

**Tree Inventory for the
Proposed Development at
Kiwanis Seniors Housing Society
West Vancouver, BC**

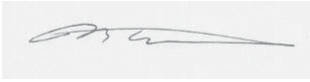


Submitted by:

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January 2011

The following professionals at Diamond Head consultants performed the site visit and prepared this report. All general and professional liability insurance and individual accreditations have been provided below for reference.



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Insurance Information

WCB: # 657906 AQ (003)
General Liability: The Dominion - Policy # CCP8442492, \$5,000,000 (Mar 2010 to Mar 2011)
Errors & Omissions: Lloyd's- Policy #'s 1010191D, \$1,000,000 (June 2010 to June 2011)



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Introduction

Diamond Head Consulting Ltd. (DHC) was asked to complete an assessment of the trees on and adjacent to the following proposed development:

Civic address: **2105 Haywood Ave, West Vancouver, BC**
Client name: **Kiwanis Seniors Housing Society**
Date of site visit: October 4, 2010

The objective of this report is to provide a detailed tree inventory and overview assessment of the trees on and adjacent to this property that will help guide planners to finalizing the location of trees to be retained. The work completed included a site visit to tag and collect information on all trees that are greater than 15cm in diameter. Trees at the site were assessed, including: species, diameter at breast height (dbh) measured to the nearest 1 cm at 1.4 m above tree base, estimated height and general health and defects. Critical root zones were calculated for each of the trees with the potential for development impacts. Tree hazards were assessed according to International Society of Arboriculture and WCB standards.

This inventory was used by PWL Partnership to determine which trees are to be retained and removed from the property. This information along with replacement tree specifications are found on the “Landscape Plan” and “Tree Management Plan.”

Limits of Assignment

- All trees surveyed and assessed are within or immediately adjacent to the proposed development boundaries for this project. Some trees growing on the property to the west were assessed to evaluate opportunities for servicing.
- Some shrubs were included in this assessment for use in the landscape planning process.
- Our investigation is based solely on our visual inspection of the trees on October 4, 2010. Our inspection was conducted from ground level. We did not conduct soil tests or root examination to assess the condition of the root system of the trees.
- This report does not provide any cost estimates to implement the proposed recommendations provided in this report.
- This report is valid for 6 months from the date of submission. Additional site visits and report revisions are required after this point to ensure accuracy of the report for the City’s development permit application process.

Purpose and Use of Report

- Provide documentation pertaining to on site trees to supplement the proposed development permit application.



Figure 1. Location of site 2105 Haywood Ave, West Vancouver, BC

Observations

Site Overview

The topography of the site is flat with no dominant slope/aspect. Most tree species within the assessed area are single mature trees growing within landscaped areas. These consist primarily of planted ornamental and native species. The largest and most significant trees on the site include a Douglas-fir (*Pseudotsuga menziesii*), two Western redcedar (*Thuja plicata*), three Deodar Cedar (*Cedrus deodara*) and one English walnut (*Juglans regia*). There are a variety of other smaller trees including Japanese maples (*Acer platanatum*), Cherry (*Prunus sp.*), Pines (*Pinus sp.*), Weeping willow (*Salix babylonica*), and American Sweetgum (*Liquidambar styraciflua*). There are a number of tree growing close on neighboring properties that will require protection during construction.



Photo 1. Tree 5719 - Japanese Maple typical of those found on and adjacent to this site



Photo 2. Tree 5721 – Mature Douglas-fir



Photo 3. Tree 5707 is a mature English Walnut



Photo 4. Trees 5727 and 5728 are mature Deodar cedar with roots that are in conflict with the existing road and sidewalk.



Photo 5. Trees 5767 to 5697 are a row of hawthorn growing on the northern property line.



Photo 6. Tree 5675 is an off site mature western redcedar that is in conflict with 21st St and the sidewalk.

Tree Inventory and Retention Potential

The following is an inventory of assessed trees, each of which was marked with a numbered tag. Tree species, characteristics, comments, recommendations and required root protection zones (RPZ) have been prescribed. A detailed assessment of tree retention potential was done for each tree located within the property. Trees ranked as 1 (low) cannot be retained safely on the site or are in very poor condition. Trees ranked 2 (moderate) can be retained safely on site as long as their root protection zones are not disturbed. Some pruning to make these trees windfirm may be required. Trees ranked 3 (high) can be retained safely on site as long as their root protection zones are not disturbed. These trees have been surveyed and their characteristics inventoried in the following table.



Table 1. Tree Inventory

Tag #	Species	Common	DBH	Height	%LCR	Comments	Rating	RPZ (m)
745	Rhododendron			3		healthy with 100% full crown	N/A	N/A
978	Rhododendron			4		Healthy and 80% full crown	N/A	N/A
5701	Psuedotsuga menziesii	Douglas-fir	14	6	100	Healthy tree, growing through utility lines above. 1.5m to sidewalk.	moderate	2.5
5704	Acer plamatum	Japanese maple	64	7	70	Multiple stems (16,18,15,15), minor inclusion, healthy tree. Located 2.5m from sidewalk. Not a good species for transplanting.	high	3
5705	Chamaecyparis nootkatensis	Yellow cedar	48	16	100	Regularly topped at 4m, candelabra-multiple tops, not an immediate hazard but not a good long-term retention tree	poor	3
5707	Juglans regia	English walnut	46	16	60	Healthy, full crown. 3m to building.	high	5
5708	Thuja plicata	Western red cedar	108	31	90	Regularly topped at 9m, candelabra-multiple tops, not an immediate hazard but not a good long-term retention tree. 1.5m to sidewalk, 2.5m to foundation.	poor	5
5709	Psuedotsuga menziesii	Douglas-fir	11	6	100	Healthy tree, growing through utility lines above. 1.5m to sidewalk.	moderate	2.5
5715	Pinus nigra	Black pine	27	11	90	Healthy tree. Located 1m from sidewalk, 3m from foundation.	moderate	3
5716	Arbutus menziesii	Cherry	8	5	90	Healthy tree, overcrowded by # 5717. Located 1.5m from sidewalk, 2m from road.	high	2.5
5717	Pinus nigra	Black pine	61	13	80	North side of tree pruned for roadway, 5 codominant stems split off at 2m. Located 1m from road, 2m from sidewalk.	moderate	5
5718	Acer plamatum	Japanese maple	53	5	70	Multiple stems (8,10,12,11,12), healthy tree, minor surface root damage from mowing. Located 2 m from patio. Not a good species for transplanting.	high	4
5719	Acer plamatum	Japanese maple	8	4	80	Minor decay in stem at base. Located 2m from patio, 2m from driveway. Not a good species for transplanting.	moderate	2.5
5720	Thuja plicata	Western red cedar	101	25	80	Regularly topped at 14m, candelabra-multiple tops, stem has damage on north side from cars, not an immediate hazard but not a good long-term retention tree	poor	5

Tag #	Species	Common	DBH	Height	%LCR	Comments	Rating	RPZ (m)
5721	<i>Psuedotsuga menziesii</i>	Douglas-fir	55	25	80	Healthy tree, full crown. Located 30cm from sidewalk, 2m from road.	high	5
5722	<i>Prunus</i> ssp.	Cherry	182	16	90	Multiple stems (51,43,40,48), included bark between 2 stems to base of tree, minor decay, dead branches on south side, pruned 4-5 years ago, requires structural pruning and crown cleaning.	poor	5
5723	<i>Cedrus deodara</i>	Deodar cedar	90	26	80	Most of crown on south side, 4 main stems, codominant stems should be pruned to reduce heavy end-weight, roots heaving pavement. 1m to parking stall, 1.5m to road, tough to retain without damaging roots.	poor	5
5724	<i>Acer plamatum</i>	Japanese maple	20	3	70	Codominant stems (11, 9), healthy tree, one stem girdled by wire but has recovered. Located 0.5m from sidewalk. Not a good species for transplanting.	moderate	2.5
5725	<i>Acer plamatum</i>	Japanese maple	15	4	70	Healthy tree, codominant stems (7,8). Located 2 m from sidewalk at south. Not a good species for transplanting.	high	2.5
5726	<i>Chamaecyparis nootkatensis</i>	Yellow cedar	182	21	80	Multiple stems (39,42,45,22,34), moderate included bark, minor pruning on west side. Located 3m from sidewalk	moderate	5
5727	<i>Cedrus deodara</i>	Deodar cedar	77	31	80	Multiple stems (6) with heavy end weight require pruning, roots heaving road and sidewalk at 0.5 and 1.5m respectively.	moderate	6
5728	<i>Cedrus deodara</i>	Deodar cedar	73	31	80	Multiple stems (4) with heavy end weight require pruning, minor decay in stem. Located 0.5m from road and 1.5m from sidewalk.	moderate	6
5730	<i>Sorbus aucuparia</i>	Mountain ash	9	7	90	Codominant stems (4,5), believed to have sprouted voluntarily from seed or from stump beside. Transplantable.	high	2.5
5732	<i>Salix babylonica</i>	Weeping willow	8	6	80	Lower branches pruned off, planted 10 cm away from #5730. Located 2 m from sidewalk. Transplantable.	high	2.5
5748	<i>Pinus mugo</i>	Mugo pine	48	3	40	Multiple stems (5,7,6,6,7,8,4,5), crown only on north side, very little live crown.	high	3
5750	<i>Acer plamatum</i>	Japanese maple	59	6	70	Multiple stems (16,18,16,9), minor bark inclusion, healthy tree. Not a good species for transplanting.	high	4




Trees on neighboring property

There are a number of trees that are growing on neighboring properties with roots and crowns that extend into the subject property. These cannot be damaged or removed without the consent of the neighbor. The root protection zones for these trees has been illustrated on the tree management plan map. If excavation is required in or near these root protection zones, it is recommended that an arborist be on site during construction to monitor the impacts to these trees and ensure they are not damaged. All of site tree inventory numbers are followed by OS.

Table 2. Tree Inventory of off-site trees

Tag #	Species	Common	DBH	Height	%LCR	Comments	Rating	RPZ (m)
781 OS	Betula papyrifera	Paper birch	8	7	50	Growing through fence into adjacent property. 3.0m to sidewalk	poor	2
829 OS	Thuja plicata	Western red cedar	24	8	90	Topped for hydro lines. Growing at base of retaining wall	poor	2.5
977 OS	Cornus florida	Pink flowering dogwood	14	4	80	Small landscape tree, healthy tree, transplantable.	high	2.5
5674 OS	Thuja plicata	Western red cedar	23	8	35	Growing adjacent to tree #5731. 0.5m to sidewalk.	poor	2.5
5675 OS	Thuja plicata	Western red cedar	90	20	85	Constrained on all sides by sidewalk and road.	moderate	5
5676 OS	Crataegus Lavalleyi	Lavalle hawthorn	15,14	6	90	1.5m to property line	moderate	2.5
5677 OS	Crataegus Lavalleyi	Lavalle hawthorn	17,21,19	6	90	1.5m to property line	moderate	2.5
5678 OS	Crataegus Lavalleyi	Lavalle hawthorn	18,19	8	90	1.5m to property line	moderate	2.5
5679 OS	Crataegus Lavalleyi	Lavalle hawthorn	23,21,19	8	90	1m to property line	moderate	2.5
5680 OS	Crataegus Lavalleyi	Lavalle hawthorn	21,23,15	9	90	0.2m to property line	moderate	2.5
5681 OS	Crataegus Lavalleyi	Lavalle hawthorn	15,16	8	90	0.2m to property line	moderate	2.5
5682 OS	Crataegus Lavalleyi	Lavalle hawthorn	11	7	90	0.5m to property line	moderate	2.5
5683 OS	Crataegus Lavalleyi	Lavalle hawthorn	19	8	90	0.2m to property line	moderate	2.5
5684 OS	Crataegus Lavalleyi	Lavalle hawthorn	15	8	90	0.2m to property line	moderate	2.5
5685 OS	Crataegus Lavalleyi	Lavalle hawthorn	22	8	90	0.2m to property line	moderate	2.5
5686 OS	Crataegus Lavalleyi	Lavalle hawthorn	15	8	90	0.5m to property line	moderate	2.5
5687 OS	Crataegus Lavalleyi	Lavalle hawthorn	20	8	90	0.5m to property line	moderate	2.5

Tag #	Species	Common	DBH	Height	%LCR	Comments	Rating	RPZ (m)
5688 OS	Crataegus Lavallei	Lavalle hawthorn	15	8	90	1.0m to property line	moderate	2.5
5689 OS	Crataegus Lavallei	Lavalle hawthorn	19	8	90	1.0m to property line	moderate	2.5
5690 OS	Crataegus Lavallei	Lavalle hawthorn	18	7	90	Leaning at 45d. 1.0m to property line.	poor	2.5
5691 OS	Acer plamatum	Japanese maple	9,6	7	70	1.0m to property line	moderate	2.5
5692 OS	Crataegus Lavallei	Lavalle hawthorn	18	9	90	1.0m to property line	moderate	2.5
5693 OS	Crataegus Lavallei	Lavalle hawthorn	11	8	90	1.0m to property line	moderate	2.5
5694 OS	Crataegus Lavallei	Lavalle hawthorn	11,16	8	90	1.0m to property line	moderate	2.5
5695 OS	Crataegus Lavallei	Lavalle hawthorn	10,12	6	90	Leaning at 45d. 2.0m to property line.	poor	2.5
5696 OS	Crataegus Lavallei	Lavalle hawthorn	18	8	90	Leaning at 30d. 2.0m to property line.	moderate	3.5
5697 OS	Arbutus menziesii	Arbutus	7	3	40	Suppressed tree. Leaning 50d to the south. ~1.5m to property line.	moderate	2.5
5699 OS	Betula papyrifera	Paper birch	19	7	70	Topped for hydro lines. 1.0m to sidewalk. Minor decay in stem	poor	2.5
5700 OS	Psuedotsuga menziesii	Douglas-fir	62	28	80	Healthy, full crown, minor surface root damage from mower, lower 3m of branches pruned off. Located 3.5m from sidewalk.	very good	6
5703 OS	Betula papyrifera	Paper birch	24	7	70	Topped for hydro lines. 1.5m to sidewalk. Minor decay in stem	poor	2.5
5711 OS	Betula papyrifera	Paper birch	21	7	70	Topped for hydro lines. 1.0m to sidewalk. Minor decay in stem	poor	2.5
5712 OS	Betula papyrifera	Paper birch	22	7	70	Topped for hydro lines. 1.0m to sidewalk. Minor decay in stem	poor	2.5
5714 OS	Betulus papyrifera	Paper birch	120	18	75	Codominant stems (59,61), included bark, otherwise healthy tree, roots heaving pavement on both sides. Located 0.5m from parking stall on west side, 1.5m from walkway.	moderate	5
5731 OS	Acer macropyllum	Bigleaf maple	96	24	60	Codominant stems (65,31), healthy tree. Growing 30cm from sidewalk. Small offsite arbutus and large codominant cedar west 3 and 2 metres respectively.	moderate	5
5745 OS	Acer plamatum	Japanese maple	66	7	70	Multiple stems (10,12,14,8,9,13), healthy tree, good form, minor included bark, some surface root damage from mowing. Manhole 1m to south, walkway 1 m to west. Not a good species for transplanting.	high	4



Tag #	Species	Common	DBH	Height	%LCR	Comments	Rating	RPZ (m)
5746 OS	Acer plamatum	Japanese maple	65	7	80	Multiple stems (15,17,11,13,9), healthy tree, good form. 2 m to foundation of cottage, 1m to fence and cottage patio, 1.5m to walkway. Not a good species for transplanting.	high	4
5747 OS	Pinus mugo	Mugo pine	38	3	60	Multiple stems (11,6,7,4,5,5), crown only on west side, pruned multiple times on east and top, poor form, thin crown. Located 0.5 m from patio.	poor	3
5749 OS	Liquidambar styraciflua	American sweetgum	41	14	90	Healthy tree, growing in retained planter bed (2m X 2m) with paving stones within root zone, roots are heaving the stones. Difficult to retain if patio removed. Requires special attention to retain.	moderate	5
5798 OS	Psuedotsuga menziesii	Douglas-fir	11,21	3	90	Topped for hydro lines. Multiple leaders. 1m to sidewalk.	poor	2.5



<p>CLIENT</p> <p>KIWANIS SENIORS HOUSING SOCIETY OF WEST VANCOUVER Kiwanis Court, #139 - 2151 Gordon Ave., West Vancouver, BC V7V 1M1</p>	<p>DATE</p> <p>OCTOBER 26, 2010</p>	<p>LEGEND</p> <ul style="list-style-type: none"> ● TREE LOCATION ○ ROOT PROTECTION FENCING
<p>TITLE</p> <p>TREE LOCATION MAP Kiwanis Court, #139 - 2151 Gordon Ave., West Vancouver, BC</p>	<p>342 WEST 8TH AVENUE VANCOUVER, BC V5Y 3X2 PHONE 604.733.4886</p>	<p>THIS DRAWING IS THE PROPERTY OF THE CONSULTANT AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE CONSULTANT.</p>



Final Remarks

This report provides an inventory and assessment of trees located on and immediately adjacent to the project site. If there are any questions or concerns as to the contents of this report, please contact us at any time.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mike Coulthard', on a light grey rectangular background.

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Limitations

The assessments of the trees discussed in this correspondence have been made using acceptable arboricultural techniques. These include a visual tree assessment of the trees discussed for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s), the surrounding site and the proximity of property and people. Except where specifically noted in this correspondence, none of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations were not undertaken.

Notwithstanding the recommendations and conclusions made in this correspondence, it must be realized that trees are living organisms, and their health and vigor constantly changes over time. They are not immune to changes in site conditions, or seasonal variations in the weather.

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees, or all parts of them, will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree - or group of trees-, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

Although every effort has been made to ensure that this assessment is reasonably accurate, the trees should be re-assessed periodically. In accordance with standard practice, the assessment presented in this correspondence is valid at the time it was undertaken.

Approval and implementation of any recommendations made within this correspondence is the responsibility of the owner of the trees, and in no way implies any inspection or supervisory role on the part of Diamond Head Consulting Ltd. unless we have specifically been requested to examine said implementation activities, and have been able to do so. In the event that inspection or supervision of all or part of the implementation plan is requested, said request shall be in writing and the details agreed to in writing by both parties. Any on site inspection or supervisory work undertaken by Diamond Head Consulting Ltd. shall be restricted to the items requested, and shall be recorded in written form and submitted to the client as a matter of record.

Sketches, diagrams and photographs contained in this report, being intended as visual aids, should not be construed as engineering reports or legal surveys. If a tree prescribed for removal is not situated wholly on the owners' property, then permission from the additional owner(s) must be obtained before treatment is undertaken.