June 11, 2020

Leif Anderson
425-672-4963
Via email: L.AndersonArchitecture@gmail.com

Re: Arborist Assessment

The Watershed Company Reference Number: 200604

Dear Leif:

We are pleased to present the findings of our tree assessment for the property at 7254 North Mercer Way (parcel #5315100056) in Mercer Island, WA. Jake Robertson, an ISA Certified Arborist© with The Watershed Company, visited the subject property on June 8, 2020 to assess the trees on the subject parcel following the construction of a new single-family home. This assessment was requested by the City of Mercer Island to determine if retained trees have been negatively affected by construction. Anderson Architecture provided a site plan, dated March 5, 2020, which showed surveyed trees and trees proposed to be removed.

This letter summarizes the findings of the study. The following documents are enclosed:

- Annotated Tree Map
- Tree Risk Assessment Form

Study Area

According to King County iMap, tax parcel #5315100056 is approximately 0.3 acres in size and zoned Single Family (R-12). The study parcel is currently under construction with a new home and associated landscape improvements. The parcel is bordered by single family parcels to the north, west, and east, and North Mercer Way to the south (see Figure 1).

Figure 1. Vicinity map showing the approximate location of the project site and study area (outlined in yellow). (*Image courtesy of King County iMap, 2019*)

Methods

All significant trees in the project area were identified and assessed in the field using a Level I Visual Assessment according to International Society of Arboriculture (ISA) standards to collect species, diameter, height, canopy radius, and condition. Per Mercer Island City Code (MICC) 19.10.010, a significant tree is at least ten inches in diameter when measured at four-and-a-half feet above ground level. Assessed trees were not tagged but identified on the enclosed annotated tree survey.

Diameter: The diameter at breast height (DBH) of all subject trees was measured at four-and-a-half feet above the ground surface using a graduated metal logger's DBH tape.

Canopy Radius: Canopy radius, also known as dripline, was measured from the trunk to the outermost branch tips by estimating a vertical line to the ground. For trees with uneven crowns, the average of two opposite radii was estimated.

Condition: The condition rating was assessed in accordance with ISA and Council of Tree and Landscape Appraisers (CTLA) standards. Ratings were based on the species and current conditions, and considered each tree's health, structural integrity, and form. Each tree was given a rating from one through six (Excellent – Dead) as summarized below in Table 1.

Table 1. Assessment of plant condition considers health, structure, and form. Each may be described in rating categories that will be translated into a percent rating. (CTLA 2018)

Rating Category	Condition Components			Percent Rating
	Health	Structure	Form	
Excellent - 1	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.	81% to 100%
Good - 2	Vigor is normal for species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.	61% to 80%
Fair - 3	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may compromise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defect. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised.	41% to 60%
Poor - 4	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree.	21% to 40%
Severe - 5	Poor vigor. Appears dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.	6% to 20%
Dead - 6				0% to 5%

Results

At the time of the site visit on June 8, 2020, three significant trees were found on the property and are summarized below in Table 2. The site plan proposed retaining five significant trees and removing six significant trees to construct the residence.

Table 2. Summary of significant trees within the study area.

Tree #	Scientific Name / Common Name	DBH (inches)	Height (feet)	Canopy radius (feet)	Condition
1	*Pseudotsuga menziesii* (Douglas-fir)	31.1	55	20	Fair
2	*Pseudotsuga menziesii* (Douglas-fir)	44.5	100	25	Fair
3	*Arbutus menziesii* (Pacific madrone)	15.5	40	7	Severe

Trees #1 & #2 – *Pseudotsuga menziesii* (Douglas-fir)

Trees #1 and #2 are mature *P. menziesii* in Fair condition. Tree #1 has a DBH of 31.1 inches and had been topped prior to construction, as no recent cuts are found on the stem. The stem is covered with large amounts of running sap and has a dead branch on the lower canopy approximately 15-feet off the ground. At ground level, the tree is rooted approximately 20 to 25 feet from a retaining wall and where construction of the home began. Tree #2 has a DBH of 44.5 inches and has a height of approximately 100 feet. As with Tree #1, Tree #2 has sap running down the stem but does not have any noticeable deadwood within the canopy. This tree is rooted next to Tree #1 and is 20 to 25 feet from the same retaining wall. It is possible that some critical roots have been cut from both trees; however, it is believed that construction impacts sustained thus far will not lead to decline and tree death.

Figure 2. Two Douglas-firs are growing on the west side of the property. Tree #1 is on the left (with dead branches) and Tree #2 is on the right (with a full crown).

Tree #3 – *Arbutus menziesii* (Pacific madrone)

This madrone contains approximately five to ten percent of live foliage in its canopy, with a DBH of 15.5 inches and an estimated height of 40 feet (see Figure 3). This tree is dying and at risk of failing and striking the new home. Selective pruning and crown cleaning would not be effective in minimizing the risk and the tree is recommended for removal. Construction may be the cause of death as the tree is rooted approximately 10 feet from the retaining wall and excavation and many of the critical roots have been lost.

Figure 3. Tree #3 is an *A. menziesii* in severe condition with a substantial lean towards the new home.

Missing Trees #4 & #5

On the survey, two trees were identified for retention in the backyard, to the east of the new residence. The DBH of these trees was recorded as 12 and 18 inches, but these trees have been removed. Below are photographs of the backyard where the trees were previously located (Figure 4).

Figure 4. Two additional significant trees were proposed to be retained in this location.

Assessment

Replacement Trees

Per Mercer Island City Code (MICC 19.10.060(A)), a minimum of 30 percent of existing trees need to be retained during the construction process. The survey provided by Anderson Architecture identified 11 significant trees on site prior to construction. To comply with code, 3.3 trees (rounded to 4) significant trees needed to be retained. Currently, only three significant trees are growing on the property. The City will require the client to provide replacement trees at a ratio that is dependent on the DBH of the removed trees. See Table 3 below.

Table 3. Tree retention ratios for removed trees on Mercer Island.

Diameter of removed tree	Number of replacement trees required
Less than 10 inches	1
10 inches up to 24 inches	2
24 inches up to 36 inches	3

More than 36 inches and any exceptional tree(s)	6

According to the DBH measurements on the survey, a total of six additional replacement trees in addition to the planned replacement trees in the original permit plan. Mercer Island specifies that replacement trees should primarily be native to the Pacific Northwest, conifers should be at least six feet tall, and deciduous trees should be at least 1.5 inches in diameter (MICC 19.10.070).

In lieu of tree replacement, a fee can be paid to the City when approved by the city arborist. The fee shall cover the cost including labor, materials, and maintenance for each replacement tree and is determined by the most current Guide for Plant Appraisal by CTLA.

Tree Risk Assessment

Tree #3 has declined into a hazardous state that is at risk of failing and striking the newly constructed home. Destruction of critical roots from excavation is the most likely cause of this decline and removal is the only mitigation option recommended. Enclosed within this report is a completed Tree Risk Assessment Form completed by TRAQ certified Arborist Kyle Braun. Replacement of hazardous trees follow the same replacement ratio as healthy tree removals.

Tree Protection During Construction

To promote the health and longevity of the remaining trees with potential impacts from development, the arborist recommends implementing the following tree protection practices:

- **Tree protection fencing**: Small, orange fencing can be seen outside the driplines of the trees but it has collapsed and can be easily missed. This should be replaced with a fence that is approximately 6-feet in height and more visible with signs clearly stating "Tree Protection Area".

- **Minimize root zone disturbance:** All construction activities, including staging and driving machinery, should be located outside of the dripline. If temporary impacts within the dripline are unavoidable, the arborist recommends using one of the following temporary measures to minimize soil compaction and root damage:

    - Install six inches of wood chip mulch within the dripline.
    - Lay down a ¾-inch thick plywood sheet over at least four inches of wood chip mulch.

  The plywood and all mulch over four-inches thick **must** be removed after the temporary disturbance is finished.

- **Maintenance during construction:** Protected trees will benefit from access to water during construction, especially during the dry, summer months.

- **Maintenance post-construction:** The impacts of construction are stressful to trees, which may not show the signs of stress for up to five to ten years after being impacted. Apply four inches of wood chip mulch within the dripline (keep mulch 12 inches away from trunks). Additionally, apply one to two inches of water to the root zones each month in the summer (June to September) for the next two to three years to help the trees regenerate roots and acclimate to their new conditions.

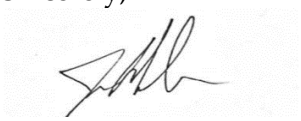
- **Monitoring:** After construction is complete, the tree protection fencing can be removed. Any branches accidentally broken during construction should be pruned. An ISA certified arborist should monitor the trees once a year for five years to perform a tree risk assessment and provide management recommendations for the trees post-construction as the trees recover from the impacts of construction.

Limitations to the Study

The findings of this report are based on the best available science and are limited to the scope, budget, and site conditions at the time of the assessment. Although the information in this report is based on sound methodology, internal physical flaws (such as cracking or root rot) or other conditions that are not visible cannot be detected with this limited basic visual screening. Trees are inherently unpredictable. Even vigorous and healthy trees can fail due to high winds, heavy snow, ice storms, rain, age, or other causes.

This report is based on the current observable conditions and may not represent future conditions of the trees. Changes in site conditions, including clearing and grading, will alter the condition of remaining trees in a way that is not predictable. The conclusions contained within this report have been made for permitting purposes only and are not intended for tree risk assessment purposes.

Sincerely,



Jake Robertson
ISA Certified Arborist©

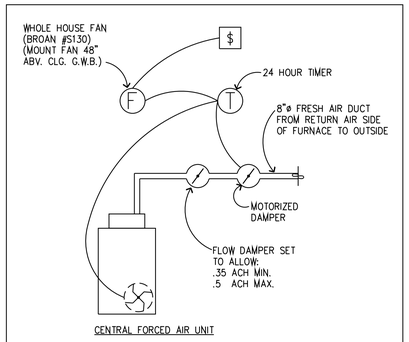
April Mulcahy, Ecological Designer & ISA Certified Arborist©

Enclosures: Annotated Tree Map & Tree Risk Assessment Form

References

Council of Tree & Landscape Appraisers (CTLA). (2018). *Guide for Plant Appraisal: 10th Edition.* Champaign, IL: International Society of Arboriculture.

Fite K., and E.T. Smiley. (2008). *Best Management Practices: Managing Trees During Construction.* Champaign, IL: International Society of Arboriculture.



CENTRAL FORCED AIR UNIT

A/1 DIAGRAM OF VENTILATION SYSTEM

VIAQ CODE SUMMARY

HOUSE VENTILATION SYSTEM AND SPOT VENTILATION SYSTEMS TO COMPLY WITH 2009 WASH. STATE VIAQ CODE.

PROVIDE VENTILATION SYSTEM AS DIAGRAMMED IN DETAIL A/1.

WHOLE HOUSE VENTILATION SYSTEM MUST BE PERFORMANCE TESTED PRIOR TO THE FINAL INSPECTION BY THE INSTALLER OR A QUALIFIED THIRD PARTY. A LETTER OF COMPLIANCE ADDRESSING BOTH THE ACH AND CFM REQUIREMENTS MUST BE AVAILABLE FOR THE INSPECTOR AND A STICKER WITH THE SAME INFORMATION PLACED ON THE DUCT IN PROXIMITY TO THE FLOW DAMPER BEFORE A CERTIFICATE OF OCCUPANCY CAN BE ISSUED.

SEE FLOOR PLANS FOR LOCATION OF REQUIRED SPOT VENTILATION, WHOLE HOUSE FAN, TIMER AND RADON RECORDING EQUIPMENT.

CONSULT BOTH ELECTRICAL AND MECHANICAL CONTRACTORS REGARDING WIRING RELAYS BETWEEN VENTILATION SYSTEM COMPONENTS.

ALL GROUP R OCCUPANCIES SHALL CONFORM WITH SECTION 302.6.4 OF THE WASH. STATE VENTILATION AND INDOOR AIR QUALITY CODE WHICH STATES THAT DISTRIBUTION: OUTDOOR AIR SHALL BE DISTRIBUTED TO EACH HABITABLE ROOM BY INDIVIDUAL INLETS, SEPARATE DUCT SYSTEMS, OR A FORCED-AIR SYSTEM. WHERE OUTDOOR AIR SUPPLIES ARE SEPARATE FROM EXHAUST POINTS BY DOORS, PROVISIONS SHALL BE MADE TO ENSURE AIR FLOW BY UNDERCUTTING DOORS, INSTALLATION OF GRILLS, TRANSOMS, OR SIMILAR MEANS WHERE PERMITTED BY THE UNIFORMED BUILDING CODE.

ENERGY CODE SUMMARY

ANALYSIS IS BASED ON 2015 WASHINGTON STATE ENERGY CODE, CHAPTER 6, DESIGN BY PERSCRIPTIVE REQUIREMENTS FOR GROUP R-3 OCCUPANCY (TABLE 6-1, CLIMATE ZONE 1)

OPTION III

PERCENTAGE OF GLAZING TO TOTAL FLOOR AREA		UNLIMITED
MAXIMUM GLAZING U-VALUE (VERTICAL)		.30
MAXIMUM GLAZING U-VALUE (OVERHEAD)		.50
MAXIMUM DOOR U-VALUE (606.6 EXCEPTION 2)		.20
CEILINGS	R-49	
CEILINGS (VAULTED)	R-38	
WALLS ABOVE GRADE	R-21 (INT.)	
FLOORS	R-30	
SLAB ON GRADE	R-10	

DESIGN LOADS:

FLOOR	50#/ S.F. TOTAL LOAD (65 S.F. @ STONE)
ROOF	45#/ S.F. TOTAL LOAD
ROOF (TRUSSES OR VAULTED CEILING)	50#/ S.F. TOTAL LOAD
CEILING JOISTS	15#/ S.F. TOTAL LOAD
INTERIOR PARTITION WALL (2x4 STUDS @ 16" O.C.)	50#/ L.F.
INTERIOR WALL (2x6 STUDS @ 16" O.C./ 8'-0" TALL)	70#/ L.F.
EXTERIOR WALL (2x4 STUDS @ 16" O.C./ 8'-0" TALL)	90#/ L.F.
EXTERIOR WALL (2x6 STUDS @ 16" O.C./ 8'-0" TALL)	110#/ L.F.
SOIL BEARING CAPACITY (MIN.) (SEE SOILS REPORT BY BGC, plc)	2,500#/ S.F.
DECKS	70#/ S.F.

DESIGN CRITERIA:

2009 INTERNATIONAL BUILDING CODE

2009 INTERNATIONAL RESIDENTIAL CODE

R-3 OCCUPANCY GROUP

V-N TYPE CONSTRUCTION

SEISMIC ZONE #3

LATERAL LOAD-RESISTING FACTOR RW = 5.5

BASIC WIND SPEED = 80 M.P.H.

EXPOSURE 'C'

LIVE LOADS FOR EXIT FACILITIES = 40 P.S.F.

HARDSCAPE CALCULATION:

A. GROSS LOT AREA	14,203 S.F.
B. NET LOT AREA	12,000 S.F.
C. AREA BORROWED FROM LOT COVERAGE	0 S.F.
D. ALLOWED HARDSCAPE AREA (9% + C)	1,080 S.F.
E. ALLOWED HARDSCAPE AREA	1,080 S.F.
F. TOTAL EXISTING HARDSCAPE AREA (1-7)	0 S.F.
G. (TOTAL HARDSCAPE AREA REMOVED)	0 S.F.
H. TOTAL NEW HARDSCAPE AREA	
1. UNCOVERED DECKS	470 S.F.
2. UNCOVERED PATIOS	140 S.F.
3. WALKWAYS	43 S.F.
4. STAIRS	0 S.F.
5. ROCKERIES & RETAINING WALLS	9 S.F.
6. OTHER	0 S.F.
7. TOTAL NEW HARDSCAPE AREA	662 S.F.
I. TOTAL PROJECT HARDSCAPE AREA	662 S.F.
J. TOTAL PROJECT HARDSCAPE AREA	6.13%

LOT SLOPE CALCULATION:

HIGHEST ELEVATION	86.0'
LOWEST ELEVATION	50.0'
ELEVATION DIFFERENCE	36.0'
HORIZONTAL DIFFERENCE BETWEEN HIGHEST & LOWEST ELEVATION	186 L.F.
LOT SLOPE	19.36%

GROSS FLOOR AREA: (GFA)

Lot Area		14,203 S.F.
BUILDING FOOTPRINT PER MERCER ISLAND CALC'S (INCLUDING MAIN FLOOR, UPPER FLOOR, BASEMENT & GARAGE W/ALLOW. BASEMENT DEDUCTION OF 525 S.F.)		5,318 S.F.
ALLOWABLE PERCENTAGE OF COVERAGE	(5,681 S.F.)	40%
ACTUAL PERCENTAGE OF COVERAGE	(5,318 S.F.)	37.44%

HEIGHT RESTRICTION:

MAX. ALLOWABLE BUILDING HEIGHT (30')	98.06'
ACTUAL BUILDING HEIGHT (SEE EAST ELEVATION SHT. # 11)	96.50'

LOT COVERAGE:

A. GROSS LOT AREA		14,203 S.F.
B. NET LOT AREA		12,000 S.F.
C. ALLOWED LOT COVERAGE AREA		0 S.F.
D. ALLOWED LOT COVERAGE		1,080 S.F.
E. EXISTING LOT COVERAGE:		
1. MAIN STRUCTURE ROOF AREA		0 S.F.
2. ACCESSORY BUILDING ROOF AREA		0 S.F.
3. VEHICULAR USE (DRIVEWAY, PAVED ACCESS EASEMENTS-PORTION USED BY THE LOT-PARKING		1,658 S.F.
4. COVERED PATIOS AND COVERED DECKS		0 S.F.
5. TOTAL EXIST'G LOT COVERAGE AREA		0 S.F.
F. TOTAL LOT COVERAGE AREA REMOVED		1,658 S.F.
G. PROPOSED ADJUSTMENT FOR SINGLE STORY		0 S.F.
H. PROPOSED ADJUSTMENT FOR FLAG LOT		0 S.F.
I. TOTAL NEW LOT COVERAGE AREA:		
1. MAIN STRUCTURE ROOF AREA		2,757 S.F.
2. ACCESSORY BUILDING ROOF AREA		0 S.F.
3. VEHICULAR USE (DRIVEWAY, PAVED ACCESS EASEMENTS-PORTION USED BY THE LOT-PARKING		1,436 S.F.
4. COVERED PATIOS AND COVERED DECKS		0 S.F.
5. TOTAL NEW LOT COVERAGE AREA		4,193 S.F.
I. TOTAL PROJECT LOT COVERAGE AREA:		4,193 S.F.
I. PROPOSED LOT COVERAGE AREA:		34.94%

AVERAGE GRADE CALCS.

	LENGTH	ELEVATION	TOTAL
A	24	71.75	1722.00
B	2	74.00	148.00
C	12	75.00	900.00
D	22	76.00	1672.00
E	47	71.35	3353.45
F	1.5	65.50	98.25
G	15	63.40	951.00
H	1.5	61.95	92.93
I	17.5	61.45	1075.38
J	43.5	61.60	2679.60
K	7.75	64.00	496.00
L	1	64.85	64.85
M	6	65.50	393.00
N	1	66.00	66.00
O	24.75	67.65	1674.34
P	11.5	69.40	798.10
Q	5	68.60	343.00
R	6.5	68.00	442.00
S	2	68.10	136.20
T	9	67.95	611.55
U	8	68.35	546.80
V	7.5	69.25	519.38
TOTAL	276		18,783.83

18,783.83/276 = 68.06'

AVERAGE GRADE = 68.06'

MAX. BUILDING HEIGHT = 68.06' + 30' = 98.06'

PROPOSED BUILDING HEIGHT = 96.5'

NOTE:
EXISTING ASPHALT DRIVEWAY OF EASEMENT AND TRACT 'X' MUST BE REPLACED WITH BRUSHED CONCRETE PER SHORT PLAT/FIRE REQUIREMENTS.

NOTE: THERE WILL BE APPROXIMATELY 123 CU. YRDS. OF GRADING OUTSIDE OF THE BUILDING FOOTPRINT.

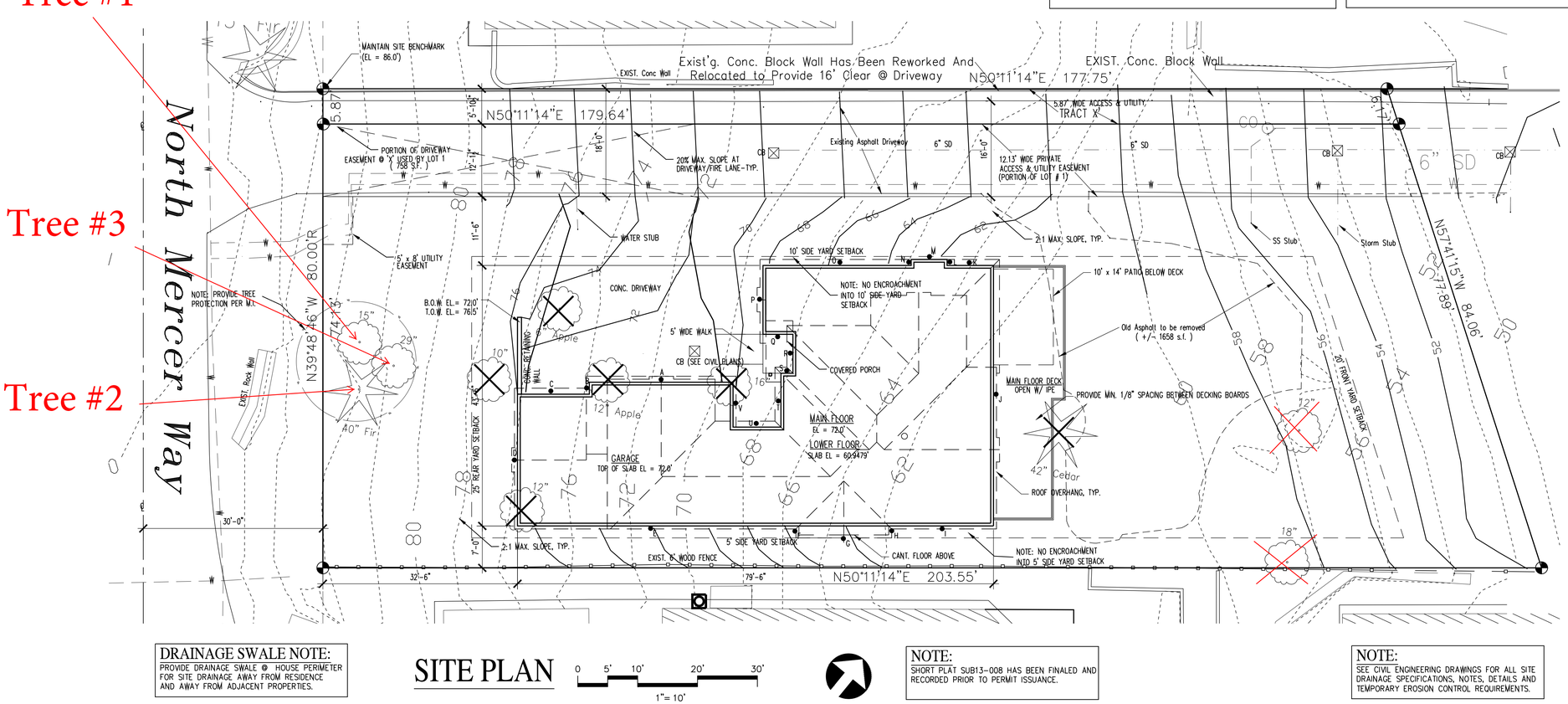
R-12 ZONING

PROVIDE 2:1 MAX. SLOPE @ SITE-TYP

FIRE REQUIREMENTS NOTE:
1- PROJECT TO BE NFPA 13-R MODIFIED
2- PROVIDE MONITORED WATER FLOW ALARM
3- PROVIDE FIRE RETARDANT COATING IN ATTIC AND CRAWLSPACE

NOTE:
PRIOR TO STAKING FOUNDATION, A LICENSED SURVEYOR MUST VERIFY THAT THE DIMENSIONS SHOWN ON ARCHITECT'S FOUNDATION PLAN PROPERLY CLOSE. ANY DISCREPANCY SHALL BE IMMEDIATELY REPORTED TO ARCHITECT PRIOR TO PRECEEDING WITH THE WORK.

SHEET INDEX



DRAINAGE SWALE NOTE:
PROVIDE DRAINAGE SWALE @ HOUSE PERIMETER FOR SITE DRAINAGE AWAY FROM RESIDENCE AND AWAY FROM ADJACENT PROPERTIES.

SITE PLAN

0 5' 10' 20' 30'
1"= 10'

NOTE:
SHORT PLAT SUB13-008 HAS BEEN FINALED AND RECORDED PRIOR TO PERMIT ISSUANCE.

NOTE:
SEE CIVIL ENGINEERING DRAWINGS FOR ALL SITE DRAINAGE SPECIFICATIONS, NOTES, DETAILS AND TEMPORARY EROSION CONTROL REQUIREMENTS.

AREA SUMMARY (ALL AREAS ARE APPROX.)

LOWER FLOOR	1,503 S.F.
MAIN FLOOR	1,697 S.F.
UPPER FLOOR	1,640 S.F.
TOTAL FINISHED AREA	4,840 S.F.
OPEN DECK W/ IPE DECKING	470 S.F.
COVERED PORCH @ ENTRY	34 S.F.
GARAGE	841 S.F.

NOTE:
THE FINISHED SQUARE FOOTAGE SUMMARY HAS BEEN BASED ON THE "SQUARE FOOTAGE METHOD FOR CALCULATING" FOR SINGLE FAMILY RESIDENTIAL BUILDINGS, PER ANSI Z7265-1996 GUIDELINES. FINISHED SQUARE FOOTAGE CALCULATIONS FOR THIS RESIDENCE WERE MADE BASED ON PLAN DIMENSIONS ONLY AND MAY VARY FROM THE FINISHED SQUARE FOOTAGE OF THE HOUSE AS BUILT.

NOTE TO SITE PLAN

CONTENTS OF ARCHITECT'S SITE PLAN ARE FOR ORIENTATION PURPOSES ONLY AND NOT FOR CONSTRUCTION. ALL SITE PLAN DIMENSIONS AND CONDITIONS, BUILDING DIMENSIONS, AND SITE DEVELOPMENT MUST BE VERIFIED BY A PROFFESIONAL SURVEYOR PRIOR TO EXCAVATION TO PREVENT ENCROACHMENT AND ASSURE COMPLIANCE WITH BUILDING SETBACK REQUIREMENTS, BUILDING HEIGHT RESTRICTIONS, PROPERTY LINES, EASEMENTS AND OTHER SITE RESTRICTIONS WHICH APPLY.

SITE PLAN IS BASED SOLEY ON THE FOLLOWING DOCUMENTS MADE AVAILABLE TO THE ARCHITECT.

PLAT MAP	Y	DATED: 2016	BY: TRUE NORTH LAND SURVEYORS
SURVEY	Y	DATED: 2016	BY: TRUE NORTH LAND SURVEYORS
TITLE	Y	DATED 2013	BY: CHICAGO TITLE INS. CO.

NO SEARCH OF PUBLIC RECORDS WAS MADE NOR ANY OTHER ACT PREFORMED TO DETERMINE THE POSSIBLE EXISTENCE OF ANY RECORDED OR UNRECORDED CLAIM AGAINST THE SUBJECT PROPERTY.

Anderson Architecture
Leif Anderson Architect
20822 Damson Road, Lynnwood, WA 98036
425.672.4963 Fax/Phone
l.anderson.architecture@gmail.com

A Custom Residence for
On The Rock 98040, LLC
Lot 1, 7254 North Mercer Way, Mercer Island

DATE:
12-20-2016
03-05-2020

JOB. NO.
12-12.101

SHEET NO.
1
OF 24

Basic Tree Risk Assessment Form

Client Leif Anderson Date 6/8/2020 Time 12:00 PM

Address/Tree location 7254 N Mercer Way Tree no. 3 Sheet 1 of 1

Tree species Arbutus menziesii dbh 15.5 Height 40 ft Crown spread dia. 7 ft

Assessor(s) Jake Robertson Tools used Spencer Tape **Time frame**

Target Assessment

Target number	Target description	Target protection	Target zone: Target within drip line	Target zone: Target within 1 x Ht.	Target zone: Target within 1.5 x Ht.	Occupancy rate (1–rare, 2 – occasional, 3 – frequent, 4 – constant)	Practical to move target?	Restriction practical?
1	Single Family Home: 7254 N Mercer Way	none	✓	✓	✓	4	No	No
2								
3								
4								

Site Factors

History of failures none **Topography** Flat ☐ Slope ■ 30-40 % **Aspect** NE

Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ■ Root cuts ■ Describe excavation for construction near tree

Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____% Describe

Prevailing wind direction S, SW **Common weather** Strong winds ■ Ice ■ Snow ☐ Heavy rain ■ Describe

Tree Health and Species Profile

Vigor Low ■ Normal ☐ High ☐ **Foliage** None (seasonal) ☐ None (dead) ☐ Normal _____% Chlorotic _____% Necrotic 90-95 %

Pests/Biotic **Abiotic** construction impacts

Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe

Load Factors

Wind exposure Protected ■ Partial ☐ Full ☐ Wind funneling ☐ **Relative crown size** Small ■ Medium ☐ Large ☐

Crown density Sparse ■ Normal ☐ Dense ☐ **Interior branches** Few ■ Normal ☐ Dense ☐ **Vines/Mistletoe/Moss** ☐

Recent or expected change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR 40 %

Dead twigs/branches ■ 65 % overall Max. dia. 4"-8'

Broken/Hangers Number Max. dia.

Over-extended branches ☐

Pruning history

Crown cleaned ☐ Thinned ☐ Raised ☐

Reduced ☐ Topped ☐ Lion-tailed ☐

Flush cuts ☐ Other

Cracks ☐ Lightning damage ☐

Codominant ☐ Included bark ☐

Weak attachments ☐ Cavity/Nest hole ____% circ.

Previous branch failures ☐ Similar branches present ☐

Dead/Missing bark ■ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐

Conks ☐ Heartwood decay ☐

Response growth

Condition(s) of concern: failure damaging new construction

Part Size 4"-8"" Fall Distance 30-40'

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ■

Condition(s) of concern: failure damaging new construction

Part Size 4"-8" Fall Distance 30-40'

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ■

— Trunk —

Dead/Missing bark ■ Abnormal bark texture/color ■

Codominant stems ☐ Included bark ☐ Cracks ☐

Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐

Lightning damage ☐ Heartwood decay ■ Conks/Mushrooms ☐

Cavity/Nest hole _____% circ. Depth Poor taper ☐

Lean 30 ° Corrected? no

Response growth

Condition(s) of concern: uncorrected lean towards new construction

Part Size 15.5" Fall Distance 40'

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ■

— Roots and Root Collar —

Collar buried/Not visible ■ Depth Stem girdling ☐

Dead ☐ Decay ☐ Conks/Mushrooms ☐

Ooze ☐ Cavity ☐ _____% circ.

Cracks ☐ Cut/Damaged roots ☐ Distance from trunk

Root plate lifting ☐ Soil weakness ☐

Response growth

Condition(s) of concern

Part Size Fall Distance

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ■

Likelihood of failure Improbable ☐ Possible ☐ Probable ■ Imminent ☐

Risk Categorization

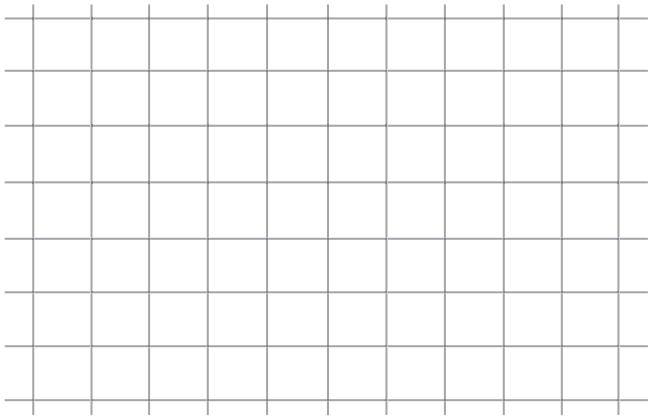
Target (Target number or description)	Tree part	Condition(s) of concern	Likelihood: Failure: Improbable	Failure: Possible	Failure: Probable	Failure: Imminent	Impact: Very low	Impact: Low	Impact: Medium	Impact: High	Failure & Impact (from Matrix 1): Unlikely	Somewhat	Likely	Very likely	Consequences: Negligible	Minor	Significant	Severe	Risk rating (from Matrix 2)
1	crown & trunk	lean to house				●				●				●			●		High

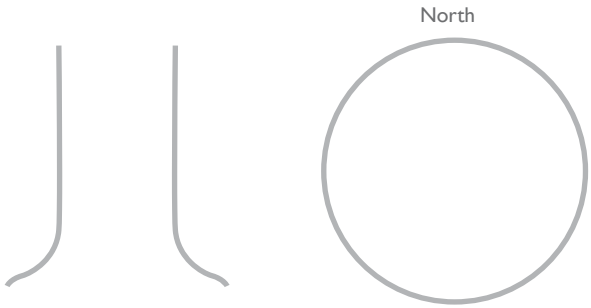
Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low





Notes, explanations, descriptions

_____

_____

_____

_____

_____

Mitigation options

1. Removal _____ **Residual risk** none

2. _____ **Residual risk** _____

3. _____ **Residual risk** _____

4. _____ **Residual risk** _____

Overall tree risk rating Low ☐ Moderate ☐ High ☐ Extreme ■

Overall residual risk None ■ Low ☐ Moderate ☐ High ☐ Extreme ☐ **Recommended inspection interval** 1 year

Data ■ Final ☐ Preliminary **Advanced assessment needed** ■ No ☐ Yes-Type/Reason _____

Inspection limitations ■ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe _____