

Attachment A:

Letter of Understanding for Esplanade
Boulevard Trees fronting 12 K de K Court

Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court
between
City of New Westminster and Dockside Strata (NW2459)

This letter of understanding will serve to further elaborate on the objectives and intended actions to be taken by the City of New Westminster (Parks and Recreation Department) with specific respect to the **two Yellowwood trees** and **one Black Gum tree** fronting the Dockside Strata at 12 K de K Court (NW2459).

Background

The City has worked with representatives from Dockside Strata to draft the April 2017 document entitled “*Quayside Esplanade Boulevard Maintenance Program for Trees on upland side of esplanade (planted in 2007)*” (included as Attachment “A”) that outlines the objectives of the tree maintenance program for the esplanade and identifies the specific actions the City intends to take to achieve those objectives. It is recognized that while the esplanade boulevard trees fronting the Dockside Strata have been placed generally in keeping with the pattern and spacing of the remaining esplanade boulevard trees planted in 2007, the specific positioning of the Yellowwood and Black Gum trees at 12 K de K Court has resulted in the trees being closer to the building face than other trees along the esplanade.

It is also recognized there is a unique history between the City and the Dockside Strata Council regarding planting of the trees. These facts, combined with the massing of a significant portion of the Strata building close to the property line and the elevation of the ground floor units relative to the elevation of the trees, is contributing to a greater sense of impact on views towards the river than in other locations along the esplanade. Accordingly, action is warranted to further address this specific situation above and beyond the typical tree maintenance measures for the remainder of the esplanade boulevard trees planted in 2007.

In 2023, the City subsequently reviewed its capacity to manage the *Quayside Esplanade Boulevard Maintenance Program for Trees* and is in the process of modifying the standard of maintenance to more closely align with that of boulevard/street trees throughout the City.

Actions to be taken by the City

In consideration of the above described circumstances unique to the Dockside Strata and the adjacent esplanade boulevard trees, the City will undertake the following measures as additions to those actions outlined in the original *Quayside Esplanade Boulevard Maintenance Program for Trees (April 10, 2017)*:

Specific to the two Yellowwood and one Black Gum boulevard trees -

- a. The Dockside Strata will be consulted as part of the City’s three year pruning cycle. The Strata is further invited to provide annual written comment respecting the three trees by September 15 of each year to inform the annual inspections of all esplanade boulevard trees during the intervening years. The Strata may elect to independently engage a consulting arborist to represent its interests in these processes. The city agrees to give serious

consideration to the input and advice of the consulting arborist when making its' decisions regarding the pruning of the trees in accordance with the Section 3.4 of the consulting arborist's report (Appendix B to this document).

- b. During the City's annual inspections and any resulting minor pruning work, if warranted, consideration will be given for selective pruning to address views where it logical to do so and does not otherwise compromise the health of the trees.
- c. During the initial 2017 pruning cycle, the overall tree canopy (width and circumference) will be managed through the removal of materials to a target of 25% taking into consideration the need to also not compromise the health of the trees.
- d. During subsequent pruning cycles, the overall tree canopy (width and circumference) will be managed through the removal of materials to a target of 20% taking into consideration the need to also not compromise the health of the trees.
- e. Following the initial 2023 pruning cycle, a benchmark for future pruning can be established for reference in subsequent years as part of the annual inspection of the trees to determine:
 - the extent to which the intended maintenance program objectives (including managing overall crown width and shape, maintaining view corridors, and tree health) are achieved,
 - if a different course of action is warranted.

Amendments Reflected in this Letter of Understanding

It is acknowledged that amendments to the original April 10, 2017 Letter of Understanding, as reflected in this version of the Letter of Understanding, have been informed by further discussions between the City and Strata, and informed by the Strata's 2023 consulting arborist's report (included as Attachment "B"). Specifically, it is acknowledged that:

- the objectives, pruning and related maintenance practices for the esplanade boulevard trees, inclusive of the three trees referenced in this letter of understanding, as additionally reiterated in the consulting arborist's report (Section 3.4), remain unchanged from the *Quayside Esplanade Boulevard Maintenance Program for Trees (April 10, 2017)*;
- the 2023 tree pruning program for the subject three trees will be based upon the pruning approach as described in the consulting arborist's report (Section 3.4), taking into consideration the need to also not compromise the health of the trees;
- at the discretion of the Strata, section 3.4 of the consulting arborist's report, may be updated from time to time to reflect recommended appropriate pruning approaches for future three-year pruning cycles (i.e. 2026 and beyond). If no new report is provided, the objectives and overall strategies in the 2023 consulting arborist's report will continue to form the basis for pruning the trees. The City and Strata agree that any updated arborist reports and recommended pruning strategies will form the basis for the pruning of the three trees by the City and such reports and strategies will not be significantly different from the overall objectives and strategies contained in the Section 3.4 of the arborist's 2023 report and the overarching objectives of Quayside Esplanade Boulevard Maintenance Program for Trees.

Term of Letter of Understanding

Notwithstanding the rights of the Council of the City of New Westminster to introduce resolutions or bylaws that may supersede this Letter of Understanding, the City of New Westminster and the Dockside Strata agree that this Letter of Understanding shall remain in effect for the earlier of the duration of the life of the existing two Yellowwood trees and one Black Gum tree, or until such time as the parties mutually agree to end this agreement. The Dockside Strata will be given three months' notice of the decision by the City to take the extraordinary action to nullify this letter of understanding and agrees to enter into discussions with the Dockside Council regarding the City's proposed decision.

For Dockside Strata

For City of New Westminster

Print Name

Print Name

Attachments:

Attachment "A" - Quayside Esplanade Boulevard Tree Maintenance Program (April 2017)

Attachment "B" – BC Plant Health Care Arborist Report (August 28, 2023)

Quayside Esplanade Boulevard

April 2017

Maintenance Program for Trees on upland side of esplanade (planted in 2007)

Objectives:

- A. Maintain and enhance the overall health of boulevard trees
- B. Re-establish and maintain view corridors between trees towards the river
- C. Enhance and maintain air flow and light penetration through each tree and improve views through the trees by thinning the tree canopy
- D. Comply with applicable provisions related to tree maintenance and pruning as referenced in the City’s Tree Protection and Regulation Bylaw

In consideration of these objectives, the City will:

- 1. Maintain the trees on a three year pruning cycle (commencing in 2017) with annual inspections during intervening years accompanied by pruning to maintain view corridors, address epicormic shoot growth and any other tree health or public safety issues.
- 2. Prune the trees during the initial pruning cycle interval to:
 - a. remove or subordinate weak, crowded or competitive stems and limbs
 - b. thin the tree crown (crown cleaning) through removal of select secondary branches from main lateral stems to reduce the weight on limbs and increase air and light penetration
 - c. where practical, implement directional pruning as part of a young tree training program
 - d. raise the elevation of the tree canopy to six feet
 - e. manage the overall tree canopy (width and circumference) through the removal of materials not to exceed more than 25% in the first pruning interval.
- 3. Prune the trees in subsequent pruning cycles with the focus on:
 - a. managing epicormic shoot growth
 - b. tree training for structural soundness and promotion of tree health
 - c. raising the elevation of the tree canopy to eight feet as the trees mature
 - d. managing the overall tree canopy (width and circumference) of trees through the removal of materials not to exceed more than 15-20% in any pruning interval.
 - e. maintaining view corridors of the river between trees primarily through the use of directional pruning
 - f. maintaining light and air penetration through the tree canopy to improve views through the trees
- 4. Consult with the Quayside Community Board at the end of the first pruning cycle (2020) to review the success of the tree maintenance program in terms of meeting the stated objectives.

(Doc. #1018642)

ATTACHMENT “B”

BC Plant Healthcare Inc. Arborist Report
As prepared for Strata Plan NWS2459
August 28, 2023
(Doc. # [2350295](#))

BC PLANT HEALTH CARE INC.

ARBORIST REPORT

JOB NAME: NWS2459 20230817

RE: Arborist Report

SITE: 12 K De K Court, New Westminster, V3M 6C5

PREPARED FOR: Strata Plan NWS2459
c/o Associa British Columbia Inc.
Mr. Ken Kantman
Unit 1001 – 7445 132 Street
Surrey, BC V3W 4M7
Phone: 604-591-6060
Email: Ken.Kantman@associabc.ca

DATE: August 28th, 2023

PROJECT ARBORIST: Thomas Walz

ISA Board Certified Master Arborist #PN-5960BT
ISA Certified Tree Worker Climber Specialist
ISA Tree Risk Assessment Qualification
Wildlife Dangerous Tree Assessor #P3006
WUAA/HEBC Falling & Bucking Endorsement #98
TCIA Certified Treecare Safety Professional #866
BC C of Q Arborist Technician #00017-TA-10
BC C of Q Climbing Arborist #00007-TB-13
ASCA Consulting Academy Graduate

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24 Hour Emergency Pager 604-607-1616



Keeping it **Green**... One Tree at a Time. TM

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1.0 Introduction

BC Plant Health Care Inc. has been contracted by Strata Plan NWS2459 to provide an *Arborist Report* to address the following itemized list (*scope of work*) with regards to the *Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court between City of New Westminster and Dockside Strata (NW2459)* dated April 10, 2017:

1. Provide an opinion on the possibility of transplanting the [3] trees (two yellowwood trees and one blackgum tree), with specifications and approximate cost.
2. Provide an opinion based on the Arborist Report (BC Plant Health Care Inc.) dated May 24, 2016, and the most recent data on the tree growth under the present pruning practices, what would be the size of these three trees in five and ten years from now?
3. Provide an opinion on how much bigger the trees would be if the council accepts the 7-year pruning proposal from staff.
4. Provide an opinion on whether there is any pruning regime that would actually bring the trees down to the size (25 percent reduction) committed to in the memorandum of agreement in 2017, and if so, what would it look like and how often would the pruning be necessary.
5. Provide an opinion on whether there are any possible issues with the roots of the trees beginning to impact the structure of the building either now or in the future.
6. Provide an opinion on whether the proximity of the trees to the building make them a potential fire hazard.

I, Tom Walz, of BC Plant Health Care Inc. visited the site and performed the assessment on August 23rd, 2023. This report completed on August 28th, 2023, includes the tree inventory assessment pertaining to the six items listed above, photographs to document the inspection, an aerial site map locating the assessed trees.

Documents that were reviewed and considered as part of this assignment include:

- *Arborist Report of a Visual Inspection at "Dockside," NW2459, 12 K de K Court, New Westminster* (May 24, 2016)
- *Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court between City of New Westminster and Dockside Strata (NW2459)* (April 10, 2017)
- *12 K de K Court Boulevard Trees, City of New Westminster Parks and Recreation Report* (June 26, 2023)
- *Attachment A: March 27, 2017 Council Report "12 K de K Court Boulevard Trees"* (November 27, 2017)
- *Attachment B: March 27, 2017 Council Meeting Minutes Excerpt* (March 27, 2017)
- *Attachment C: April 10, 2017 Council Report "12 K de K Court Boulevard Trees"* (April 10, 2017)
- *Attachment D: April 2017 Quayside Esplanade Boulevard – Maintenance Program for Trees on Upland Side of Esplanade* (April 2017)
- *City of New Westminster Pruning Standards, 2021*
- *Bold Step #6 – Robust Urban Forest, 2021*

Tools used during the field assessment included:

- A diameter measuring tape.
- A logger's tape measure.
- Laser measurement tool.
- Pole tools for measuring height and inspecting higher canopy branches.
- A camera for documenting findings.
- Cones for identifying drip lines and points of interest.

Information considered and collected during the assessment included:

- Genus and species, and common name.
- Diameter at breast height (DBH) in centimetres at 1.4 metres above grade.
- Caliper in centimetres at 15 cm above grade.
- Crown height in metres.
- Crown spread in metres.
- Annual terminal shoot growth over the past two growing seasons in centimetres.
- General health and condition.
- Previous pruning history.
- Site context.
- Sight lines from balconies of unit 204, 206, 208.

This memo is intended to be utilized in our clients' communications with the City of New Westminster in resolving matters related to the *Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court between City of New Westminster and Dockside Strata (NW2459)* dated April 10, 2017. Every effort has been made to maintain impartiality and objectivity in the process of conducting the site assessment and providing professional opinions about the 6 itemized points listed as the scope of work.

2.0 Observations

2.1 Tree Locations and Tree Inventory

The three tree locations are shown as approximate point locations in *Figure 1*. Trees have been referenced as #2 (*Cladrastis lutea*, Yellowwood), #3 (*Nyssa sylvatica*, black tupelo aka blackgum), and #4 (*Cladrastis lutea*, Yellowwood); this is done with reference to the BC Plant Health Care Inc. *Arborist Report of a Visual Inspection at "Dockside," NW2459, 12 K de K Court, New Westminster* (May 24, 2016) prepared by Laura Ralph.

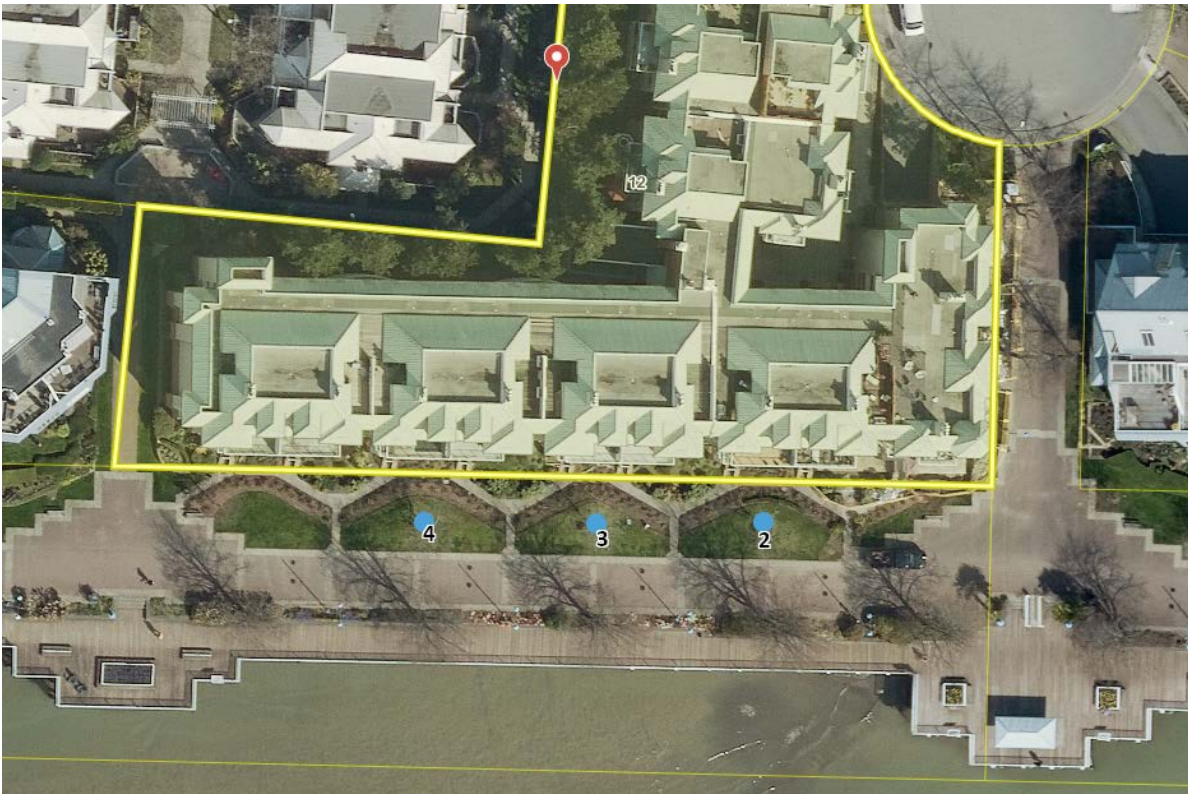


Figure 1. Aerial Site Map (CityViews3.0 Public – City of New Westminster – Orthophoto 2020)

2.2 Tree Inventory, Tree Observations and Site Conditions

Tree #	Species	DBH (cm)	Caliper (cm)	Height (m)	Crown Spread (m)	Annual Terminal Shoot Elongation (cm)
#2	<i>Cladrastis lutea</i> (Yellowwood)	2016: 18 cm 2023: 28 cm	27 cm	2016: 6.5 m 2023: 7 m	2016: 5 m 2023: 6.8 m	2016: 45-60 cm 2023: 40-45 cm
#3	<i>Nyssa sylvatica</i> (black tupelo, blackgum)	2016: 12 cm 2023: 20 cm	23 cm	2016: 4 m 2023: 6.5 m	2016: 4 m 2023: 7.7 m	2016: 45-60 cm 2023: 40-55 cm
#4	<i>Cladrastis lutea</i> (Yellowwood)	2016: 17 cm 2023: 35 cm	34 cm	2016: 8 m 2023: 8.5 m	2016: 6 m 2023: 10 m	2016: 45-60 cm 2023: 40-45 cm

Table 1. Tree Measurements

Observations

- All [3] trees are in good overall health and condition.
- Each tree exhibited consistent and vigorous growth with consideration of its' stage of life (young trees).
- Adequate soil moisture and soil volume was apparent to support growth into future stages of life (semi-mature, mature).
- Moderate to good compartmentalization response (wound closure and resistance to the spread of wood decay) was observed to previous pruning cuts.
- Generally good foliar colour was observed. Minor leaf chlorosis was apparent on each tree likely in response to changing photoperiod. Chlorosis, or yellowing of the leaves, can have many different causes. In some cases, it is a harmless part of the natural growth cycle of the plant, but it can also be indicative of adverse factors such as nutrient deficiencies, pests, diseases or cultural problems. Photoperiodism is the response to changes in daylength that enables plants to adapt to seasonal changes in their environment; this is what I believe the cause of yellowing to be.
- Previous pruning cycles in 2017 and 2020 primarily addressed canopy raising and clearance for pedestrians, esplanade and orientation away from buildings. Some thinning and subordination cuts were observed on lateral branches in the middle canopy to establish and promote a central dominant leader. Young tree training practices and techniques were appropriate for the first two cycles of pruning. Estimated percentages (%) of live crown removal during the first two pruning

cycles were around 20-25% per cycle; appropriate for species, health and vigour. Pruning was consistent with *CNW Pruning Standards, 2021*.

- Previous pruning was mostly consistent with objectives stated in *Attachment D: April 2017 Quayside Esplanade Boulevard – Maintenance Program for Trees on Upland Side of Esplanade (April 2017)*, specifically points 2.a., 2.b., 2.c., 2.d., 3.a., 3.b., 3.c.
 - 2. Prune the trees during the initial pruning cycle interval to:
 - a) remove or subordinate weak, crowded or competitive stems and limbs.
 - b) thin the tree crown (crown cleaning) through removal of select secondary branches from main lateral stems to reduce the weight on limbs and increase air and light penetration.
 - c) where practical, implement directional pruning as part of a young tree training program.
 - d) raise the elevation of the tree canopy to six feet.
 - 3. Prune the trees in subsequent pruning cycles with the focus on:
 - a) managing epicormic shoot growth.
 - b) tree training for structural soundness and promotion of tree health.
 - c) raising the elevation of the tree canopy to eight feet as the trees mature.
- Previous pruning was inconsistent with some of the objectives stated in *Attachment D: April 2017 Quayside Esplanade Boulevard – Maintenance Program for Trees on Upland Side of Esplanade (April 2017)*, specifically points 2.e., 3.d., 3.e., 3.f.
 - 2. Prune the trees during the initial pruning cycle interval to:
 - e) manage the overall tree canopy (width and circumference) through the removal of materials not to exceed more than 25% in the first pruning interval.
 - 3. Prune the trees in subsequent pruning cycles with the focus on:
 - d) managing the overall tree canopy (width and circumference) of trees through the removal of materials not to exceed more than 15-20% in any pruning interval.
 - e) maintaining view corridors of the river between trees primarily through the use of directional pruning.
 - f) maintaining light and air penetration through the tree canopy to improve views through the trees.
- Tree #2 is planted approximately 7.7 m from the building, closest to unit 208 (2nd floor). The canopy has been pruned for good directional clearance to remove and redirect branches away from the building.
- Tree #3 is planted approximately 7.7 m from the building, closest to unit 206 (2nd floor). The canopy has not been pruned for good directional clearance to remove and redirect branches away from the building. Branches are now within 3m of the balcony of unit 206.
- Tree #4 is planted approximately 7.7 m from the building, closest to unit 204 (2nd floor). The canopy has not been pruned for good directional clearance to remove and redirect branches away from the building. Branches are now within 2m of the balcony of unit 204.

2.3 Photos

The following photos taken on August 23rd, 2023, show the trees in their current setting, taken from various perspectives to illustrate size, growth, and context. I was permitted access to units #204 (tree 4), #206 (tree 3), #208 (tree 2) to document the views from some of the affected resident's apartments and balconies. I climbed into trees 2 and 4, positioned in the lower canopy, to document pruning cuts and compartmentalization responses.



Photo 1. Tree 2 - panoramic view from balcony of unit 208.



Photo 2. Tree 2 - landscape view from balcony of unit 208.



Photo 3. Tree 2 - 28 cm DBH measured 1.4 m above grade.



Photo 4. Tree 2 - viewed from the east.



Photo 5. Tree 2 - west canopy spread marked by traffic cone.



Photo 6. Tree 2 - east canopy spread marked by traffic cone.



Photo 7. Tree 2 - 6.8 m canopy spread east to west.



Photo 8. Tree 2 - terminal bud scale scar from previous years growth, indicating primary growth for this season's shoots.



Photo 9. Tree 2 - this season's primary growth.



Photo 10. Tree 2 - this season's primary growth.



Photo 11. 27 cm caliper measured 15 cm above grade.



Photo 12. Tree 2 - slender central branch architecture, previous pruning cuts at lowest junction.



Photo 13. Tree 2 - previous pruning cut.



Photo 14. Tree 2 - previous pruning cut.



Photo 15. Tree 2 – previous subordination pruning cut.



Photo 16. Tree 2 – previous subordination pruning cut.



Photo 17. Tree 2 - viewed from the west.



Photo 18. Tree 2 - viewed from the southeast.



Photo 19. Tree 2 - viewed from the east (7 m tall).



Photo 20. Tree 2 - measured 7 m tall.



Photo 21. Tree 3 - panoramic view from balcony of unit 206.



Photo 22. Tree 3 - viewed from inside of unit 206.



Photo 23. Tree 3 - landscape view from balcony of unit 206.



Photo 24. Tree 3 - 20 cm DBH measured 1.4 m above grade.



Photo 25. Tree 3 - 23 cm caliper measured 15 cm above grade.



Photo 26. Tree 3 - west canopy spread marked by traffic cone.



Photo 27. Tree 3 - east canopy spread marked by traffic cone.



Photo 28. Tree 3 - 7.7 m canopy spread east to west.



Photo 29. Tree 3 - previous pruning cuts.



Photo 30. Tree 3 – horizontal branch architecture.



Photo 31. Tree 3 - horizontal branch architecture.



Photo 32. Tree 3 - viewed from the east.



Photo 33. Tree 3 - viewed from the southeast.



Photo 34. Tree 3 - viewed from the east (6.5 m tall).



Photo 35. Tree 4 - panoramic view from balcony of unit 204.



Photo 36. Tree 4 - landscape view from balcony of unit 204.



Photo 37. Tree 4 - landscape view from interior of unit 204.



Photo 38. Tree 4 - 35 cm DBH measured 1.3 m above grade.



Photo 39. 34 cm caliper measured 15 cm above grade.



Photo 40. Tree 4 - west canopy spread marked by traffic cone.



Photo 41. Tree 4 - east canopy spread marked by traffic cone.



Photo 42. Tree 4 - 10 m canopy spread east to west.



Photo 43. Tree 4 - canopy encroachment towards building.



Photo 44. Tree 4 - previous pruning cuts.



Photo 45. Tree 4 - previous pruning cuts.



Photo 46. Tree 4 - previous pruning cuts.



Photo 47. Tree 4 - previous pruning cuts.



Photo 48. Tree 4 - previous pruning cuts.



Photo 49. Tree 4 - previous pruning cuts.



Photo 50. Tree 4 - viewed from the east.



Photo 51. Tree 4 - viewed from the east (8.5 m tall).

3. Discussions

3.1 Discussion 1.

1. Provide an opinion on the possibility of transplanting the [3] trees (two yellowwood trees and one blackgum tree), with specifications and approximate cost.

The agreement between the City and Dockside provided for a review and further action by the city if the pruning did not reduce the overall canopy size, provide light and views through the trees and reopen/maintain view lanes. To this point in time those have not been achieved and one of the actions to be considered to remedy the situation noted in the agreement included "measures up to removal and replacement of trees".

Two options are available for removal, transplanting the trees or cutting the trees and replacing them.

Transplanting landscape trees is a time intensive and costly process, which when done with care and attention to detail doesn't come with any guarantees of success or ultimately tree survival. As trees grow larger, the effort, cost and time involved for successful tree transplanting increases. Conversely with larger trees, the risk of successful transplant decreases.

Planning and preparations are the keys to successfully transplanting established trees from one area to another. The primary publications to be used as guidance in the planning and execution of transplanting are the ANSI A300 (Part 6) Transplanting Standard (R2018), and the accompanying Best Management Practices (2014). Considerations for transplanting include the following:

- Plant and site inspection
- Timing of transplanting
- Determining the root ball size for transplanting
- Digging trees and shrubs
- Transplanting methods
- Lifting plants
- Moving and storage of plants
- Digging and preparing the planting hole
- Planting practices
- Backfilling and appropriate materials
- Post-planting care
- Root loss and new root growth
- Redevelopment of root structure

In this situation, the most immediate and relevant issues are size of the trees; required equipment, expertise and staff; anticipated cost and aftercare; and likelihood of survival.

To determine the required size of the root ball, measure the stem caliper (stem diameter 15 cm above the ground). The root ball to be transplanted should be 10 to 12 cm for each 1 cm of stem caliper (ANSI A300, Part 6, 2018). For example, if the stem caliper is 10 cm, then the root ball should be 100 – 120 cm in diameter. Appropriate root ball sizes for trees 2, 3, 4 are listed as follows:

- Tree 2 – 27 cm caliper = 270 – 324 cm diameter root ball.
- Tree 3 – 23 cm caliper = 230 – 276 cm diameter root ball.
- Tree 4 – 34 cm caliper = 340 – 408 cm diameter root ball.

Preparation for transplanting trees of this size would require both pre-transplanting preparation and large machines for transplanting. As the roots are becoming well-established beyond the driplines of the trees (3-5 m radius from base of tree), large woody roots are likely prolific at the circumference of the minimum root ball diameter. Excessive damage to woody roots is to be avoided to successfully transplant trees, and the trees' ability to take up moisture and nutrients is required during the recovery phase. To promote best chances of survival, it is best practice to expose and prune roots at the minimum root ball diameter using pneumatic air excavation tools and hand pruning tools (loppers, handsaw, secateurs) one year prior to transplant and to backfill the perimeter trench with an inert medium like sand in an effort to invigorate fibrous root growth within the root ball. This pre-transplant process would likely take 3 days for a crew, estimated at \$4,000.00. Secondly, to transplant a root ball with a minimum diameter of around 3 m would require a truck-mounted tree spade with capabilities of managing root ball weight of 15,000 – 18,000 lbs. A few of these are commercially available in the lower mainland, and average cost per day for the crew and equipment is around \$2,500.00 - \$3500.00 per day. Depending on the location where the trees are to be planted, there are additional costs for planning and permitting, City consultations, utility locates, street occupancy permits, traffic control, route planning and management, municipal staffing and equipment, site preparation, planting, aftercare, etc. Significant time, effort and substantial costs are involved for the transplanting of 3 trees comparable to the alternative management practices (i.e., pruning, removal and replacement). It is estimated that to transplant a tree to an alternative municipal location, the cost would be in the range of \$10,000.00 - \$15,000.00 CDN per tree.

The current site provides very good growing and site conditions (i.e., good soil quality, ample water, direct sunlight, established management schedule due to high traffic volume, beautification, and use of the esplanade). Trees become acclimated to their environments, and a site that provides similar conditions would be preferred. The higher the volume of root loss incurred during the transplant process, the higher the likelihood of mortality. I would estimate that each tree would lose over 50% of its root/soil volume during transplant, and one could expect to see transplant shock shortly after transplant. After care would require annual inspections and maintenance including water, mulch, soil amendments, support systems and pruning. To provide an accurate estimate of the likelihood of survival would require a thorough root assessment, both at the root collar and at the circumference of the minimum root ball diameter. Ultimately, the direct relationship between the willingness to transplant the trees and the strict adherence to the transplanting specifications would dictate best chances for survival.

Each tree is approaching the largest practical size for transplant. As the trees continue to grow bigger, the locally available equipment (i.e., tree spade) becomes obsolete, and the cost is prohibitive. It is my opinion that transplanting these trees is not the best option to meet the objectives of the agreement, and that removal and replacement is a more cost-effective alternative. The removal of the trees and replanting more appropriate trees for the location is the best solution to meet conditions in the 2017 memorandum with residents and the 2007 commitments to them.

3.2 Discussion 2

2. Provide an opinion based on the Arborist Report (BC Plant Health Care Inc.) dated May 24, 2016, and the most recent data on the tree growth under the present pruning practices, what would be the size of these three trees in five and ten years from now?

Given the young tree growth stage of these three trees and the consistently good growing conditions, one can expect that the trees will continue to grow at similar rates as they move into semi-maturity, both primary (shoot elongation) and secondary (thickening of trunks, stems, branches, twigs) growth. The habit, form and shape of each tree will likely change due to their genetic traits, establishment, and their exposure to environmental conditions. With reference to *Table 1. Tree Measurements*, general rates of growth are calculated below. It should be noted that two pruning cycles have occurred within this time frame affecting growth habit, form, shape and rates of growth.

Tree 2 – Yellowwood [DBH – 28 (cm), height – 7.0 (m), canopy spread – 6.8 (m)]

- Trunk growth: increased 10 cm diameter at breast height since 2017 (6 years), an average of *1.66 cm per year*.
- Height: increased 0.5 m height since 2017 (6 years), an average of *8.3 cm per year*.
- Canopy spread: increased 1.8 m since 2017 (6 years), an average of *30 cm per year*.
- Expected size in 5 years: DBH – 35 (cm), height – 7.4 (m), canopy spread – 8.3 (m)
- Expected size in 10 years: DBH – 43 (cm), height – 7.8 (m), canopy spread – 9.8 (m)

Tree 3 – Black tupelo [DBH – 20 (cm), height – 6.5 (m), canopy spread – 7.7 (m)]

- Trunk growth: increased 8 cm diameter at breast height since 2017 (6 years), an average of *1.33 cm per year*.
- Height: increased 2.5 m height since 2017 (6 years), an average of *41.6 cm per year*.
- Canopy spread: increased 3.7 m since 2017 (6 years), an average of *61.6 cm per year*.
- Expected size in 5 years: DBH – 27 (cm), height – 8.6 (m), canopy spread – 10.8 (m)
- Expected size in 10 years: DBH – 33 (cm), height – 10.7 (m), canopy spread – 13.8 (m)

Tree 4 – Yellowwood [DBH – 35 (cm), height – 8.5 (m), canopy spread – 10.0 (m)]

- Trunk growth: increased 18 cm diameter at breast height since 2017 (6 years), an average of *3 cm per year*.
- Height: increased 0.5 m height since 2017 (6 years), an average of *8.3 cm per year*.
- Canopy spread: increased 4 m since 2017 (6 years), an average of *66.6 cm per year*.
- Expected size in 5 years: DBH – 50 (cm), height – 8.9 (m), canopy spread – 13.3 (m)
- Expected size in 10 years: DBH – 65 (cm), height – 9.3 (m), canopy spread – 16.6 (m)

It should be noted that these are estimates only. The biggest influences on the trees future form, shape and size are pruning frequency and targeted removal of branches. Given the current pruning frequency of once every three years and the current approach to pruning, these figures – particularly canopy spread – can be augmented. Pruning can have a short-term affect of slowing the rate of growth due to loss of photosynthetic capabilities but can also promote increased growth rates in an attempt to replace photosynthetic capabilities.

3.3 Discussion 3

3. Provide an opinion on how much bigger the trees would be if the council accepts the 7-year pruning proposal from staff.

The next pruning cycle is anticipated for fall 2023 given the current 3-year pruning cycle. I would anticipate that the next pruning cycle would continue to address the removal of lower canopy branches, establishing the lowest permanent branch by removing or reducing temporary lower crown branches, thinning temporary branches higher in the canopy with the intent to establish permanent branch architecture, subordinating branches with the intent to promote a dominant leader (excurrent – black tupelo) or dominant system (decurrent – yellowwood), and reducing over-extended branches where appropriate. All of this would entail the removal of 20-25 % live crown. As stated in the observations section of this report, the previous pruning has focused on specific objectives while maintaining the health and condition of the trees given the parameters of live crown removal, and the objectives have been well achieved. However, not all objectives have been achieved, specifically managing crown size and spread. Should the City tree crews put more emphasis during the next pruning cycle on managing the overall tree canopy (width and circumference), maintaining view corridors of the river between trees primarily through the use of directional pruning, and maintaining light and air penetration through the tree canopy to improve views through the trees, the form and size of the trees will be more aligned with the goals stated in the *Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court between City of New Westminster and Dockside Strata (NW2459)* (April 10, 2017) and *Attachment D: April 2017 Quayside Esplanade Boulevard – Maintenance Program for Trees on Upland Side of Esplanade* (April 2017).

To comment on how much bigger the trees will be if the council accepts the 7-year pruning proposal from staff, clarification is needed to discover if the next pruning cycle would be fall 2023, or if another 4 years would be added on to the existing 3 years since the last pruning cycle, or if the next cycle would be in 7 years from present day.

It is safe to say that without management in the next 4 years, the size would be reflective of the projections made in Discussion 2, *expected size in 5 years*.

Tree 2 – Yellowwood [DBH – 28 (cm), height – 7.0 (m), canopy spread – 6.8 (m)]

- Expected size in 5 years: DBH – 35 (cm), height – 7.4 (m), canopy spread – 8.3 (m)

Tree 3 – Black tupelo [DBH – 20 (cm), height – 6.5 (m), canopy spread – 7.7 (m)]

- Expected size in 5 years: DBH – 27 (cm), height – 8.6 (m), canopy spread – 10.8 (m)

Tree 4 – Yellowwood [DBH – 35 (cm), height – 8.5 (m), canopy spread – 10.0 (m)]

- Expected size in 5 years: DBH – 50 (cm), height – 8.9 (m), canopy spread – 13.3 (m)

What is clear based on the current growth rates and the good growing conditions, is that these three trees are growing to become medium – large trees at maturity (i.e., at least 15 meters tall and similar width).

3.4 Discussion 4

4. Provide an opinion on whether there is any pruning regime that would actually bring the trees down to the size (25 percent reduction) committed to in the memorandum of agreement in 2017, and if so, what would it look like and how often would the pruning be necessary.

This is the most pertinent question when looking at the overall objective of this report. The goal of our client is to have the trees managed in such a way that is reflective of the *Letter of Understanding for Esplanade Boulevard Trees fronting 12 K de K Court between City of New Westminster and Dockside Strata (NW2459)* (April 10, 2017) and *Attachment D: April 2017 Quayside Esplanade Boulevard – Maintenance Program for Trees on Upland Side of Esplanade* (April 2017).

To illustrate how to achieve the objectives of managing the overall tree canopy (width and circumference), maintaining view corridors of the river between trees primarily through the use of directional pruning, and maintaining light and air penetration through the tree canopy to improve views through the trees, it is best to consider focal points of interest. The main perspective of our client is management for view. At present, each of the trees has been managed to establish a permanent framework of branches in compliance with existing policies and the agreements in place between the City. Now that the framework of permanent branches is being established, specifically in the lower canopy, selection of branch removal is critical during the next pruning cycle. Should the focus be on removing branches oriented west and east, the canopies will be narrower thus providing better view corridors between the trees. Photos have been marked up to illustrate this point.



Photo 52. Tree 2 - lower canopy west side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 53. Tree 2 - lower canopy east side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 54. Tree 2 - removal of north branch providing more clearance of building.



Photo 55. Tree 2 - an example of 5 branch collar cuts in the lower canopy that would improve sight lines of the river.



Photo 56. Tree 2 - resulting view improvements from the removal of east and west sides of lower canopy.



Photo 57. Tree 3 - lower canopy west side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 58. Tree 3 - lower canopy east side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 59. Tree 3 - removal of north branch providing more clearance of building.



Photo 60. Tree 3 - resulting view improvements from the removal of east and west sides of lower canopy.



Photo 61. Tree 4 - lower canopy west side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 62. Tree 4 - lower canopy east side branches removal to branch collars providing a slenderer canopy and improve sight lines of river.



Photo 63. Tree 4 - removal of north branch providing more clearance of building.



Photo 64. Tree 4 - an example of 3 branch collar cuts in the lower canopy that would improve sight lines of the river.



Photo 65. Tree 4 - an example of 3 branch collar cuts in the lower canopy that would improve sight lines of the river.



Photo 66. Tree 4 - resulting view improvements from the removal of east and west sides of lower canopy.

These photos have been marked to illustrate the objectives that need to be achieved during the next pruning cycle to manage the overall tree canopy (width and circumference), maintain view corridors of the river between trees primarily through the use of directional pruning, and maintain light and air penetration through the tree canopy to improve views through the trees. Each pruning cycle has a specific set of objectives and branches to be targeted, and each pruning cycle builds upon the previous one. If the appropriate pruning approach is not taken during the upcoming pruning event with these objectives in mind, the result will be a ripple effect, whereas it will be more and more difficult to achieve these objectives as the trees continue to grow and mature. It is also critically important that the 3-year pruning approach is kept in place as the trees mature, with an annual review to monitor growth and form. It is also valuable for the City to consult with the strata prior to and during each scheduled pruning cycle to ensure that the pruning objective are clear and well defined.

With this in mind, it is recommended that an independent inspection and assessment of the trees be conducted prior to the following pruning cycle (i.e., three years following the upcoming pruning event) to determine the next appropriate pruning approach for consideration by the Strata. Photos can be taken from the most important focal points and marked up to illustrate the objectives.

What is clear based on the current growth rates and the good growing conditions, is that these three trees are growing to become medium – large trees at maturity (i.e., at least 15 meters tall and similar width) and will need to be managed with a clear and thoughtful approach during each pruning cycle. It is my opinion the only way to maintain these trees to reopen and maintain the view corridors is to conduct 3-year scheduled pruning with an annual pruning to selectively reduce branches that grow into the view lanes.

3.5 Discussion 5

5. Provide an opinion on whether there are any possible issues with the roots of the trees beginning to impact the structure of the building either now or in the future.

Each of the three trees is positioned approximately 7.7 m south of the building foundation wall, the position of which was shown to me by the client. Given the proximity of each tree to the foundation wall of the building, it is very unlikely that roots have grown to the extent that they would be approaching the foundation wall. Furthermore, there is a garden bed retaining wall that is constructed between the trees and the foundation wall, approximately 4.8 m from the base of each tree. Given the restrictions to root growth, it is very unlikely that future root growth would pose a conflict with building foundation infrastructure.



Photo 67. Tree 2 - proximity to garden bed retaining wall and foundation wall.



Photo 68. Tree 3 - proximity to garden bed retaining wall and foundation wall.



Photo 69. Tree 4 - proximity to garden bed retaining wall and foundation wall.

3.6 Discussion 6

6. Provide an opinion on whether the proximity of the trees to the building make them a potential fire hazard.

An Home & Site Hazard Assessment form from the [The Home Owners Fire Smart Manual \(BC Edition\)](#) is captioned as *Figure 2*. The position of the 3 subject trees within proximity to the building poses a low Wildfire Hazard Level.

Home & Site Hazard Assessment

Important Factors	Potential Hazards	Point Rating	Your Score
What type of forest surrounds your home, and how far away is it?	Deciduous trees (poplar, birch) within 10 metres of buildings	0	0
	Deciduous trees 10 - 30 metres from buildings	0	0
	Mixed wood (poplar, birch, spruce or pine) within 10 metres of buildings	30	0
	Mixed wood 10 - 30 metres from buildings	10	0
	Conifers (spruce, pine or fir) within 10 metres of buildings • separated • continuous	30 30	0
	Conifers (spruce, pine or fir) within 10 - 30 metres of buildings • separated • continuous	10 30	0
What kind of vegetation grows in the zone around your buildings?	Well watered lawn or non-combustible landscaping material	0	0
	Uncut wild grass or shrubs • within 10 metres of buildings • within 10 - 30 metres of buildings	30 5	0
	Dead and down woody material within 10 metres of buildings • scattered • abundant	30 30	0
	Dead and down woody material within 10 - 30 metres of buildings • scattered • abundant	5 30	0
Are there abundant underbrush and ladder fuels in the surrounding forest?	None within 10 - 30 metres	0	0
	Scattered • within 10 - 30 metres of buildings	5	
	Abundant • within 10 - 30 metres of buildings	10	
The Wildfire Hazard Level for your home is:		Total Score	0

Low <21 points Moderate 21-29 points High 30-35 points Extreme >35 points

Figure 2. Home and Site Hazard Assessment.

Should you have any questions or concerns, please do not hesitate to contact me.

Yours truly,

BC PLANT HEALTH CARE INC.



Thomas Walz

ISA Board Certified Master Arborist #PN-5960BT
ISA Certified Tree Worker Climber Specialist
ISA Tree Risk Assessment Qualification
Wildlife Dangerous Tree Assessor #P3006
WUAA/HEBC Falling & Bucking Endorsement #98
TCIA Certified Treecare Safety Professional #866
BC C of Q Arborist Technician #00017-TA-10
BC C of Q Climbing Arborist #00007-TB-13
ASCA Consulting Academy Graduate

Limitations of this Assessment

It is BC Plant Health Care Inc.'s policy to attach the following clause regarding limitations. We do this to ensure that developers or owners are clearly aware of what is technically and professionally realistic in retaining trees.

The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree 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) and the surrounding site, and the proximity of property and people. Except where specifically noted in the report, none of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

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

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that these trees, or any 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 their component parts in all 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. The assessment presented in this report is valid at the time of inspection.