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October 14, 2021

Arborist Report

Tree Inventory and Assessment for Development 19560 Hammond Road, Pitt Meadows

Prepared for: True Light Building & Development Attn. Mr. Jason Craig 23444 - 124 Ave, Maple Ridge 604-315-7095; Jason.truelight@gmail.com

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Township of Langley Business License #66635 Inter-Municipal Business License #66854 WorkSafe BC Registration #995492 CGL Insurance Policy No. PSIO 11880073 (\$5 000 000.)

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1.0 Introduction

The property at 19560 Hammond Road, Pitt Meadows is proposed for development; it will be subdivided into four new lots, each with a new home built on it. One of the goals of this assignment was to identify trees around the perimeter of the existing parcel for retention as much as possible and practical. This was to depend on the evaluation of the potential hazards for each of the trees.

This report details the risk assessment and inventory of the existing tree stock on the subject lot. There are a total of 40 trees on the property catalogued in the report, as well as six off-site neighbouring trees that were included due to their proximity to the planned work.

Thirty-four of the on-site trees are recommended for removal for reasons outlined in the report; one of the off-site trees is identified as a high risk and is also recommended for removal.

Six trees of the trees on the subject property are selected for retention; measures to protect their health throughout the development process are suggested in the report below.

2.0 Background

Mr. Jason Craig from True Light Building & Development contracted Wyatt Earth to prepare a tree inventory and risk assessment on September 27, 2021. We attended the property on October 8, 2021 to collect the pertinent information.

There are no riparian zones or other environmental concerns associated with the subject lot. There are no steep slope concerns either.

There currently is no tree protection bylaw in the City of Pitt Meadows - unless the subject trees are within a riparian zone or other protected environment.

Planning for tree removals should take into consideration bird nesting season restrictions. This varies by area, but is typically from April to September.

3.0 Methods

For this report, we employed the quantitative tree risk assessment method (TRACE) as prescribed by the International Society of Arboriculture (ISA). Details are in the tree risk assessment and evaluation summary table below. We performed a basic level two visual inspection (a 360-degree visual evaluation of a tree where the crown, trunk, trunk flare, above-ground roots, and site conditions are evaluated in regard to targets). While evaluating for probability of failure, we considered a time frame of within three years from date of inspection.

When assessing the trees for health and condition, we utilized the rating categories as prescribed by the British Columbia Landscape and Nursery Association's (BCLNA) Guide for Plant Appraisal, 10th Edition.

The trees had been identified by a surveyor with individual numerical tags; we used these tag numbers for reference.

While on site, we gathered information regarding the trees. Weather was pleasant and visibility was great. We measured the diameter of their trunks at breast height (DBH). We measured the extent of their drip lines growing toward the work zone. We also took photographs to help document the inspection.

We walked 360° around the base of each tree to closely inspect the trunks and root collars. We stepped back a fair distance while examining each tree to gain perspective of the canopies.

We did not climb into the trees, or dig to examine any roots. We did not utilize any invasive techniques to determine internal wood characteristics. We did not conduct any soil tests or take any samples to a diagnostic lab for evaluation. We assessed only those trees that are the subject of this report and no other trees. This report does not provide any cost estimates for any of the recommendations.

4.0 Observations/Recommendations

The subject property is surrounded by six other residential lots. Trees from 19560 Hammond Road could potentially fall into: 19548 Hammond Road; 19586 Hammond Road; 11779 Bonson Road; 19583 – 117B Avenue; 19573 – 117B Avenue; and 19561 – 117B Avenue.

Regarding neighbouring off-site trees, I typically do not trespass to tag and measure them, nor do I usually conduct a thorough level two risk assessment. I made exceptions in this case in the form of measuring the DBH of the row of fir trees near the northeast corner of the subject lot (OS1 to OS5 - to determine a protection zone for their root systems), and providing a level one visual risk assessment for the large multi-topped spruce tree east of the subject lot (OS6), in the back yard of the residence at 19586 Hammond Road.

These six large conifers at 19586 Hammond Road could strike the subject property should they happen to fail. The five fir trees (OS1 to OS5) have a low probability of this in my opinion, but the spruce tree (OS6) represents a hazard to the property it is on as well as the subject lot. It has three large tops with a tight angle of attachment; they are competing with each other. There is a high likelihood, in my opinion, of one or more of the tops breaking off and causing injury or damage. A conversation with the owner of this tree should begin without delay, regarding plans to take it down. This tree was assigned a total risk rating of '10' (out of 12 – assessment methods and categories explained below).

There are four on-site trees that were assigned a high risk rating (either a '9' or a '10'), and should be taken down for that reason. These are:

- #1427, sitka spruce moderately high probability of one of the tops failing;
- #1541, sitka spruce moderately high probability of the trunk breaking;
- #563, sitka spruce high probability of the trunk breaking;
- #652, sitka spruce moderately high probability of a top breaking off.

Ten of the trees need to be removed because they are within one of the proposed building envelopes.

These are:

- #521, flowering cherry;
- #1416, flowering cherry;
- #566, Lawson cypress;
- #592, Lawson cypress;
- #618, apple tree;
- #298, cypress sp.;
- #656, noble fir;
- #658, Japanese maple;
- #1394, blue atlas cedar;
- #516, Japanese cedar.

Seventeen of the trees are not within the proposed building envelopes, but would be irreparably harmed by the development activities, due to their proximity to the planned work. The following trees would not be able to tolerate the amount of damage to their root systems that would take place during the development:

- #1395, Scots pine;
- #1397, Scots pine;
- #1400, Lawson cypress;
- #1401, Lawson cypress;
- #1406, Douglas-fir;
- #1408, sitka spruce;
- #1414, Douglas-fir;
- #1424, sitka spruce;
- #564, sitka spruce;
- #565, Lawson cypress;
- #299, cypress sp.;
- #646, Lawson cypress;
- #651, sitka spruce;
- #653, sitka spruce;
- #654, sitka spruce;
- #655, sitka spruce;
- #657, sitka spruce;

Three trees should just be removed because they are unsuitable for retention, due to their condition:

- #509, sitka spruce;
- #647, Lawson cypress;
- #1415, sawara cypress.

The six trees that are recommended for retention are:

- #1399, cypress sp.;
- #645, Crimson King Norway maple;
- #648, Lawson cypress;
- #649, Norway maple;
- #650, Norway maple.
- #522, Japanese maple.

The retained trees on site, and the five neighbouring fir trees, should have tree protection barrier (TPB) installed around them before any other site work begins. Minimum distances for the TPB for these trees are listed in the tree evaluation summary table on pages 9 to 12. Details for adequate construction of the TPB are included below on page 21. There should be no unauthorized activity within these tree protection zones; no excavation, no grade changes and no stockpiling of materials.

Any necessary work that is within the tree protection barriers should be performed by, or under the direct supervision of, a certified arborist.

5.0 Tree Risk Assessment

While evaluating trees for risk potential, the initial factor considered is the size of the part that could fail (ranked 1 - 3). We then assess the probability of failure (ranked 1 - 5). Then we assign a value to the potential target that could be impacted (ranked 1 - 4). Adding these numbers together yields the total risk rating for the tree (ranked 3 - 12).

The risk rating category descriptions are outlined below. They are also summarized for each subject tree in this report, in the Tree Evaluation Summary Table on pages 9 to 12.

For this report, the targets considered were: the people and buildings, cars, etc. at the subject address and the surrounding neighbouring properties; pedestrian and vehicular traffic along Hammond Road; the high voltage power lines along Hammond Road. The time frame for considering the likelihood of failure is within three years from the date of inspection.

5.1 Tree Risk Assessment – Category Descriptions

"Probability of Failure (1 – 5 points)

Low 1 point Defect is not likely to lead to imminent failure, and no further action is required. ...

Moderate 2 points One or more defect areas well-established but typically do not lead to failure for several years. Corrective action might be useful to prevent further problems but only if time and money are available. ...

Moderately High3 pointsOne or more defect areas well-established, but not yet deemedto be a high-priority issue. Additional testing may be required, or the assessor may feel the problems are

not serious enough to warrant immediate action, but do warrant placing the tree on a list of trees to be inspected more regularly. ...

High4 pointsThe defect is serious and imminent failure is likely and corrective actionis required immediately....

Extreme 5 points The tree or component part is already failing, an emergency situation where treatment is required today.

Size of Defective Part (1 – 3 points)

| 1 point | Branches or stems up to 10 centimetres (4 inches) in diameter. |
|----------|--|
| 2 points | Branches or stems between 10 to 50 centimetres (4 to 20 inches) in diameter. |
| 3 points | Branches or stems greater than 50 centimetres (20 inches) in diameter. |

The Target Area (1 – 4 points)

Low1 pointSites rated at one point are very rarely used for any long period of time,and people passing through the area ... do not spend a lot of time within the striking range of the tree.There are no valuable buildings or other facilities within striking range. ...

Moderate 2 points Valuable buildings are at the edge of the striking distance, so they would not be seriously damaged even if the tree did fall down. The site has people within striking range occasionally, meaning less than 50% of the time span in any one day, week, or month, and do not stay within striking range very long. ...

Moderately High 3 points The site has valuable buildings within striking range. People are within striking range more than 50% of the time span in any one day, week, or month, and their exposure time can be more than just passing by. ...

High 4 points The highest rated targets have a) a building within striking range frequently accessed by people, often for longer periods of time, or high volumes of people coming and going within striking range. ... or b) people within striking distance of the tree, or both, seven days a week, all year long, and at all times of the day. ...^{*1}

When the point values of these three factors assigned to a tree are totaled, they yield the overall risk rating value. The category descriptions for total risk rating are:

"The Overall Risk Rating and Action Thresholds (3 – 12 points)

| Risk | Risk | Interpretation and |
|--------|----------|--------------------|
| Rating | Category | Implications |

| 3 | Low1 | Insignificant – no concern at all. |
|--|--|---|
| 4 | Low2 | Insignificant – very minor issues. |
| 5 | Low3 | Insignificant – minor issues not of concern for many years yet. |
| 6 years or more. | Moderate1 | Some issues but nothing likely to cause any problems for another 10 |
| 7 for another 5 - 1 | Moderate2 0 years. | Well defined issues – retain and monitor. Not expected to be a problem |
| 8 for another 1 - 5 | Moderate3 | Well defined issues – retain and monitor. Not expected to be a problem |
| 9 reasonably retain | High1 ined as it is not li | The assessed issues have now become very clear. The tree can still be kely to fall apart right away, but it must now be monitored annually |
| 10 failure is now ge measures shoul | High2 etting serious, or d now be on a se | The assessed issues have now become very clear. The probability of the target rating and/or site context have changed such that mitigation chedule with a clearly defined timeline for action |
| 11 required withir | High3 weeks rather t | The tree, or part of it, could fail at any time. Action to mitigate the risk is han months |
| 12 required" ¹ | Extreme | The tree, or part of it, is in the process of failing. Immediate action is |

1) Dunster, J. 2009. <u>Tree Risk assessment in Urban Areas and the Urban/Rural Interface: Course</u> <u>Manual.</u> Silverton, Oregon: Pacific Northwest Chapter, International Society of Arboriculture.

Applicable numerical ratings for each tree are listed in the table below. If there are any questions regarding these trees or this report, please do not hesitate to contact me.

Wyatt Sjodin

Consulting Arborist; ISA #PN-0430 Tree Risk Assessor TRAQ #0341 Pesticide Applicator Cert #246490 Certified Utility Arborist #0025-TT-95 Arborist Technician ITA# 00007-TA-12

Tree Evaluation Summary Table

(DBH = Diameter at Breast Height; POF = Probability of Failure; SOP = Size of Part; TR = Target Rating; CS = Canopy Spread – radius, extent toward work zone)

| Tag # | Species | DBH (cm) | CS (m) | Comments | POF 1-5 | SOP 1-3 | TR 1-4 | Total Risk Rating | Recommendations |
|-------|--------------------|-------------|-----------|--------------------------------|-------------------|-------------------|-----------|---------------------------------------|-------------------|
| | | | | | | | | 3-12 | |
| 1399 | cypress, | 38 | 2.3 | health fair, structure good - | 1 | 2 | 4 | 7 | retain; deep-root |
| | chumbecypuns sp. | | | drought stress | | | | | 2 3m from trunk |
| 521 | flowering cherry | 44 | 3.6 | health good structure fair - | 1 | 2 | 3 | 6 | REMOVE |
| 011 | Prunus serrulata | | 0.0 | multiple tops; | _ | _ | 0 | , , , , , , , , , , , , , , , , , , , | |
| | 'Kwanzan' | | | within proposed building | | | | | |
| | | | | envelope | | | | | |
| 1416 | flowering cherry, | 54 | 3.7 | health good, structure fair - | 1 | 2 | 3 | 6 | REMOVE |
| | Prunus serrulata | | | multiple tops; | | | | | |
| | Kwanzan | | | within proposed building | | | | | |
| 1395 | Scots pine | 36 | 43 | health fair structure fair: | 2 | 2 | 3 | 7 | REMOVE |
| 1000 | Pinus sylvestris | 50 | | will be significantly impacted | (top) | - | 5 | | nemove |
| | , | | | by proposed development | | | | | |
| 1397 | Scots pine, | 36 | 3.5 | health fair, structure fair; | 1 | 2 | 4 | 7 | REMOVE |
| | Pinus sylvestris | | | will be significantly impacted | | | | | |
| | | | | by proposed development | | | | | 251401/5 |
| 1400 | Lawson cypress, | 32 | 1./ | health good, structure fair; | 1 | 2 | 4 | / | REMOVE |
| | lawsoniana | | | hy proposed development | | | | | |
| 1401 | Lawson cypress. | 34 | 3.2 | health good, structure fair: | 1 | 2 | 4 | 7 | REMOVE |
| _ | Chamaecyparis | - | - | will be significantly impacted | | | | | _ |
| | lawsoniana | | | by proposed development | | | | | |
| 1406 | Douglas-fir, | 79 | 7.6 | health good, structure good; | 1 | 3 | 4 | 8 | REMOVE |
| | Pseudotsuga | | | will be significantly impacted | | | | | |
| 1409 | menziesii | 22 | 2.6 | by proposed development | 1 | 2 | 4 | 6 | |
| 1408 | Picea sitchensis | 32 | 3.0 | will be significantly impacted | T | 2 | 4 | D | REIVIOVE |
| | r leed sitellensis | | | by proposed development | | | | | |
| 1414 | Douglas-fir, | 63 | 4.7 | health good, structure good; | 1 | 3 | 4 | 8 | REMOVE |
| | Pseudotsuga | | | will be significantly impacted | | | | | |
| | menziesii | | | by proposed development | | | | | |
| 1424 | sitka spruce, | 34 | 4.5 | health good, structure poor; | 1 | 2 | 4 | 7 | REMOVE |
| | Piceu sitchensis | | | by proposed development | | | | | |
| 1427 | sitka spruce. | 43 | 3.6 | health fair, structure verv | 3 | 2 | 4 | 9 | REMOVE |
| / | Picea sitchensis | | 0.0 | poor – decay at attachment | (top) | _ | | | |
| | | | | point, two weakly connected | | | | | |
| | | | | tops; | | | | | |
| | | | | will be significantly impacted | | | | | |
| | | | | by proposed development | | | | | |
| | | | | | | | | | |

| Tag # | Species | DBH (cm) | CS (m) | Comments | POF 1-5 | SOP 1-3 | TR 1-4 | Total Risk Rating 3-12 | Recommendations |
|-------|--|--------------|-----------|--|-------------------|------------|------------------|---------------------------------|---|
| 1541 | sitka spruce, Picea sitchensis | 36 | 4.3 | health fair, structure very poor – history of failure, decay at attachment point; will be significantly impacted by proposed development | 3 | 2 | 4 | 9 | REMOVE |
| 509 | sitka spruce, Picea sitchensis | 27 | | dead stub | 1 | 2 | 3 | 6 | REMOVE |
| 563 | sitka spruce, Picea sitchensis | 54 | 4.6 | health fair, structure very poor – large decay pocket at ~5m; will be significantly impacted by proposed development | 4 | 2 | 4 | 10 | REMOVE |
| 564 | sitka spruce, Picea sitchensis | 62 | 4.7 | health fair, structure very poor – multiple tops, weakly attached; will be significantly impacted by proposed development | 2 | 2 | 4 | 8 | REMOVE |
| 565 | Lawson cypress, Chamaecyparis Iawsoniana | 25 | 2.8 | health good, structure good; will be significantly impacted by proposed development | 1 | 2 | 3 | 6 | REMOVE |
| 566 | Lawson cypress, Chamaecyparis Iawsoniana | 27 | 2.8 | health good, structure good; within proposed building envelope | 1 | 2 | 3 | 6 | REMOVE |
| 592 | Lawson cypress, Chamaecyparis Iawsoniana | 21 | 3.5 | health good, structure good; within proposed building envelope | 1 | 2 | 3 | 6 | REMOVE |
| 618 | apple, Malus sp. | 15,16, 21 | 5.2 | health good, structure good; within proposed building envelope | 1 | 2 | 3 | 6 | REMOVE |
| 298 | cypress, Chamaecyparis sp. | 55 | 3.7 | health poor – in decline, structure good; within proposed building envelope | 1 | 3 | 4 | 8 | REMOVE |
| 299 | cypress, Chamaecyparis sp. | 46 | 3.6 | health poor – in decline, structure good; will be significantly impacted by proposed development | 1 | 2 | 4 | 7 | REMOVE |
| 645 | Crimson King Norway maple, <i>Acer platanoides</i> 'Crimson King' | 45 | 5.8 | health good, structure fair – canopy biased east due to crowding; suitable candidate for retention | 1 | 2 | 4 | 7 | retain; deep-root fertilize; install TPB to 5.8m from trunk |
| 646 | Lawson cypress, Chamaecyparis lawsoniana | 45 | 3.0 | health good, structure fair – canopy biased north due to crowding; will be significantly impacted by proposed development | 1 | 2 | 4 | 7 | REMOVE |

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| Tag # | Species | DBH | CS | Comments | POF | SOP | TR | Total | Recommendations |
|-------|--|-------|-----|--|-----|------------|-----|------------------------|--|
| Ū | | (cm) | (m) | | 1-5 | 1-3 | 1-4 | Risk Rating 3-12 | |
| 516 | Japanese cedar, Cryptomeria japonica | 55 | 2.6 | health good, structure good; within proposed building envelope | 1 | 3 | 4 | 8 | REMOVE |
| 1415 | sawara cypress, Chamaecyparis pisifera | 14,21 | 2.3 | health very poor – one stem dead, structure fair – multiple stems; not suitable for retention | 1 | 2 | 2 | 5 | REMOVE |
| OS1 | Douglas-fir, Pseudotsuga menziesii | 32 | 2.5 | just east of property line, in north yard of 19586 Hammond Rd. | | | | | retain; deep-root fertilize; install TPB (within TPB for OS2) |
| OS2 | Douglas-fir, Pseudotsuga menziesii | 76 | 4.4 | just east of property line, in north yard of 19586 Hammond Rd. | | | | | retain; deep-root fertilize; install TPB to 4.4m from trunk |
| OS3 | Douglas-fir, Pseudotsuga menziesii | 29 | 2.7 | just east of property line, in north yard of 19586 Hammond Rd. | | | | | retain; deep-root fertilize; install TPB (within TPB for OS2) |
| OS4 | Douglas-fir, Pseudotsuga menziesii | 52 | 4.5 | just east of property line, in north yard of 19586 Hammond Rd. | | | | | retain; deep-root fertilize; install TPB (within TPB for OS2) |
| OS5 | Douglas-fir, Pseudotsuga menziesii | 70 | 4.7 | just east of property line, in north yard of 19586 Hammond Rd. | | | | | retain; deep-root fertilize; install TPB (within TPB for OS2) |
| OS6 | sitka spruce, Picea sitchensis | ~55 | 3.9 | ~1.6m east of property line, in back yard of 19586 Hammond Rd. | 4 | 2 (top) | 4 | 10 | this tree should be REMOVED; this will involve a conversation with its owner |

Photographs

<u>Photo 1</u>



Aerial photo of subject lot and surrounding properties; from City of Pitt Meadows' 'Meadows Mapview' program.

Trees recommended for retention circled



snip of site plan provided by Jason Craig

six trees recommended for retention in green circles; all others to be removed

<u>Photo 3</u>



Front view, 19560 Hammond Rd



Photo 4: cypress for retention



Photo 6: flowering cherries in front



Photo 5: row of firs on neighbouring property



Photo 7: pines at east side; line shows edge of building envelope



Photo 8: spruce, OS6: ~2.5m to 3.0m from bldg. envelope



Photo 9: multiple tops in spruce, OS6



Photo 10: OS6; hazardous tops



Photo 11: row of evergreens, east side; incompatible

with proposed development



Photos 12 and 13: spruce trees, east side in poor condition; unsuitable for retention



Photo 14: spruce trees in SE corner of lot; hazardous



Photos 15, 16, 17: spruce trees along west side; poor condition, unsuitable for retention





Photo 18: maple for retention, #645



Photo 19: maple for retention, #522



Photo 20: two maples for retention, #649 and #650



Qualifications of Author

- Over 30 years of experience in the field of arboriculture
- Sole proprietor, Wyatt Earth Trees & Gardens
- Professional Member, International Society of Arboriculture (ISA)
- Arborist; ISA Certified #PN-0430 (1993)
- Certified Tree Risk Assessor #0341 (2005)
- Certified Pesticide Applicator #191294 and #190700 (1993)
- Certified Utility Arborist #0025-TT-95 (1995)
- Certified Arborist Technician ITA# 00007-TA-12 (2012)
- Davey Institute of Tree Sciences graduate, (2000)
- Guest speaker: British Columbia Recreation and Parks Association conference, February 2019;
 - Mt Lehman Garden Club, 2019;
 - Abbotsford Garden Club, 2020
- For his opinion on tree-related matters:
 - Interviewed by Global TV news and CTV, four times
 - Interviewed by CBC radio twice
 - Interviewed by Business in Vancouver newspaper once

Limitations

The conclusions and recommendations in this report refer to the condition of the tree(s) on the day of inspection only. The report should be read and considered in its entirety. All care has been taken to use the most current arboricultural information in the preparation of this report.

The report is based on visual inspection only. No guarantee can be given nor can it be predicted that branch failure or uprooting (windthrow) would not occur as a result of extreme weather events. Tree health and environmental conditions can change at any time due to unforeseen circumstances.

Tree Risk Assessments were done to the accepted industry standard of care. However, trees that do not have obvious defects or signs of decline can still fail under abnormal weather conditions and wind events.