



AMERICAN FOREST
MANAGEMENT

**ARBORIST REPORT
FOR
3675 W Mercer Way
Mercer Island, WA**



**August 16th, 2016
Revised January 12th, 2018
Updated February 6, 2019**

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1. Introduction

American Forest Management, Inc. has been asked to compile an ‘Arborist Report’ for a proposed two lot short plat located within the City of Mercer Island, WA.

The proposed two lot short plat is located at 3675 W Mercer Way. Our assignment is to prepare a written report on present tree conditions, which is to be filed with the permit application.

Dates of Field Examination: August 2016, November 2017, January 2018 and January 2019

2. Description

Significant trees are comprised of a mix of planted and native species. Subject trees can be identified in the field by a numbered aluminum tag. Tree tag numbers correspond with tree numbers on the attached tree summary tables and the copy of the site plan. Detailed information for assessed trees can be found on the accompanying Tree Condition Summary spreadsheets. Tree/Tag #, species, DBH (diameter at 4 ½ feet above ground), height, measured drip-lines, specific defects and overall condition are given.

57 trees were evaluated on the subject property. 38 of these are considered large ‘regulated’ trees. Large, regulated trees are those that are 10 inches in diameter or more and any tree that meets the definition of an Exceptional tree. An Exceptional tree is defined as follows:

Tree, Exceptional: A tree or group of trees that because of its unique historical, ecological, or aesthetic value constitutes an important community resource. An exceptional tree is a tree that is rare or exceptional by virtue of its size, species, condition, cultural/historic 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.

Tree, Grove: A grove means a group of eight or more trees each 10 inches or more in diameter that form a continuous canopy. Trees that are part of a grove shall also be considered exceptional trees, unless they also meet the definition of a hazardous tree.

An additional 19 small, non-regulated trees were also assessed.

In addition to the trees on the subject property, there are three neighboring trees with driplines that extend over the property line. These trees are included in this report.

3. Methodology

Each tree in this report was visited. Tree diameters were measured by tape. The tree heights were measured using a Spiegel Relaskop. Each tree was visually examined for defects and vigor. The tree assessment procedure involves the examination of many factors:

- The crown of the tree is examined for current vigor. This is comprised of inspecting the crown (foliage, buds and branches) for color, density, form, and annual shoot growth, limb dieback and disease. The percentage of live crown is estimated for coniferous species only and scored appropriately.
- The bole or main stem of the tree is inspected for decay, which includes cavities, wounds, fruiting bodies of decay (conks or mushrooms), seams, insects, bleeding, callus development, broken or dead tops, structural defects and unnatural leans. Structural defects include crooks, forks with V-shaped crotches, multiple attachments, and excessive sweep.
- The root collar and roots are inspected for the presence of decay, insects and/or damage, as well as if they have been injured, undermined or exposed, or original grade has been altered.

Based on these factors a determination of condition is made. The four condition categories are described below based on the species traits assessed:

Excellent – free of structural defects, no disease or pest problems, no root issues, excellent structure/form with uniform crown or canopy, foliage of normal color and density, above average vigor, it will be wind firm if isolated, suitable for its location

Good – free of significant structural defects, no disease concerns, minor pest issues, no significant root issues, good structure/form with uniform crown or canopy, foliage of normal color and density, average or normal vigor, will be wind firm if isolated or left as part of a grouping or grove of trees, suitable for its location

Fair – minor structural defects not expected to contribute to a failure in near future, no disease concerns, moderate pest issues, no significant root issues, asymmetric or unbalanced crown or canopy, average or normal vigor, foliage of normal color, moderate foliage density, will be wind firm if left as part of a grouping or grove of trees, cannot be isolated, suitable for its location

Poor – major structural defects expected to fail in near future, disease or significant pest concerns, decline due to old age, significant root issues, asymmetric or unbalanced crown or canopy, sparse or abnormally small foliage, poor vigor, not suitable for its location

A ‘viable’ tree has determined to be in good health, with a low risk of failure due to structural defects, is wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location. Trees considered ‘non-viable’ are trees that are in poor condition due to disease, age related decline, have significant decay issues and/or cumulative structural defects, which exacerbate failure potential. The attached tree map indicates the ‘condition’ of the subject trees found at the site.

4. Observations

The property contains a wide variety of tree species, sizes and age classes. See the attached tree table for information on specific trees.

The Douglas-fir trees on the subject property are generally healthy, mature trees. Many of the Douglas-fir trees are adjacent to the home and in small planters. Common defects include butt swell, and structural defects such as forked tops. All of the Douglas-fir trees are viable.

The western red cedar trees are in three areas of the property. There are two young western red cedar trees next to the driveway. There are four western red cedar trees in good condition on the steep slope on the east side of the property. The remaining western red cedars are in a cluster on the southeast property line. There are eight western red cedar trees in this location. All eight are semi-mature and growing closely together. Trunk taper and crown vigor was good in all eight trees. The most common defect observed in the western red cedar trees was forked trunks with included bark. All of the western red cedar trees on the property are viable.

Big leaf maple trees are dispersed throughout the steep slope above the home. The big leaf maple range in age and condition. One big leaf maple, #103 has a broken top and is in poor condition. This is the only significant, non-viable big leaf maple on the subject property. Common defects include forked trunks, self-corrected leans.

Cherry laurel is a shrub found throughout the property. The majority are on the east side of the property on the steep slope. These have developed significant downhill leans and have widespread, scraggly crowns.

There is a grouping of four horse chestnut trees on the south side of the property just below the steep slope. All four are in fair condition. Three are mature and one is semi-mature. Ivy is covering the trunks of these trees. Two of the trees are leaning. All four trees are viable.

The majority of the bitter cherry trees are non-significant and on the northwest property line. Of the significant trees, the most common notable defects were small live crowns and poor trunk structure. These trees are semi-mature for the species.

Norway spruce

All of the Norway spruce trees on the property are on the northwest property line, interspersed with the bitter cherry trees. Tree #146 has a thin crown and there is moderate bleeding in the upper trunk. The Norway spruce trees range from fair to good condition. All of the Norway spruce trees are viable.

Neighboring trees

Tree #111 is a Douglas fir off of the east property line. The subject appears stable and in good condition.

Tree #201 is a bitter cherry off of the east property line. This tree leans west. Cherry gummosis was observed on the trunk. The subject tree is in fair condition and is viable.

Tree #202 is a Crimson King maple. This tree has a large crown and no defects were observed. The subject tree is in good condition and is viable.

5. Discussion

The extent of drip-lines (farthest reaching branches) for all trees can be found on the tree summary tables at the back of this report. The recommended Limits of Disturbance (LOD) measurements can also be found on the tree summary table. The LOD measurements are based on species, age, condition, drip-line and prior improvements.

No trees are proposed to be removed for the short plat. Eight non-regulated or small trees have been removed from the property since the initial site visit in 2016. Tree #124, a 10" hemlock that died last year due to drought was also removed. These trees are identified at the end of the Tree Summary Table. Tree #149, a 16" native bitter cherry was also removed, from the grove on the northern perimeter, along with a few small, non-regulated trees. These trees were suppressed by other larger trees in the grove. Their removal resulted in no net loss of tree canopy and will actually improve the vigor and health of residual trees by affording them more sunlight and less competition for moisture and nutrients.

Species Considerations

The tree species of highest retention value on this property are the Douglas-fir, Pacific madrone, and western red cedar trees. These three species are native to western Washington and typically have long, productive lifespans. When developing the site plan, these trees shall be given the highest priority for retention.

It is important to consider species ability to withstand construction damage. Pacific madrone trees are intolerant of site damage and any work within the dripline could severely compromise long term viability. The location and condition of the Pacific madrone trees on this property made retention of any of them impossible.

Norway spruce trees typically grow to 40' – 60' in height but can get up to 100'. The Norway spruce trees on the subject property are between 35' and 70'. Norway spruce is commonly planted as a windbreak or screen tree. This species is intolerant of root loss.

The cluster of western red cedar trees on the south property line are close to the preliminary new home and deck location. Western red cedar trees are intolerant of root damage and fill. Changes in water table and soil moisture can severely impact their viability. Careful tree protection measures will be necessary to protect these trees. All eight trees (#131 - #138) will be retained as a group to minimize future wind impacts.

Cherry laurel trees were found throughout the property. Cherry laurel is a shrub not native to Washington. This species is classified as a Weed of Concern in King County. King County discourages planting this species. This species is the lowest priority for retention on this property.

For the majority of the property, ivy was killed and removed from trees in the past. There is still ivy covering the trunks of many trees. This threatens the long term health and viability of the trees. It also impeded visual assessments of tree trunks. The remaining ivy should be killed and removed from trees.

6. Tree Protection Measures

The following guidelines are recommended to ensure that the designated space set aside for the preserved trees are protected and construction impacts are kept to a minimum.

1. Tree protection fencing shall be erected per prior to moving any heavy equipment on site. Doing this will set clearing limits and avoid compaction of soils within root zones of retained trees.
2. Excavation limits should be laid out in paint on the ground to avoid over excavating.
3. Excavations within the drip-lines of retained trees shall be monitored by a qualified tree professional so necessary precautions can be taken to decrease impacts to tree parts. A qualified tree professional shall monitor excavations when work is required and allowed up to the "limits of disturbance".
4. To establish sub grade for foundations, curbs and pavement sections near the trees, soil should be removed parallel to the roots and not at 90 degree angles to avoid breaking and tearing roots that lead back to the trunk within the drip-line. Any roots damaged during these excavations should be exposed to sound tissue and cut cleanly with a saw. Cutting tools should be sterilized with alcohol.
5. Areas excavated within the drip-line of retained trees should be thoroughly irrigated weekly during dry periods.
6. Preparations for final landscaping shall be accomplished by hand within the drip-lines of retained trees. Large equipment shall be kept outside of the tree protection zones.

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. Nearly all trees in any condition standing within reach of improvements or human use areas represent hazards that could lead to damage or injury.

Please call if you have any questions or if we can be of further assistance.

Sincerely,



Kelly Wilkinson
ISA Certified Arborist #PN-7673A
ISA Tree Risk Assessment Qualified

Updated by:



Bob Layton
ISA Certified Arborist #PN-2714A
ISA Tree Risk Assessment Qualified

Tree Protection Standards

1. Tree Protection Fencing shall be erected at prescribed distance per arborist report. Fences shall be constructed of chain link and be at least 4 feet high.
2. Install highly visible signs on protection fencing spaced no further than 15 feet apart. Signs shall state "Tree Protection Area-Entrance Prohibited", and "City of Mercer island" code enforcement phone number.
3. No work shall be performed within protection fencing unless approved by Planning Official. In such cases, activities will be approved and supervised by a "Qualified Tree Professional".
4. The original grade shall not be elevated or reduced within protection fencing without the Planning Official authorization based on recommendations from a qualified professional.
5. No building materials, spoils, chemicals or substances of any kind will be permitted within protection fencing.
6. Protection Fencing shall be maintained until the Planning Official authorizes its removal.
7. Ensure that any approved landscaping within the protected zone subsequent to the approved removal of protection fencing be performed with hand labor.

In addition to the above, the Planning Official may require the following:

- a. If equipment is authorized to operate within the root zone, the area will be mulched to a depth of 6" or covered with plywood or similar material to protect roots from damage caused by heavy equipment.
- b. Minimize root damage by excavating a 2-foot deep trench, at edge of protection fencing to cleanly sever the roots of protected trees.
- c. Corrective pruning to avoid damage from machinery or building activity.
- d. Maintenance of trees throughout construction period by watering and fertilization.

Photos

Tree #102 – bitter cherry with large ivy stems and burls



Tree #103 – big leaf maple with broken top



East side of property



Tree #121 – Pacific madrone with cankers caused by *Nattrassia mangiferae*



Tree #123 – paper birch leaning west, ivy on the trunk



Tree #131 - #133 – western red cedars on the southeast property line



Western red cedar trees on the southeast property line



Same grove as above, January 2019



North side of subject property 2016



North side of subject property January 2019



East perimeter of property, January 2019



Tree #114, east forked stem susceptible to failure



Tree Summary Table

For: 3675 W Mercer Way
City of Mercer Island

American Forest Management, Inc.

Date: 8/2/2016 - Revised 1/12/2018
Inspector: Wilkinson
Updated by Layton 1/30/2019

Tree/ Tag #	Species	DBH (inches)	Height (feet)	Drip-Line/Limits of Disturbance (feet)				Condition	Viability	Comments	Excep. Tree	>24" DBH	Excep. Grove	Proposal
				N	S	E	W							
101	white ash	11	25	8 / 6	15 / 2	10 / 6	14 / 2	fair	viable	slight lean, topped in past				retain
102	flowering cherry	14	18					poor	non-viable	significant deadwood, dieback, topped in past				retain
107	big leaf maple	22,20 (30)	62	25 / 10	30 / 15	16 / 15	25 / 8	fair	viable	trunk forks at 5', u-shaped attachment	X	X		retain
108	big leaf maple	15, 12, 8 (20)	60	12 / 12	10 / 12	9 / 15	7 / 5	fair	viable	2' from ground, fork is an ok attachment				retain
109	big leaf maple	10, 5, 5, 3 (13)	43	2 / 10	15 / 10	2 / 10	17 / 8	poor	viable	forks at base, small crown				retain
114	western red cedar	25	80	12 / 15	8 / 15	7 / 18	14 / 12	fair	viable	trunk forks at 27' into 3 tops, east forked top susceptible to failure			X	retain
115	western red cedar	11	47	8 / 6	7 / 6	9 / 8	8 / 5	good	viable	somewhat suppressed			X	retain
116	western red cedar	32	82	9 / 10	14 / 10		13 / 6	good	viable	no concerns	X	X	X	retain
117	big leaf maple	16, 15 (22)	78	6 / 14			15 / 14	good	viable	forks at 2', good attachment, one stem has a j-shaped crook, ~10' up			X	retain
118	big leaf maple	20, 23 (30)	81	12 / 16	24 / 16	13 / 18	29 / 16	fair	viable	forks at base, moderate deadwood and crown dieback	X	X	X	retain
119	Douglas-fir	30	88	13 / 15	7 / 15	10 / 15	11 / 15	fair	viable	old broken top, pitching at base	X	X	X	retain
120	Pacific madrone	21, 18 (28)	68	6 / 18	8 / 18	3 / 18	17 / 16	poor	non-viable	20% dieback, some decay, exposed roots on south side, significant trunk decay, root system undermined by eroding soils	X	X		retain
121	Pacific madrone	26, 32	58	14 / 20	15 / 20	0 / 20	34 / 25	fair-good	viable	some cankers, forks 4' from the ground, good vigor	X	X	X	retain
125	horse chestnut	21	75	8 / 10		15 / 10		fair	viable	ivy covering trunk			X	retain
126	horse chestnut	12	45	5 / 6		12 / 6		poor	viable	poor taper and form			X	retain
127	horse chestnut	16, 11, 4 (20)	77	8 / 10	10 / 10	5 / 10	15 / 10	fair	viable	ivy covering trunk, leans west			X	retain
129	spanish chestnut	19, 21 (28)	75	16	14	7	20	fair	viable		X	X		retain

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				N	S	E	W							
131	western red cedar	12	64	9 / 6		7 / 6	7 / 6	good	viable				X	retain
132	western red cedar	14	60	8 / 6			5 / 7	good	viable				X	retain
133	western red cedar	15	65	5 / 6			4 / 8	good	viable				X	retain
134	western red cedar	13	62	8 / 6			7 / 8	good	viable				X	retain
135	western red cedar	18	64	6 / 6			6 / 9	good	viable				X	retain
137	western red cedar	16, 21 (27)	75	10 / 13	14 / 13	5 / 13	15 / 13	good	viable	codominant stems, moderate included bark		X	X	retain
138	western red cedar	16	61	4 / 8	12 / 8	5 / 8	13 / 8	good	viable				X	retain
142	paper birch	14	66	14	12	8	15	fair	viable	recently pruned				retain
144	Alaska yellow cedar	12	56	5 / 6	11 / 3	8 / 6	13 / 6	good	viable					retain
145	Norway spruce	11	35	5 / 6	9 / 6	7 / 6	8 / 6	fair	viable	suppressed, recently pruned				retain
146	Norway spruce	17	71	8 / 9	9 / 9	9 / 9	12 / 9	fair	viable	bleeding in upper trunk, recently crown raised				retain
150	Norway spruce	16	69	6 / 8	10 / 8	8 / 8	10 / 8	good	viable					retain
152	Norway spruce	10	55	4 / 5	9 / 5	5 / 5	5 / 5	good	viable					retain
156	Douglas-fir	50	125	23 / 18	27 / 18	22 / 15	20 / 18	good	viable	recently crown cleaned	X	X		retain
157	Douglas-fir	26	103	8 / 14	7 / 14	6 / 14	7 / 14	good	viable	no concerns	X	X		retain
160	Douglas-fir	22	89	8	13	10	12	fair	viable	mistletoe				retain
162	Douglas-fir	35	112	14	12	17	15	fair	viable		X	X		retain
163	Douglas-fir	36	131	25	15	20	17	fair	viable	some butt swell, small planter	X	X		retain
164	Douglas-fir	28	85	11	16	20	7	fair	viable	j-shaped trunk, small planter	X	X		retain

Non-Regulated Trees, less than 10"

104	white ash	8	25	4 / 6	5 / 6	0 / 6		fair-poor	viable	on steep slope, some decay, topped in past				
122	red alder	9	28	3	12	5	15	fair	viable	leans west, broken top, old trunk wound				
123	paper birch	8	30	12	8	5	12	fair-poor	viable	leans west, poor form				
128	ash	8, 4 (9)	25	9 / 6	4 / 6	6 / 6	5 / 6	poor	non-viable	covered in ivy, leans north, major decline				
130	yellow wood	7	52	16 / 5	4 / 5	0 / 5	13 / 5	good	viable	forks at the base				
136	western red cedar	8	58	4 / 5	7 / 5		6 / 5	good	viable					
143	Alaska yellow cedar	5	37	3 / 3	5 / 3	4 / 3	4 / 3	fair	viable	small tree				

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				N	S	E	W							
147	bitter cherry	8	40	4 / 4	7 / 4	5 / 4	0 / 4	fair	viable	leans south, small crown, small tree				
148	Norway spruce	9	42	7 / 5	11 / 5	9 / 5	8 / 5	good	viable	small tree				
151	Norway spruce	7	56	5 / 4	3 / 4	2 / 4	3 / 4	fair	viable	thin crown, small tree				
158	western red cedar	8	27	5 / 4	12 / 6	7 / 4	8 / 4	good	viable	self corrected lean N, small tree, variegated foliage				
Shrub - species meeting City's definition of a shrub														
106	cherry laurel	5, 6, 5, 10 (14)	26	12 / 8	15 / 5		18 / 8	fair	viable	shrub - no replacement required				
112	cherry laurel	7, 4 (8)	23	3 / 4	4 / 4	0 / 4	21 / 10	fair	viable	leans west, shrub form, classified as small tree by code				
113	cherry laurel	3, 4, 2, 4, 5, 6, 9 (14)	25	16 / 10	0 / 10	0 / 10	21 / 12	fair	viable	leans west, shrub				
140	mulberry	3, 3, 4, 5, 5, 5, 4 (11)	13	14 / 7	8 / 7	9 / 7	11 / 7	good	viable	multiple-stems, shrub				
159	cherry laurel	6, 13, 8, 4, 4	25	8 / 8	6 / 8	8 / 8	17 / 8	fair	viable	typical, shrub				
161	cherry laurel	8	20	5 / 5	16 / 8	5 / 5	7 / 5	poor	viable	forks at 4.5', shrub form, poor form				
Non-regulated (small) Trees Removed since initial site visit														
103	big leaf maple	8, 5	26					poor	non-viable	steep slope, small live crown,				
105	cherry laurel	8, 5, 5, 4	25	18 / 10	16 / 5	0 / 10	14 / 5	fair	viable	shrub				
110	western red cedar	5	26	7 / 5	8 / 5	6 / 6	7 / 4	good	viable	small tree				
124	western hemlock	10	49	6	7	9	6	fair	non-viable	tree died and was removed				
139	apple	3, 4, 4	10	6 / 5	9 / 5	8 / 5	4 / 5	good	viable	small tree				
141	apple	8, 6, 4	12	10 / 6	10 / 6	10 / 6	8 / 6	fair	viable	cable around tree				
149	bitter cherry	16, 3	48	3 / 8	4 / 8	5 / 8	3 / 8	fair	viable	small crown				

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				N	S	E	W							
153	bitter cherry	7	28	3 / 4	5 / 4	8 / 4	4 / 4	fair	viable	crook in trunk, dieback in crown				
154	bitter cherry	6, 5	48	2 / 5	5 / 5	3 / 5	9 / 5	fair	viable	forks at base, dieback, small tree				
155	Norway spruce	4	38	6 / 4	6 / 4	7 / 4	5 / 4	good	viable	small tree				

Neighboring Trees

111	Douglas-fir	31	115	14 / 15	9 / 15	10 / 18	15 / 15	good	viable					protect
201	bitter cherry	7	42	16	0	0	22	fair	viable	leans west, cherry gummosis				protect
202	Crimson King maple	28	80	6				good	viable					protect

Drip-Line and Limits of Disturbance measurements from face of trunk



Trees on neighboring properties - Drip-line and Limits of Disturbance measurements from property lines

Calculated DBH: the DBH in parenthesis is the square root of the sum of the dbh for each individual stem squared (example with 3 stems: dbh = square root [(stem1)2 +(stem2)2 +(stem3)2]).

