

# Toll Brothers

America's Luxury Home Builder®

Samantha Updegrave  
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PO Box 34019  
Seattle, WA 98124

October 24<sup>th</sup>, 2014

**DPD Project# 3015522**  
**Project Address: 901 W McGraw St**

Attachments: Supplemental Arborist report – Risk Assessment per DR 16-2008

Ms. Updegrave:

As you know there are Exceptional Trees located on the Seattle Children's Home site and in the adjacent right-of-way. There are 2 trees located on site that met the definition of an Exceptional Tree per definition (SMC 25.11.020); however they are dead (#770) or diseased (#776). In addition there is one Exceptional Tree (#792) on site that was planted 20-30 years ago within 3 feet of an existing retaining wall that has constrained its root system on two sides. We investigated the potential to relocate this tree on site. Our Arborist and two large tree relocation companies investigated the viability of relocating this tree and due to the preexisting condition of the root ball we have concluded that the tree is not a good candidate to relocate.

We propose to remove Tree # 792 and to replace the tree with 2 like kind. We have reserved (2) 3.5-4" caliper trees at Big Trees Nursery in Redmond, WA. The proposed 2 replacement trees double the replacement requirement per SMC SMC 25.11.090.

Below is our justification supporting our proposal.

**Applicable code references:**

- DR16-2008 prescribes the process to evaluate Exceptional Trees at risk
- SMC 25.11.070 - Tree protection on sites undergoing development in Lowrise zones
- SMC 25.11.090 - Tree replacement and site restoration

**DR16-2008**

*Attached is a Risk assessment report documenting the condition of trees #770, #776 and #792.*

- Tree # 770 is dead and therefore does not meet the definition of an exceptional tree
- Tree # 776 is diseased and therefore does not meet the definition of an exceptional tree
- Tree # 792 is has damaged roots however it does meet the definition of an exceptional tree

**SMC 25.11.070 - Tree protection on sites undergoing development in Lowrise zones**

SMC 25.11.070 states that "The Director may permit the exceptional tree to be removed only if the total floor area that could be achieved within the maximum permitted FAR and height limits of the applicable Lowrise zone according to SMC Title 23, the Land Use Code, cannot be achieved while avoiding the tree protection area through the following.....

- Tree # 770 is dead and therefore does not meet the definition of an exceptional tree
- Tree # 776 is diseased and therefore does not meet the definition of an exceptional tree
- Tree # 792 is has damaged roots however it does meet the definition of an exceptional tree

While Tree #792 is an exceptional tree it is not a candidate to be relocated and the location of the existing tree negatively impacts our ability achieve the maximum permitted FAR. Our proposed Total Floor Area is 115,718.67 sf. The allowed maximum permitted FAR for this site is 124,637.34 sf. The project as currently proposed is 8,918.67 sf under the allowable FAR. If Tree #792 is not removed it would result in losing additional FAR. (This information also can be found on ASP.7)

**SMC 25.11.090.b - Tree replacement and site restoration**

"No tree replacement is required if the (1) tree is hazardous, dead, diseased, injured or in a declining condition with no reasonable assurance of regaining vigor as determined by a tree care professional, or (2) the tree is proposed to be relocated to another suitable planting site as approved by the Director."

- Tree # 770 is dead and therefore no replacement is required
- Tree # 776 is diseased and therefore no replacement is required
- Tree # 792 is has damaged roots, and negatively impacts the ability to achieve the maximum far allowed. Two like kind trees, doubling the replacement requirement is proposed and the trees will be located in the pocket park.

In Summary, we proposed to remove Exceptional Tree #792 and replace it with two like kind trees that will have 3.5-4" caliper trunks at the time they are planted. The justification to remove this tree is the project as proposed does not achieve the maximum allowed FAR and allowing the tree to remain would further decrease the projects achievable FAR. Our proposed replacement doubles the requirement.

Please contact me at 425-220-1033, if you need additional information.

Sincerely,



KARL VOLKLE  
Sr. Land Entitlement Manager

# SHOFFNER CONSULTING

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October 23, 2014

Karl Volkle  
Toll WA, LP  
9720 NE 120<sup>th</sup> Pl. Suite 100  
Kirkland, WA  
98034

Re: Final Tree Report – Seattle Children's Home

Karl:

This report is provided to address the tree inventory and assessment I conducted of 60 trees on the site of the Seattle Children's Home in the City of Seattle, WA and 26 located within the City of Seattle right of way and to address recent corrections noted in Correction Notice #1 dated September 24, 2014. I inventoried all of the surveyed trees, each identified with metal tags labeled by the surveyors with numbers corresponding to those referenced in this report and on the accompanying Tree Evaluation Data spreadsheet. In the data, information is given on all of the trees, including species, dbh, crown spread, limits of development (for Exceptional trees only), size status and condition. This report presents information on retention and removal of trees based upon their locations separated into those on the project site and those located just-off site within the City of Seattle public right-of-way.

## 1. Exceptional Tree Risk Assessments

Following are the risk assessments for the three Exceptional trees on site. These assessments are prepared according to the methods and procedures specified in Tree Risk Assessment in Urban Areas and the Urban/Rural Interface, Course Manual (Dunster, J. 2009). For each tree, values are provided for each of the three criteria used to determine the Overall Risk Rating, the total Overall Risk Rating value and the Risk Category.

Tree #770 - This tree is a Pacific madrone measuring 8" dbh that was in fair condition and health at the time of my initial assessment back in the late fall of 2013. This tree is dead and no longer viable and no longer classified as Exceptional.

Size of Defective Part (8") - 2 points  
The Target Area (Building) - High, 4 points  
Probability of Failure - Dead tree, Extreme, 5 points  
Overall Risk Rating - 11 points  
Risk Category - High3

Tree #776 This tree is a Pacific madrone measuring 14" dbh that was in good condition and health at the time of the initial assessment. Since that time, a large codominant leader failed at a connection with the other co-dominant leader leaving a large scar and reducing the width of the trunk by approximately 1/2 its diameter in that location. This defect presents a considerably weakened portion of the trunk presenting a point of potential failure. In addition, the wound renders the tree susceptible to decay and as a highly sensitive species,

the wound will more than likely lead to the tree's early death. Therefore this tree is no longer classified as Exceptional and is recommended to be removed. (see figure 2)

Size of Defective Part (14") - 2 points  
The Target Area (Building) - High, 4 points  
Probability of Failure - Previous failure, Extreme, 5 points  
Overall Risk Rating - 11 points  
Risk Category - High3

Tree #792 - This tree is a Japanese maple (*Acer japonicum*) measuring 14" dbh. This tree is in good condition and health and free of defects.

Size of Defective Part (8") - 2 points  
The Target Area (house) - High, 4 points  
Probability of Failure - Low, 1 point  
Overall Risk Rating - 7 points  
Risk Category - Moderate 2

#### Interpretation and Implications

High 3 - The tree, or part of it, could fail at anytime. Action to mitigate the risk is required within weeks rather than months.

Moderate 2 - Well defined issues - retain and monitor.

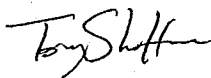
Clearly, the trees with the High 3 risk category warrant removal at this time (770 and 776) and 792 does not.

## **2. Use of This Report**

This report is provided to Toll WA, LP for the purpose of the dressing the risk assessments of three trees on the site of the Seattle Children's Home in the City of Seattle, WA. This information is the property of Toll WA, LP and cannot be amended by anyone other than Tony Shoffner. This report doesn't guarantee against damage caused by the failure of any tree, nor does it guarantee that trees to be retained will live long into the future. These evaluations only pertain to the conditions of the trees at the time the evaluation was conducted. This report is based upon professional experience and opinion and on interpretation of methods used to determine the Exceptional status of trees in the City of Seattle.

If you have any questions regarding this report, please feel free to call me directly.

Cordially,



Tony Shoffner  
ISA Certified Arborist #PN-0909A  
CTRA/TRAQ #1759



Figure 1. Tree #770 - Dead Pacific Madrone



Figure 2. Tree #776 - Damaged Pacific Madrone

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## 1. Corrections Required

Four corrections pertaining to tree retention and removal were requested on the recent correction notice, however, only three (1-3) pertain to content of this report. Following are general descriptions of the corrections and where that additional information can be found in this report as well as responses to each city review comment is included as part of the MUP resubmittal.

- 1) Revise inventory to clearly distinguish trees that originate on private property versus those that are in the street right of way (**See Tree Evaluation Data forms separated by tree location**). Street trees shall not be included in determining whether a group of trees is a grove. Therefore, the delineation of the "grove" of trees in the northeast corner of the site needs to be reexamined, excluding street trees, to determine which trees in the area are "exceptional." (**See Section 3 for Exceptional Trees and Section 4 for discussion on grove designations**).
- 2) Plan identifies a considerable amount of development that may impact street trees. Please consult with SDOT arborist. (**Meeting was held on site with both City of Seattle Arborists to review development plan and verbal approval was issued**).
- 3) Plan by project consulting arborist demonstrating that such limited encroachment (into the root zone) will not impact the survival of the trees. (**See Section 5. of this report**).

## 2. Summary of This Report

The project site is in an urbanized portion of Seattle in the Queen Anne neighborhood. It is currently developed with several buildings, a considerable amount of impervious surface and is landscaped with trees, shrubs, ground cover and turfgrass. In total, there are 60 trees on the property, 15 that meet the

minimum size threshold for their species to be classified as Exceptional, one of which is confirmed as dead (see Figure 1) and another has suffered a significant failure and therefore is classified as a High3 level overall risk rating. Therefore, both of these trees are declassified as Exceptional per SMC 25.11.030.B, for a total of 13 Exceptional trees on the project site.

Included in the inventory are 26 trees within the right-of-ways along 9th Ave. W to the east and McGraw St. to the north. The development plan for this property proposes to retain 12 Exceptional trees on the property and 9 non Exceptional trees. Within the right-of-way, the plan proposes to retain 21 of the trees and remove 5.

### 3. Exceptional Trees On Site

Thirteen trees were found to meet the size threshold and health/condition criteria to be Exceptional based upon the criteria in Director's Rule 16-2008. These trees are considered to have unique historical, ecological or aesthetic value. Following are the trees classified as Exceptional based upon the criteria for such classification provided in the Rule:

<u>Tree #</u>	<u>Species</u>	<u>Dbh</u>	<u>Exceptional Criteria</u>	<u>Designation</u>
709	Douglas fir	34"	Meets the threshold diameter	Retained
717	Japanese black pine	14"	Meets 75% dbh of largest in Seattle	Retained
729	Pacific madrone	14"	Meets the threshold diameter	Retained
730	Pacific madrone	14"	Meets the threshold diameter	Retained
739	Pacific madrone	14"	Meets the threshold diameter	Retained
740	Pacific madrone	12"	Meets the threshold diameter	Retained
741	Pacific madrone	12"	Meets the threshold diameter	Retained
768	Western red cedar	32"	Meets the threshold diameter	Retained
770	Pacific madrone	8"	Meets the threshold diameter	Remove - Dead
773	Pacific madrone	14"	Meets the threshold diameter	Retained
774	Pacific madrone	14"	Meets the threshold diameter	Retained
776	Pacific madrone	14"	Meets the threshold diameter	Remove - High Risk
778	Scot's pine	24"	Meets the threshold diameter	Retained
781	Deodar cedar	30"	Meets the threshold diameter	Retained
792	Japanese maple	14"	Meets the threshold diameter	Removed

Tree #770 and 776 are exempt from classification as exceptional per SMC 25.11.030.B.

### 4. Tree Groves

Per Director's Rule 16-2008, a tree grove means a group of 8 or more trees 12" in diameter and trees that are part of a grove should be considered exceptional. Trees that are less than 12" in diameter that are part of a grove's continuous canopy cannot be removed if their removal may damage the health of the grove. Per Director's Rule 16-2008, street trees within public right of way shall not be included in determining whether a grouping of trees is classified as a grove. Based upon the following assessments, there are no groves on the site.

#### Grove Designations

I reviewed trees #717-743 to determine if they are part of a continuous canopy of trees that are 12" dbh or greater to qualify as a grove. Per the Director's Rule 16-2008, trees that are located within a right-of-way are classified as street trees and are not included in determining whether a group of trees is a grove, per Director's Rule 16-2008. The off-site trees are numbers 718, 721, 722, 723, 724, 726, 727,

728, 731, 732, 733, 735, 737, 738, 743, 744, 745, 746, 747, 750, 751, 752, 753, 754 and 755. Removing these trees from the continuous canopy reduces the continuity of it to fewer than 8 trees, therefore it is not a grove.

Trees #707-716 (including trees #770-773) are not part of a continuous canopy of 8 or more trees that are 12" dbh or greater as tree #770 is dead which separates that grouping of trees into two groups, one of four trees and another of 8 trees. The second grouping, trees #771-715, are not part of continuous canopy of 8 more trees that are 12" dbh or greater as tree #711 is 7" dbh and 712 is 10" dbh, decreasing the number of trees that are part of this continuous canopy to 6 at 12" dbh or greater and doesn't classify as a grove.

Trees #744-752 are not part of a continuous canopy of 8 or more trees that are 12" dbh or greater as trees # 750, 751 and 752 are not on the project site limiting the number of trees in this grouping that are 12" or greater to fewer than 8.

Trees #788-792 do not classify as a grove as there are only five trees in this grouping.

Trees #764-768 do not classify as a grove as there are only five trees in this grouping and only three that are 12" dbh.

Trees #774-783 are not part of a continuous canopy of trees that are 12" dbh or greater as tree #775 is 8" dbh and there are only 7 trees 12" dbh or greater therefore these trees do not constitute a grove.

## 5. Tree Retention, Impacts and Removals - On-Site Trees

There are 60 trees on site, 15 of which are large enough to be classified as Exceptional, however one is dead and another is high risk, therefore leaving 13 on site. One Exceptional tree is proposed to be removed leaving 12 to be retained, in addition to the two in poor condition. See section 4.2 for descriptions of these trees and the reasons for removal.

For all retained Exceptional trees on the project site for which encroachment is proposed into the root zones, all impacts within the outer root zone do not exceed the maximum of 1/3 of the total area of the outer root zone. Following are the retained Exceptional trees and the impacted areas expressed as a percentage of the total outer root zone area. Where applicable, the impacted areas account for space beyond the edges of the proposed impacts for work to be conducted.

Tree #	ORZ Area sf	Impacted	%	Reason
709	763.41	48.66	6.37	Walkway
717	235.52	62.49	26.5	Walkway and building
729	611.35	0	0	No impacts beyond existing root barrier retaining wall
730	339.29	0	0	No impacts beyond existing root barrier retaining wall
739	235.62	0	0	No impacts beyond existing root barrier retaining wall
740	600.12	43.38	7.23	Walkway
741	602.68	78.32	13	Walkway
773	361.58	82.59	22.84	Shoring wall
774	468.03	0	0	No impacts beyond existing root barrier foundation wall
778	851.83	249.74	29.32	Walkway
781	1192.83	385.87	32.35	Walkway and retaining wall



In two situations for retained Exceptional trees (729 and 774) where existing structures, namely retaining walls, are located within trees' inner root zones, new features are proposed within the same zone but no new impacts will encroach toward the trees further than the existing root barriers. Following are the discussions of each situation:

Tree 729 - This tree is located along the outer edge of a rockery retaining wall that was constructed prior to the tree establishing on the site. The rockery is approximately 4 feet tall and has served as a barrier for this tree's roots for its entire life. A concrete sidewalk is at the base of the retaining wall. The project proposes to remove the sidewalk and the retaining wall and erect a shoring wall in its place. Once it is in place, the space between the shoring wall and the existing grade to its east will be backfilled with native material. This will provide the tree with additional rooting space beyond which it currently has.

Tree 774 - This tree is located on a sloping mound of soil just south of an existing building and its concrete foundation wall that extends several feet below the base of the tree, which is rooted within approximately 2 feet of the wall. This portion of the building is proposed to be removed but the project proposes to retain the foundation wall and cut off the top 2 feet of it. The new feature will be placed outside this foundation wall, the side that is opposite the tree.

During discussions with both City of Seattle Arborists, these situations were discussed and both agreed that with the existing root barriers in all areas where root barrier structures exist, new features can be placed in the locations of the existing features without resulting in root damage and loss that would affect the health or stability of these trees. In situations where it is possible for the new wall to be further from the soil edge than the existing wall, native soil material can be placed in the space between the wall and the soil edge to provide additional soil volume as a measure of improving the conditions beyond existing.

## 5.1 Non Exceptional Trees

There are 45 trees on the project site that do not meet the criteria to be classified as Exceptional. Of these, 9 are in locations where they will not be impacted by the proposed development and are proposed to be retained.

Following are the non-Exceptional trees proposed to be removed:

<u>Tree #</u>	<u>Species</u>	<u>Dbh</u>	<u>Reason for Removal</u>
711	Japanese pine ( <i>Pinus thunbergiana</i> )	12"	Road construction impacts
712	Western hemlock ( <i>Tsuga heterophylla</i> )	10"	Road construction impacts
713	Japanese pine	12"	Road construction impacts
714	Norway maple ( <i>Acer plantanoides</i> )	12"	Road construction impacts
715	Scot's pine ( <i>Pinus sylvestris</i> )	20"	This tree is in the location of a new road
716	Scot's pine	18"	This tree is in the location of a new building
719	Scot's pine	20"	Impacts related to building construction
720	Scot's pine	12"	Impacts related to building construction
734	Deodar cedar ( <i>Cedrus deodara</i> )	28"	New walkway impacts
748	English holly ( <i>Ilex aquifolium</i> )	10"	This tree is impacted by grading
749	Staghorn sumac ( <i>Rhus typhina</i> )	8"	This tree is impacted by grading
756	Korean dogwood ( <i>Cornus kousa</i> )	8"	This tree is in the location of a new building
757	Apple ( <i>Malus domestica</i> )	17"	This tree is in the location of a new road

758	Vine maple ( <i>Acer circinatum</i> )	5"	This tree is in the location of a new road and a new building
759	Vine maple	6"	This tree is in the location of a new building
760	Vine maple	5"	This tree is in the location of a new building
761	English holly ( <i>Ilex aquifolium</i> )	4"	This tree is in the location of a new building
762	Western red cedar ( <i>Thuja plicata</i> )	16"	This tree is in the location of a new building
763	Fraser's photinia ( <i>Photinia fraseri</i> )	10"	This tree is in the location of a new building
764	Red alder ( <i>Alnus rubra</i> )	8"	This tree is in the location of a new building
765	Red alder	8"	This tree is in the location of a new building
766	Red alder	12"	This tree is in the location of a new building
767	Douglas fir ( <i>Pseudotsuga menziesii</i> )	14"	This tree is in the location of a new building
769	Thundercloud plum ( <i>Prunus cerasifera</i> )	8"	This tree is in the location of a new building
771	American linden ( <i>Tilia americana</i> )	10"	This tree is removed due to new road impacts
772	Big-leaf maple ( <i>Acer macrophyllum</i> )	28"	This tree is removed due to new road impacts
782	English holly	8"	This tree is in the location of grading impacts
783	Thundercloud plum	8"	This tree is in the location of a new building
784	Strawberry tree ( <i>Arbutus unedo</i> )	9"	This tree is in the location of a new road and a new building
785	Strawberry tree	8"	This tree is in the location of a new road and a new building
786	Staghorn sumac ( <i>Rhus typhina</i> )	9"	This tree is in the location of a new building
787	Thundercloud plum	6"	This tree is in the location of a new building
788	Japanese pine ( <i>Pinus thunbergiana</i> )	12"	This tree is in the location of a new building
789	Scot's pine	18"	This tree is in the location of a new building
790	Scot's pine	18"	This tree is in the location of a new building
791	Norway spruce ( <i>Picea abies</i> )	20"	This tree is in the location of a new building

## 5.2 Exceptional Tree Removal

Following are the three Exceptional trees on site proposed to be removed and the reasons for the proposed removal.

Tree #770 - This tree is a Pacific madrone measuring 8" dbh that was in fair condition and health at the time of my initial assessment back in the late fall of 2013. This tree is dead and no longer viable and no longer classified as Exceptional. (see figure 1)

Tree #776 This tree is a Pacific madrone measuring 14" dbh that was in good condition and health at the time of the initial assessment. Since that time, a large codominant leader failed at a connection with the other co-dominant leader leaving a large scar and reducing the width of the trunk by approximately 1/2 its diameter in that location. This defect presents a considerably weakened portion of the trunk presenting a point of potential failure. In addition, the wound renders the tree susceptible to decay and as a highly sensitive species, the wound will more than likely lead to the tree's early death. In terms of a risk assessment, this tree is given a Probability of Failure rating of Extreme for 5 points as it satisfies the criteria of "Dead branches hung up or partly failed", and "Any partly failed component or whole tree". The size of the defective part is between 4 and 20 inches for a value of 2 points. the Target area is a high use building and walkway for a High rating of 4 points. The Overall Risk Rating is 11 points for a High3 calling for action to mitigate the risk within

weeks rather than days. Therefore this tree is no longer classified as Exceptional and is recommended to be removed. (see figure 2)

Tree #792 - This tree is a Japanese maple (*Acer japonicum*) measuring 14" dbh. It is currently located on the lower portion of the property, adjacent to the SE corner of the main parking lot and just north of an existing building. Concrete pavement is approximately 3 feet to both the west and the east of this tree and a large retaining wall connected to the building to the south is approximately 5 feet from the base of the tree. Through consideration of the construction methods used to demolish the existing structures and remove all surrounding pavement, it was determined that this tree will suffer extensive damage to its roots rendering it highly unlikely to survive development. As opposed to attempting to save it through development with the high likelihood that it will not survive only to have to remove it following development, the proposal is to remove this tree and replace with trees to equal the crown spread of 36 feet diameter.

## 6. Right of Way Trees

There are 26 trees just off the project site within the City of Seattle right of way to the north and east of the project site. Of these, nine meet the threshold diameter to be classified as Exceptional.

<u>Tree #</u>	<u>Species</u>	<u>Dbh</u>	<u>Designation</u>	
721	Pacific madrone	14"	Meets the threshold diameter	Retained
722	Douglas fir	30"	Meets the threshold diameter	Retained
731	Pacific madrone	8"	Meets the threshold diameter	Retained
735	American elm	32"	Meets the threshold diameter	Retained
737	American elm	32"	Meets the threshold diameter	Retained
743	American elm	36"	Meets the threshold diameter	Retained
744	American elm	36"	Meets the threshold diameter	Retained
746	American elm	34"	Meets the threshold diameter	Retained
747	American elm	40"	Meets the threshold diameter	Retained

Development features and frontage improvements such as walkways have been adjusted to eliminate impacts to 21 of these trees. The following five trees, all small evergreens along 9th Ave W near the southern end of the pro, are proposed to be removed. They are as follows:

<u>Tree #</u>	<u>Species</u>	<u>Dbh</u>	<u>Reason for Removal</u>
750	Japanese pine ( <i>Pinus thunbergiana</i> )	10"	Grading and frontage improvements
751	Japanese pine	10"	Grading and frontage improvements
752	Douglas fir ( <i>Pseudotsuga menziesii</i> )	10"	Grading and frontage improvements
753	Japanese pine	10"	Grading and frontage improvements
754	Japanese pine	10"	Grading and frontage improvements

In addition to these trees, three ornamental cherry trees within the planting strips in the right of way along McGraw are to be removed as they are in very poor condition and health. These will be replaced with new street trees.

The City of Seattle Municipal Code allows for constructing up to the property line, including grading and installing underground features such as the shoring wall along most of the eastern property line, which can greatly damage the roots of off-site trees near the impacts. In areas where no on-site Exceptional trees are located and the development could extend to the property line within just a few feet of the six

large American elms (five Exceptional and one non-Exceptional), the project plan proposes additional distance between the property line and the nearest impacts in order to provide additional protection for their roots beyond that which is required.

## **6.1 Condition Assessments**

Most of the trees within the right of way are in good condition and health. The seven elms possess several defects and symptomatic conditions that indicate otherwise for them. These are the exceptional trees #735, 737, 743, 744, 746 and 747 and the non-exceptional tree # 745.

At the trunk sizes, they are clearly mature in age. The site conditions are not, and have not been, optimal for these trees. Whereas most of the trees within the Right of way are smaller and therefore more vigorous and many of which are native or more native in type (such as the pines), these smaller and native species are more adapted to the natural site conditions and the lengthy periods of drought that can extend from late spring into early fall. The elms, however, are native to a very different region with drastically different environmental conditions. There is no irrigation provided for these trees so they have always been reliant upon precipitation to provide for their water needs. As younger trees, their needs were much less and as they aged, the demands increased both because of their greater leaf area and also because of the elevated stress levels associated with other site conditions. I monitored these trees on several visits this summer and noted during the late summer, when the rest of the crown was lush and deep green, the tops yellowed quickly and the leaves up there fell leaving the tops bare or very sparse. This doesn't necessarily indicate decline, but could be attributed to elevated stress levels and potentially decline.

In addition to the sparseness of the upper crown as an indicator of stress, the lower, exposed portions of the trees' trunks and lower scaffolds are covered in many small shoots, all with very lush, green and large leaves. These limbs have formed from epicormic shoots that lie beneath the bark of every tree. They are latent, in that they may never break and form into limbs or, under the right conditions, will, the degree of which related to the need of the tree or the conditions. These buds commonly break and form limbs when the removal of adjacent trees increases light availability to the trunk causing the buds to break to take advantage of that new light. This is not the case with these trees.

Another circumstance where the epicormic buds break to form limbs is when the tree is under high levels of stress and is not able to make use of as much of the foliage of the crown, typically the upper portions of the crown, to maintain the photosynthetic function that the tree has become adjusted to in order to maintain growth and repair. This situation typically occurs when the trees are under high levels of stress or have already entered a state of decline.

All of these trees have multiple decay pockets from at the root collar, in the main trunk and in the scaffold limbs. During my most recent site visit, I noted mushrooms growing at the base of two trees, #745 and #746 which clearly indicates decay, however, what type of decay and where the decay is located and how extensive it is within the trunk is not clear. I did take core samples of each of these trees near the base of the tree, above the base, and did not find any decay within the outer 12" of the sample region. Regardless of the absence of decaying tissue in the sample, it's clear from a visual assessment that decay is present in several locations on each of the elms.

Individually, each symptom/condition provides an indication of elevated stress or a defect. Combined, all of these present situations where the trees are clearly under considerable stress and could be affected by considerable decay throughout their trunks and scaffold limbs. Given the mature ages of

these trees, the difficulty trees for trees of such age to overcome so many stressors and recover, the conditions of these trees will not improve regardless of development adjacent to them. It's important to note these conditions at this time prior to development in order to establish a baseline of their health at this time to provide evidence to the conditions and health of the trees in moving forward.

## **7. Protection**

The following tree protection measures are to be incorporated during development of the project site.

1. City of Seattle approved fencing is to be installed at the specified locations prior to beginning any work on the project site and is to remain in place throughout development. Protection fencing is to be shown on the tree retention plans (both on-site and off-site) and to provide more accurate placement for maximum protection of retained trees, the fencing is to be field located during a meeting with the site contractors and project consulting arborist prior to beginning any work.
2. In areas where protection areas overlap, the fencing can surround all overlapping protection areas together instead of individual trees.
3. All fencing is to be marked with signage reading the following:

TREE PROTECTION AREA  
NO ENCROACHMENT  
NO IMPACT  
NO STORAGE OR DUMPING OF MATERIALS  
FENCING IS NOT TO BE DAMAGED OR REMOVED  
FOR QUESTIONS OR COMMENTS  
CALL CITY OF SEATTLE DPD

4. Given work planned within drip lines of retained Exceptional trees, all grading and soil work conducted within the drip lines of retained trees is to be monitored by project consulting arborist to hand cut all damaged roots. This work includes:
  - Removal of existing retaining walls
  - Excavation of soil to establish cuts for development features
  - Drilling/augering soil for H piles
  - Removed of trees to be removed
5. All trees to be removed within drip lines of retained trees are to be removed in a manner that will not damaged retained trees.
6. The stumps of all removed trees within drip lines of retained trees (including the laurel hedges) are to be ground down to just below the soil surface.
7. For work within the tree protection areas (such as installation of walkways), the tree protection fencing is to be moved toward tree only as far as necessary to conduct the work and maintain protection for the tree's trunk.
8. Prior to beginning any site work, a meeting is to be held with construction supervisors, representatives of Toll WA, LP and other project team members and the project consulting arborist to discuss phasing of work as it relates to tree protection.
9. Wood chip mulch is to be applied to a depth of no less than 4 inches over the roots within the protection areas of retained trees.
10. Removal of existing structures, including buildings, walkways, concrete pads, rock retaining walls, concrete retaining walls, railroad ties and all other existing structures within the drip lines and or

protection zones of retained trees is to be done carefully so as to not damage roots in situations where existing features already serve as root barriers (retaining walls, rockeries and railroad ties) or to limit root damage where root barriers do not exist. All work is to be done from outside the protection zone.

11. All damaged roots are to be hand cut by the project consulting arborist just prior to backfilling over the exposed roots.
12. Supplemental irrigation is to be provided for all retained trees during the growing season between the months of May and October during construction.
13. Retaining walls that are to be cut down to below the ground surface (in the case of tree #774) is to be done from the side of the wall facing away from the tree and is to be done in a matter that does not damage tree or roots.
14. All pruning of tree crowns is to be performed by an ISA Certified Arborist.
15. Fill placed adjacent to retained trees is not to be placed over the existing soil surface within the protection zone.

#### **8. Use of This Report**

This report is provided to Toll WA, LP for the purpose of addressing the existing conditions and statuses of the trees on the site of the Seattle Children's Home in the City of Seattle, WA. This information is the property of Toll WA, LP and cannot be amended by anyone other than Tony Shoffner. This report doesn't guarantee against damage caused by the failure of any tree, nor does it guarantee that trees to be retained will live long into the future. These evaluations only pertain to the conditions of the trees at the time the evaluation was conducted. This report is based upon professional experience and opinion and on interpretation of methods used to determine the Exceptional status of trees in the City of Seattle.

If you have any questions regarding this report, please feel free to call me directly.

Cordially,



Tony Shoffner  
ISA Certified Arborist #PN-0909A  
CTRA/TRAQ #1759



Figure 1. Tree #770 - Dead Pacific Madrone



Figure 2. Tree #776 - Damaged Pacific Madrone

Survey Tag	Tree	DBH	Spread	Condition	Tree Size Status and Condition Notes	
Number	Spp	(In)	(Diam. Ft)	Rating		Designation
708	PRCE	7	16	1	Non-Exceptional - Good condition and health	RETAIN
718	PISY	20	32	1	Non-Exceptional - Good condition and health	RETAIN
721	ARME	10	16	1	Exceptional - Good condition and health	RETAIN
722	PSME	30	38	1	Exceptional - Good condition and health	RETAIN
723	PISY	14	26	1	Non-Exceptional - Good condition and health	RETAIN
724	PISY	12	24	1	Non-Exceptional - Good condition and health	RETAIN
726	TIAM	14	54	1	Non-Exceptional - Good condition and health	RETAIN
727	TIAM	14	60	1	Non-Exceptional - Good condition and health	RETAIN
728	TIAM	24	56	1	Non-Exceptional - Good condition and health	RETAIN
731	ARME	8	16	1	Exceptional - Good condition and health	RETAIN
732	TIAM	14	46	1	Non-Exceptional - Good condition and health	RETAIN
733	PITH	10	15	1	Non-Exceptional - Good condition and health	RETAIN
735	ULAM	32	62	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
737	ULAM	32	60	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
738	ILAQ	mt 6	8	1	Non-Exceptional - Good condition and health	RETAIN
743	ULAM	36	64	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
744	ULAM	36	55	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
745	ULAM	28	40	3	Non-Exceptional - Fair condition and questionable health. Many decay pockets and upper crown was sparse at end of summer	RETAIN
746	ULAM	34	50	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
747	ULAM	40	65	3	Exceptional - Fair condition and questionable health. Tree has many decay pockets and upper crown was sparse at end of summer	RETAIN
750	PITH	10	16	1	Non-Exceptional - Good condition and health	REMOVE
751	PITH	10	16	1	Non-Exceptional - Good condition and health	REMOVE
752	PSME	10	16	1	Non-Exceptional - Good condition and health	REMOVE
753	PITH	10	16	1	Non-Exceptional - Good condition and health	REMOVE
754	PITH	10	16	1	Non-Exceptional - Good condition and health	REMOVE
755	PSME	24	30	1	Non-Exceptional - Good condition and health	RETAIN
OS1	PRSP	8	16	4	Non-Exceptional - Poor condition	REMOVE
OS2	PRSP	8	16	4	Non-Exceptional - Poor condition	REMOVE
OS3	PRSP	8	16	4	Non-Exceptional - Poor condition	REMOVE



Tree# - Corresponds to numbers as shown on map and numbers assigned to tree tags

Tree Species Codes -

ARME= *Arbutus menziesii* (Pacific madrone)

ILAQ= *Ilex aquifolium* (English holly)

PISY= *Pinus sylvestris* (Scot's pine)

PITH= *Pinus thunbergiana* (Japanese pine)

PRSP= *Prunus* species (ornamental cherry)

TIAM= *Tilia americana* (American linden)

ULAM= *Ulmus americana* (American elm)

DBH - Diameter in inches at 4.5' above grade

Spread - Crown diameter spread in feet

Condition Rating

1=Excellent Condition

2=Good Condition, candidate for retention given no, or limited, impacts

3=Fair Condition, candidate for retention given no, or limited impacts and potential targets

4=Poor condition, removal recommended

Designation - Designation of tree to be retained or removed

Survey Tag	Tree	DBH	Spread	Condition	Tree Size Status and Condition Notes	
Number	Spp	(In)	(Diam. Ft)	Rating		Designation
706	ILAQ	9	15	1	Non-Exceptional - Good condition and health	RETAIN
707	ACJA	5	16	1	Non-Exceptional - Good condition and health	RETAIN
709	PSME	34	35	1	Exceptional - Good condition and health	RETAIN
710	PSME	24	35	1	Non-Exceptional - Good condition and health	RETAIN
711	PITH	12	18	1	Non-Exceptional - Good condition and health	REMOVE
712	TSHE	10	36	1	Non-Exceptional - Good condition and health	REMOVE
713	PITH	12	16	1	Non-Exceptional - Good condition and health	REMOVE
714	ACPL	12	26	1	Non-Exceptional - Good condition and health	REMOVE
715	PISY	20	22	1	Non-Exceptional - Good condition and health	REMOVE
716	PISY	18	36	1	Non-Exceptional - Good condition and health	REMOVE
717	PITH	14	18	1	Exceptional - Good condition and health	RETAIN
719	PISY	20	32	1	Non-Exceptional - Good condition and health	REMOVE
720	PISY	12	26	1	Non-Exceptional - Good condition and health	REMOVE
725	PSME	16	20	1	Non-Exceptional - Good condition and health	RETAIN
729	ARME	16	32	1	Exceptional - Good condition and health	RETAIN
730	ARME	8	24	1	Exceptional - Good condition and health	RETAIN
734	CEDE	28	40	1	Non-Exceptional - Good condition and health	REMOVE
736	PITH	6	12	1	Non-Exceptional - Good condition and health	RETAIN
739	ARME	14	20	1	Exceptional - Good condition and health	RETAIN
740	ARME	12	32	1	Exceptional - Good condition and health	RETAIN
741	ARME	12	32	1	Exceptional - Good condition and health	RETAIN
748	ILAQ	10	20	1	Non-Exceptional - Good condition and health	REMOVE
749	RHTY	8	24	3	Non-Exceptional - Some decay in trunks	REMOVE
756	COKO	8	12	1	Non-Exceptional - Good condition and health	REMOVE
757	MADO	18	28	1	Non-Exceptional - Good condition and health	REMOVE
758	ACCI	5	24	1	Non-Exceptional - Good condition and health	REMOVE
759	ACCI	6	20	1	Non-Exceptional - Good condition and health	REMOVE
760	ACCI	5	24	1	Non-Exceptional - Good condition and health	REMOVE
761	ILAQ	4	16	1	Non-Exceptional - Good condition and health	REMOVE
762	THPL	16	24	1	Non-Exceptional - Good condition and health	REMOVE
763	PHFR	10	36	1	Non-Exceptional - Good condition and health	REMOVE
764	ALRU	8	20	1	Non-Exceptional - Good condition and health	REMOVE
765	ALRU	8	24	1	Non-Exceptional - Good condition and health	REMOVE
766	ALRU	12	30	1	Non-Exceptional - Good condition and health	REMOVE
767	PSME	14	24	1	Non-Exceptional - Good condition and health	REMOVE
768	THPL	32	34	1	Exceptional - Good condition and health	RETAIN
769	PRCE	8	16	1	Non-Exceptional - Good condition and health	REMOVE
770	ARME	8	26	4	Dead - Non-Exceptional	REMOVE
771	TIAM	10	16	1	Non-Exceptional - Good condition and health	REMOVE
772	ACMA	28	48	1	Non-Exceptional - Good condition and health	REMOVE

773	ARME	14	26	1	Exceptional - Good condition and health	RETAIN
774	ARME	14	38	1	Exceptional - Good condition and health	RETAIN
775	PISY	8	15	1	Non-Exceptional - Good condition and health	RETAIN
776	ARME	14	36	4	Trunk failure, high risk - Non-Exceptional	REMOVE
777	PISY	14	12	1	Non-Exceptional - Good condition and health	RETAIN
778	PISY	24	38	1	Exceptional - Good condition and health	RETAIN
779	CEDE	24	26	1	Non-Exceptional - Good condition and health	RETAIN
780	CEDE	16	22	1	Non-Exceptional - Good condition and health	RETAIN
781	CEDE	30	45	1	Exceptional - Good condition and health	RETAIN
782	ILAQ	8	14	1	Non-Exceptional - Good condition and health	REMOVE
783	PRCE	8	18	1	Non-Exceptional - Good condition and health	REMOVE
784	ARUN	9	12	1	Non-Exceptional - Good condition and health	REMOVE
785	ARUN	8	12	1	Non-Exceptional - Good condition and health	REMOVE
786	RHTY	9	18	1	Non-Exceptional - Good condition and health	REMOVE
787	PRCE	6	16	1	Non-Exceptional - Good condition and health	REMOVE
788	PITH	12	18	1	Non-Exceptional - Good condition and health	REMOVE
789	PISY	18	30	1	Non-Exceptional - Good condition and health	REMOVE
790	PISY	18	32	1	Non-Exceptional - Good condition and health	REMOVE
791	PIAB	20	32	1	Non-Exceptional - Good condition and health	REMOVE
792	ACJA	14	34	1	Exceptional - Good condition and health	REMOVE

Tree# - Corresponds to numbers as shown on map and numbers assigned to tree tags

Tree Species Codes -

ACCI=Acer circinatum (vine maple)	PHFR=Photina x. fraseri (Fraser's photinia)
ACJA=Acer japonicum (Japanese maple)	PIAB=Picea abies (Norway spruce)
ACMA=Acer macrophyllum (big-leaf maple)	PISY=Pinus sylvestris (Scot's pine)
ACPL=Acer platanoides (Norway maple)	PITH=Pinus thunbergiana (Japanese pine)
ALRU=Alnus rubra (red alder)	PRCE=Prunus cerasifera 'thundercloud' (Purple leaf plum)
ARME=Arbutus menziesii (Pacific madrone)	PSME=Pseudotsuga menziesii (Douglas fir)
ARUN=Arbutus unedo (strawberry tree)	RHTY=Rhus typhina (staghorn sumac)
CEDE=Cedrus deodara (Deodara cedar)	TIAM=Tilia americana (American linden)
ILAQ=Ilex aquifolium (English holly)	THPL=Thuja plicata (western red cedar)
MADO=Malus domestica (Apple)	TSHE=Tsuga heterophylla (western hemlock)

DBH - Diameter in inches at 4.5' above grade

Spread - Crown diameter spread in feet

Condition Rating

1=Excellent Condition

2=Good Condition, candidate for retention given no, or limited, impacts

3=Fair Condition, candidate for retention given no, or limited impacts and potential targets

4=Poor condition, removal recommended

Designation - Designation of tree to be retained or removed

SEPA Greenhouse Gas Emissions Worksheet

Section I: Buildings

Emissions Per Unit or Per Thousand Square Feet (MTCO2e)					Lifespan Emissions (MTCO2e)	
Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Embodied	Energy		Transportation
Single-Family Home.....	59		98	672	792	92149
Multi-Family Unit in Large Building .....	0		33	357	766	0
Multi-Family Unit in Small Building .....	0		54	681	766	0
Mobile Home.....	0		41	475	709	0
Education .....		0.0	39	646	361	0
Food Sales .....		0.0	39	1,541	282	0
Food Service .....		0.0	39	1,994	561	0
Health Care Inpatient .....		0.0	39	1,938	582	0
Health Care Outpatient .....		0.0	39	737	571	0
Lodging .....		0.0	39	777	117	0
Retail (Other Than Mall) .....		0.0	39	577	247	0
Office .....		0.0	39	723	598	0
Public Assembly .....		0.0	39	733	150	0
Public Order and Safety .....		0.0	39	899	374	0
Religious Worship .....		0.0	39	339	129	0
Service .....		0.0	39	599	266	0
Warehouse and Storage .....		0.0	39	352	181	0
Other .....		0.0	39	1,278	257	0
Vacant .....		0.0	39	162	47	0

Section II: Pavement.....

Pavement.....	42,400.00					2120000
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Total Project Emissions:

	2212149
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