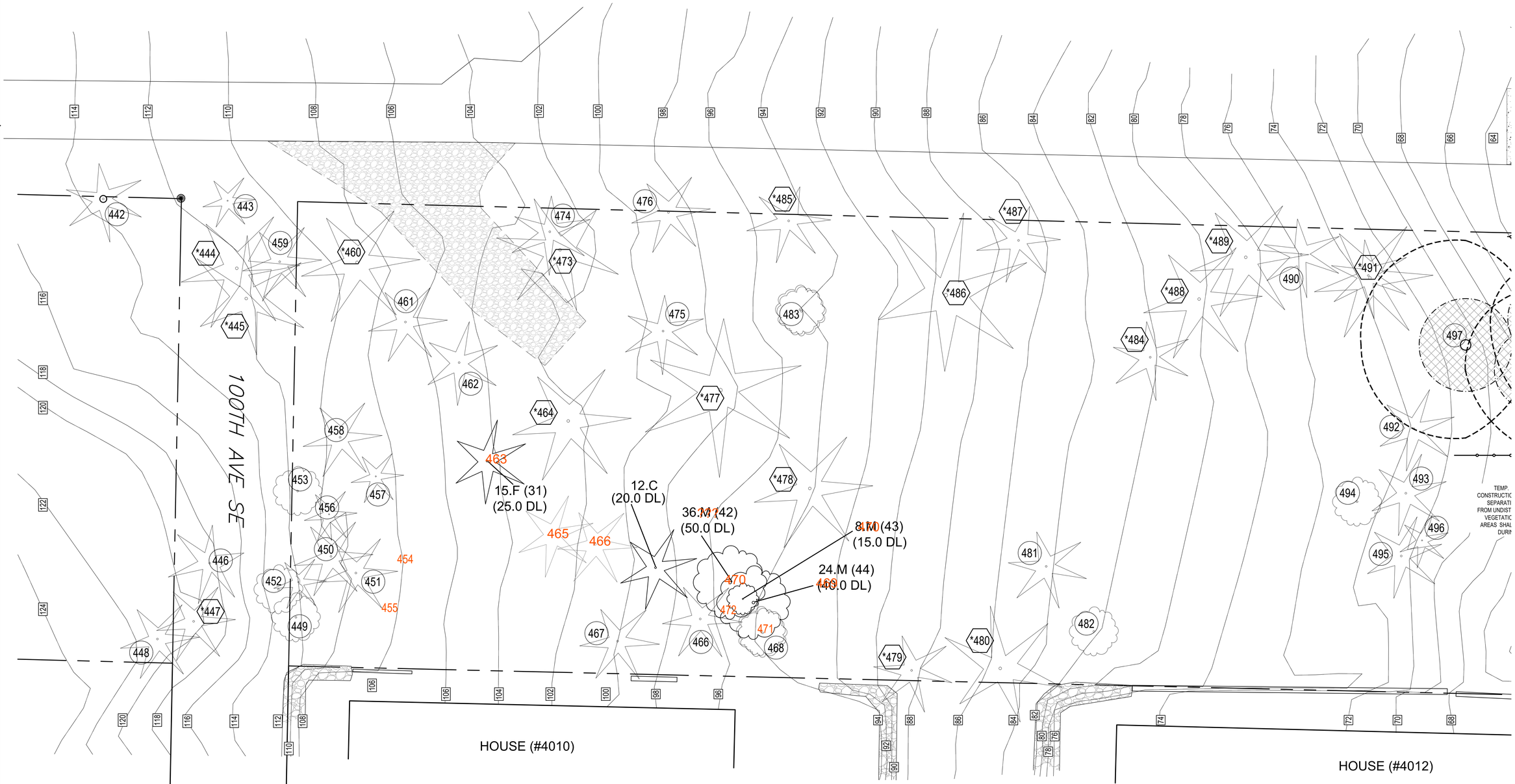

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2 TREE PLAN

SCALE: 1/8" = 1'-0"

STURMAN ARCHITECTS

TEL (425) 451-7003

9 103rd Avenue NE
Suite 203
Bellevue, WA 98004

5562 REGISTERED ARCHITECT
BRADLEY J. STURMAN
STATE OF WASHINGTON

www.sturmanarchitects.com

MOUNGER RESIDENCE

4006 E. MERCER WAY
MERCER ISLAND, WA 98040

TREE PLAN

REVISIONS:

DRAWN BY: JM

CHECKED BY: BJS

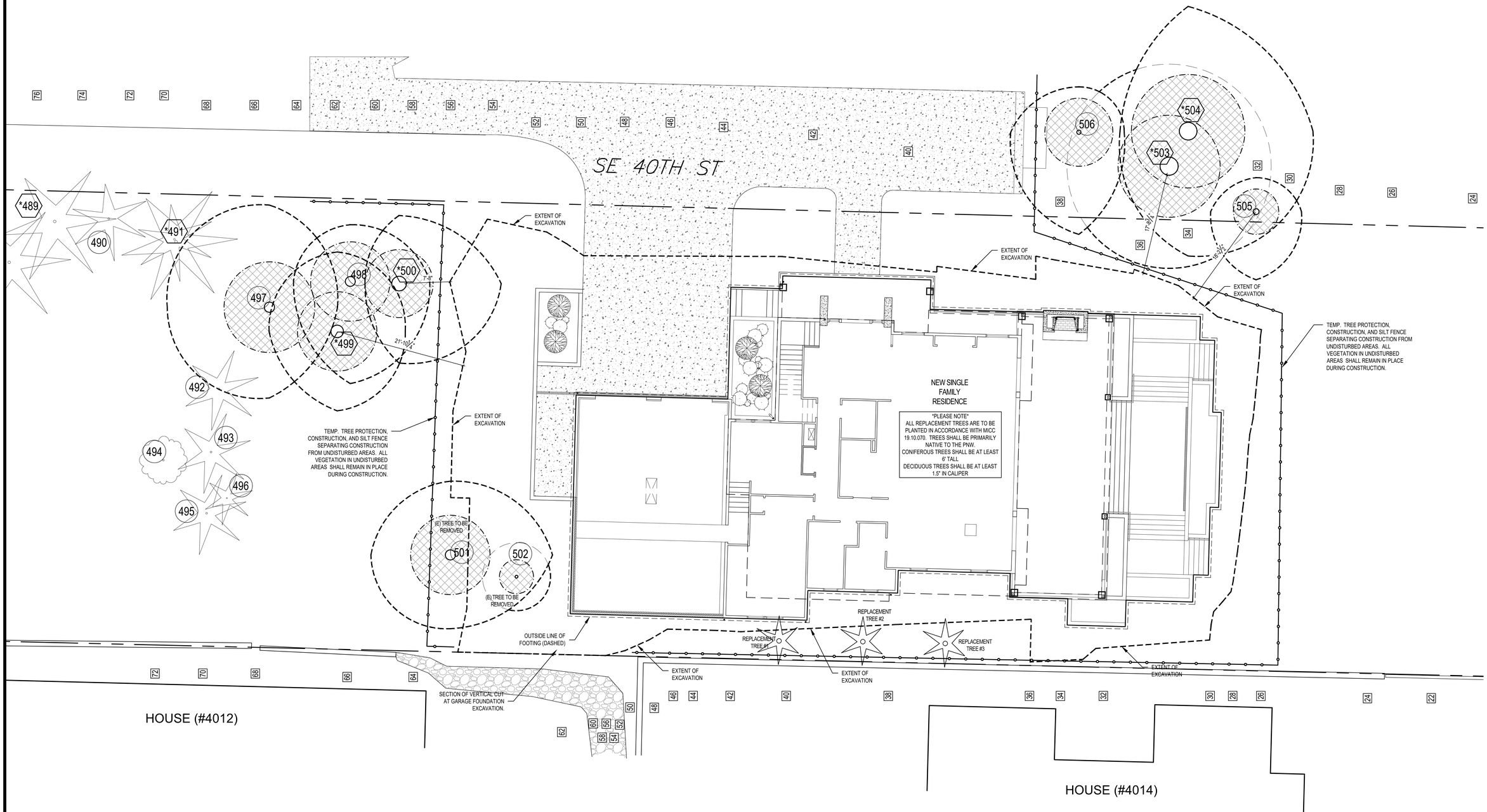
SCALE: IF SHEET IS LESS THAN 24" x 36", IT IS A REDUCED PRINT, REDUCE SCALE ACCORDINGLY

SCHEMATIC SET 09/09/2020

PLOT DATE: 9/10/2020 FILE NAME:

SHEET A1.3

OF



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1 TREE PLAN

SCALE: 1/8" = 1'-0"

SCALE: IF SHEET IS LESS THAN 24" x 36", IT IS A REDUCED PRINT, REDUCE SCALE ACCORDINGLY

PERMIT SET	10/07/2020
PLOT DATE: 10/7/2020	FILE NAME:

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TREE PLAN

REVISIONS:

DRAWN BY: KE

CHECKED BY: BJS

SHEET A1.3

OF

CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
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TREE INVENTORY & REPLACEMENT SUBMITTAL INFORMATION

EXCEPTIONAL TREES

Exceptional Trees- means a tree or group of trees that because of its unique historical, ecological or aesthetic value constitutes an important community resource. A tree that is rare or exceptional by virtue of its size, species, condition, cultural/historical importance, age, and/or contribution as part of a tree grove. Trees with a diameter of more than 36 inches, or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table shown in MICC 19.16 under Tree, Exceptional.

List the total number of trees for each category and the tree identification numbers from the arborist report.

Number of trees 36" or greater: 6

List tree numbers: 460, 473, 477, 478, 480, 486

Number of trees 24" or greater (including 36" or greater): 12

List tree numbers: 460, 464, 473, 477, 478, 480, 485, 486, 487, 489, 491, 500

Number of trees from Exceptional Tree Table (MICC 19.16): 13

List tree numbers: 460, 464, 473, 476, 477, 478, 480, 485, 486, 487, 489, 491, 500

LARGE REGULATED TREES

Large Regulated Trees- means any tree with a diameter of 10 inches or more, and any tree that meets the definition of an Exceptional Tree.

Number of Large Regulated Trees on site: 41 (A)

List tree numbers: 450, 453, 454, 455, 460, 462, 463, 464, 465, 466, 467, 468, 469, 471, 472, 473, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 494, 495, 497, 498, 499, 500, 501

Number of Large Regulated Trees on site proposed for removal: 2 (B)

List tree numbers: 500, 501

Percentage of trees to be retained ((A-B)/Ax100) note: must be at least 30%: 95.12 %

RIGHT OF WAY TREES

Right of Way Trees- means a tree that is located in the street right of way adjacent to the project property.

Number of Large Regulated Trees in right of way: _____

List tree numbers: _____

Number of Large Regulated Trees in right of way proposed for removal: _____

List tree numbers: _____

Reason for removal: _____

TREE REPLACEMENT

Tree replacement- removed trees must be replaced based on the ratio in the table below. Replacement trees shall be conifers at least six feet tall and or deciduous at least one and one-half inches in diameter at base.

Diameter of Removed Tree (measured 4.5' above ground)	Tree replacement Ratio	Number of Trees Proposed for Removal	Number of Tree Required for Replacement Based on Size/Type
Less than 10"	1		
10" up to 24"	2		
Greater than 24" up to 36"	3	1	3
Greater than 36" and any Exceptional Tree	6		
		TOTAL TREE REPLACEMENTS	3