



SouthShore Forest Consultants

Arborist Report

For

3145 Balfour Avenue
Victoria BC

City of Victoria Parks Department

Nov 4, 2020 – Revised June 12, 2021

Prepared for:

Dana Benson

Prepared by:

SouthShore Forest Consultants

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Incorporation # BC1069996 Ltd.

RE: 3145 Balfour Ave. Arborist Assessment & Tree Protection Plan (TPP)

Background/Scope of Work

SouthShore Forest Consultants was contacted by Dana Benson, a residential property owner. Dana has proposed to subdivide the lot and develop a single-family residential home behind the existing house. The property, located at 3145 Balfour Avenue is located in the City of Victoria. The property is in a well-established neighbourhood with a number of Bylaw Protected Trees located in and around it. Dana has indicated her wish to preserve and protected trees which are insignificantly impacted by the proposed development project. In this case the client is requesting that one (1) Bylaw Protected Tree be removed to accommodate the proposed driveway alignment.

Dana has requested that SouthShore Forest Consultants provide a Basic Visual Tree Assessment (VTA) and Tree Preservation Plan (TPP) for the site located at 3145 Balfour Avenue in the City of Victoria.

SouthShore Forest Consultants agreed to complete the field assessment and provide the findings in an Arborist Report form.

Methodology

On Friday October 30, 2020 the property was entered and assessed by SouthShore Forest Consultants. Michael Butcher, Consulting Arborist provided the inspection and visual tree assessment for the site. The weather that day was mild and sunny. A slight wind was detected and the temperature averaged 14 +/- degrees Celsius. The ground was semi saturated with heavy humidity.

The property and trees within this report were assessed from grade, the site was walked. No form of diagnostic tools or invasive techniques were used during the assessment. A “Basic Visual Tree Assessment” (BVTa) was performed while on site. All tree measurements were made with the use of a standard metal forestry tape and Clinometer (height measurements). Measurements and observations were recorded with the intent to provide a static representation of the area. A “Tree Inventory” is provided within the body of the report (Figure #1). Photographs of the site were taken during the assessment and these are included as Appendix “A” of this report.

During the assessment we observed, assessed and inventoried 24 trees located within the confines of the lot. The property owner does not require approval or permitting to manage non-protected private trees under the current city of Victoria Tree Preservation Bylaw. In this case, fifteen (15) trees are of Bylaw protected size and/or species. Trees were not tagged for identification. Tree locations within the site are positioned to the outer limits of the impact zone. The primary specimen a 20m long landscape hedge is a linear grouping of 18 Leyland cypress (*Cupressus x leylandii*). The cypress hedge is positioned along the south property line from the middle of the lot to its eastern corner. The hedge appears to have shared ownership.

Figure #1 – Tree Inventory

Tree Species	DBH cm	Ht m	PRZ m	Cond G, F, P	Impact Tolerance	Retain	Remove	Comments – Protection Notes
Hedge maple	65	20	8	F/F	M – outside impact zone	X		Provide tree protection for boulevard tree
Juniper sp.	26	3	4	F/P	H – tree to be removed		X	Non protected – Driveway footprint
Juniper sp.	39	16	5	F-F/P	H – tree to be removed		X	Bylaw Protected – Driveway footprint
Leyland Cypress	12-63	15	7	F-F/P	M – hedge to remain	X		Majority are Bylaw Protected Prune, Protect & Retain (18 trees)
H chestnut	63	13	7	F/P	M – outside impact zone	X		Private tree – provide tree protection, Bylaw Protected

Cypress hedge: 18 trees observed

Diameters in order West (front) to East (back);

DBH – cm: 63,25,35,35,36,37,56,26,23,46,36,38,24,41,12,29,45 & 56

Protected = 12 cypress

Non-protected = 6 cypress

Observations/Discussion

During the site assessment we observed a well-established residential lot in the City of Victoria. An existing single-family residential lot, the client has proposed to subdivide and develop in the rear of the site. Our observations of the site have determined that Bylaw Protected Trees are positioned within the zone or along the edge of impact. The existing structure will be retained. A pan handle driveway has been proposed to service the new lot. In this case our observations indicate that two (2) trees will require removal under the current proposal. The first a non-bylaw protected 26cm diameter, Juniper species (*Juniperus sp.*) and second a bylaw protected 39cm diameter, Juniper species. Each of these two trees will be directly impacted by the new driveway. Our observation indicates that impacts to each trees Critical Root Zone will be significant, thus requiring removal.

We observed a large landscape hedge composed of 18 Leyland cypress trees positioned along the southern property line. The hedge was observed to be healthy with normal leaf and branch expansion. The hedge was observed to have been pruned and sheered to create a landscape barrier between each of the properties. In this case the client is committed to protecting and preserving the hedge. Our observations indicate that the hedge should be pruned (sheered) prior to protection mitigation to allow for the installation of Tree Protection Fencing (TPF).

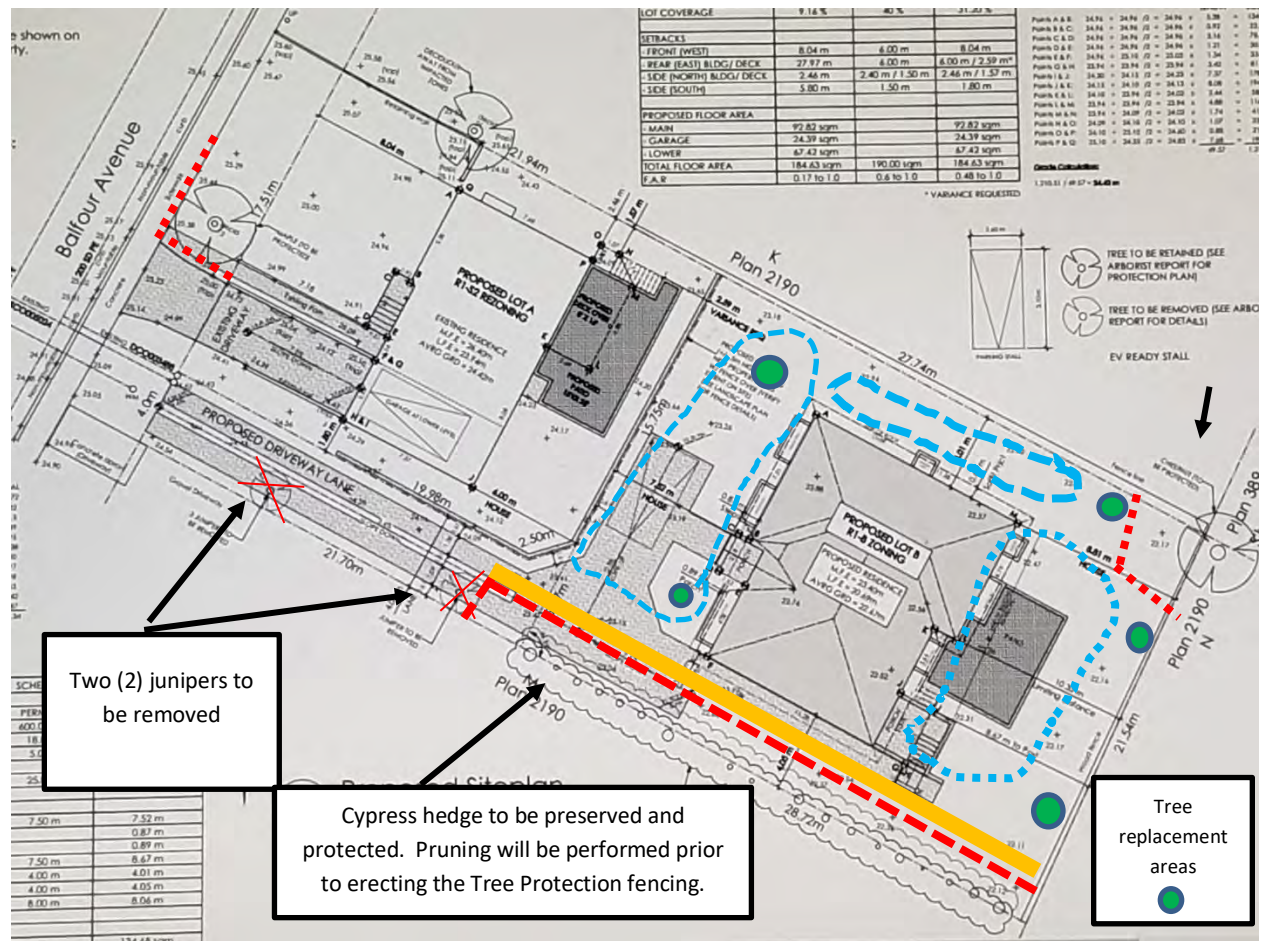
We observed a horse chestnut (*Aesculus hippocastanum*) positioned across from the N/E corner of the site. A private tree, it is positioned outside the impact zone. Our observations indicate that this tree will be protected and preserved. The chestnut tree is a bylaw protected tree positioned on a neighbouring property.

We observed a hedge maple (*Acer campestre*) positioned within the Municipal Right-of-Way in the front of the site. A public tree, it is positioned outside the impact zone. Our observations indicate that this tree will be protected and preserved. This maple tree is a bylaw protected tree and cannot be impacted by the construction event. Our observations indicate that the potential for further impacts into this trees Protected Root Zone (PRZ) could negatively affect this tree's root zone. Our observations indicate that removal of an existing sidewalk would not only impact the soil and rooting medium, it could damage structural roots associated with the maple tree. Our observations indicate that the maple tree is performing well in the existing landscape. Positioned outside the proposed constructive zone it makes no sense to proposed improvements which have the potential to negatively impact this tree.

Tree Protection Plan (TPP)

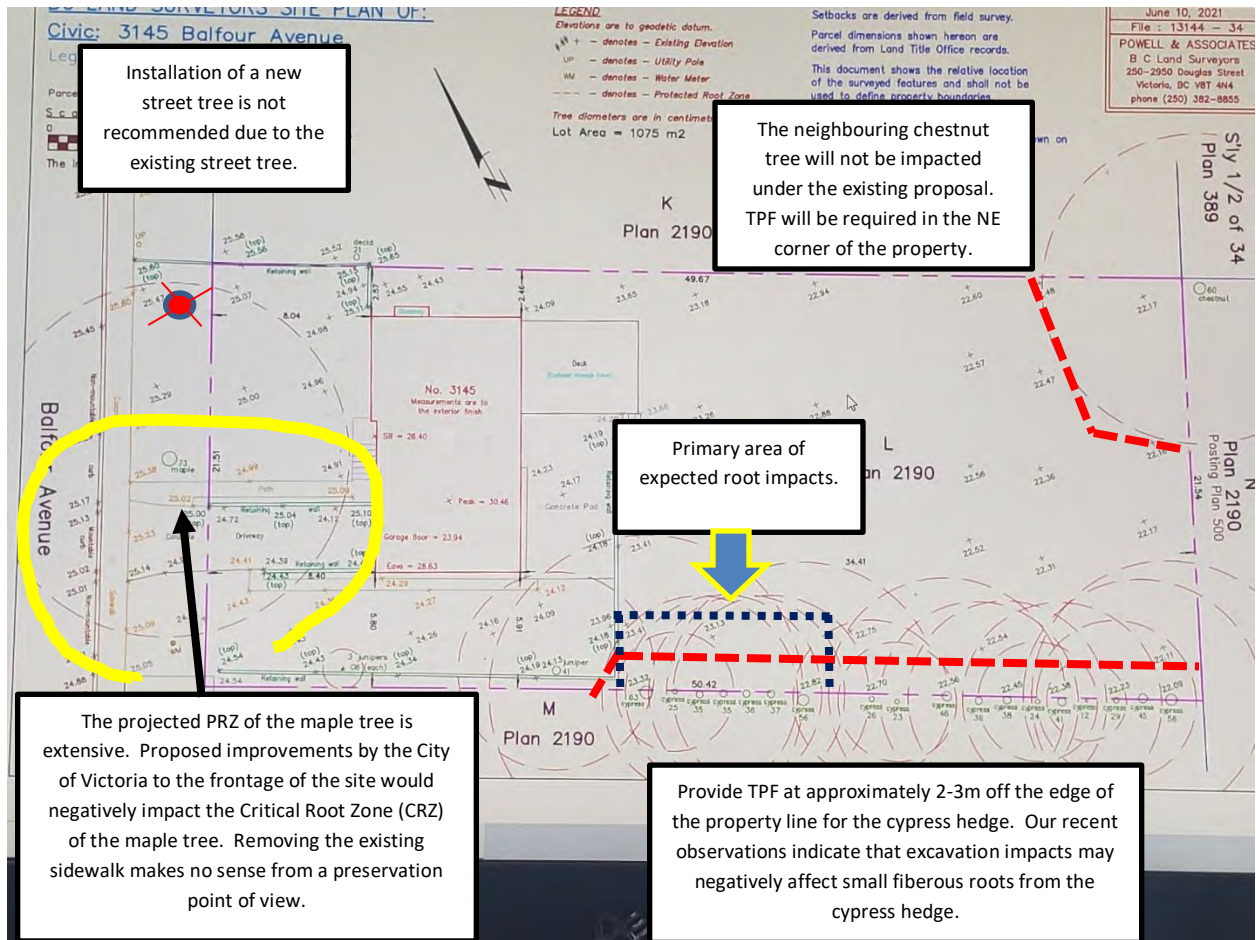
Photo #1 – Site Map – Tree Protection Fencing Plan

Tree Protection Fencing (TPF) is indicated with the red hatched lines. TPF must be erected and inspected by Project Arborist to ensure conditions are met.



In this photo the staging and materials storage area is identified by the solid blue line. Three (3) areas can be utilized during the development event. The solid orange line indicates an area along the edge of the protection zone which will require the addition of hog-fuel and/or wood chips. Placement of wood chips will reduce root and soil compaction.

Photo #2 – Tree Positioning & Protected Root Zones (PRZ)



Our observations of the proposed driveway approach and utility corridor indicate that there will be minor to moderate impacts to the western side of the cypress hedge. The trees are elevated (raised) above the existing grade which may reduce root formations into the client's side of the property. The Project Arborist will be responsible for the assessment and preparation of root pruning and preservation. Hand digging or alternative root exposure methodology may be required.

Tree Protection Plan (TPP) -

- Provide pruning to reduce side foliage on the cypress hedge. Reduce foliage by 25 to 35 cm along the client's side of the property. Pruning must be performed prior to the demolition phase of the project. **(Step 1)**
- Provide tree protection fencing as illustrated in Figure #1 Site Map. All tree protection fencing will meet or exceed the requirements established by the City of Victoria. Provide signage on each section of TPF. Signs shall state "Tree Protection Zone – Do Not Enter". Signs shall be placed on fencing in a visible location. **(Step 2)**
- Project Arborist shall inspect and verify TPF construction and positioning prior to demolition or construction. Project Arborist will contact City of Victoria Parks Staff to verify that the TPF is completed and ready for inspection.
- Provide hog-fuel and/or wood chips to reduce mechanical and material compaction during the event. Place materials at a depth of 20cm over grade in the area identified in Figure #1 Site Map. Place along the outside of the TPF which aligns the cypress hedge. Project Arborist will verify and approve the positioning and depth of materials. **(Step 3)**
- Provide Project Arborist to be on site during the driveway excavation and grading along the cypress hedge. Provide excavation with the use of a small rubber tracked machine. In this case we expect tertiary and small secondary root bundles to be impacted.
- Provide hand, air spade or hydrovac excavation if large structural roots are exposed. In this case we expect no structural roots to be exposed.
- Provide Project Arborist to assist with root pruning, root removal and documentation.
- Provide alternative paving materials for the driveway pad. Pervious pavers, porous concrete, "Hollywood" design or grass pavers.
- **Ensure that the driveway construction is performed in the final stages of the project.**
- **Provide supplementary irrigation and fertilization during summer and drought conditions.**

Landing/Storage/Staging Area

- Materials storage will be confined to three (3) areas of the site. Please refer to Figure #1 – Site Map
- This will help confine compaction issues which could be expected within the site.
- At no time will materials be staged and/or stored in the Municipal Right-of-Way to the front of the site.

Compaction Reduction

- Utilize "hog-fuel" / wood mulch along the outside of the primary tree protection zone (cypress hedge). This will reduce the impacts to the trees Critical Root Zone (CRZ). Place hog-fuel or wood mulch at a depth of no less than 20cm. Spread materials to cover area the proposed driveway alignment.

Root Assessment and Observation

- Provide Project Arborist for excavation observation and assessment when working with in the Protected Root Zone (PRZ) of any tree identified for retention. In this case the Project Arborist will be responsible for monitoring impacts related to excavation and grading requirements during the project. The cypress hedging is primary area of concern for this project.

Although the site has been assessed, trees in the landscape are dynamic and changes could occur. This report is a static representation of the site during our assessment.

Recommendations

- ✚ Provide detailed tree protection measures for three (3) locations within the site.
- ✚ Provide tree protection fencing which meets or exceeds City of Victoria tree preservation requirements.
- ✚ Provide Project arborist to assess and monitor all excavate which is identified to impact Bylaw Protected Trees. The client will be responsible for coordinating and scheduling the Project Arborist on site during all excavation and tree root conflicts.
- ✚ Provide Project Arborist to prescribe and assess excavation and root pruning.
- ✚ Provide an alternative driveway paver, and/or porous material to allow for improved soil aeration.
- ✚ Project Arborist will verify Tree Protection Fencing location and construction.
- ✚ Provide alternative excavation methodology if root impacts are observed to be higher than anticipated (hydro or compressed air).



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ATTACHMENTS

- Figure #1 – Site Map
- Appendix A – Site Photos

Arborist Disclosure Statement:

Arborist are tree specialists who use their education, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risks.

Arborist cannot detect every condition that could possibly lead to structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below the ground.

Arborist cannot guarantee that the tree will be healthy and safe under all circumstances, or for a specific period of time. Trees are dynamic specimens, not static. Changes in conditions including the environment are unknown.

Remedial treatments cannot be guaranteed.

Trees can be managed, but they cannot be controlled. The only way to eliminate all risk is to eliminate all trees.

Tree Assessment Condition Rating

- Good - A tree specimen which is exempt defects, branch dieback, moderate insect and fungal identification. This tree has evenly distributed branching, trunk development and flare. The root zone is undisturbed, leaf, bud and flower production and elongation are normal for its distribution.
- Fair - A tree specimen which has minor defects, branch dieback, previous limb failure, identification of cavities and insect, or fungal identification. This tree has multiple (2-3) primary stem attachments; previous utility pruning, callus growth and poor wound wood development. Minor root girdling, soil heave and identifiable mechanical damage to the root flare or root zone.
- Poor- A tree specimen where 30-40% of the canopy is identifiably dead, large dead primary branching, limited leaf production, bud development and stem elongation. Limb loss or failure, and heavy storm damage leading to uneven weight distribution. Large pockets of decay, multiple cavities, heavy insect and fungal infection. Root crown damage or mechanical severing of roots. Root plate shifting, heavy lean and movement of soil.
- Dead- Tree has been observed to be dead with no leaf, foliar and bud development. No stump sprouts and root suckers are present.

Excavation Process and Recommendation for Tree Root Zones

1. Provide and schedule Project Arborist to assess site prior to construction.
2. Inventory and identify trees and hazards which could complicate excavation process.
3. Utilize hand tools and cutting equipment when large tree roots are anticipated.
4. Provide small rubberized track excavation equipment which will reduce soil compaction.
5. Excavator operator must be well informed about dig site and goal to complete project.
6. Use shallow excavation sweeps across the site to establish a depth which roots can be easily identified. (3cm to 5cm in depth of soil for each sweep across the soil face)
7. Roots greater than 6cm in diameter should be preserved and inspected by the Project Arborist. The project arborist will determine if roots should be pruned or cut.
8. All roots greater than 6cm in diameter should be identified and documented for project records.
9. Photos are highly recommended for documentation purposes.

Assessment of the site may expose further tree issues or conditions. If this occurs the project arborist will contact City of Victoria Staff for further recommendations.

In this case the use of a small excavator with a grading bucket will be sufficient to prepare the grade for the driveway alignment. Project Arborist Must be present during excavation slated for the driveway portion which aligns the cypress hedge.

Tree Protection Plan

- i. **Provide a detailed sign specifying that tree protection measures are in place and will be followed during the project. Fines will be posted for malicious acts and can be placed on individuals who disregard the tree protection plan and its guidelines. Signs will be placed at each entrance of the project detailing what is expected when working in potentially high impact tree protection zones.**
- ii. **Provide tree protection fencing for all trees identified with protection requirement in this report. This fencing shall be four (4ft) feet in height and made of orange plastic. If required, header and footer boards will be used to secure the protective fencing. Use the City of Victoria tree protection specifications.**
- iii. **Tree protection and root protection signs will be placed on the fencing. No entry will be allowed, unless specified by the project arborist and in their presents while on site.**
- iv. **Restrict vehicle traffic to designated access routes and travel lanes to avoid soil compaction and vegetation disturbances.**
- v. **Make all necessary precautions to prevent the storage of material, equipment, stockpiling of aggregate or excavated soils within tree protection areas. No dumping of fuels, oils or washing of concrete fluids will be allowed in tree protection zones.**
- vi. **Provide an onsite arborist when a risk of root damage, root cutting or limb removal is required within the tree protection zone.**
- vii. **Avoid alterations to existing hydrological patterns to minimize vegetation impacts to the site.**
- viii. **The use of a project arborist is required to provide layout of tree protection zones. The project arborist(s) will provide pre-construction information to all parties involved with the project. The arborist must be notified 48hrs prior to construction activities in sensitive areas. The project arborist should be used to provide root and branch pruning when diameters are greater than 6cm.**
- ix. **At no time will tree protection zones be removed from the project unless approved by the project arborist.**

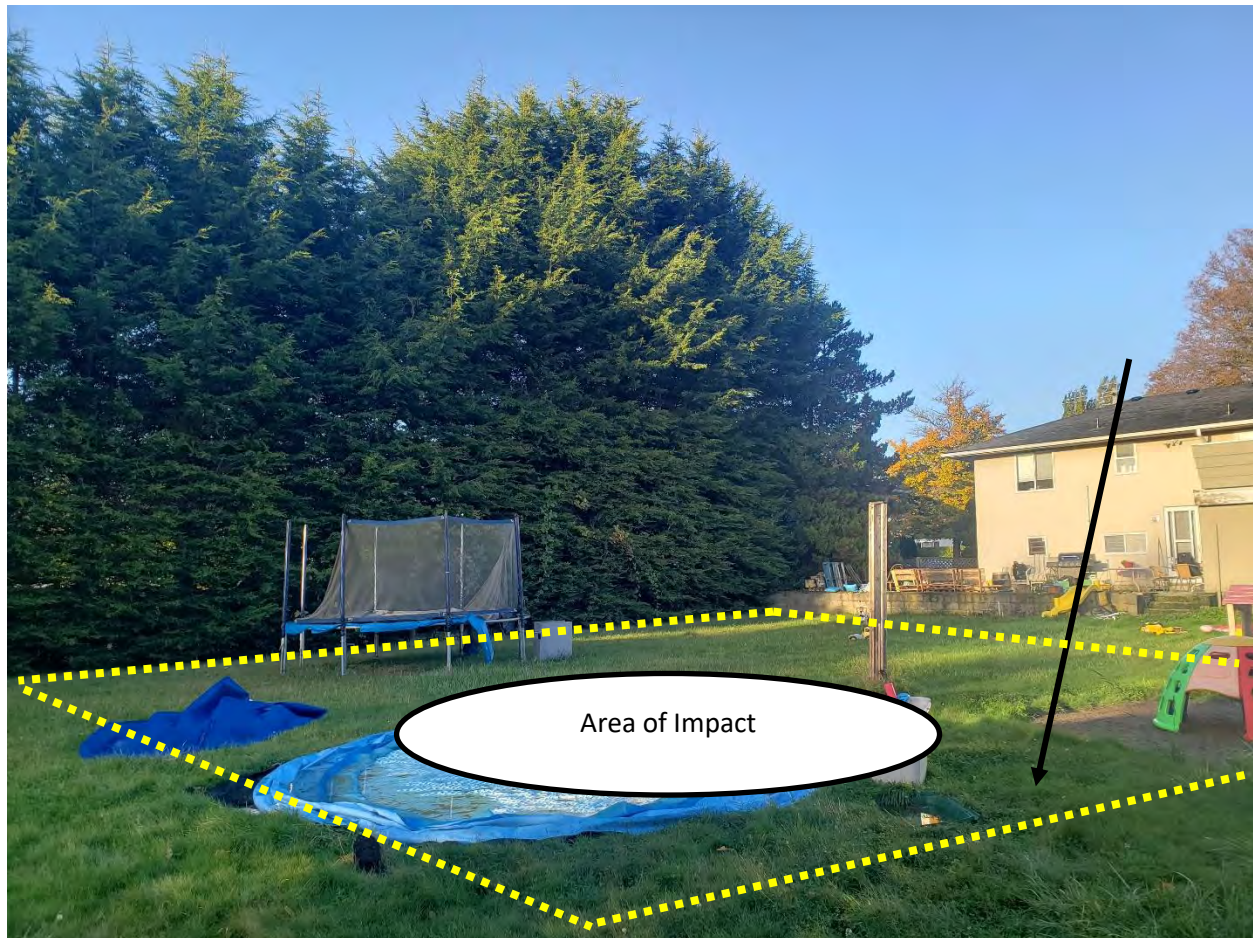
Appendix “A” – Site Photos

Photo #1 – Tree Protection Fencing & Signage



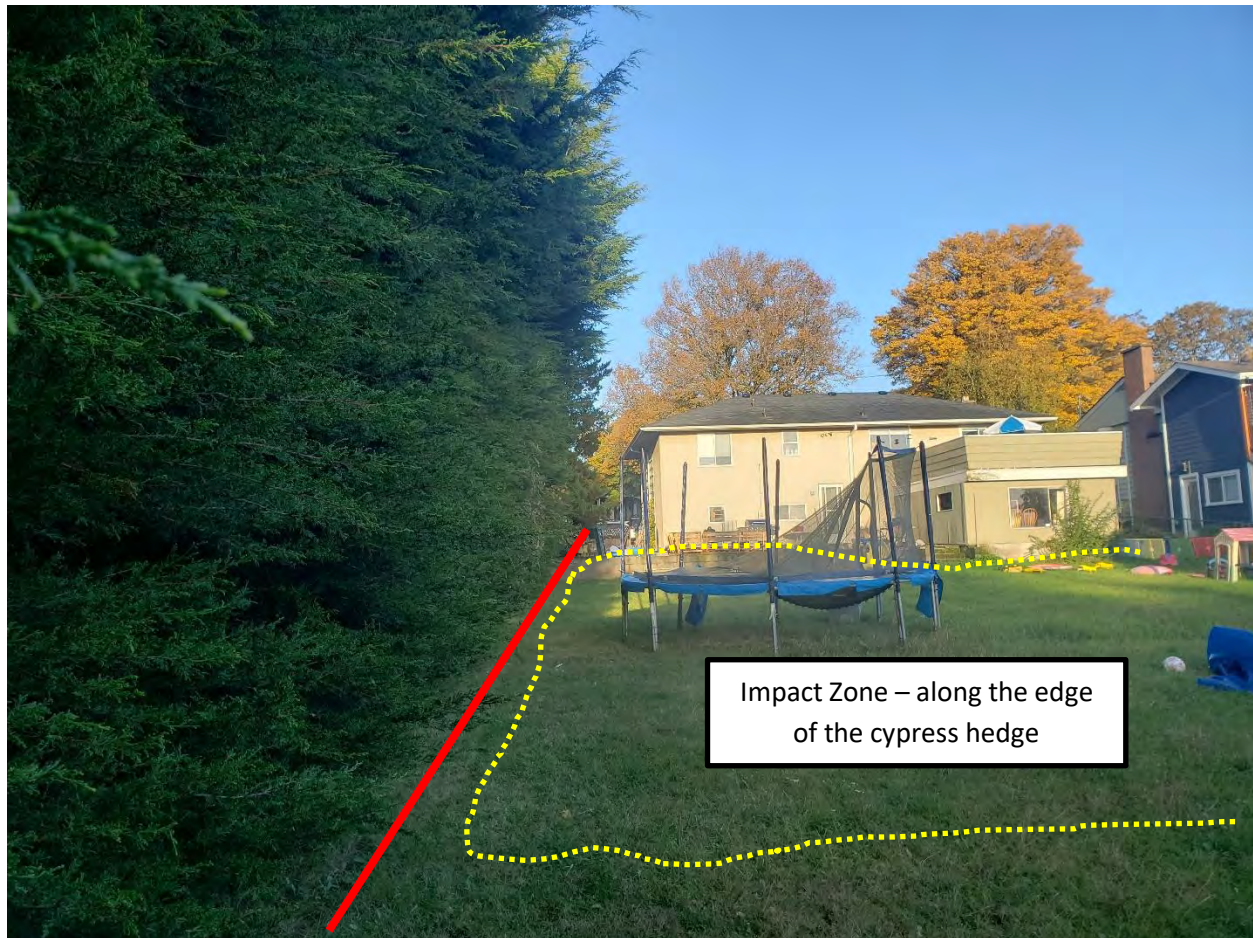
In this photo you can see an example of an acceptable tree protection fencing barrier. Ensure that the TPF is posted with the proper signage.

Photo #2 – Rear of Lot – Proposed New Lot & Cypress Hedge on South Property Line



In this photo you can see where the proposed footprint of the new structure will be located. In the background you can see the cypress hedge. The hedge is the only retained tree(s) which will be impacted by the development.

Photo # 3 – Driveway alignment & Cypress Hedge



In this photo you can see the positioning of the cypress hedge to the impact zone. The driveway alignment will be positioned approximately .50m from the edge of the hedge foliage. Pruning the hedge back by 25cm to 35cm will provide greater distance for constructive activity and TPF requirements.

Photo # 4 – Proposed Pan-Handle Driveway



In this photo you can see the yellow lines indicating the driveway alignment into the rear yard. The red hatched lines indicate the edge of the pruning requirements to ensure clearances are sufficient for egress into and out of the site.

Photo # 5 – Proposed Driveway Alignment



In this photo you can see the juniper tree identified for removal. The yellow lines indicate that approximate edge of the driveway alignment.

Photo #6 – Rear Yard – N/E Corner of Site – Horse Chestnut



In this photo you can see the positioning of the chestnut tree off site. A portion of the trees PRZ is near the zone of impact. The red solid line indicates the approximate positioning of the TPF. The yellow solid line indicates the zone of impact.