



GYE + ASSOCIATES
Consultants in Urban Forestry and Arboriculture

Arborist Report for Development

Site Address: 861 + 865 Esquimalt Road
Esquimalt, BC

Date of Report: June 24, 2022
Revised March 14, 2024

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TREE SUMMARY

Tree Status	Total	To be RETAINED	To be REMOVED	To be PLANTED
On-site trees, bylaw protected	1	0	1	1
On-site trees, not bylaw protected	1	0	1	0
Municipal trees	4	2	2	1
Neighbouring trees, bylaw protected	8	4	4	9
Neighbouring trees, not bylaw protected	2	1	1	0
Total	15	7	9	11

Table-1 Summary Tree Statistics



ASSIGNMENT

Gye and Associates (G&A) have been retained to prepare a tree protection plan drawing and report in support of the owner's rezoning and development permit application. This report has been prepared in accordance with the City's Terms of Reference for Tree Preservation Reports as provided by the Parks Department.

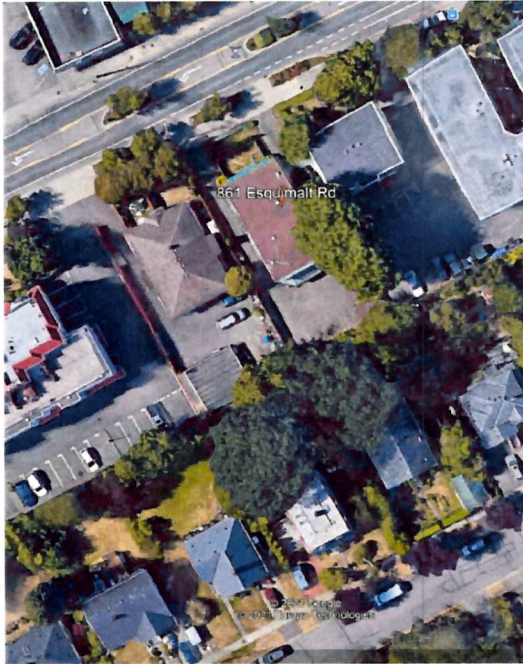


Figure 1. Contextual map

METHODOLOGY

- A site visit was made to identify, tag, measure, assess and document the condition of all trees on or about the site implicated by the proposed development. Biometric and assessment data are presented in Table-1 below.
- Protected Root Zone (PRZ) radii were calculated for the subject trees and plotted to scale on the Tree Management Plan drawing. The PRZ was calculated using a method recommended by Nelda Methany and James Clark, which considers the tree species' relative tolerance to disturbance, its biological age, and the diameter of tree at chest height.¹
- Preliminary design drawings were provided to the arborist to review, relevant elements of which are incorporated within the attached Tree Preservation Plan drawing, including the location of existing trees, proposed buildings, underground exterior walls & services and landscape features.

¹ Nelda Matheny and James R. Clark, Tree and Development, A Technical Guide to Preservation of Trees During Land Development (International Society of Arboriculture, Champaign IL, USA. 1998 P. 74)



Potential conflicts with protected trees were identified and brought to the attention of the broader design team to resolve where reasonably and practically possible to do so.

- A preliminary concept package for the project was provided to the Township of Esquimalt for review and comment. Comments from Esquimalt Parks with respect to tree preservation and management were received and incorporated into the current iteration of the project design.
- In March of 2024, plans for a revised submission were received and reviewed. Changes have been made to this report and the attached Tree Plan to reflect these changes.

OBSERVATIONS

SITE DESCRIPTION

The site currently supports one multi-family dwelling (Lot 861) and one single-family dwelling (Lot 865). The property is located on a busy road. Both properties have driveway access to the back of the property for on-site parking and outbuildings. Apart from the modest front yard setbacks, land cover for both lots is largely impervious. The terrain of each lot slopes gently down from Esquimalt Road toward the rear property boundaries.

TREE RESOURCE

Fifteen trees grow within or immediately adjacent to the proposed development site (see attached Tree Management Plan drawing).

- Three healthy street trees (all magnolias, tags M-1 through M-3) are situated on the boulevard fronting the lots between the curb and the sidewalk.
- Two on-site trees, one of which is bylaw-protected, grow on-site:
 - One multi-stemmed plum tree (Tag TR-9) is located in the south-east corner of Lot-861 at the base of the existing retaining wall. This tree exhibits good vigour but poor structure typical of unmanaged multi-stem examples of this species.
 - One unprotected White spruce (Tag TR-1216) is in the north-east corner of Lot-865.
- The remaining 10 trees are located off-site on three adjoining lots.
 - Five Lawson cypress trees, (tags OS-1211, 1212, 1213, 1214, and 1215) are located along the east boundary of Lot 861. These trees are located atop a 0.75 m- high retaining wall that is in poor condition. The roots of these trees are causing extensive damage to one of the two paved driveways accessing the back of Lot 861. There is also significant aerial encroachment of the crowns of these trees into Lot 861.
 - Two large mature Garry oak trees (tag OS-7 and 8) that exhibit good health and structure are located on the two residential lots abutting the south boundary of the site. Also located on these adjoining lots and close to the shared property boundary with the development site are a Flowering cherry tree (tag O-S4) and two Western Red cedars (tags OS-5 and 6), which provide valuable screening to and from the private back yards of the residences to the south.

Biophysical attributes for the above trees are presented in the following table:



D&A Tree ID	Common Name	Botanical Name	DBH (cm)	CRZr (m)	Crown Spread (m)	Tree Height (m)	Structural Condition	Health	Location/ Ownership	Retention Suitability	Construction Tolerance	Bylaw protected?	Comments	Action	Replacement Trees req'd
TR 9	Plum	<i>Prunus sp</i>	35	5	10	13	Fair	Good	On-site	Poor	Low	Yes	Multi-stemmed tree, screening function, out of the way.	Retain and protect	n/a
TR 1216	White spruce	<i>Picea glauca</i>	29	3	8	15	Good	Good	On-site	Good	Moderate	No		Remove	n/a
M 1	Oyama Magnolia	<i>Magnolia sieboldii</i>	16	2	6	7	Good	Good	Municipal tree	Good	Low	Yes	Conflicts with parkade entrance	Remove	1
M 2	Oyama magnolia	<i>Magnolia sieboldii</i>	15	2	6	7	Good	Good	Municipal tree	Good	Low	Yes	Between curb and sidewalk	Retain and protect	n/a
M 3	Oyama magnolia	<i>Magnolia sieboldii</i>	15	2	6	7	Good	Good	Municipal tree	Good	Low	Yes	Between curb and sidewalk	Retain and protect	n/a
M 4	Maple (Norway?)	<i>Acer sp (platanoides?)</i>	20	3	8	7	Good	Good	Municipal tree	Good	Moderate	Yes	Median tree - remove to facilitate access to site	Remove	1
OS 4	Flowering cherry	<i>Prunus sp</i>	20	3	10	13	Poor	Poor	Private off-site	Poor	Moderate	No	Low quality specimen	Retain and protect	n/a
OS 5	Red cedar	<i>Thuja plicata</i>	28	3	10	16	Good	Good	Private off-site	Good	Low	Yes		Retain and protect	n/a
OS 6	Red cedar	<i>Thuja plicata</i>	35	4	10	16	Good	Good	Private off-site	Good	Low	Yes		Retain and protect	n/a
OS 7	Garry oak	<i>Quercus garryana</i>	75	7	14	27	Good	Good	Private off-site	Good	High	Yes	High quality specimen Tree located by arborist	Retain and protect	n/a
OS 8	Garry oak	<i>Quercus garryana</i>	65	7	14	30	Fair	Fair	Private off-site	Good	High	Yes	Tree located by arborist	Retain and protect	n/a
OS 1211	Leyland cypress	<i>Cupressus x leylandii</i>	85	8	12	30	Fair	Good	Private off-site	Good	High	Yes	On top of shared poor condition retaining wall	Remove	3
OS 1212	Leyland cypress	<i>Cupressus x leylandii</i>	25	3	8	15	Poor	Poor	Private off-site	Poor	High	No	Suppressed by adjacent trees, On top of shared poor condition retaining wall.	Remove	n/a
OS 1213	Leyland cypress	<i>Cupressus x leylandii</i>	45	4	14	30	Fair	Good	Private off-site	Good	High	Yes	On top of shared poor condition retaining wall	Remove	1
OS 1214	Leyland cypress	<i>Cupressus x leylandii</i>	50	5	16	30	Fair	Good	Private off-site	Good	High	Yes	On top of shared poor condition retaining wall	Remove	2
OS 1215	Leyland cypress	<i>Cupressus x leylandii</i>	70	7	12	30	Fair	Good	Private off-site	Good	High	Yes	On top of shared poor condition retaining wall	Remove	3

Note: Off-site trees have been plotted in their approximate locations by the arborist.

Table-2 Tree inventory data



PROPOSED DEVELOPMENT

Consolidation of the two existing residential lots and redevelopment of the resulting new building lot is proposed, including demolition of the existing structures and construction of a new six-unit multi-family building with above-ground parking in the rear yard. Access to two levels of underground parking is provided off Esquimalt Road at the north-east corner of the site. Underground services and utilities will enter the site from Esquimalt Rd. The existing storm water main that currently runs south from Esquimalt Road between the two existing lots and then over to the south-west corner of Lot-865 will be realigned to travel down the west side of the new lot.

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

ANTICIPATED TREE REMOVALS AND MITIGATION MEASURES

Construction of the new six-plex building will result in the loss of 6 protected trees: the four protected Leyland cypress trees in the group of five growing along the property boundary with the neighbour to the east, and three of four municipal boulevard trees fronting the site and in the median of Esquimalt Road.

Leyland cypress “boundary” trees:

Large surficial roots from the Leyland cypress trees are cracking and heaving the adjacent asphalt driveway access into existing Lot 861. The crowns of the trees extend well into the proposed building footprint and are not amenable to crown reduction pruning of the magnitude required. The distance from the base of the trees to the edge of the building excavation, assuming vertical shoring, is only 1.6 m, which is inside of the critical root plate radius and close to the zone of rapid root taper. Excavation this close to the trees will destabilize the trees, with the likelihood of failure and impact *very likely* with consequences ranging from *significant* to *severe*, depending upon which of several high-value targets are struck.² For these reasons, all five of these trees are recommended for removal and replacement.

A tree growing across property boundaries is considered in law to be “held in common” between the two property owners; as such, the consent of both owners is required if the removal of a boundary tree is desired. Prior to rezoning or a development permit being granted, the Township of Esquimalt will require written authorization from the co-owner of the Leyland cypress trees for their removal. Further, the Township’s tree bylaw requires that replacement trees be planted on the same property from which the associated trees were removed. In this instance, nine replacement trees are required to mitigate the loss of the four protected cypress specimens, but it is unclear on which property the replacement trees should be planted. Assuming permission for the tree removals is obtained, it is recommended that the replacement trees be divided more or less evenly between the two properties.

Municipal trees:

Road frontage improvements and site servicing will necessitate the removal of two municipal trees (M-1 and M-4): one magnolia growing on the fronting boulevard that conflicts with the

² These ratings are derived using the TRAQ protocol in current use by the International Society of Arboriculture.



proposed parkade entrance and one maple growing in the street median that conflicts with changes to the traffic pattern associated with the development.

RETAINED TREES AND PROTECTION MEASURES

Two municipal boulevard tree (M-1) is proposed for retention and protection. Arborist supervision shall be provided for all frontage works undertaken by the applicant within or adjacent to the protected root zone of this tree. Tree protection fencing and caution-signage shall be erected to the satisfaction of the Township, as indicated on the attached plan, prior to site work commencing.

All but one of the remaining trees to be preserved are located on the two adjoining lots to the south of the site. These include two mature Garry oaks (OS-7 and 8), which are located a safe distance back from the boundary, and two established Western Red cedars (OS-5 and 6) and a small Flowering cherry (OS-4). A small plum (TR-9) located at the south-west corner of the site. These latter four trees all grow very close to a concrete retaining wall that divides the proposed development site from the two adjoining properties. The wall manages a grade change up to the site of approximately 1.5 m measured at the intersection of the three property boundaries. If this retaining wall has been properly constructed with a footing on a competent subgrade, there is a good chance that it will have prevented any migration of tree roots into the proposed site. If this supposition holds true, it will dramatically reduce any potential impacts arising from the proposed development to these trees. For this reason, the project intends to maintain and protect this retaining wall *in situ* if possible. To this end, it is recommended that the existing grade north of the wall be maintained or restored once the parkade wall has been constructed (see below).

Tree protection fencing and caution-signage will be emplaced to prevent any encroachment into the sensitive area between the proposed south parkade wall and the existing retaining wall without the presence of the project arborist.

Excavation for the parkade along the south side shall be supervised by the project arborist.

In addition to the above, at the recommendation of the project arborist, the south parkade wall has been shifted north by 1.3 m away from the wall and trees. Care is required to safely excavate the foundation of the parkade along this wall, while minimizing encroachment toward the retaining wall. The depth of soil to bedrock is considered to be 3 – 4 m at the south end of the site. Backsloping will be required to safely attack the bedrock beneath. Shotcrete and soil nailing may also be required. The bedrock will be line-drilled. Alternate rock removal techniques will be employed where possible. Where blasting is required, best practices will be deployed to minimize impacts to the existing retaining wall that the off-site trees adjacent to it, including the following:

- A pre-construction meeting between the general contractor, rock removal contractor and the project arborist to develop a least-impactful rock removal work plan;
- Line-drilling to minimize overbreakage,
- Use of dynamite in place of ammonium nitrate (less toxic to tree roots),
- Creation of a relief zone for the blast wave away from the retaining wall and trees,



- A drilling and blasting plan that uses smaller charges and minimizes peak particle velocity,
- “Decking” of explosive charges to sequence the demolition of the charge,
- Deployment of seismometers to measure and record peak particle velocity along the sensitive areas.

Additional tree protection measures to limit impact related to demolition, site preparation, construction and landscaping include the following:

- **Pre-demolition and construction meetings:** Prior to the release of a demolition or building permit by the City, the applicant and the applicant's general contractor are required to meet on site with the project arborist to review the Tree Preservation Plan in detail. The purpose of the meeting is to systematically review the objectives of the plan and the measures required to protect trees designated for retention during the demolition, site preparation, construction and landscape phases of the project. Areas for material storage, on-site trades parking (if any) shall be identified. The tree protection fencing shall be laid out and standards for fencing and signage confirmed. The meeting also provides an opportunity to address any logistical constraints and answer questions.
- **Tree Protection Fencing:** All tree protection areas (TPAs) shall be fenced to prevent soil compaction, rutting and other forms of disturbance within the PRZ. If more working room inside the TPAs is required, the project arborist shall be consulted. If the arborist authorizes fencing to be altered in order to facilitate more working room, the exposed portion of the root zone (now) outside the fencing must be protected to prevent soil disturbance. Acceptable soil-protection materials include steel plates or 200mm of compacted road base on top of geo-textile cloth or two overlapping layers of $\frac{3}{4}$ " plywood.
- **On-site Supervision:** All excavation, trenching or rock removal (including blasting) within or adjacent to TPAs shall be supervised by the project arborist, including trenching for both municipal service connections and extension of these underground services to the house. Where considered necessary by the arborist, hand-digging and pneumatic or hydraulic excavation techniques shall be used in place of mechanical excavation.
- **Tree Pruning:** The project arborist shall prune any tree roots or branches damaged during any phase of the project.
- **Regular Compliance Monitoring:** The project arborist shall develop a schedule of inspections with the general contractor to resolve emergent tree conflicts, ensure tree protection fencing remains in place and in good condition and that all applicable tree protection measures are being observed. Brief field inspection reports shall be provided by the arborist to the general contractor and the Township's municipal arborist documenting all site inspections and on-site work by the project arborist.
- **Pre-construction meeting for the landscape phase:** Landscaping activities, such as trenching for irrigation or lighting, grubbing of vegetation, distribution of soils and other landscape materials – are a significant potential source of damage to the sensitive soils and root systems of protected trees. Prior to any site preparation or construction activity for landscaping, the landscape and general contractor shall meet with the project arborist to review the tree protection plan and measures associated with landscaping.



- The arborist shall supervise all landscape activity within the tree protection areas.
- **Post-construction review, remediation of deficiencies and documentation:** At completion of the redevelopment, the arborist shall ensure that any tree protection or restoration deficiencies are addressed by the owner and building contractor. Once all deficiencies have been repaired, the arborist shall prepare a letter to the Township of Esquimalt confirming successful completion of the project, including resolution of any deficiencies.

Additional detail is provided on the attached tree plan. If diligently implemented, the tree protection measures specified in the Tree Management Plan and this report will effectively preserve the designated protected trees for the long-term benefit of the homeowner and community.

ROLE OF THE PROJECT ARBORIST

In addition to assisting with tree preservation planning during the design and permit application phases of the project, the responsibilities of the arborist during the construction and landscape phases of the project are described below:

The main role of the project arborist is to assist the contractor to successfully preserve all trees, on- and off-site, designated for retention as a condition of the building permit. The following is a summary of the key interventions required by the arborist (G&A). **The owner's building contractor is responsible for coordinating with the project arborist for all required on site work, including the following:**

1. Pre-construction meeting,
2. On-site supervision when working around TPAs.
3. Pre-blasting workplan meeting
4. Pre-landscape workplan meeting
5. Periodic site monitoring to ensure ongoing compliance with tree protection measure
6. Post-construction inspection and report to the City of Victoria.

End report

Prepared and submitted on behalf of Gye and Associates, Urban Forestry Consultants Ltd.

Jeremy Gye – Senior Consultant

Gye and Associates, Urban Forestry Consultants Ltd.

Consulting Arborist (Diploma, American Society of Consulting Arborists, 1997)

ISA Certified Arborist (Certification No. PN-0144A)

ISA Certified Municipal Specialist (Certification No. PN-0144AM)

ISA Tree Risk Assessment Qualified (Current)



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ASSUMPTIONS AND LIMITING AND CONDITIONS

1. This report and the opinions expressed within it have been prepared in good faith and to accepted arboricultural standards within the scope afforded by its terms of reference and the resources made available to the consultant. The report provides no undertakings regarding the future condition or behavior of the trees reviewed within it. Tree hazard and condition assessments are not an exact science. Both qualities can and do change over time and should be reappraised periodically.
2. Any legal description provided to the consultant/appraiser is assumed to be correct. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
3. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.
4. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the information provided by others.
5. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
6. Loss or alteration of any part of this report invalidates the entire report.
7. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
8. This report and attached drawings remain the sole property of Gye and Associates, Urban Forestry Consultants Ltd., until all accounts have been paid in full.
9. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser—particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant/appraiser as stated in his qualifications.

TREE PRESERVATION MEASURES

- Site meeting to review Tree Plan, before excavation and site preparation begin. The owner and contractor shall meet with the arborist to review the placement of fencing and other tree protection measures within the plan.
- The Project Arborist shall clearly mark the boundaries of all areas to be fenced and protected.
- Access routes and areas for safe parking and materials storage will be defined with the contractor.
- Tree Protection
- a) Tree protection fencing shall be installed to the City of Esquimalt standards at the locations indicated on this drawing **2000L**1. Demolition or building permit being issued.
- b) Tree protection fencing and arbouring shall be maintained in good condition throughout the duration of the project.
- c) Requests to temporarily remove or move tree fencing must be reviewed by the project arborist for approval.
- d) Requests to temporarily remove or move tree fencing must be reviewed by the project arborist for approval.
- Soil arbouring. If it is not possible to fence the entire PHZ, the unprotected portion of the PHZ shall be arbouring with 3/4" plywood or a temporary cover of geo-textile and 200mm of road base, moderately compacted with a plate compactor. (See drawing for recommended soil arbouring locations.)
- Tree Management Plan posting
- a) A signed weather-proof copy of the tree plan shall be posted in plain sight in the site office.
- b) The general contractor shall ensure that all relevant sub-facts are familiar with the drawing and tree protection measures (TPMs).
- Site servicing and excavations
- a) The project arborist shall be present to oversee excavation, service trenching, stump removal, site grading or blasting within, or adjacent to, the tree protection areas (TPAs).
- b) The vertical face of excavated cuts within or adjacent to TPAs shall be securely covered with steel sheet piling reinforced with wire mesh.
- Mulching and irrigation of vulnerable trees. Off-site trees OS-4, OS-5 and OS-6 and Municipal Tree M-1 shall require immediate care during the dry season (April 1 - Nov 1).
- Apply top dressing of tree chip mulch (100mm) and irrigate bi-weekly to an effective depth of 300mm.
- Root & branch pruning and protection
- a) Any tree roots or branches damaged during site work shall be pruned back to undamaged tissue by the arborist.
- b) The vertical face of excavated cuts adjacent to the TPAs shall be securely covered with non-permeable fabric by the project arborist to prevent soil desiccation and erosion.
- Temporary access. If temporary access is required within a tree protection area (TPA), the contractor shall notify the project arborist in advance and review the access requirements and any additional protective measures prescribed by the arborist.
- Off-site Tree Removals. A letter of authorization shall be obtained by the applicant from the neighbouring land owner(s) for any off-site tree removals and then allocated replacements, as required by Bylaw, of the neighbour's property. Tree replacements must be also of the property associated with the corresponding tree removal.
- Replacement trees
- a) The project arborist shall be present to oversee the replacement of trees. Four protected boundary trees and two protected municipal trees (see Tree Inventory Table) shall be replaced with trees of similar or greater size and species. The replacement trees shall be planted in the same location as the original trees. The replacement trees shall be planted in the same location as the original trees. The replacement trees shall be planted in the same location as the original trees.
- b) In addition to replacements for the two municipal trees proposed for removal, the following arborist shall appraise the value of the existing trees, which will form the basis for the fee to be charged to the applicant to contribute to the following: 3 Tree Replacement and Maintenance Reserve.

SUMMARY TREE STATISTICS

CATEGORY	# OF TREES
Total number of trees indicated on Tree Management Plan	16
On-site trees	16
Boundary trees	1
On-site (Protected) Trees	1
On-site (Unprotected) Trees	1
Proposed protected tree removals:	
On-site tree	0
On-site trees with adjoining private property	0
Municipal boundary trees	2
Replacement Trees Required by Tree Bylaw	11

