

**TALMACK**  
URBAN FORESTRY

**522 Saint Charles Street, Victoria, BC**

**Subdivision Impact Assessment &  
Tree Management Plan**

PREPARED FOR: Zebra Group

PREPARED BY: Talmack Urban Forestry Consultants Ltd.  
Noah Talbot – Consulting Arborist  
ISA Certified # PN-6822A  
Tree Risk Assessment Qualified

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# REVISION RECORD

REVISION	DESCRIPTION	DATE (YYYY-MM-DD)	ISSUED BY
0	Original TPP report for the proposed subdivision.	2021-12-21	NT
1	Revision to Original TPP report dated 2021-12-21 to reflect review of the updated architectural package and civil plan.	2024-01-02	NT
2	Revision to Original TPP report dated 2024-02-01 to reflect review of the updated architectural package and civil plan.	2024-02-01	NT

# 1. INTRODUCTION

Talmack Urban Forestry Consultants Ltd. was asked to complete a tree inventory, construction impact assessment and management plan for the trees at the following proposed project:

Site:	522 Saint Charles Street
Municipality	City of Victoria
Client Name:	Zebra Group
Dates of Site Visit:	March 26, 2021
Site Conditions:	1 lot with an existing residence. No ongoing construction activity.
Weather During Site Visit:	Overcast

The purpose of this report is to address requirements of the City of Victoria arborist report terms of reference, and Tree Preservation Bylaw No. 21-035. The construction impact assessment section of this report (section 8), is based on plans reviewed to date, including the Architectural site plan dated 2024.01.30 (By Zebra Group), and preliminary servicing plan dated 2024.01.31 (by Hoel Engineering).

# 2. TREE INVENTORY METHODOLOGY

Prior to our site visit we were provided surveyed tree locations by Powell & Associates. For the purpose of this report, the size, health, and structural condition of trees was documented. For ease of identification in the field, numerated metal tags are attached to the lower trunks of onsite trees. Trees located on the municipal frontage or in areas where access was restricted, were not tagged. Each tree was visually examined on a limited visual assessment basis (level 1), in accordance with Tree Risk Assessment Qualification (TRAQ) methods (Dunster *et al.* 2017) and ISA Best Management Practices.

# 3. EXECUTIVE SUMMARY

Based on review of the architectural site plan and civil servicing plans provided, 3 onsite bylaw protected trees, and 1 municipal tree will require removal to facilitate construction of the proposed new residence on lot A and new frontage improvements. 2 onsite bylaw protected trees and 1 municipal tree are located where they will require removal due to impacts associated with the frontage improvement requirements. The remaining onsite trees and offsite trees (within influencing distance of the proposed development) are located where they can be retained, provided that the mitigation methods outlined in the report are followed.

The tree replacement plan (T2) shows conceptual locations for 1 Large size replacement tree on Lot A, and 4 small size replacement trees on Lot B. If the site cannot accommodate the required quantity of tree plantings, any planting shortfall will be provided to the City via a cash in lieu payment by the owner.

## 4. 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 municipality or 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).

**Retention Status:**

- Remove – Not possible to retain given proposed construction plans
- Retain – It is possible to retain this tree in the long-term given the proposed plans and information available. This is assuming our recommended mitigation measures are followed
- Retain \* - See report for more information regarding potential impacts

Table 1. Tree Inventory

Tag or ID #	Surveyed ? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected ? (Yes/No)	Name		dbh (cm)	Critical Root Zone Radius (m)	Dripline radius (m)	Condition		Retention Suitability (onsite trees)	Relative tolerance	General field observations/remarks	Tree retention/location comments	Retention status
				Common	Botanical				Health	Structural					
M1	Yes	City	Yes	Japanese katsura	<i>Cercidiphyllum japonicum</i>	48	6	4.5	Fair	Fair		Moderate	Municipal object ID 12241, site ID 21213. Pruning wounds, decay in stem nearest driveway. Small hangers.	Will be impacted by excavation required to install the proposed new curb and gutter.	Remove
M2	Yes	City	Yes	Japanese katsura	<i>Cercidiphyllum japonicum</i>	55	6.9	5	Fair	Fair		Moderate	Municipal object ID 12240, site ID 21212. Small hanger, restricted growing space, decay in old tearout injury.	Located within the footprint of the proposed driveway.	Remove
282	No	On	Yes	Crabapple	<i>Malus spp.</i>	25, 16	3.6	2.5	Fair	Fair	Suitable	Good	Deadwood, epicormic growth.	Located within the footprint of the proposed municipal sidewalk.	Remove
283	Yes	On-	No	Honey Locust	<i>Gleditsia tricanthos</i>	23	2.4	4	Fair-poor	Fair-poor	Suitable	Good	Surface decay at base, tearout injuries (overhanging driveway).	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
NT1	No	On	No	California Lilac	<i>Ceanothus spp.</i>	10, 10, 9	2.7	2.5	Fair	Fair	Suitable	Moderate	Large shrub next to fence, driveway.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
NT2	No	On	No	English Laurel Hedge	<i>Prunus laurocerasus</i>	>7	0.74	1	Fair	Fair	Suitable	Good	Small hedge next to property fence.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
284	No	On	No	Deodar Cedar	<i>Cedrus deodara</i>	10	1.1	1.5	Fair	Fair-poor	Suitable	Good	Deflected top, codominant leaders.	Located within the footprint of the proposed municipal sidewalk.	Remove
285	Yes	On	Yes	Crabapple	<i>Malus spp.</i>	27, 22	4.2	3	Fair-poor	Fair-poor	Suitable	Good	Secondary stem partially removed (decaying), deadwood.	Located within the footprint of the proposed municipal sidewalk.	Remove
286	No	On	Yes	Holly	<i>Ilex spp.</i>	13, 10, 7	2.4	2	Good	Fair	Suitable	Good	Multiple stems near PL, suppressed by municipal Katsura.	Located within the footprint of the proposed municipal sidewalk.	Remove
287	No	On	Yes	Plum	<i>Prunus spp.</i>	18, 12	3.2	2	Fair-poor	Fair-poor	Unsuitable	Moderate	Growing out of an old stump, ivy covered, overhangs sidewalk.	Will be impacted by excavation required to install the proposed drain and sewer services and for the footprint of the proposed sidewalk.	Remove
288	Yes	On	Yes	European Hawthorn	<i>Crataegus oxycantha</i>	39, 24, 11	6.3	4	Fair	Fair-poor	Suitable	Good	Lean north, lowest limb end-weighted with included bark in attachment.	*Drain, sewer and water services proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain*
289	No	On	No	Plum	<i>Prunus spp.</i>	5, 4, 4	1.2	1	Fair	Fair-poor	Suitable	Moderate	Likely root sucker, primary stem removed historically.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
290	No	On	No	Plum	<i>Prunus spp.</i>	12, 5	1.9	2	Fair	Fair	Suitable	Moderate	5cm stem reduced. Likely root sucker.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain

Tag or ID #	Surveyed ? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected ? (Yes/No)	Name		dbh (cm)	Critical Root Zone Radius (m)	Dripline radius (m)	Condition		Retention Suitability (onsite trees)	Relative tolerance	General field observations/remarks	Tree retention/location comments	Retention status
				Common	Botanical				Health	Structural					
291	Yes	On	Yes	Plum (purple leaf)	<i>Prunus cerasifera</i>	27, 26	5.3	2.5	Fair-poor	Fair-poor	Suitable	Moderate	Some dieback, ivy covered.	*Drain, sewer, water services and house foundation proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain*
292	Yes	On	Yes	Big-Leaf Maple	<i>Acer macrophyllum</i>	31	3.9	2.5	Fair	Fair	Suitable	Moderate	Clearance pruned from neighbour's roof historically.	*Drain, sewer, water services and house foundation proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain*
293	No	On	No	Plum (purple leaf)	<i>Prunus cerasifera</i>	10	1.3	1.5	Fair	Fair	Suitable	Moderate	Ivy covered (recently severed).	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
294	Yes	On	No	Plum	<i>Prunus spp.</i>	23	2.9	2.5	Fair-poor	Fair-poor	Suitable	Moderate	Lean northwest, included bark in unions, some dieback in canopy.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
295	Yes	On	No	Plum	<i>Prunus</i>	21	2.6	2.5	Fair-poor	Fair-poor	Suitable	Moderate	Slight corrected lean, secondary stem removed historically. Some dieback in canopy.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
296	Yes	On	No	Plum (purple leaf)	<i>Prunus cerasifera</i>	16	2.0	1.5	Fair-poor	Poor	Unsuitable	Moderate	Included bark in unions, epicormic growth from base, fungal fruiting bodies in leader, suppressed by 297.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
297	Yes	On	Yes	Plum (purple leaf)	<i>Prunus cerasifera</i>	52 below unions	6.5	3.5	Fair	Fair-poor	Suitable	Moderate	Included bark in unions, one stem mostly removed, pruning stubs over lawn, ivy covered.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
298	No	On	No	European Hawthorn	<i>Crataegus oxycantha</i>	9, 5	1.3	1	Fair	Fair	Suitable	Good	Topped historically.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
299	No	On	No	Golden Chain Tree	<i>Laburnum spp.</i>	Multiple Stems	3	3	Fair-poor	Poor	Unsuitable	Moderate	Uprooted historically, decay, deadwood.	Will be heavily impacted by excavation required to construct the foundation of the proposed residence.	Remove
300	Yes	On	Yes	Plum (purple leaf)	<i>Prunus cerasifera</i>	17, 13, 6, 5, 4, 4	3.6	2.5	Fair	Fair-poor	Suitable	Moderate	Ivy on trunk, smaller stems removed historically.	*House foundation, window well and beam footing proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone. All canopy clearance pruning to be performed to ANSI A300 standards.	*Retain

Tag or ID #	Surveyed ? (Yes/No)	Location (On, Off, Shared, City)	Bylaw protected ? (Yes/No)	Name		dbh (cm)	Critical Root Zone Radius (m)	Dripline radius (m)	Condition		Retention Suitability (onsite trees)	Relative tolerance	General field observations/remarks	Tree retention/location comments	Retention status
				Common	Botanical				Health	Structural					
301	Yes	On	Yes	Plum	<i>Prunus spp.</i>	24, 20, 15, 10, 9, 9, 6	5.6	3	Fair	Fair-poor	Suitable	Moderate	20cm stem removed historically (epicormic response growth), one stem dead (1m in height). 9cm stems removed near fence (epicormic growth). 24cm stem supporting 302. Ivy covered.	*House foundation, window well and beam footing proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone. All canopy clearance pruning to be performed to ANSI A300 standards.	Retain*
302	Yes	On	Yes	Plum	<i>Prunus spp.</i>	15, 13, 10	3.6	2.5	Poor	Poor	Unsuitable	Moderate	15cm stem may have partially failed (supported by 301), few live limbs on 15 & 13cm stems. Ivy covered.	*House foundation, window well and beam footing proposed within the critical root zone. Project arborist to supervise all excavation or fill placement required within the critical root zone. All canopy clearance pruning to be performed to ANSI A300 standards.	Retain*
OS 303	Yes	Off	No	Weeping Willow	<i>Salix babylonica</i>	24	3	3.5	Fair	Fair-poor		Moderate	Girdled by rope, crown raised, pruning stubs.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
304	No	On	No	Plum (purple leaf)	<i>Prunus cerasifera</i>	13	1.6	1.5	Fair	Fair	Suitable	Moderate	Adjacent to 305,306.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
305	Yes	On	Yes	Plum	<i>Prunus spp.</i>	26, 17, 9, 7	5.2	2.5	Fair	Fair	Suitable	Moderate	Canopy competition with 306.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
306	Yes	On	Yes	Dawn Redwood	<i>Metasequoia glyptostroboides</i>	47	7.3	4	Good	Fair	Suitable	Poor	Canopy competition with 305.	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
237	Yes	On	Yes	Plum (purple leaf)	<i>Prunus cerasifera</i>	20, 15, 10, 10, 6, 6	4.4	3.5	Fair	Fair	Suitable	Moderate	Multiple stems, adjacent to existing patio, greenhouse	Project arborist to supervise all excavation or fill placement required within the critical root zone.	Retain
238	Yes	On	No	Apple	<i>Malus spp.</i>	13	1.4	2	Fair	Fair	Suitable	Good	Topped historically, adjacent to existing deck, patio, greenhouse.	*Existing deck is located within the critical root zone. Project arborist to supervise removal of the portion of the existing deck that encroaches within the critical root zone.	Retain*

\*CRZ calculated above and drawn as follows on Tree Management Plan (T1): **CRZ + 0.5 \* d.b.h.** (drawn from the center of the stem)

## 5. SITE INFORMATION & PROJECT UNDERSTANDING

The development site consists of one lot (522 Saint Charles Street), in Victoria, B.C., which has an existing residence at the North side of the lot. It is our understanding that the proposal is to retain and renovate the existing residence on the North lot and create a new lot on the South side of the property.

Below is a general observation of the tree resource, as it appeared at the time of our site visit:

## 6. FIELD OBSERVATIONS

The onsite tree resource consists of a mixture of nonnative tree species growing in open landscape conditions around the perimeter of the property (see *figure 1*).



*figure 1: Site context air photo: The approximate boundary of the subject site is outlined in Yellow.*

## 7. TREE RISK ASSESSMENT

During our March 26, 2021 site visit and in conjunction with the tree inventory, onsite trees were assessed for risk, on a limited visual assessment basis (level 1), and in the context of the existing land uses. The time frame used for the purpose of our assessment is one year (from the date of the tree inventory update). Unless otherwise noted herein, we did not conduct a detailed (level 2) or advanced (level 3) risk assessment, such as resistograph testing, increment core sampling, aerial examinations, or subsurface root/root collar examinations.

### Existing Land Uses

We did not observe any trees that were deemed to be moderate, high or extreme risk (in the context of the existing land uses, that would require hazard abatement to eliminate present and/or future risks (within a 1-year timeframe). Targets considered during this TRAQ assessment include: occupants of the existing residence (constant use), occupants of vehicles travelling on Saint Charles Street (frequent use), pedestrians travelling along existing sidewalks (frequent use), hydro lines (constant use).

## 8. CONSTRUCTION IMPACT ASSESSMENT

### 8.1. RETENTION AND REMOVAL OF MUNICIPAL TREES

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The following municipal trees (indicated by ID #) are located where they are anticipated to be impacted by proposed frontage improvement works and will require removal:

#### Remove 2 municipal trees

- M1, M2

### 8.2. RETENTION AND REMOVAL OF PRIVATE OFFSITE TREES

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The following private offsite tree (indicated by ID #) is located where it is possible for retention providing that the critical root zone can be adequately protected during construction. The project arborist must be onsite to supervise any excavation or fill placement required within the critical root zone (shown on the tree management plan (T1) in [appendix A](#)):

#### Retain and protect 1 tree located on the neighbouring property

- OS 303

**\*Prior written consent from the neighbouring owner is required prior to the removal of any trees located on neighbouring properties. Unsurveyed trees may require surveying to verify ownership.**

### 8.3. RETENTION AND REMOVAL OF ONSITE TREES

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The following Bylaw protected size onsite trees (indicated by tag #) are located where they are possible for retention providing that the critical root zone can be adequately protected during construction. The project arborist must be onsite to supervise any excavation or fill placement required within their critical root zone (shown on the tree management plan (T1) in [appendix A](#)):

#### Retain and protect 9 bylaw protected onsite trees

- 288, 291, 292, 300, 301, 302, 305, 306, 237.

The following Bylaw protected onsite tree (indicated by tag #) is located where it will be impacted by proposed onsite construction and is proposed for removal:

#### Remove 5 bylaw protected onsite tree

- 282, 285, 286, 287, 297.

The following Non bylaw protected size onsite trees (indicated by tag #) are located where they will be impacted by proposed onsite construction and are proposed for removal:

#### Remove 7 non bylaw protected onsite trees

- 284, 293, 294, 295, 296, 298, 299.

The following Non bylaw protected size onsite trees (indicated by tag or ID #) are located where they are possible for retention providing that the critical root zone can be adequately protected during construction. The project arborist must be onsite to supervise any excavation or fill placement required within their critical root zone (shown on the tree management plan (T1) in [appendix A](#)):

#### Retain 6 non bylaw protected onsite trees and 1 non bylaw protected hedge.

- NT1, NT2 (Hedge), 283, 289, 290, 304, 238.

### 8.4. TREE IMPACT SUMMARY TABLE

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Pursuant to City of Victoria Tree Preservation Bylaw No. 21-035, the tree replacement calculations are as follows:

#### Proposed Lot A

<b>Proposed Lot A (460 m<sup>2</sup>)</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Tree Status</b>	<b>Total # of Protected Trees</b>	<b># Of Trees to be REMOVED</b>	<b># Of NEW or REPLACEMENT Trees to be Planted*</b>	<b># Of EXISTING non-protected Trees Counted as Replacements</b>
Onsite Trees	12	3	1	0
Private Offsite Trees	0	0	0	0
Municipal Trees	1	1	N/A	N/A
<b>Total</b>	<b>13</b>	<b>4</b>	<b>1</b>	<b>0</b>

## Proposed Lot B

<b>Proposed Lot B (732.45 m<sup>2</sup>)</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Tree Status</b>	<b>Total # of Protected Trees</b>	<b># Of Trees to be REMOVED</b>	<b># Of NEW or REPLACEMENT Trees to be Planted*</b>	<b># Of EXISTING non-protected Trees Counted as Replacements</b>
Onsite Trees	2	2	4	0
Private Offsite Trees	0	0	0	0
Municipal Trees	1	1	N/A	N/A
<b>Total</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>0</b>

## 9. IMPACT MITIGATION

**Tree Protection Barrier:** The areas, surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing (see [Appendix A](#) for municipal barrier specifications). Where possible, the fencing should be erected at the perimeter of the critical root zone. The barrier fencing to be erected 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 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.

**Arborist Supervision:** All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. In particular, the following activities should be completed under the direction of the project arborist:

- All excavation required within the critical root zones of 288, 291 and 292 for the proposed u/g drain, sewer and water service connections and for the proposed new sidewalk installation.
- All excavation required within the critical root zones of 291 and 292 for the foundation of the proposed residence.
- All excavation required within the critical root zones of 300, 301 and 302 for the foundation and window well of the proposed residence and for the support beam footing.
- All excavation required within the critical root zones of 306 and 238 to remove the existing deck.

**Methods to Avoid 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 of the following methods:

- 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 medium weight geotextile cloth over the area to be used and installing a layer of crushed rock to a depth of 15 cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

**Demolition of the Existing Buildings:** The demolition of the existing houses, driveways, 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 CRZ of tree to be retained require excavation down to bearing soil and roots are encountered in this area, this could impact their health and structural stability. If tree retention is desired, a raised and permeable paved surface should be constructed in the areas within the critical root zone of the trees. The “paved surfaces above root systems” diagram and specifications is attached.

The objective is to avoid root loss and to instead raise the paved surface and its base layer above the roots. This may result in the grade of the paved surface being raised above the 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. This may also result in soils which are high in organic content being left intact below the paved area.

To allow water to drain into the root systems below, we also 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.

**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 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.

## 10. DISCLOSURE STATEMENT

This arboricultural field review report was prepared by Talmack Urban Forestry Consultants Ltd. for the exclusive use of the Client and may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client without the prior written consent of Talmack Urban Forestry Consultants Ltd. Any unauthorized use of this report, or any part hereof, by a third party, or any reliance on or decisions to be made based on it, are at the sole risk of such third parties. Talmack Urban Forestry Consultants Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, in whole or in part.

Arborists are professionals who examine trees and use their training, knowledge, and experience to recommend techniques and procedures that will improve a tree's 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. The arborist's review is limited to a visual examination of tree health and structural condition, without excavation, probing, resistance drilling, increment coring, or aerial examination. There are inherent limitations to this type of investigation, including, without limitation, that some tree conditions will inadvertently go undetected. The arborist's review followed the standard of care expected of arborists undertaking similar work in British Columbia under similar conditions. No warranties, either express or implied, are made as to the services provided and included in this report.

The findings and opinions expressed in this report are based on the conditions that were observed on the noted date of the field review only. The Client recognizes that passage of time, natural occurrences, and direct or indirect human intervention at or near the trees may substantially alter discovered conditions and that Talmack Urban Forestry Consultants Ltd. cannot report on, or accurately predict, events that may change the condition of trees after the described investigation was completed.

It is not possible for an Arborist to identify every flaw or condition that could result in failure nor can he/she guarantee that the tree will remain healthy and free of risk. The only way to eliminate tree risk entirely is to remove the entire tree. All trees retained should be monitored on a regular basis. 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.

Immediately following land clearing, grade changes or severe weather events, all trees retained should be reviewed for any evidence of soil heaving, cracking, lifting or other indicators of root plate instability. If new information is discovered in the future during such events or other activities, Talmack Urban Forestry Consultants Ltd. should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein.

## 11. IN CLOSING

We trust that this report meets your needs. Should there be any questions regarding the information within this report, please do not hesitate to contact the undersigned.

Yours truly,

Talmack Urban Forestry Consultants Ltd.

Prepared by:



Noah Talbot, BA  
ISA Certified Arborist PN – 6822A  
Tree Risk Assessment Qualification  
Email: tmtreehelp@gmail.com

## 12. REFERENCES

Dunster, J.A., E.T. Smiley, N. Matheny, and S. Lily. 2017. Tree Risk Assessment Manual, International Society of Arboriculture (ISA).

The City of Victoria Tree Preservation Bylaw No. 21-035.

## **APPENDIX A - TREE MANAGEMENT PLAN (T1)**

Project arborist to supervise excavation for the proposed house foundation , window well and beam footing within the critical root zones of 300, 301 and 302.

Project arborist to supervise excavation required for the foundation of the proposed residence within the critical root zones of 291 and 292.

Project arborist to supervise excavation required for the proposed u/g drain, sewer and water service connections and new sidewalk installation within the critical root zones of 288, 291 & 292.

## TREE PROTECTION NOTES

**Tree protection barrier:** 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 zone. The barrier fencing to be erected must be a minimum of 1200mm 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 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.

**Arborist supervision:** All excavation occurring within the critical root zones of protected trees must be completed under the supervision of the project arborist. Any severed or severely damaged roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound.

**Demolition:** The demolition of the existing houses, driveways, 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 of the project arborist. If temporarily removed for demolition, barrier fencing must be erected immediately after the supervised demolition.

**Methods to avoid 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 of the following methods:

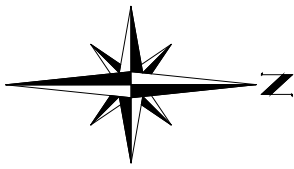
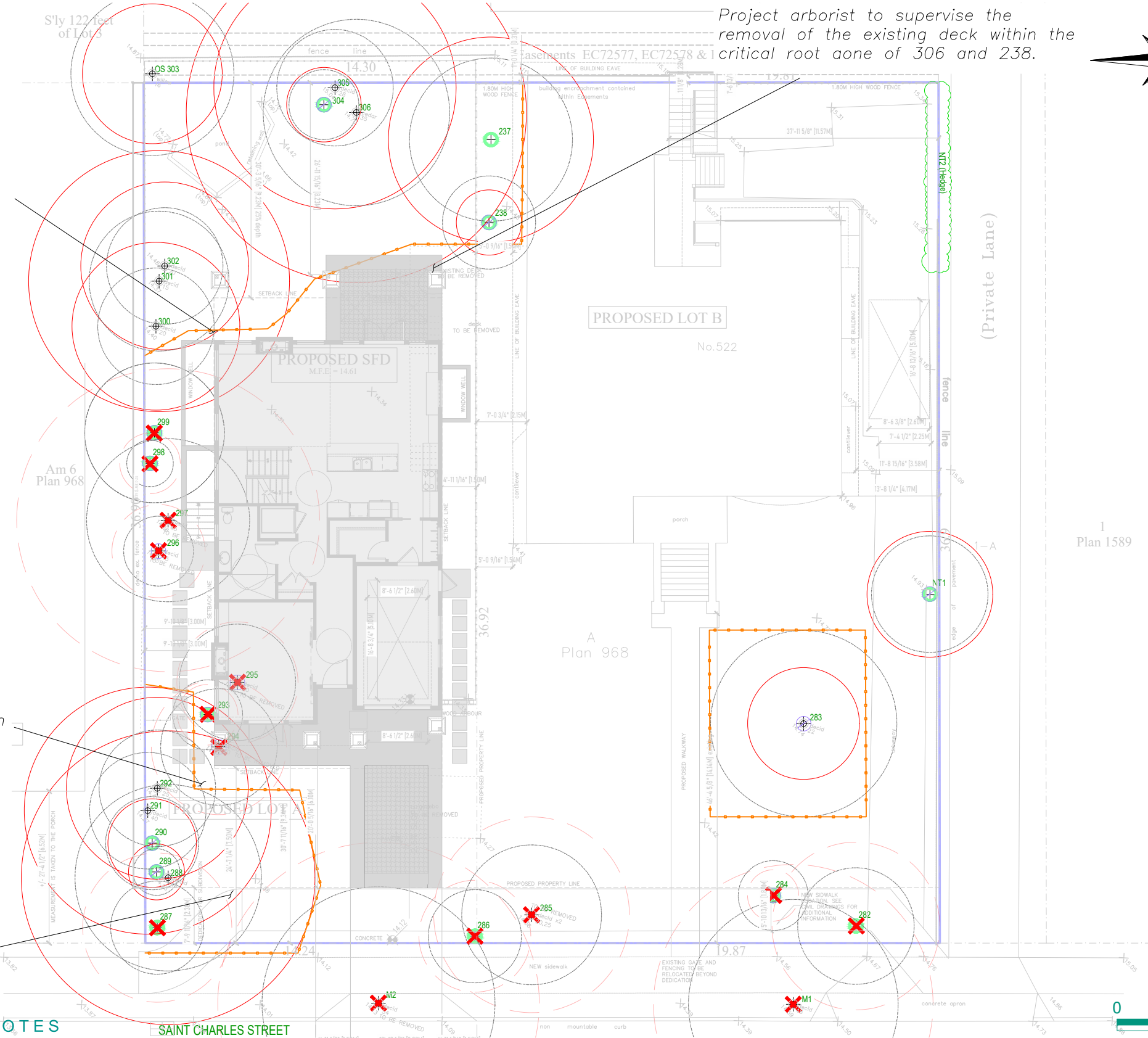
- Installing a layer of hog fuel or coarse wood chips at least 20cm in depth and maintaining it in good condition until construction is complete.
- Placing medium weight geotextile cloth over the area to be used and installing a layer of crushed rock to a depth of 15cm over top.
- Placing two layers of 19mm plywood.
- Placing steel plates.

**Mulching:** Mulching can be an important proactive step in maintaining the health or trees and mitigating construction related impacts and overall stress. Mulch should be made from a natural material such as wood chips or bark pieces 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.

**Pruning:** We recommend that any pruning of bylaw-protected trees be performed to ANSI A300 standards and Best Management Practices.

**Paved surfaces above tree roots:** Where paved areas cannot avoid encroachment within critical root zones of trees to be retained, construction techniques, such as floating permeable paving, may be required. The "paved surfaces above tree roots" detail above offers a compromise to full depth excavation (which could impact the health or structural stability of the tree). The objective is to avoid root loss and instead raise the paved surface above the 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. This may also result in soils which are high in organic content being left intact below the paved area. To allow water to drain into the root systems below, we also recommend that the surface

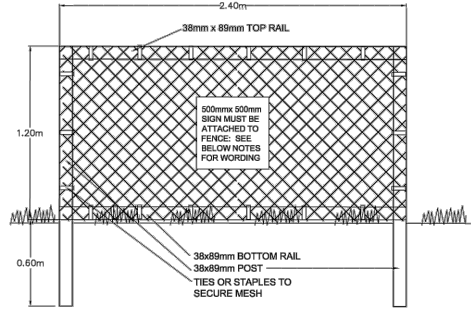
Project arborist to supervise the removal of the existing deck within the critical root aone of 306 and 238.



## LEGEND

- Existing tree with tag or ID #
- Dripline radius (m)
- Tree protection fencing
- Critical root zone radius (m)
- Tree to be removed (proposed)
- Site boundary
- Unsurveyed tree
- Non-bylaw undersize tree

## TREE PROTECTION FENCING



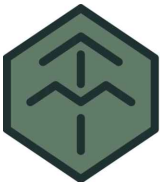
### TREE PROTECTION FENCING

- FENCE WILL BE CONSTRUCTED USING 38 mm X 89mm WOOD FRAME: TOP, BOTTOM AND POSTS \* USE ORANGE SNOW-FENCING MESH AND SECURE THE WOOD FRAME WITH ZIP TIES OR GALVANIZED STAPLES.
  - ATTACH A 500mm X 500mm SIGN WITH THE FOLLOWING WORDING: PROTECTED ROOT ZONE - NO ENTRY. THIS SIGN MUST BE AFFIXED ON EVERY FENCE OR AT LEAST EVERY 10 LINEAR METERS.
- \* IN ROCKY AREAS, METAL POSTS (T-BAR OR REBAR) DRILLED INTO ROCK WILL BE ACCEPTED

## Tree Management Plan - T1

522 Saint Charles Street  
Victoria, BC

DATE: January 31, 2024  
PREPARED FOR: Zebra Group  
SCALE: 1 : 200 @ 11" X 17"  
DRAWN BY: NT  
REVISION: 2  
REFERENCE DWG: Architectural site plan (by Zebra Group)



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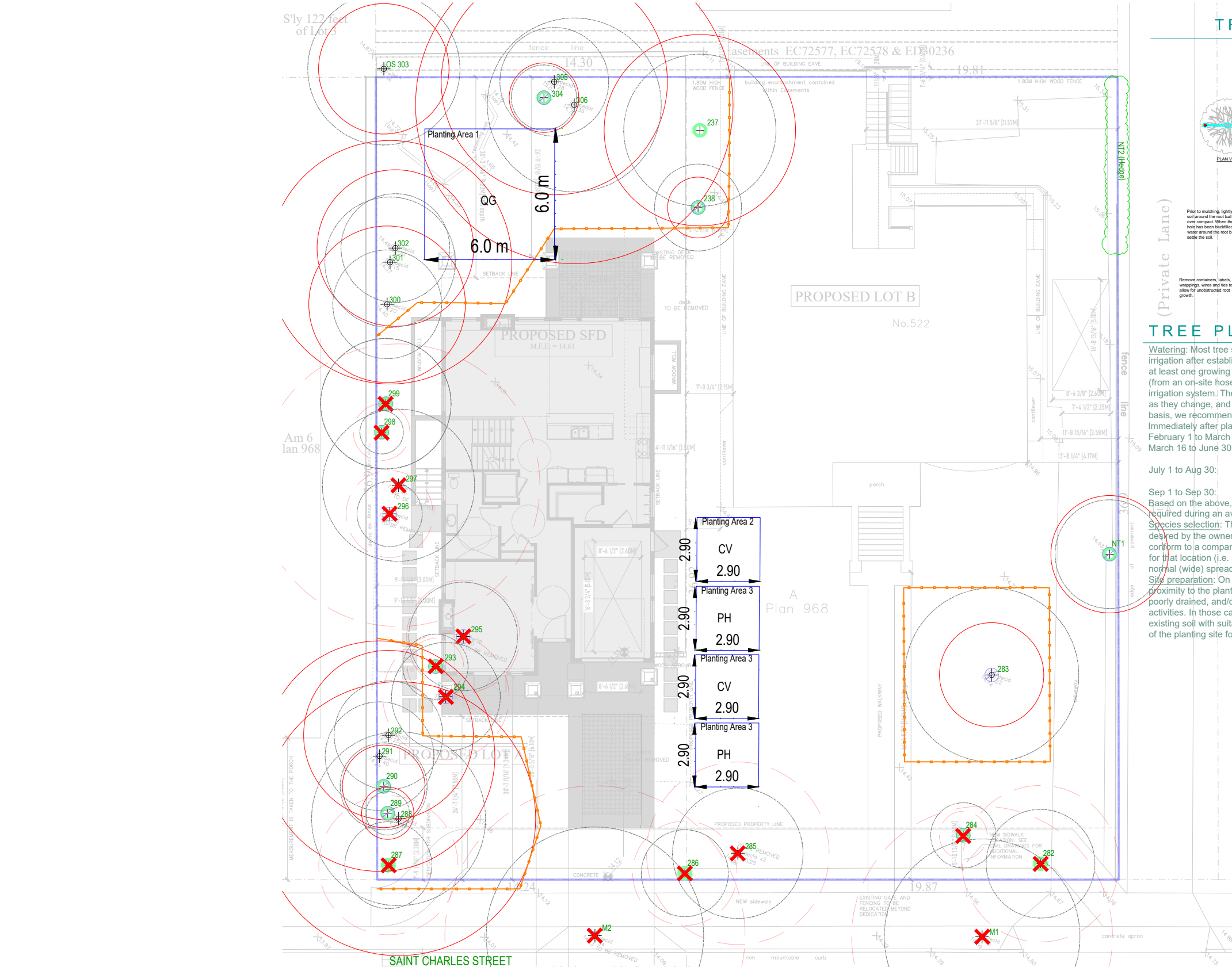
platforms. Methods to avoid soil compaction may also be recommended (see "Minimizing Soil Compaction" section).

**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 technical 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 the tree health and can lead to root and trunk decay.

**Arborists 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 and machine access corridors where required.
- Supervising excavation for any areas within the critical root zones of trees to be retained including any proposed retaining wall footings and review any proposed fill areas near trees to be retained.

## **APPENDIX B – TREE REPLACEMENT PLAN (T2)**



### SUGGESTED REPLACEMENT TREE LIST

Plan Ref.	Quantity	Size	Botanical Name	Common Name
4 Small Size - BroadLeaf Trees				
CV	2	6cm cal	Cornus venus	Venus dogwood
PH	2	6cm cal	Phellodendron 'His Majesty'	Cork tree
1 Large Size - Broadleaf Tree				
QG	1	6cm cal	Quercus garryana	Garry oak
Current arboricultural best management practices and BCSLA/BCLNA standards apply to; quality, root ball, health, form, handling, planting, guying/staking and establishment care.				

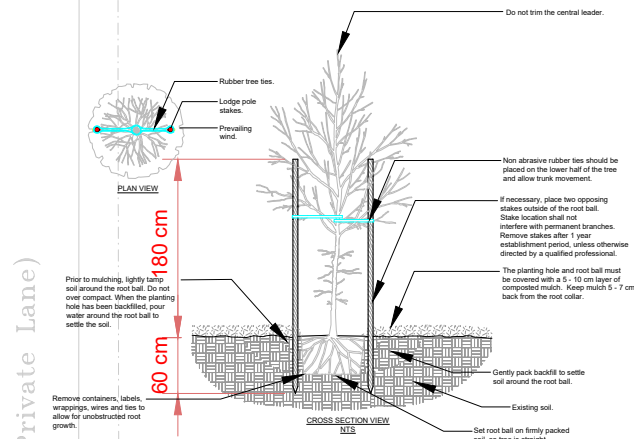
### SOIL VOLUME SUMMARY TABLE

Planting Area ID		Soil volume			Replacement Trees Proposed			Soil Volume Required (m3)			
		Area (m2)	multiplier	A. Estimated soil volume	B.# Small	C.# Medium	D.# Large	E. Small	F. Medium	G. Large	Total
Onsite											
Planting Area 1	35 m2	1	35 m2	0	0	1	N/A	N/A	35	35	
Planting Area 2	8 m2	1	8 m2	1	0	0	N/A	N/A	N/A	8	
Planting Area 3	8 m2	1	8 m2	1	0	0	N/A	N/A	N/A	8	
Planting Area 4	8 m2	1	8 m2	1	0	0	N/A	N/A	N/A	8	
Offsite (excluding City property)											
Planting Area OSA X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculation Instructions											
If B=1, Calculation Bx8 If C=1, Cx20, If D=1, Dx35, If E+F+G											

### TREE IMPACT SUMMARY TABLES

Proposed Lot A (460 m <sup>2</sup> )		A	B	C	D
Tree Status		Total # of Protected Trees	# Of Trees to be REMOVED	# Of NEW or REPLACEMENT Trees to be Planted*	# Of EXISTING non-protected Trees Counted as Replacements
Onsite Trees		12	3	1	0
Private Offsite Trees		0	0	0	0
Municipal Trees		1	1	N/A	N/A
Total		13	4	1	0
Proposed Lot B (732.45 m <sup>2</sup> )		A	B	C	D
Tree Status		Total # of Protected Trees	# Of Trees to be REMOVED	# Of NEW or REPLACEMENT Trees to be Planted*	# Of EXISTING non-protected Trees Counted as Replacements
Onsite Trees		2	2	4	0
Private Offsite Trees		0	0	0	0
Municipal Trees		1	1	N/A	N/A
Total		3	3	4	0

### TREE PLANTING DETAIL



### TREE PLANTING NOTES

**Watering:** Most tree species and most landscape conditions will not require permanent irrigation after establishment. However, interim watering of the root balls will be required for at least one growing season after planting. This should be completed by hand watering (from an on-site hose bib) or by; truck delivery, watering bag device, or a temporary interim irrigation system. The watering schedule should be adapted to suit the weather conditions as they change, and in response to monitoring the root ball soil hydrology. On a conceptual basis, we recommend watering intervals as follows:

Immediately after planting: Day of and then 3 days later  
February 1 to March 15: Every two weeks  
March 16 to June 30: Once per week (may reduce to once every 2 weeks in sustained heavy rainfall conditions)  
July 1 to Aug 30: Once per week (may increase to twice per week in drought conditions)  
Sep 1 to Sep 30: Every two weeks

Based on the above, we normally expect approximately 30 to 35 watering events to be required during an average growing season.

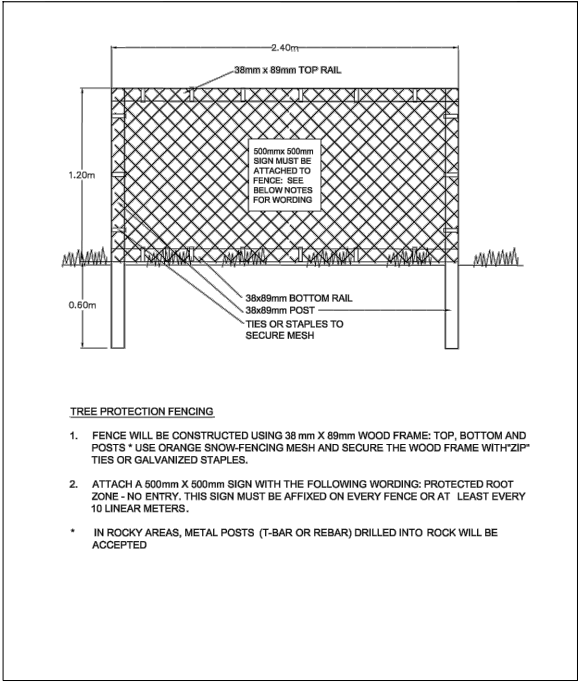
**Species selection:** The species choices are for consideration only. If alternate species are desired by the owner, the species must conform to the municipal standards, and should conform to a comparable size and form of the tree species that was conceptually specified for that location (i.e. small, medium or large at maturity and/or columnar, pyramidal or normal (wide) spreading crown).

**Site preparation:** On disturbed sites or construction sites the sub-soil and planting soils in proximity to the planting sites may be damaged such that the soils are overly compacted, poorly drained, and/or of inferior composition from the site preparation and construction activities. In those cases, sub-soil renovation and amendment, and/or re-placement of existing soil with suitable growing medium to at least 600mm depth within a suitable radius of the planting site for each tree will be required.

### LEGEND

- Existing tree with tag or ID #
- Dripline radius (m)
- Tree protection fencing
- Critical root zone radius (m)
- Tree to be removed (proposed)
- Site boundary
- Unsurveyed tree
- Non-bylaw undersize tree
- Suggested replacement tree
- Soil volume analysis

### TREE PROTECTION FENCING



### Tree Replacement Plan - T2

522 Saint Charles Street  
Victoria, BC

DATE: January 31, 2024  
PREPARED FOR: Zebra Group  
SCALE: 1 : 200 @ 11" X 17"  
DRAWN BY: NT  
REVISION: 2  
REFERENCE DWG: Architectural site plan (by Zebra Group)



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## APPENDIX C – TREE PRESERVATION SUMMARY (LOT A)

Tree Preservation Summary			
City of Victoria Project No: Unknown			
Address: 522 Saint Charles Street (Lot A).			
Arborist: Noah Talbot, BA			
Certifications/Qualifications: ISA Certified Arborist (PN6822A), Tree Risk Assessment Qualified			
	Count	Multiplier	Total
ONSITE Minimum replacement tree requirement			
A. Protected Trees Removed	3	X 1	A. 3
B. Replacement Trees Proposed per Schedule "E", Part 1	1	X 1	B. 1
C. Replacement Trees Proposed per Schedule "E", Part 2	0	X 0.5	C. 0
D. Replacement Trees Proposed per Schedule "E", Part 3	0	X 1	D. 0
E. Total replacement trees proposed (B+C+D) Round down to nearest whole number			E. 1
F. Onsite replacement tree deficit (A-E) Record 0 if negative number			F. 2
ONSITE Minimum trees per lot requirement (onsite trees)			
G. Tree minimum on lot*			G. 2
H. Protected trees retained (other than specimen trees)	9	X 1	H. 9
I. Specimen trees retained	0	X 3	I. 0
J. Trees per lot deficit (G - (B+C+H+I) Record 0 if negative number			J. 0
OFFSITE Minimum replacement tree requirement (offsite trees)			
K. Protected trees Removed	0	X 1	K. 0
L. Replacement trees proposed per Schedule "E", Part 1 or Part 3	0	X 1	L. 0
M. Replacement trees proposed from Schedule "E", Part 2	0	X 0.5	M. 0
N. Total replacement trees proposed (L+ M) Round down to nearest whole number			N. 0
O. Offsite replacement tree deficit (K - N) Record 0 if negative number			O. 0
Cash-in-lieu requirement			
P. Onsite trees proposed for cash-in-lieu Enter F. or J., whichever is the greater number			P. 2
Q. Offsite trees proposed for cash-in-lieu Enter 0.			Q. 0
R. Cash-in-lieu proposed ((P+Q) X \$2,000)			R. \$4000
Summary prepared and submitted by: <i>Noah Talbot</i>			
Date: February 01, 2024			

## APPENDIX D – TREE PRESERVATION SUMMARY (LOT B)

Tree Preservation Summary			
City of Victoria Project No: Unknown			
Address: 522 Saint Charles Street (Lot B).			
Arborist: Noah Talbot, BA			
Certifications/Qualifications: ISA Certified Arborist (PN6822A), Tree Risk Assessment Qualified			
	Count	Multiplier	Total
<b>ONSITE Minimum replacement tree requirement</b>			
A. Protected Trees Removed	2	X 1	A. 2
B. Replacement Trees Proposed per Schedule "E", Part 1	0	X 1	B. 0
C. Replacement Trees Proposed per Schedule "E", Part 2	4	X 0.5	C. 2
D. Replacement Trees Proposed per Schedule "E", Part 3	0	X 1	D. 0
E. Total replacement trees proposed (B+C+D) Round down to nearest whole number			E. 2
F. Onsite replacement tree deficit (A-E) Record 0 if negative number			F. 0
<b>ONSITE Minimum trees per lot requirement (onsite trees)</b>			
G. Tree minimum on lot*			G. 4
H. Protected trees retained (other than specimen trees)	0	X 1	H. 0
I. Specimen trees retained	0	X 3	I. 0
J. Trees per lot deficit (G - (B+C+H+I) Record 0 if negative number			J. 2
<b>OFFSITE Minimum replacement tree requirement (offsite trees)</b>			
K. Protected trees Removed	0	X 1	K. 0
L. Replacement trees proposed per Schedule "E", Part 1 or Part 3	0	X 1	L. 0
M. Replacement trees proposed from Schedule "E", Part 2	0	X 0.5	M. 0
N. Total replacement trees proposed (L+ M) Round down to nearest whole number			N. 0
O. Offsite replacement tree deficit (K - N) Record 0 if negative number			O. 0
<b>Cash-in-lieu requirement</b>			
P. Onsite trees proposed for cash-in-lieu Enter F. or J., whichever is the greater number			P. 2
Q. Offsite trees proposed for cash-in-lieu Enter 0.			Q. 0
R. Cash-in-lieu proposed ((P+Q) X \$2,000)			R. \$4000
Summary prepared and submitted by: <i>Noah Talbot</i>			
Date: February 01, 2024			

## APPENDIX E – SITE PHOTOGRAPHS



*Photograph 1. Yellow arrows indicate municipal Katsura trees (M1) right and (M2) left.*



*Photograph 2 – Yellow arrow indicates holly (tag# 286).*



*Photograph 3 – Yellow arrow indicates plum (tag# 287).*



*Photograph 4 – Yellow arrow indicates plum (tag# 288).*



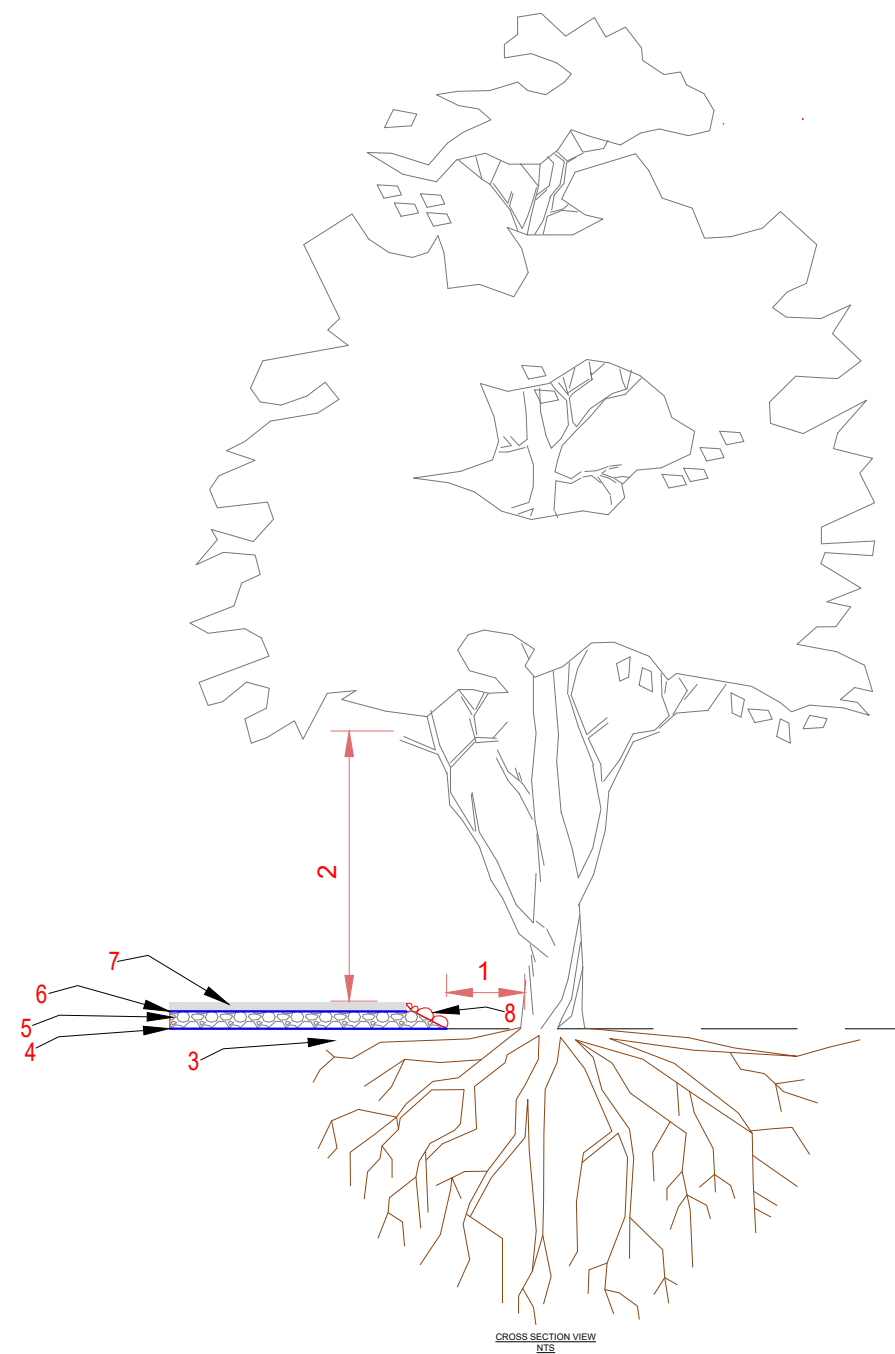
*Photograph 5 – Yellow arrow indicates plum (tag# 297).*



*Photograph 5 – Yellow arrow indicates Bigleaf maple (tag# 292).*

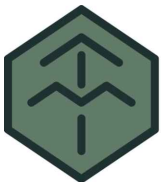
## **APPENDIX F – HARD SURFACE OVER TREE ROOTS DETAIL**

# HARD SURFACE ABOVE TREE ROOTS DETAIL



# HARD SURFACE ABOVE TREE ROOTS NOTES

1. Maintain as large a setback between the fill encroachment and the root collar of the tree as possible.
2. Review any canopy clearance pruning requirements to accommodate vehicle or pedestrian clearances (Pruning to be performed to ANSI A300 standards).
3. Excavate the new footprint of the driveway or sidewalk under the supervision of the project arborist. Excavation will be limited to the removal of the existing sod layer. Excavation around root structures must be performed by hand, airspade, or hydroexcavation.
4. Install a two-dimensional (such as Combigrid  $\frac{30}{30}$ ) or Three-dimensional geogrid reinforcement.
5. Install a 150mm depth layer of clear crushed gravel (no fines) using 20mm and/or 75mm diameter material or approved equivalent. \*Note - the depth may be less than 150mm in some situations (dependant on grading constraints).
6. Install 4 oz non woven geotextile over the clear crushed gravel layer to prevent fine particles of sand from infiltrating this layer.
7. The bedding or base layer and new driveway or sidewalk surface can be installed directly on top of the felted filter fabric.
8. Fill slopes - where possible install loose stacked boulders to reduce the footprint of the fill slopes that encroach within the critical root zone. Fill slope materials must be permeable to air and water. Do not pile fill material directly against the trunk of a tree.



## **APPENDIX G – CIVIL SERVICING PLAN**

