ACL GROUP ARBORTECH CONSULTING

TREE INSPECTION REPORT

Date: **September 26, 2019** **Rev 0:** ACL File: **19214**

Attn: **Katie Hlynsky**
Hlynsky Architects
2439 Bellevue Avenue
West Vancouver, BC V7V 1E1

Prepared by: **Nick McMahon**
Senior Project Arborist

Project: **BP Application for a Single-Family Home**
4358 Ross Crescent

Re: **Aerial inspection and Detailed Decay Testing**

Dear Ms. Hlynsky,

We have attended the above noted site to undertake an aerial inspection and detailed decay testing of a fir tree, located near the northeast corner of the property and described as having several leaders in the upper crown. Other trees within the site and adjacent properties were not inspected or assessed in any regard. My findings are as follows:

BACKGROUND

Arbortech has been retained for professional consulting arborist services in tree failure and risk analysis intended to inform the owner decisions in the management of their trees. We provide documentation of our technical assessments for owner use and for municipal submission purposes related to tree permitting. Our site visit was performed on September 3, 2019. The subject trees of concern consist of one mature age class Grand fir tree (Tree A) with multiple co-dominant upright scaffold branches, located near the northeast corner of the property.

Our assessment includes tree size data, tree and site condition assessment, as well as defect analysis using Tree Risk Assessment Qualification (***TRAQ***) methods. We did undertake Level 3 Detailed Testing, including an aerial inspection of the multiple leader attachments and detailed decay testing. The timeframe for this report is 3 years.

SITE ASSESSMENT

The subject site is described as a single family lot, currently occupied with an existing dwelling and related hardscape features with open active landscape related to the land use.

TREE RISK ASSESSMENT DATA AND RESULTS

Tag or ID:						
A	*Dbh (cm):*	**138**	*Species:*	**Grand fir** *(Abies grandis)*		
	Spread Rad (m):	**6.0**	*Struc Class:*	**Open**	*Health:*	**Good**
	Height (m):	**50**	*Age Class:*	**Mature**	*Ownership:*	**On-site**

Photo 1.
Tree A

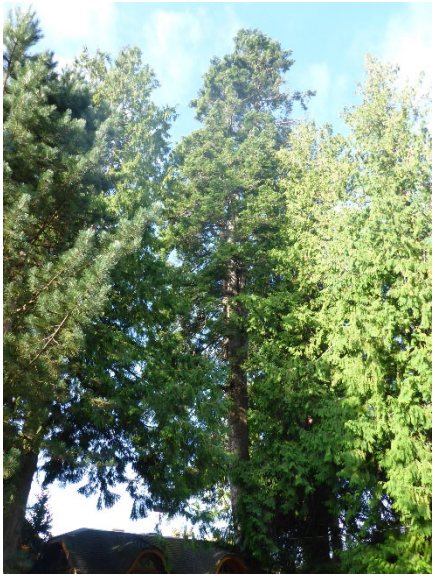

Photo 2.
Leader Attachments

Photo 3.
Over-Extended Branches

UNIT 145 – 12051 HORSESHOE WAY RICHMOND, BC CANADA V7A 4V4 P 604 275 3484 F 604 275 9554

Tree A Notes: Growing Site and History:

- An existing derelict garage is located within the subject site and within the root zone to the west.
- A concrete retaining wall has been installed in alignment with the east property line appears to end approximately 2.5m southeast of the stem.
- An off-site garage has been historically built in close proximity to the east property line directly adjacent to the subject tree. We did not undertake root mapping to this stage of review and root impacts – if any, from the construction of the off-site structure have not been observed.

Structural Defects and Severity:

- Multiple co-dominant leaders narrowly attach at a height of 15m above grade with a bark inclusion and well limb-tied in the crown.
- Over-extended co-dominant scaffold branches on the west side of the crown with a marm form (double–candelabra). This defect is considered most likely for failure and considered a moderate risk.
- Lower crown suppressed on the north and south sides due to proximity and shading from adjacent (secondary canopy) trees.
- Sounding suggested significant internal defect in the stem at 5.0m above grade. Resistograph testing undertaken at this height indicated normal growth patterns and sound wood.

Detailed Testing:

- Aerial resistograph testing was undertaken at a height of 25m above grade – 20cm below the attachment of multiple co-dominant leaders. No signs of actively cracking stems were observed.
- Testing results have been analyzed and found to indicate normal growth patterns and sound wood at multiple test sites at the specified height.

Expected Mode and Direction of Failure:

- Over-extended scaffold branches are prone to torsional failure via wind loading.

Targets and Consequences:

- Residents on the subject site and neighbouring properties may be present within striking range for prolonged durations with no protection factors, but may not be present during significant wind loading events.
- Proposed new garage and storage will be constructed within striking range. Should tree failure occur in whole or in part and strike the proposed garage on the subject site or existing garage on the neighbouing property, significant property damage may result.

Mitigation Options:

- Pruning to remove or reduce the length of over-extended branches and thinning to reduce wind resistance is expected to reduce the likelihood of branch failure.

TRAQ Ratings:	Likelihood of Failure:	Likelihood of Impact:	Failure and Impact:	Consequences:	Risk Rating:
	Possible	**Medium**	**Somewhat Likely**	**Significant**	**Moderate**

Action: RETAIN

Rationale; The subject tree is deemed as ***moderate*** risk due to the combined factors of; the defect severity, the size of part, the direction of failure, the human activity levels in the striking range and other factors, and it could be treated to mitigate the risk via pruning treatments. Recommend retention of this tree and undertaking pruning treatments to improve crown structure. Follow up inspections are recommended with reasonable frequency (1.5 years) to monitor tree health and structure.

CONCLUSIONS

From our investigation, tree A is considered moderate risk of failure. Most trees can be expected to fall into this category and are acceptable for safe retention. In context to proposed hardscape features as shown on the current site plan, and in consideration of tree size, species, age, condition, site conditions and an array of other factors, certain low impact methods and material are expected to be required to mitigate root loss from excavation for construction. Additional low impact investigations are recommended to determine the root growing conditions, volumes and sizes below grade to determine the impacts of construction of the proposed design and to inform root protection measures.

Respectfully;

Nick McMahon, Senior Project Arborist

ISA Board Certified Master Arborist #PN-7136B
ISA Qualified Tree Risk Assessor (TRAQ)
PNWISA Certified Tree Risk Assessor #1763
Certified Wildlife Dangerous Tree Assessor # P2519

Enclosures;
none