



TALMACK
URBAN FORESTRY
— Consultants Limited —

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1209 LYALL STREET—ESQUIMALT, BC

CONSTRUCTION IMPACT ASSESSMENT & TREE MANAGEMENT PLAN

Prepared For: Alayna Briemon
1209 Lyall Street
Esquimalt, BC
V9A 5G8

Prepared By: Talmack Urban Forestry Consultants Ltd.
Robert McRae
ISA Certified # PN-7125A
TRAQ – Qualified

Date of Issuance: July 13, 2022





TALMACK
URBAN FORESTRY
— Consultants Limited —



Jobsite Property: 1209 Lyall Street—Esquimalt, BC
Date of Site Visit(s): June 30, 2022
Site Conditions: Flat residential lot with no ongoing construction.

SUMMARY

- The proposal includes renovation of the existing garage as well as construction of an addition to the south end of this structure.
- Five (5) trees were inventoried on the subject property (4 of which are bylaw protected), as well as two (2) located on the neighbouring property at 1213 Lyall Street (both are bylaw protected according to estimated multi-stem DBH calculation).
- One (1) bylaw-protected tree (#1737) is recommended for removal due to impacts from the proposed construction.
- Two (2) replacement trees are required as compensation for the removal of a tree of this size (calculated multi-stem DBH—46cm). We recommend two of the several recently planted trees on the property and/or existing trees not protected under bylaw be considered as replacement trees to satisfy this requirement.

SCOPE OF ASSIGNMENT

- Inventory the existing trees and any trees on municipal or neighbouring properties that could potentially be impacted by construction or that are within three metres of the property line.
- Review the proposal to renovate the existing garage as well as construction of an addition to the south end of this structure.
- Comment on how construction activity may impact existing trees.
- Prepare a tree retention and construction damage mitigation plan for those trees deemed suitable to retain given the proposed impacts.

METHODOLOGY

- We visually examined the trees on the property and prepared an inventory in the attached Tree Resource Spreadsheet.

- Each tree was identified using a numeric metal tag attached to its lower trunk.
- Information such as tree species, DBH (1.4m, ~ indicates estimate), crown spread, critical root zone (CRZ), health, structure, and relative tolerance to construction impacts were included in the inventory.
- The conclusions reached were based on the information provided within the attached site survey from Powell & Associates (dated February 2, 2021), as well as conversation with the property owner.
- A Tree Management Plan was created using the site plans provided.

LIMITATIONS

- No exploratory excavations have been conducted and thus the conclusions reached are based solely on critical root zone calculations, observations of site conditions, and our best judgement using our experience and expertise. The location, size and density of roots are often difficult to predict without exploratory excavations and therefore the impacts to the trees may be more or less severe than we anticipate.
- Servicing plans were not provided for this assessment, though it is our understanding that hydro and water services are available from the existing garage, and that gas and sewer services will be connected from the existing house on the property—we do not anticipate routing services in these locations will have significant impacts to the health and structure of any protected trees.

TREES TO BE REMOVED (PROPOSED)

- **Plum (*Prunus spp.*) #1737 (15/12/10/9cm DBH)** is located where it will likely be severely impacted by construction of the proposed addition and is recommended for removal.
 - Two (2) replacement trees are required as compensation for the removal of a tree of this size (calculated multi-stem DBH—46cm). We recommend two of the several recently planted trees on the property and/or existing trees not protected under bylaw be considered as replacement trees to satisfy this requirement—one of these, **Red Alder (*Alnus rubra*) #1738 (21cm DBH)** was included on the site survey and the attached tree inventory.

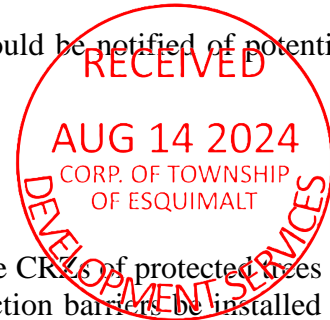
POTENTIAL IMPACTS TO TREES AND MITIGATION MEASURES

BUILDING FOOTPRINT

- The addition to the existing garage is proposed within the CRZ of **Domestic Apple (*Malus spp.*) OS#2 (~25/12/10/10cm DBH)**. Some roots from this tree may be encountered during excavations for foundation and/or footings, though we do not anticipate these to significantly impact the health or stability of OS#2.



- To minimize impacts to OS#2, we recommend over-excavation be limited to the least possible amount of working room to construct the foundation—0.5m is preferred, and we anticipate this will be feasible given our understanding that the foundation will be constructed slab-on-grade.
- The project arborist should be on-site to supervise excavations within the CRZ of OS#2 and perform any required root pruning.
- We also recommend the project arborist be contacted if alterations (i.e. excavation outside the existing footprint) to the existing garage foundation are required within the CRZ of OS#2 or **Lawson Cypress (*Chamaecyparis lawsoniana*) OS#1**. These trees may also require minor clearance pruning due to the proposed renovation and addition—we recommend this be performed to ANSI A300 standards.
- The existing property fence will suffice as tree protection barriers for OS#1 and OS#2. We recommend equipment and materials be stored outside the CRZs.
- The owners of OS#1 and OS#2 at 1213 Lyall Street should be notified of potential impacts to their trees.



BARRIER FENCING/SOUTH PROPERTY TREES

- The new addition and garage renovation are proposed outside the CRZs of protected trees to the south of the property. However, we recommend tree protection barriers be installed to prevent the use of these areas for equipment and material storage.
 - If #1738 is to be retained as a replacement tree, we recommend barrier fencing be erected and maintained (throughout the construction timeframe) to the extents of its CRZ as per the specifications contained in the section (below) “Mitigation Measures.”
 - Alternative delineation (i.e. rebar stakes with mesh fencing attached, temporary construction panels, or other materials acceptable to the Township) is acceptable to isolate the CRZs of #1739-1741 (see TMP for recommended locations).

MITIGATION MEASURES (FOR REFERENCE)

ARBORIST SUPERVISION

- All excavation occurring within the critical root zones of protected trees should be completed under the direction or supervision of the project arborist. This includes (but is not limited to) the following activities within CRZs:
 - All excavations within the CRZs of off-site trees OS#1 and OS#2.

PRUNING ROOTS

- Any severed roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. Backfilling the excavated area around the roots should be done as soon as possible to keep the roots moist and aid in root regeneration. Ideally, the area surrounding exposed roots should be watered; this is particularly important if excavation occurs or the roots are exposed during a period of drought. This can be accomplished in a number of ways, including wrapping the roots in burlap or installing a root curtain of wire mesh lined with burlap, and watering the area periodically throughout the construction process.

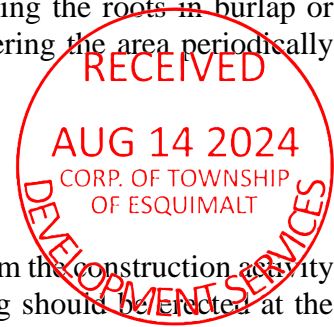
BARRIER FENCING

- The areas surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zones.

The barrier fencing must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.

MINIMIZING SOIL COMPACTION

- In areas where construction traffic must encroach into the critical root zones of trees to be retained, efforts must be made to reduce soil compaction where possible by displacing the weight of machinery and foot traffic. This can be achieved by one or a combination of the following methods (depending on the size of machinery and the frequency of use):
 - Placing a layer of geogrid (such as Combigrid 30/30) over the area to be used and installing a layer of crushed rock to a depth of 15 cm over top or a layer of hog fuel or coarse wood chips at least 30 cm in depth and maintaining it in good condition until construction is complete.
 - Installing a layer of hog fuel or coarse wood chips at least 20 cm in depth and maintaining it in good condition until construction is complete.
 - Placing two layers of 19mm plywood.
 - Placing steel plates



DEMOLITION OF THE EXISTING BUILDING

- The demolition of the existing house and any services that must be removed or abandoned, must take the critical root zone of the trees to be retained into account. If any excavation or machine access is required within the critical root zones of trees to be retained, it must be completed under the supervision and direction of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.

PAVED SURFACES ABOVE TREE ROOTS

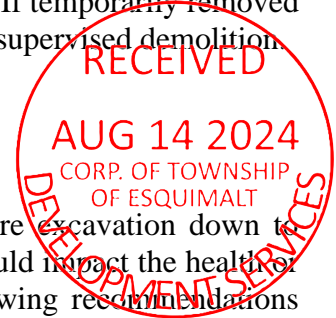
- If the new paved surfaces within the CRZs of retained trees require excavation down to bearing soil and significant roots are encountered in this area, this could impact the health or stability of the retained trees. If tree retention is desired, the following recommendations should be followed.

The objective of “no-dig” construction techniques is to avoid root loss and to instead raise the paved surface and/or its base material above the root systems of trees. This may result in the finished grade of the paved surface being raised above existing grade (the amount depending on how close roots are to the surface and the depth of the paving material and base layers). Final grading plans should take this potential change into account (e.g. the resulting slope, grades of surrounding patios, etc.). Contractors should be informed that soils which are high in organic content will likely be left intact below the paved area.

Within the CRZs, the project arborist should supervise any excavation associated with constructing these hard surfaces, including the removal of the existing paving or turf. If significant roots are encountered, excavation should be stopped.

Depending on the amount of the critical root zone covered by the paved surface, the condition of the sub-grade and the amount of roots observed, it may be recommended that the paved surface be made permeable and that a geogrid material (such as CombiGrid 30/30 or similar) be used. The function of the geogrid is to reduce compaction and to disperse weight over soils high in organics and roots. The base material for the paving should be placed above this geogrid and should be clear washed gravels (3/4” clear) in order to inhibit future root growth and potential damage to paving as well as to ensure a well-draining aeration layer. An additional layer of filter cloth or geotextile fabric may be recommended to separate coarse and fine layers (if a finer material is required directly underneath the paving).

To allow water to drain into the root systems below, the project arborist may recommend that the surface be made of a permeable material (instead of conventional asphalt or concrete) such as permeable asphalt, paving stones, or other porous paving materials and designs such as those utilized by Grasspave, Gravelpave, Grasscrete and open-grid systems. If the paved surface is a driveway, it may be possible to construct a “ribbon driveway” with an unpaved area between the two strips of paving.



Ultimately, a geotechnical engineer may be consulted and in consultation with the project arborist, may specify their own materials and methods that are specific to the site's grading, soil conditions and requirements, while also avoiding root loss, reducing compaction to the sub-grade and ensuring the most long-term aeration and permeability.

MULCHING

- Mulching can be an important proactive step in maintaining the health of trees and mitigating construction related impacts and overall stress. Mulch should be made from a natural material such as wood chips or bark pieces (not dyed) and be 5-8cm deep. No mulch should be touching the trunk of the tree. See “methods to avoid soil compaction” if the area is to have heavy traffic.

BLASTING

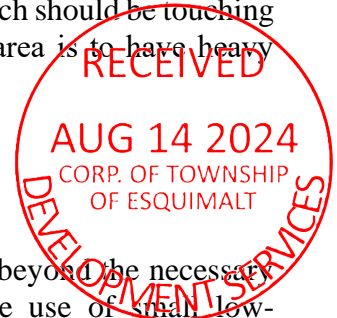
- Care must be taken to ensure that the area of blasting does not extend beyond the necessary footprints and into the critical root zones of surrounding trees. The use of small, low-concussion charges and multiple small charges designed to pre-shear the rock face will reduce fracturing, ground vibration, and overall impact on the surrounding environment. Only explosives of low phytotoxicity and techniques that minimize tree damage should be used. Provisions must be made to ensure that blasted rock and debris are stored away from the critical root zones of trees.

SCAFFOLDING

- This assessment has not included impacts from potential scaffolding including canopy clearance pruning requirements. If scaffolding is necessary and this will require clearance pruning of retained trees, the project arborist should be consulted. Depending on the extent of pruning required, the project arborist may recommend that alternatives to full scaffolding be considered such as hydraulic lifts, ladders or platforms. Methods to avoid soil compaction may also be recommended (see “Minimizing Soil Compaction” section).

LANDSCAPING AND IRRIGATION SYSTEMS

- The planting of new trees and shrubs should not damage the roots of retained trees. The installation of any in-ground irrigation system must take into account the critical root zones of the trees to be retained. Prior to installation, we recommend the irrigation technician consult with the project arborist about the most suitable locations for the irrigation lines and how best to mitigate the impacts on the trees to be retained. This may require the project arborist supervise the excavations associated with installing the irrigation system. Excessive frequent irrigation and irrigation which wets the trunks of trees can have a detrimental impact on tree health and can lead to root and trunk decay.



ARBORIST ROLE

- It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:
 - Locating the barrier fencing
 - Reviewing the report with the project foreman or site supervisor
 - Locating work zones, where required
 - Supervising any excavation within the critical root zones of trees to be retained
 - Reviewing and advising of any pruning requirements for machine clearances

REVIEW AND SITE MEETING

- Once the project receives approval, it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any site clearing, tree removal, demolition, or other construction activity occurs and to confirm the locations of the tree protection barrier fencing.

Please do not hesitate to call us at (250) 479-8733 should you have any further questions.

Thank you,



Robert McRae
ISA Certified # PN-7125A
TRAQ – Qualified
Robbie@Talmack.ca

Talmack Urban Forestry Consultants Ltd.
ISA Certified Consulting Arborists
tmtreehelp@gmail.com



Attached:

- 1-page tree resource spreadsheet
- 1-page Tree Management Plan
- 1-page site survey
- 2-page tree inventory definitions

Disclosure Statement

The tree inventory attached to the Tree Preservation Plan can be characterized as a limited visual assessment from the ground and should not be interpreted as a “risk assessment” of the trees included.

Arborists are professionals who examine trees and use their training, knowledge and experience to recommend techniques and procedures that will improve their health and structure or to mitigate associated risks.

Trees are living organisms, whose health and structure change, and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. It is not possible for an Arborist to identify every flaw or condition that could result in failure or can he/she guarantee that the tree will remain healthy and free of risk.

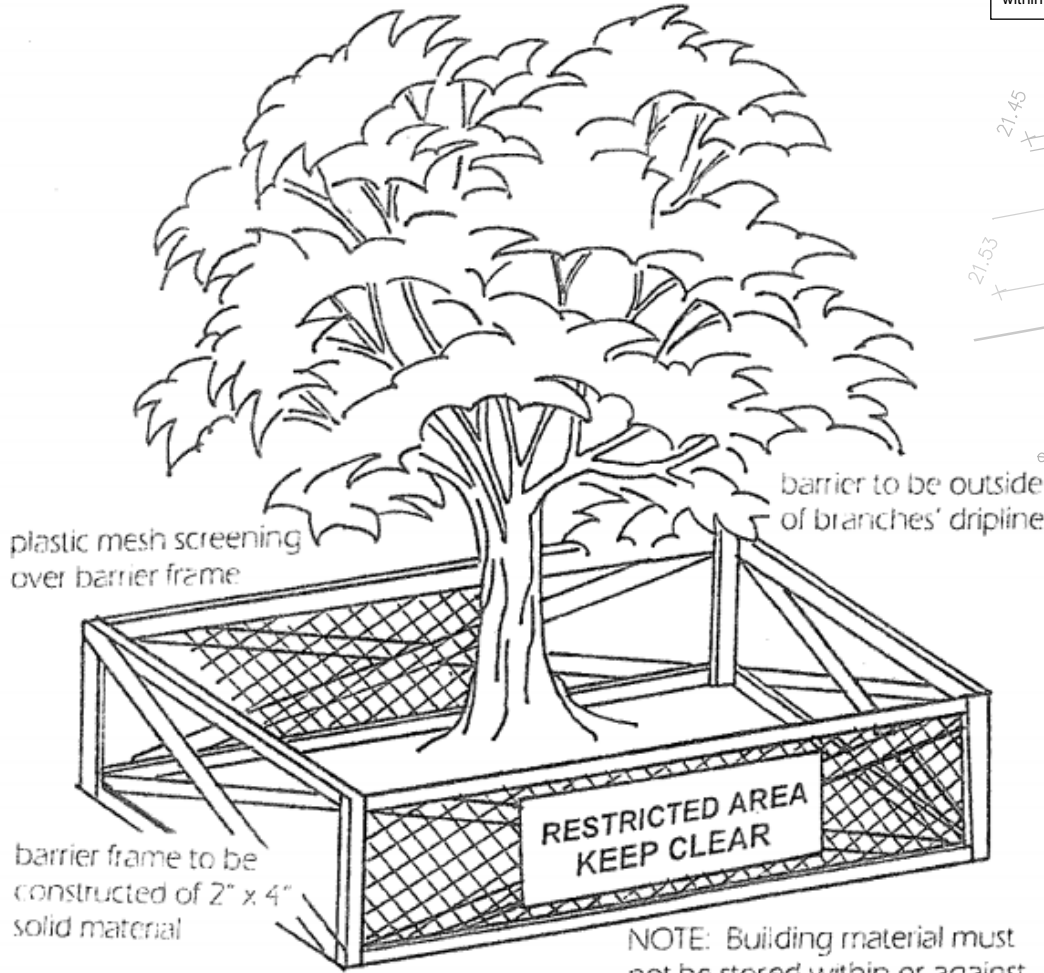
Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.



Tag #	Surveyed? (Yes/No)	Location (On, Off, Shared, City)	Bylaw Protected? (Yes/No)	Name		DBH (cm)	Crown Spread diameter (m)	Critical Root Zone radius (m)	Condition		Retention Suitability (on-site trees)	Relative Tolerance	General field observations/remarks	Tree retention/location comments	Retention status
				Common	Botanical				Health	Structural					
OS1	No	Off-site	Yes, if estimate is correct	Lawson Cypress	<i>Chamaecyparis lawsoniana</i>	~15,13,10	3	5.7	Good	Fair		Good	Golden cultivar. Maintained at ~4.5m height.	Possible minor canopy impacts from proposed renovation.	Retain*
OS2	No	Off-site	Yes	Apple (Domestic)	<i>Malus spp.</i>	~25,12,10,10	6	5.7	Fair	Fair		Good	Tent caterpillar damage, rooted ~1m from fence, overhangs subject property by ~2m.	Possible root impacts from proposed addition, potential minor canopy clearance.	Retain*
1737	Yes	On-site	Yes	Plum	<i>Prunus spp.</i>	15,12,10,9	6	5.5	Fair	Fair-poor	Suitable	Moderate	Large tear-out injury on primary stem, included bark in unions, pruning stubs.	Impacts from proposed addition.	X
1738	Yes	On-site	No	Red Alder	<i>Alnus rubra</i>	21	8	3.2	Fair-good	Fair	Suitable	Poor	Included bark in unions, some epicormic growth.		Retain
1739	Yes	On-site	Yes	European Hawthorn	<i>Crataegus monogyna</i>	19,15,15,14	7	6.3	Good	Fair	Suitable	Good	Scaffold limbs narrowly attached.		Retain
1740	No	On-site	Yes	Cherry	<i>Prunus spp.</i>	9,6,6,5,4,4,4,3	4	4.9	Fair	Fair-poor	Suitable	Moderate	Seam in primary stem with sap ooze—tortrix activity likely, included bark in unions, branches attached in close proximity.		Retain
1741	Yes	On-site	Yes	European (Silver) Birch	<i>Betula pendula</i>	28,20	7	7.2	Good	Fair	Suitable	Poor	Included bark in unions, slight girdling injury on 20cm stem.		Retain



Tree Protection Barrier



NOTE: Building material must not be stored within or against the protection barrier.

IMPACT MITIGATION

ARBORIST SUPERVISION

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All excavations within the CRZs of off-site trees OS1 and OS2.

PRUNING ROOTS

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BARRIER FENCING

The areas surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zones.

The barrier fencing must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing. The fencing must be erected prior to the start of any construction activity on site (i.e. demolition, excavation, construction), and remain in place through completion of the project. Signs should be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.

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- Placing a layer of geogrid (such as CombiGrid 30/30) over the area to be used and installing a layer of crushed rock to a depth of 15 cm over top or a layer of hog fuel or coarse wood chips at least 30 cm in depth and maintaining it in good condition until construction is complete.
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- Placing two layers of 19mm plywood.
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DEMOLITION OF THE EXISTING BUILDING

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PAVED SURFACES ABOVE TREE ROOTS

If the new paved surfaces within the CRZs of retained trees require excavation down to bearing soil and significant roots are encountered in this area, this could impact the health or stability of the retained trees. If tree retention is desired, the following recommendations should be followed.

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Ultimately, a geotechnical engineer may be consulted and in consultation with the project arborist, may specify their own materials and methods that are specific to the site's grading, soil conditions and requirements, while also avoiding root loss, reducing compaction to the sub-grade and ensuring the most long-term aeration and permeability.

MULCHING

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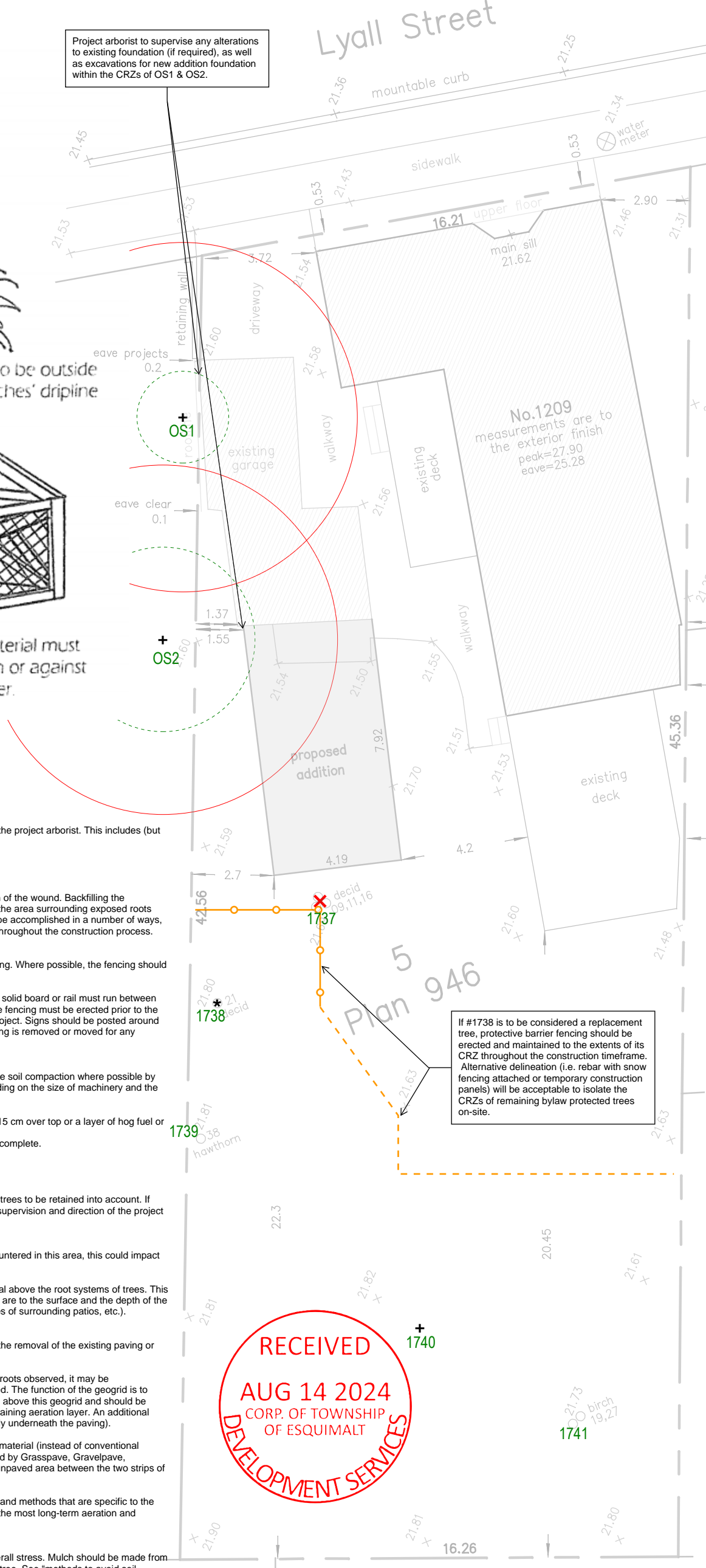
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 - Locating the barrier fencing
 - Reviewing the report with the project foreman or site supervisor
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 - Reviewing and advising of any pruning requirements for machine clearances

REVIEW AND SITE MEETING

Once the project receives approval, it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any site clearing, tree removal, demolition, or other construction activity occurs and to confirm the locations of the tree protection barrier fencing.

Project arborist to supervise any alterations to existing foundation (if required), as well as excavations for new addition foundation within the CRZs of OS1 & OS2.



RECEIVED
AUG 14 2024
CORP. OF TOWNSHIP
OF ESQUIMALT
DEVELOPMENT SERVICES

LEGEND

- Existing tree with tag or ID number
- Crown spread diameter (m)
- Tree protection fencing
- Critical root zone radius (m)
- x Tree to be removed (proposed)
- + Un-surveyed tree (estimated loc'n)
- * Non-protected tree (undersized)

TREE MANAGEMENT PLAN

1209 Lyall Street
Esquimalt, BC

DATE: July 13, 2022
PREPARED FOR: Alayna Briemon
SCALE: 1:150 @ 11 x 17
PREPARED BY: Robert McRae (PN-7125A)

TALMACK URBAN FORESTRY CONSULTANTS LTD.
CONSULTING ARBORISTS
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EMAIL: tmr@turf.ca
www.turf.ca

TALMACK
URBAN FORESTRY
Consultants Limited

BC LAND SURVEYORS SITE PLAN OF:

Civic: 1209 Lyall Street

Legal Lot 5, Section 11,
Esquimalt District, Plan 946

Parcel Identifier: 004-774-701
in the Township of Esquimalt

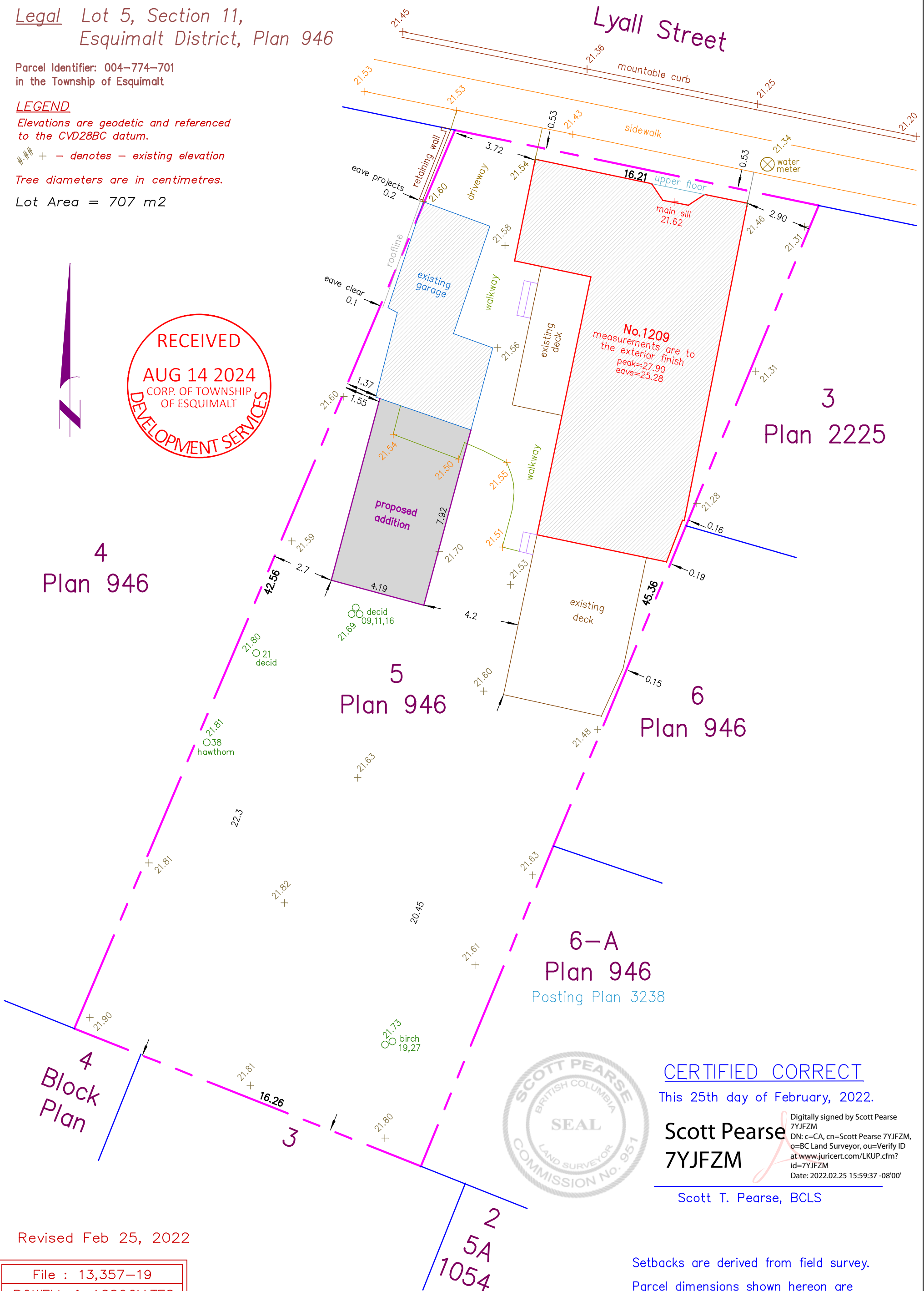
LEGEND

Elevations are geodetic and referenced to the CVD28BC datum.

+ - denotes - existing elevation

Tree diameters are in centimetres.

Lot Area = 707 m²

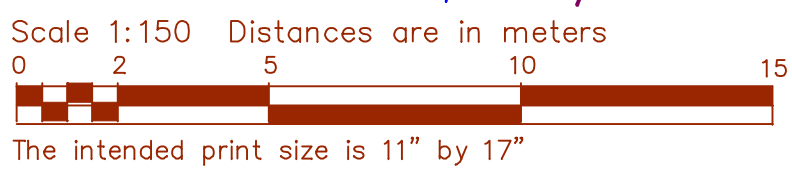


RECEIVED
AUG 14 2024
CORP. OF TOWNSHIP
OF ESQUIMALT
DEVELOPMENT SERVICES

CERTIFIED CORRECT
This 25th day of February, 2022.

Digitally signed by Scott Pearse
7YJFZM
DN: c=CA, cn=Scott Pearse 7YJFZM,
o=BC Land Surveyor, ou=Verify ID
at www.juricert.com/LKUP.cfm?
id=7YJFZM
Date: 2022.02.25 15:59:37 -08'00'

Scott T. Pearse, BCLS



File : 13,357-19
POWELL & ASSOCIATES
B C Land Surveyors
250-2950 Douglas Street
Victoria, BC V8T 4N4
phone (250) 382-8855

Setbacks are derived from field survey.
Parcel dimensions shown hereon are derived from Land Title Office records.
This document shows the relative location of the surveyed features and shall not be used to define property boundaries.

Revised Feb 25, 2022

TREE INVENTORY DEFINITIONS

Tag: Tree identification number on a metal tag attached to tree with nail or wire, generally at eye level. Trees on municipal or neighboring properties are not tagged.

NT: No tag due to inaccessibility or ownership by neighbour.

DBH: Diameter at breast height – diameter of trunk, measured in centimetres at 1.4m above ground level. For trees on a slope, it is taken at the average point between the high and low side of the slope.

* Measured over ivy

~ Approximate due to inaccessibility or on neighbouring property

Dripline: Indicates the radius of the crown spread measured in metres to the dripline of the longest limbs.

Relative Tolerance Rating: Relative tolerance of the tree species to construction related impacts such as root pruning, crown pruning, soil compaction, hydrology changes, grade changes, and other soil disturbance. This rating does not take into account individual tree characteristics, such as health and vigour. Three ratings are assigned based on our knowledge and experience with the tree species: Poor (P), Moderate (M) or Good (G).

Critical Root Zone: A calculated radial measurement in metres from the trunk of the tree. It is the optimal size of tree protection zone and is calculated by multiplying the DBH of the tree by 10, 12 or 15 depending on the tree's Relative Tolerance Rating. This methodology is based on the methodology used by Nelda Matheny and James R. Clark in their book "Trees and Development: A Technical Guide to Preservation of Trees During Land Development."

- 15 x DBH = Poor Tolerance of Construction
- 12 x DBH = Moderate
- 10 x DBH = Good

To calculate the critical root zone, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest stem and 60% of the diameter of the next two largest stems. It should be noted that these measures are solely mathematical calculations that do not consider factors such as restricted root growth, limited soil volumes, age, crown spread, health, or structure (such as a lean).



Health Condition:

- Poor – significant signs of visible stress and/or decline that threaten the long-term survival of the specimen
- Fair – signs of stress
- Good – no visible signs of significant stress and/or only minor aesthetic issues

Structural Condition:

- Poor – Structural defects that have been in place for a long period of time to the point that mitigation measures are limited
- Fair – Structural concerns that are possible to mitigate through pruning
- Good – No visible or only minor structural flaws that require no to very little pruning

Suitability ratings are described as follows:

Rating: Suitable.

- A tree with no visible or minor health or structural defects, is tolerant to changes to the growing environment and is a possible candidate for retention provided that the critical root zone can be adequately protected.

Rating: Conditional.

- A tree with good health but is a species with a poor tolerance to changes to its growing environment or has a structural defect(s) that would require that certain measures be implemented, in order to consider it suitable for retention (ie. retain with other codominant tree(s), structural pruning, mulching, supplementary watering, etc.)

Rating: Unsuitable.

- A tree with poor health, a major structural defect (that cannot be mitigated using ANSI A300 standards), or a species with a poor tolerance to construction impacts, and unlikely to survive long term (in the context of the proposed land use changes).

