



Talbot Mackenzie & Associates

Consulting Arborists

Caledonia Redevelopment, Victoria

Construction Impact Assessment & Tree Preservation Plan

Prepared For: de Hoog & Kierulf architects
977 Fort St
Victoria, BC
V8V 3K3

Prepared By: Talbot, Mackenzie & Associates

Noah Borges
ISA Certified # PN-8409A
TRAQ – Qualified

Date of Issuance: March 4, 2020
Update #1: March 6, 2020
Update #2: April 1, 2020

Box 48153 RPO - Uptown Victoria, BC V8Z 7H6
Ph: (250) 479-8733
Fax: (250) 479-7050
Email: tmtreehelp@gmail.com



Talbot Mackenzie & Associates

Consulting Arborists

Jobsite Property: 1209-1226 North Park St, 1230 Grant St, 1219 Vining St, 1235 Caledonia Ave, and 1211 Gladstone Ave, Victoria, BC

Date of Site Visits: February 18, 2020

Site Conditions: 2 residential lots and 7 empty lots. No ongoing construction activity.

Summary:

- 59 trees were inventoried: 40 are on the subject property, 18 are located off-site, and 1 is shared.
- 31 trees on the subject property will have to be removed (2 are bylaw protected: #946 and #948). The applicant will make an effort to retain any trees where possible. The location of rain gardens that the final grades of patios and walkways will be adjusted where necessary to minimize tree impacts.
- Off-site Trees #933-944 are growing just west of the property line of 1209 North Park St (#939 is likely a shared tree). The attached plans indicate that Apartment 1 will be constructed, at the nearest, 5.8m from the property line, and that the underground parkade will be between 7.5-8.5m away. The extent of excavation outside the building and parkade foundation walls will have to be minimized as much as possible and the patio area constructed over any critical roots encountered. We anticipate these trees can be retained with minor health impacts. Pear #943 is dead and we recommend it be removed.
- Based on discussions with the applicant, it is our understanding an effort will be made to retain trees #901-910. The patios will have to be constructed above the root systems of these trees where they encroach within their CRZs, and any surrounding fences or walls will have to be constructed in a way that preserves critical roots.
- We anticipate Red Oak #917 can be retained if excavation can be minimized outside the rain garden footprint, and if the depth of excavation within the patio area can be minimized and the patio constructed overtop the tree's root system.
- We anticipate neighbour's cedars #927-930 and NT1 can be retained. The proposed rain garden should be shifted away from #927.
- A storm service main will be extended, as near as approximately 3-3.5m from neighbour's trees #941-944. The main will be extended underneath Grant St. The impacts to these trees will depend on the depth and width of the trench required. The project arborist should be on site to supervise any excavation within their CRZs.

Scope of Assignment:

- Inventory the existing bylaw protected trees at 1209 North Park St and 1211 Gladstone Ave, and any trees on municipal or neighbouring properties that could potentially be impacted by construction or that are within three metres of the property line
- Review the proposal to demolish the existing buildings and construct two apartment buildings, three townhouse buildings, one amenity building, and an underground parkade
- Comment on how construction activity may impact existing trees
- Prepare a tree retention and construction damage mitigation plan for those trees deemed suitable to retain given the proposed impacts

Methodology:

- We visually examined the trees on the property and prepared an inventory in the attached Tree Resource Spreadsheet.
- Each by-law protected tree was identified using a numeric metal tag attached to its lower trunk. Municipal trees and neighbours' trees were not tagged.
- Information such as tree species, DBH (1.4m), crown spread, critical root zone (CRZ), health, structure, and relative tolerance to construction impacts were included in the inventory.
- The conclusions reached were based on the information provided within the attached architectural plans from dHKarchitects (dated February 6, 2020), landscape plan from Murdoch de Greeff Inc. (dated March 5, 2020), and servicing plan from McElhanney.

Limitations:

- No exploratory excavations have been conducted and thus the conclusions reached are based solely on critical root zone calculations and our best judgement using our experience and expertise. The location, size and density of roots are often difficult to predict without exploratory excavations and therefore the impacts to the trees may be more or less severe than we anticipate.
- The extent of impacts to some trees will largely depend on the cut-slope prescribed by the geotechnical engineer during excavation for the foundation wall of the underground parkade. Therefore, the proximity of excavation to trees (without shoring) can only be estimated, and may be closer or farther from trees than we estimate.

Summary of Tree Resource: 59 trees were inventoried, most of which are ornamental species. Six are bylaw protected, four of which are elm trees located off-site in Haegart Park.

Based on discussions with the applicant, it is our understanding that this proposal falls under Tree Preservation Bylaw No. 05-106 (consolidated June 1, 2015), as the permit application was received prior to October 24, 2019.

Trees to be Removed: 31 trees on the subject property will have to be removed (2 are bylaw protected: #946 and #948):

- **Trees #645, 646, 648, 649, 911-916, 918-920, 922-924, 926, 945-949, 951-953, 955-958** are in locations where we anticipate they will be significantly impacted by construction of the underground parkade, buildings, road extensions, or parking areas.
- **Douglas-fir #931** (27cm DBH; not bylaw protected) will likely be significantly impacted by the Vining St road widening. We anticipate large roots will be encountered if excavation is required to bearing soil. This tree has been topped previously for clearance from the aboveground utility lines. The owner of the tree should be informed of the potential impacts.
- **Eucalyptus #932** (74cm DBH; not bylaw protected) is within the footprint of the new sidewalk on the south side of Vining St. The owner of the tree should be informed of the potential impacts.

Potential Impacts on Trees to be Retained and Mitigation Measures

- **Off-site Trees #933-944:** These trees are growing off-site, just west of the property line of 1209 North Park St (#939 is likely a shared tree). The attached plans indicate that Apartment 1 will be constructed, at the nearest, 5.8m from the property line, and that the underground parkade will be between 7.5-8.5m away. Roots from the elm trees are likely to be encountered, particularly from some of the larger, multi-stemmed elm trees where the existing building is not located in between the trees and the proposed excavation areas (#941, 942, 944).

To retain these trees, the extent of excavation outside the building and parkade foundation walls will have to be minimized as much as possible. Shoring techniques may be required depending on the depth of excavation. We recommend excavation not occur more than 2m outside the parkade footprint and 1m outside the house footprint. The project arborist should supervise any excavation within the CRZs of these trees, including removal of the existing building foundation, and prune back any roots encountered to sound tissue. The project arborist may recommend that the depth of excavation for the patio area on the west side of the building be minimized depending on the number and size of roots encountered. If our recommendations are followed, we do not anticipate the trees will incur more than minor health impacts. The neighbour at #1809 Chambers St should be informed of the proposed impacts to their trees.

The North Park St sidewalk will also be extended, requiring excavation 2m from cedar #933. This tree has a CRZ of 2m and we do not anticipate it will be significantly impacted if excavation does not occur more than 30cm outside the sidewalk footprint.

Pear #943 is dead and we recommend it be removed. We have identified it as “Not Suitable” (NS) for retention in the attached tree resource spreadsheet. This tree is growing off-site in Haegart Park.

- **#901-910:** Based on discussions with the applicant, it is our understanding an effort will be made to retain these trees. The existing building foundation wall is approximately 1.25m closer to trees #905-910 than the proposed new building (Townhouse 2). If excavation does not extend beyond the existing foundation walls, we do not anticipate that these trees will be

significantly impacted. Trees #901-904 are more than 5.5m from the proposed building foundation wall. Patios are proposed to be constructed 1.5-3m away from #901-907 and rain gardens are proposed to be constructed between 0.5-1.5m from away.

If these trees are to be retained, the patios will have to be constructed above the root systems of these trees where they encroach within their CRZs (see “Paved Surfaces Above Tree Roots” section below). Any surrounding fences or walls will have to be constructed in a way that preserves critical roots. Rain gardens have been relocated outside the CRZs of these trees to minimize impacts. Based on discussions with the applicants and the attached landscape plan, the final grades of the patios will be adjusted based on the direction of the project arborist. The project arborist should be on site to supervise any excavation within the CRZs of these trees.

It should be noted that Tulip trees #901, 902, and 904 have dead central leaders and, in our opinion, it would be prudent to remove and replace these trees. It should also be noted that the available soil volume around trees #908-910 is limited and surface roots are visible around the base of these trees. These trees are suitable to retain in the short-term, but will likely eventually have to be removed as they will eventually outgrow their planting location. These trees should be inspected periodically by an ISA Certified Arborist with a TRAQ Qualification to ensure they do not pose an increased risk of failure. Depending on the height of the proposed townhouses, trees #909 and 910 may need to be pruned to attain clearance from the new buildings (they currently overhang the existing two-storey houses). None of these trees are bylaw protected.

- **Red Oak #917 (36cm DBH):** This tree is approximately 5.5m from Townhouse 3, 7m from the underground parkade, and 4m from the nearest rain garden to the west. Patios on the north side the townhouse extend an additional 2m closer to the tree. We anticipate this tree can be retained if the depth of excavation within the patio footprint can be minimized and the patio constructed overtop the tree’s root system. Excavation should also be minimized outside the rain garden footprint (at most, 30cm outside the footprint). Excavation outside the building and parkade footprint should also be minimized as much as possible. Fencing should be erected around this tree as indicated on the attached site plans and the project arborist should supervise any excavation within the tree’s CRZ. It is not bylaw protected.
- **Neighbour’s Cedars #927-930, NT1:** These trees are growing on a neighbouring property (#1907 Chambers St). They are growing at a slightly lower grade and separated by a concrete retaining wall. There are stumps of previously removed trees on the subject property side of the fence, which should be either left in place, routed below grade, or removed carefully under arborist direction. A rain garden is proposed to be constructed 1m away from #927 and 2.5m from #928-930. The rain garden partially overlaps with the footprint of an existing building. We recommend the project arborist supervise all excavation within the CRZs of these trees. The location and shape of the rain garden should be adjusted around #927 to minimize potential impacts. The neighbour should be informed of the proposed impacts to their trees.
- **Service Connections:** The attached site servicing plan indicates a storm service main will be extended, as near as approximately 3-3.5m from **trees #941-944**. The main will be extended underneath Grant St. Depending on the depth of excavation and the width of the trench, it may

be possible to preserve large roots encountered. We recommend the project arborist supervise excavation within the CRZs of these trees. The excavation should be completed using either a combination of machine and hand-digging or a hydro-vac.

- **Arborist Supervision:** All excavation occurring within the critical root zones of protected trees should be completed under supervision by the project arborist. This includes (but is not limited to) the following activities:
 - Excavation for construction of the underground parkade and Apartment 1 within the CRZs of trees #933-944.
 - Installation of the storm sewer where it crosses the CRZ of #941-944
 - Excavation for construction of Townhouse 2 and the patio areas within the CRZs of trees #901-910
 - Removal of the existing building foundation wall adjacent to #908-910
 - Excavation for construction of the proposed rain garden south of neighbour's trees #927-930 and NT1
 - Any excavation within the CRZ of Red Oak #917 for construction of Townhouse 3, the surrounding patios, the underground parkade, or rain gardens
- **Pruning Roots:** Any severed roots must be pruned back to sound tissue to reduce wound surface area and encourage rapid compartmentalization of the wound. Backfilling the excavated area around the roots should be done as soon as possible to keep the roots moist and aid in root regeneration. Exposed roots should be kept moist until the area is backfilled, especially if excavation occurs during a period of drought. This can be accomplished in a number of ways, including wrapping the roots in burlap or installing a root curtain of wire mesh lined with burlap, and keeping the area moist throughout the construction process.
- **Barrier Fencing:** The areas surrounding the trees to be retained should be isolated from the construction activity by erecting protective barrier fencing. Where possible, the fencing should be erected at the perimeter of the critical root zones.

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

- **Minimizing Soil Compaction:** In areas where construction traffic must encroach into the critical root zones of trees to be retained, efforts must be made to reduce soil compaction where possible by displacing the weight of machinery and foot traffic. This can be achieved by one 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 buildings 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.

The project arborist should be on site to direct removal of the existing building foundation walls and any paved surfaces that overlap with the CRZs of trees #901-910, 917, and 933-944. Caution must be exercised when removing foundation walls and pavement to not over-excavate and damage roots. Foundation walls should be pulled inward, away from the bases of the trees to be retained. Barrier fencing should be erected to the perimeter of these tree's CRZs, and as close to the existing buildings as possible where the buildings encroach within the tree's CRZs. Following demolition, the fencing should be adjusted to match the fencing requirements shown on the attached site plan. We do not anticipate any machinery or construction equipment will need to be operated between the trees and the buildings.

- **Paved Surfaces Above Tree Roots:**

If the new paved surfaces within the CRZs of trees to be retained require excavation down to bearing soil and roots are encountered in this area, their health or stability could be impacted. 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.

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

Thank you,



Noah Borges
ISA Certified #PN- 8409A
TRAQ – Qualified

Talbot Mackenzie & Associates
ISA Certified Consulting Arborists

Encl. 3-page tree resource spreadsheet, 1-page site survey, 2-page architectural site plan, 8-page landscape plan, 1-page site servicing plan, 1-page specification for constructing paved surfaces above tree roots, 1-page barrier fencing specifications, 2-page tree resource spreadsheet methodology and definitions

Disclosure Statement

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

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

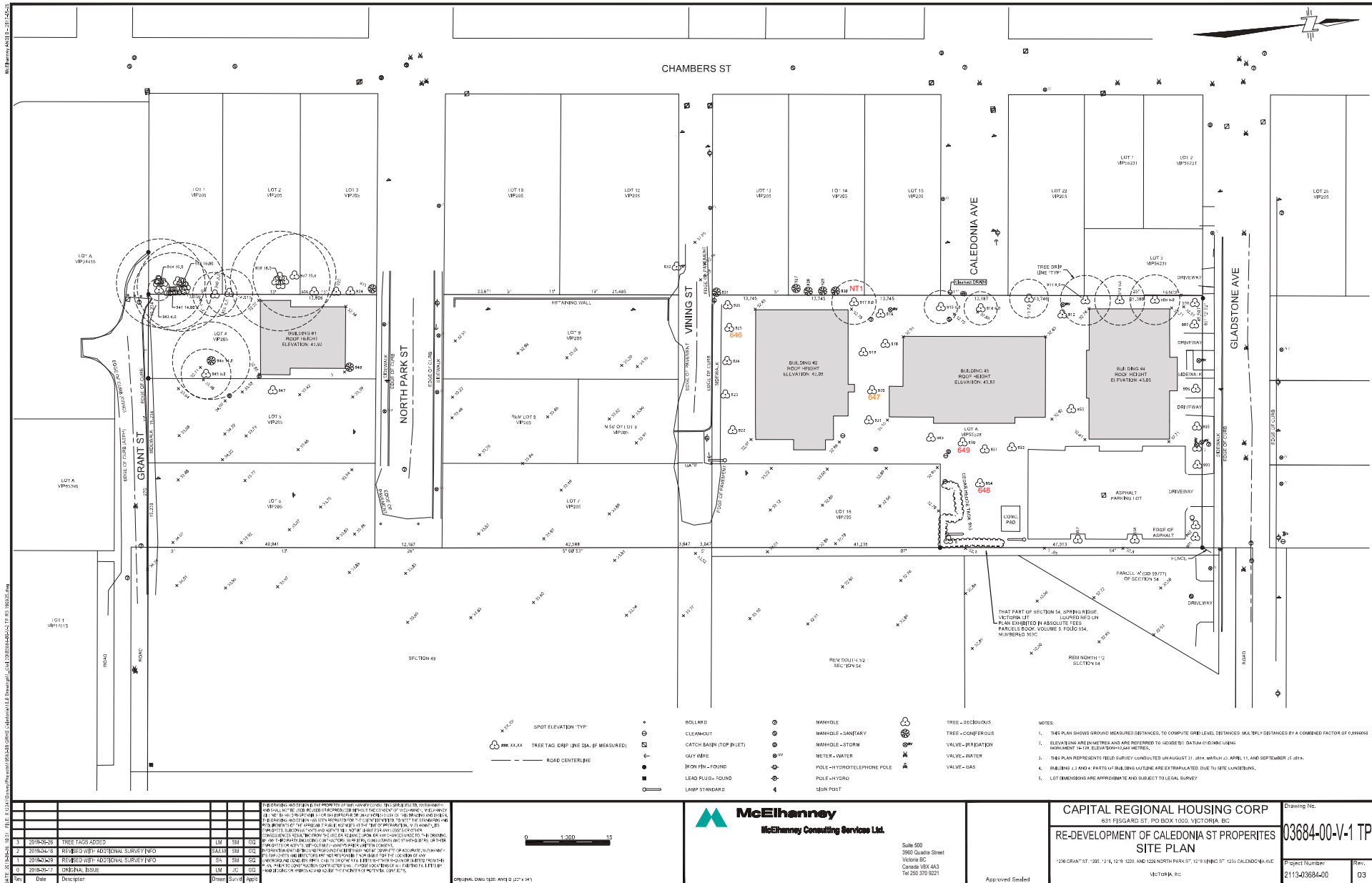
Trees are living organisms, whose health and structure change, and are influenced by age, continued growth, climate, weather conditions, and insect and disease pathogens. Indicators of structural weakness and disease are often hidden within the tree structure or beneath the ground. It is not possible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

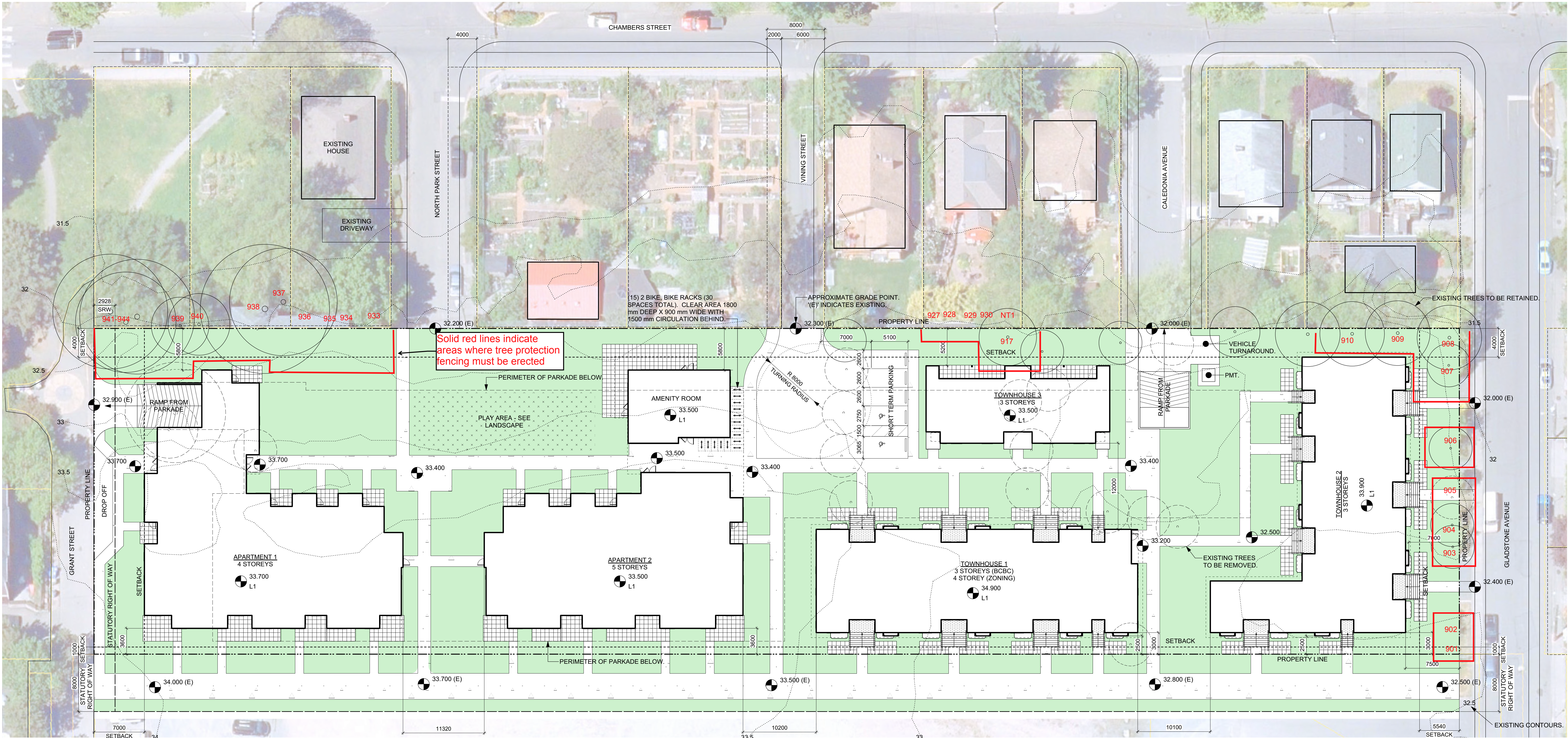
Remedial care and mitigation measures recommended are based on the visible and detectable indicators present at the time of the examination and cannot be guaranteed to alleviate all symptoms or to mitigate all risk posed.

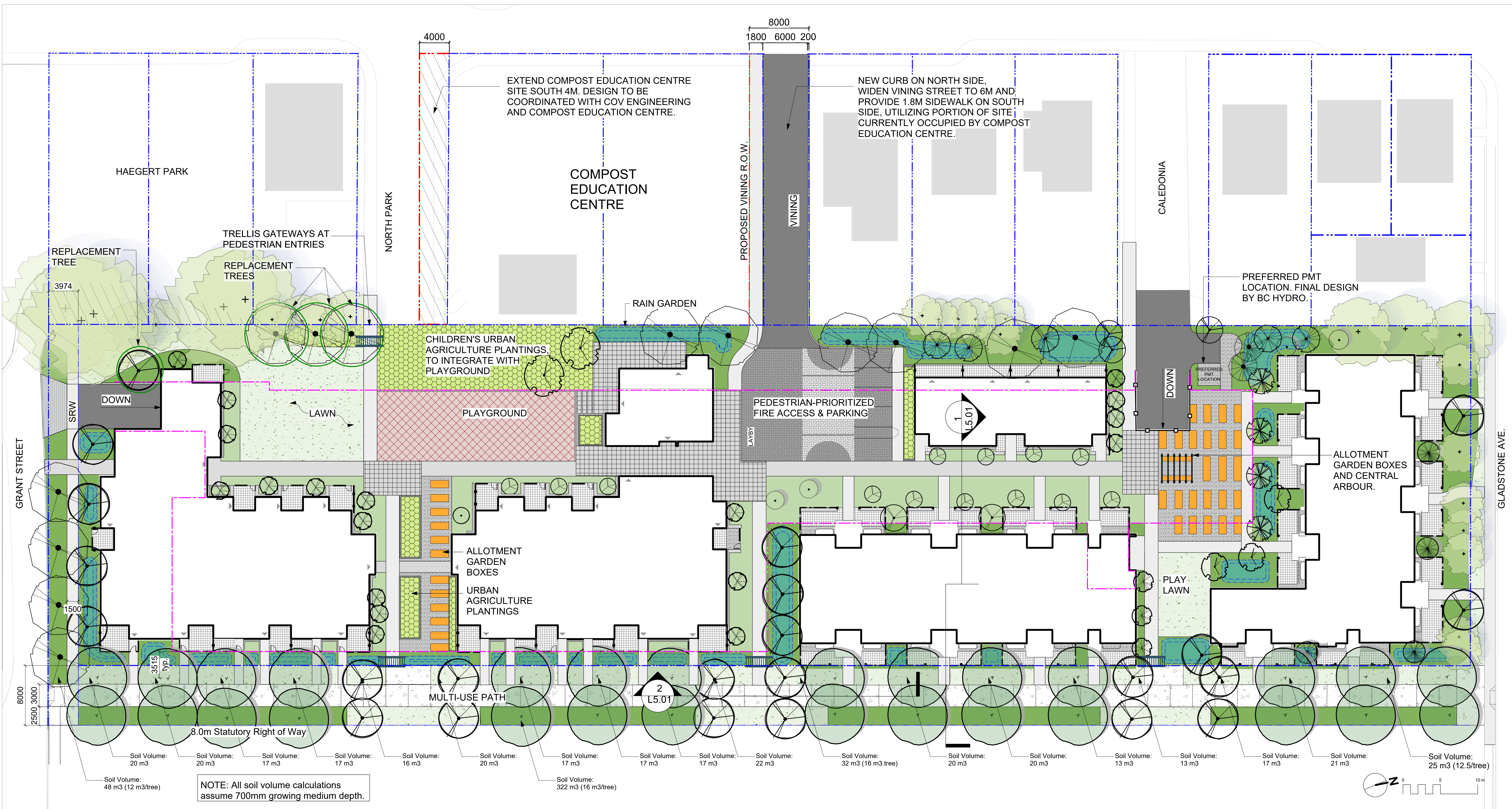
Tree ID	Common Name	Latin Name	DBH (cm) ~approximate	Crown Spread (m)	CRZ (m)	Relative Tolerance	Health	Structure	Remarks and Recommendations	Location	Bylaw Protected	Retention Status	Reason for Removal
NT1	Variegated Cedar	<i>Thuja plicata 'Zebrina'</i>	~13	3	2.0	Poor	Good	Good	Neighbour's, next to fence	Off-site (1907 Chambers St)	N	Retain	-
901	Tulip Tree	<i>Liriodendron tulipifera</i>	11	2	1.5	Moderate	Fair/poor	Poor	Dead leader	Subject property (1211 Gladstone Ave)	N	Retain*	-
902	Tulip Tree	<i>Liriodendron tulipifera</i>	11	2	1.5	Moderate	Fair/poor	Poor	Dead leader	Subject property (1211 Gladstone Ave)	N	Retain*	-
903	Tulip Tree	<i>Liriodendron tulipifera</i>	12	3	1.5	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	Retain*	-
904	Tulip Tree	<i>Liriodendron tulipifera</i>	16	2	2.0	Moderate	Fair/poor	Fair/poor	Dead leader	Subject property (1211 Gladstone Ave)	N	Retain*	-
905	Tulip Tree	<i>Liriodendron tulipifera</i>	16	3	2.0	Moderate	Fair	Fair		Subject property (1211 Gladstone Ave)	N	Retain*	-
906	Tulip Tree	<i>Liriodendron tulipifera</i>	25	5	3.0	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	Retain*	-
907	Tulip Tree	<i>Liriodendron tulipifera</i>	32	6	4.0	Moderate	Good	Good		Subject property (1211 Gladstone Ave)	N	Retain*	-
908	Tulip Tree	<i>Liriodendron tulipifera</i>	34	6	4.0	Moderate	Good	Good		Subject property (1211 Gladstone Ave)	N	Retain*	-
909	Red Oak	<i>Quercus rubra</i>	36	9	4.5	Moderate	Good	Fair	Confined rooting area	Subject property (1211 Gladstone Ave)	N	Retain*	-
910	Red Oak	<i>Quercus rubra</i>	42	11	5.0	Moderate	Good	Fair	Crown over existing building, confined rooting area	Subject property (1211 Gladstone Ave)	N	Retain*	-
911	Red Oak	<i>Quercus rubra</i>	36	9	4.5	Moderate	Good	Fair	Small deadwood, asymmetric crown	Subject property (1211 Gladstone Ave)	N	X	Townhouse 2
912	Norway Maple	<i>Acer platanoides</i>	31, 29	10	5.0	Good	Good	Fair/poor	Included bark between stems	Subject property (1211 Gladstone Ave)	N	X	Townhouse 2
913	Red Oak	<i>Quercus rubra</i>	46	13	5.5	Moderate	Good	Fair	Confined rooting area	Subject property (1211 Gladstone Ave)	N	X	Caledonia Ave road extension
914	Maple	<i>Acer spp.</i>	45	10	5.5	Moderate	Good	Fair	Confined rooting area, surface rooted, possibly Silver Maple (<i>Acer saccharinum</i>)	Subject property (1211 Gladstone Ave)	N	X	Caledonia Ave road extension
915	Red Oak	<i>Quercus rubra</i>	43	12	5.0	Moderate	Good	Fair	Wire embedded in trunk	Subject property (1211 Gladstone Ave)	N	X	Caledonia Ave road extension
916	Red Oak	<i>Quercus rubra</i>	41	11	5.0	Moderate	Good	Fair	3 codominant leaders	Subject property (1211 Gladstone Ave)	N	X	Townhouse 3
917	Red Oak	<i>Quercus rubra</i>	36	10	4.5	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	Retain*	-
918	Red Oak	<i>Quercus rubra</i>	34	9	4.0	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
919	Tulip Tree	<i>Liriodendron tulipifera</i>	30	6	3.5	Moderate	Good	Fair	Asymmetric crown	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
647	Tulip Tree	<i>Liriodendron tulipifera</i>	20	4	2.5	Moderate	Good	Good	Surface rooted. Previously tagged 920	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
921	Tulip Tree	<i>Liriodendron tulipifera</i>	33	7	4.0	Moderate	Good	Fair/poor	Narrow codominant union.	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
922	Red Maple	<i>Acer rubrum</i>	24	6	3.0	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
923	Tulip Tree	<i>Liriodendron tulipifera</i>	30	6	3.5	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
924	Tulip Tree	<i>Liriodendron tulipifera</i>	20	6	2.5	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
646	Tulip Tree	<i>Liriodendron tulipifera</i>	41	8	5.0	Moderate	Good	Fair	Previously tagged 925	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
926	Red Maple	<i>Acer rubrum</i>	25	6	3.0	Moderate	Fair	Fair		Subject property (1211 Gladstone Ave)	N	X	Vining St road extension and parking area
927	Variegated Cedar	<i>Thuja plicata 'Zebrina'</i>	23	4	3.5	Poor	Good	Good	Neighbour's, next to fence	Off-site (1907 Chambers St)	N	Retain	-

Tree ID	Common Name	Latin Name	DBH (cm) ~approximate	Crown Spread (m)	CRZ (m)	Relative Tolerance	Health	Structure	Remarks and Recommendations	Location	Bylaw Protected	Retention Status	Reason for Removal
928	Variegated Cedar	<i>Thuja plicata 'Zebrina'</i>	20	5	3.0	Poor	Good	Good	Neighbour's, next to fence	Off-site (1907 Chambers St)	N	Retain	-
929	Variegated Cedar	<i>Thuja plicata 'Zebrina'</i>	21	6	3.0	Poor	Good	Good	Neighbour's, next to fence	Off-site (1907 Chambers St)	N	Retain	-
930	Variegated Cedar	<i>Thuja plicata 'Zebrina'</i>	28	7	4.0	Poor	Good	Good	Neighbour's, next to fence	Off-site (1907 Chambers St)	N	Retain	-
931	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	4	4.0	Poor	Fair	Fair/poor	Topped for utilities	Off-site (1903 Chambers St)	N	X	Vining St road extension
932	Eucalyptus	<i>Eucalyptus spp.</i>	74	16	9.0	Moderate	Fair	Fair	Some dieback	Off-site (1855 Chambers St)	N	X	Vining St sidewalk
933	Pyramidal Cedar	<i>Thuja spp.</i>	14	1	2.0	Poor	Good	Good		Off-site (1809 Chambers St)	N	Retain	-
934	Spanish Chestnut	<i>Castanea sativa</i>	54	12	6.5	Moderate	Good	Good		Off-site (1809 Chambers St)	N	Retain	-
935	Spanish Chestnut	<i>Castanea sativa</i>	33	12	4.0	Moderate	Good	Fair		Off-site (1809 Chambers St)	N	Retain	-
936	Western Red Cedar	<i>Thuja plicata</i>	35	8	5.5	Poor	Good	Fair	Asymmetric crown	Off-site (1809 Chambers St)	N	Retain	-
937	Elm	<i>Ulmus spp.</i>	58	16	7.0	Moderate	Good	Fair	3m from building	Off-site (Haegart Park)	N	Retain	-
938	Elm	<i>Ulmus spp.</i>	59, 56, 49, 42	18	14.5	Moderate	Good	Fair	Conflicting limbs, 2m from building	Off-site (Haegart Park)	Y	Retain	-
939	Elm	<i>Ulmus spp.</i>	33	9	4.0	Moderate	Good	Fair		Off-site (Haegart Park)	N	Retain	-
940	Elm	<i>Ulmus spp.</i>	33	9	4.0	Moderate	Good	Fair	Likely shared ownership. Clothesline on trunk	Off-site/shared (Haegart Park)	N	Retain	-
941	Elm	<i>Ulmus spp.</i>	39, 38, 29, 28, 25	14	9.5	Moderate	Good	Fair/poor	Included bark between stems	Off-site (Haegart Park)	Y	Retain	-
942	Elm	<i>Ulmus spp.</i>	34, 33, 33, 27, 23, 22	13	9.0	Moderate	Good	Fair/poor	Included bark between stems	Off-site (Haegart Park)	Y	Retain	-
943	Pear	<i>Pyrus spp.</i>	42	-	5.0	Moderate	-	-	Dead	Off-site (Haegart Park)	N	NS	-
944	Elm	<i>Ulmus spp.</i>	41, 40, 35, 25	15	10.5	Moderate	Good	Fair/poor	Included bark between stems	Off-site (Haegart Park)	Y	Retain	-
945	European Ash	<i>Fraxinus excelsior</i>	36	8	4.5	Moderate	Fair	Fair	Asymmetric crown	Subject property (1209 North Park St)	N	X	Underground parkade / buildings / walkways
946	Douglas-fir	<i>Pseudotsuga menziesii</i>	68	12	10.0	Poor	Good	Good		Subject property (1209 North Park St)	Y	X	Underground parkade / buildings / walkways
947	Pear	<i>Pyrus spp.</i>	27, 27	8	5.0	Moderate	Fair	Fair	Neighbour's, tearout injury, trunk wound	Subject property (1219 North Park St)	N	X	Underground parkade / buildings / walkways
948	Lawson Cypress	<i>Cupressus lawsoniana</i>	4x20, 13, 12, 16, 21, 13	4	6.5	Poor	Good	Fair	Asymmetric crown, stems removed at base	Subject property (1209 North Park St)	Y	X	Underground parkade / buildings / walkways
949	Red Maple	<i>Acer rubrum</i>	25	5	3.0	Moderate	Good	Fair	Asymmetric crown	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
649	Tulip Tree	<i>Liriodendron tulipifera</i>	22	5	2.5	Moderate	Fair	Fair/poor	Codominant leaders, bolts in trunk, previously tagged 950	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
951	Red Maple	<i>Acer rubrum</i>	19	5	2.5	Moderate	Good	Fair	Trunk injury	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
952	Red Maple	<i>Acer rubrum</i>	18	5	2.0	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
953	Red Maple	<i>Acer rubrum</i>	32	10	4.0	Moderate	Good	Fair	Surface rooted	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
648	Tulip Tree	<i>Liriodendron tulipifera</i>	13	3	1.5	Moderate	Fair	Fair/poor	Previously tagged 954	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
955	Red Maple	<i>Acer rubrum</i>	35	12	4.0	Moderate	Good	Fair	Surface rooted	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways

Tree ID	Common Name	Latin Name	DBH (cm) ~approximate	Crown Spread (m)	CRZ (m)	Relative Tolerance	Health	Structure	Remarks and Recommendations	Location	Bylaw Protected	Retention Status	Reason for Removal
956	Pyramidal Cedar hedge	<i>Thuja spp.</i>	10	1	1.5	Poor	Good	Good		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
957	Red Oak	<i>Quercus rubra</i>	24	6	3.0	Moderate	Good	Fair	Flat topped	Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways
958	Red Oak	<i>Quercus rubra</i>	23	6	3.0	Moderate	Good	Fair		Subject property (1211 Gladstone Ave)	N	X	Underground parkade / buildings / walkways







LANDSCAPE TYPOLOGIES

PLAY PLACES that foster fun and creativity.

RAIN GARDENS that slow & cleanse rainwater.

PERSONAL OUTDOOR AREAS that can be modified, beautified and funkified.

GATHERING PLACES that help neighbours get to know each other and support each other.

BICYCLE FACILITIES that make it easy for people of all ages to hop on their bikes.

PLANTINGS that provide food for birds, bees and butterflies.

OUTDOOR SOCIAL SPACES for gathering and sharing food.

PLANTINGS that provide beauty and food for people.

ACTIVE PLAY SPACES that support community sports.

PUBLIC ART that celebrates Fernwood's artistic spirit.

COMMUNITY GARDEN PLOTS that boost local food security.

NOT FOR CONSTRUCTION

rev no	description	date
6	RZ/DP Revision	20.03.05
5	For COTW	20.02.04
4	Issued for ADP	20.01.15
3	Issued for ADP	20.01.15
2	RZ/DP Revision	19.12.16
1	Rezoning/DP	19.09.26

Murdoch de Greeff INC
Landscape Planning & Design
200 - 554 Cultural Road
Victoria, BC V8Z 1G1
Phone: 250.412.2891
Fax: 250.412.2892

client
CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

project
Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

sheet title
Landscape Overview Plan

project no.	119.18
scale	1: 250 @ 24"x36"
drawn by	TB
checked by	PdG
revision no.	sheet no.

L1.01



DRAWING NOTES

1. DO NOT SCALE DRAWING: Verify all property lines and existing structures/vegetation to remain, prior to commencing work.
2. All plan dimensions in metres and all detail dimensions in millimetres.
3. Plant quantities on Plans shall take precedence over plant list quantities.
4. Contractor to confirm location and elevation of all existing services and utilities prior to start of construction.
5. Provide layout of all work for approval by Landscape Architect prior to proceeding with work.
6. Contractor to provide irrigation system for all planters to current IIABC Standards and Contract Specifications.
7. Landscape installation to carry a 1 year warranty from date of acceptance.
8. Plant material, installation and maintenance to conform to the current edition of the Canadian Landscape Standard.
9. General Contractor and/or sub-contractors are responsible for all costs related to production and submission to consultant of all landscape as-built information including irrigation.
10. Tree protection fencing, for existing trees, to be installed prior to commencement of all site work

NOT FOR CONSTRUCTION

6	RZ/DP Revision	20.03.05
5	For COTW	20.02.04
4	Issued for ADP	20.01.15
2	RZ/DP Revision	19.12.16
1	Rezoning/DP	19.09.26
rev no	description	date



client
CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

project
Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

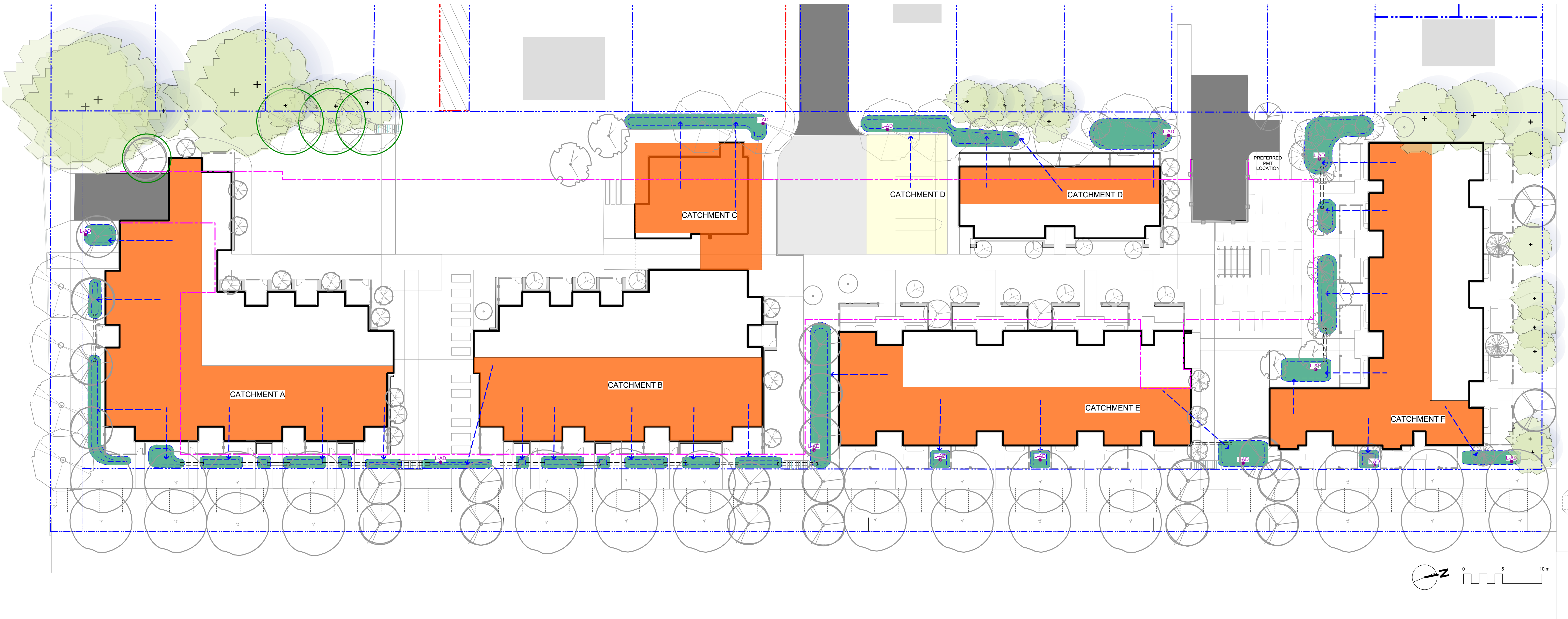
sheet title

Landscape Materials South

project no.		119.18
scale	1: 150	@ 24"x36"
drawn by		TB
checked by		PdG
revision no.	sheet no.	

6

L1.02



Rain Garden Capacity Calculations

Catchment Area	Contributing Impervious Area	Design Storm Runoff Volume Contributing to Rain Garden	Planter Growing Medium Depth	Stormwater Treatment Capacity per sq. m. of Rain Garden	Rain Garden Area	Rain Garden Capacity	Excess (+) or Deficient (-) Capacity	Soil Volume
	(sq. m.)	(cu. m./day)	(m.)	(cu. m./day)	(sq. m.)	(cu. m./day)	(cu.m./day)	(cu.m.)
Catchment A	560.0	28.0	0.60	0.8	40.0	30.0	2.0	24.0
Catchment B	360.0	18.0	0.60	0.8	25.0	18.8	0.8	15.0
Catchment C	220.0	11.0	0.60	0.8	34.0	25.5	14.5	20.4
Catchment D	280.0	14.0	0.60	0.8	30.0	22.5	8.5	18.0
Catchment E	365.0	18.3	0.60	0.8	33.0	18.5	0.3	19.8
Catchment F	415.0	20.8	0.60	0.8	63.0	47.3	26.5	37.8
total	2200.0	110.0			225.0	162.5	52.5	135.0

Assumptions

- Design storm is a 2 year storm event which equals 5 cm of water, in a 24 hr period.
- Rain Garden design based on 150 mm live ponding plus 20% of the sand/ compost growing medium volume (assuming growing medium has 20% void space) with a minimum infiltration rate of 2 cm/hour (or 48 cm per day), via perforated underdrain.

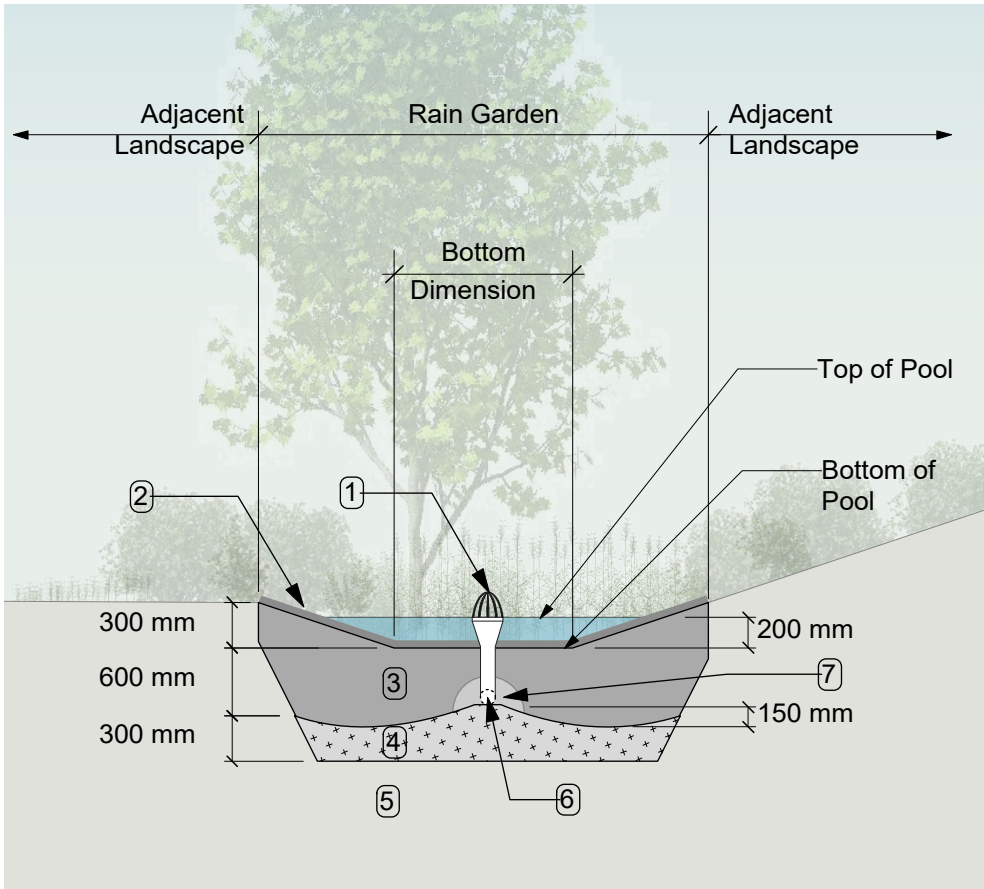
RAIN WATER MANAGEMENT NOTES

Water collected from portions of the building roofs flow to the rain gardens located throughout the site. Rain gardens have been situated on-grade.

Rain gardens are designed to capture, slow flows, and treat runoff. Rain gardens will be designed with underdrains and a high capacity overflow drain that will be connected to the onsite piped drainage system. The rain gardens are sized such that the bottom of the rain garden is 5% of the impervious area, which is the area required to manage Victoria's 2 year storm event.

Walkways will be sloped to drain to adjacent absorbant landscape. Larger paved areas such as driveways and turnarounds will be drained directly to the storm system.

Portions of the roof which cannot be easily connected to rain gardens will be drained directly to the storm system. The roof catchments are shown schematically and will be refined during detailed design.



RAIN GARDEN MATERIALS

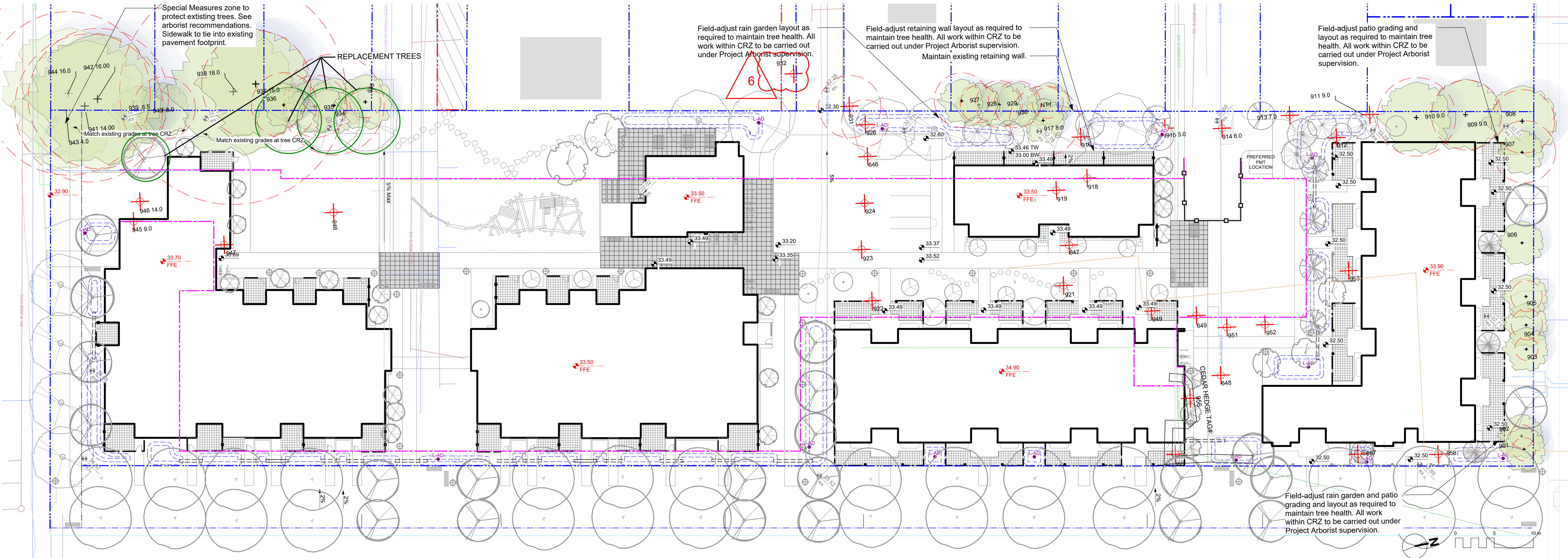
- Overflow drain, 200 mm domed grate + adapter
- Composted mulch, 50-70 mm depth
- Bio-retention growing medium, 600 mm depth
- Scarified/tilled subgrade, 300 mm depth
- Existing subgrade/native material
- 100 mm diameter (min) perforated pipe
- 25 mm diameter drain rock, 100 mm depth

1 Typical Rain Garden
Scale: 1:50

LEGEND

- Property line
- Extent of Parkade, below
- Rain garden - TOP OF POOL
- Rain garden - BOTTOM OF POOL
- Existing Landscape Grade
- Architectural grade, provided for reference only
- Proposed Landscape Grade
- TW Top of Wall TP Top of Pool
- BW Bottom of Wall BP Bottom of Pool
- TOC Top of Curb TS Top of Stairs
- BC Bottom of Curb BS Bottom of Stairs
- Rain Garden on Grade
- Roof Drains to Rain Garden
- Hardscape Drains to Rain Garden
- Roof / Road / Hardscape Drains Directly to Storm System
- Flow Path (Schematic)
- Rain Garden Overflow Drain to Storm System
- Culvert Rain Garden Connection

NOT FOR CONSTRUCTION



DRAWING NOTES

1. DO NOT SCALE DRAWING: Verify all property lines and existing structures/vegetation to remain, prior to commencing work.
2. All plan dimensions in metres and all detail dimensions in millimetres.
3. Plant quantities on Plans shall take precedence over plant list quantities.
4. Contractor to confirm location and elevation of all existing services and utilities prior to start of construction.
5. Provide layout of all work for approval by Landscape Architect prior to proceeding with work.
6. Contractor to provide irrigation system for all planters to current IIABC Standards and Contract Specifications.
7. Landscape installation to carry a 1 year warranty from date of acceptance.
8. Plant material, installation and maintenance to conform to the current edition of the Canadian Landscape Standard.
9. General Contractor and/or sub-contractors are responsible for all costs related to production and submission to consultant of all landscape as-built information including irrigation.
10. Tree protection fencing, for existing trees, to be installed prior to commencement of all site work

TREE SUMMARY*

TOTAL TREES TO BE REMOVED:	31
TOTAL TREES TO BE RETAINED:	27
TOTAL BYLAW-PROTECTED TREES TO BE REMOVED:	2
TOTAL PROPOSED REPLACEMENT TREES:	4

* Based on Arborist's Report recieved from Talbot Mackenzie & Associates, 03/04/2020. Refer to Arborist report for details and Arborist recommendations.

LEGEND

- Property line
- Extent of Parkade, below
- Rain garden - TOP OF POOL
- Rain garden - BOTTOM OF POOL
- Existing Landscape Grade
- Architctural grade, provided for reference only
- Proposed Landscape Grade
- TW Top of Wall TP Top of Pool
- BW Bottom of Wall BP Bottom of Pool
- TOC Top of Curb TS Top of Stairs
- BC Bottom of Curb BS Bottom of Stairs
- Existing Tree for Retention (Refer to Arborist Report for full details and management strategies).
- Critical Root Zone
- Tree Tag
- Existing Tree to be Removed (Refer to Arborist Report and Tree Retention & Removal Plan for full details and management strategies).
- Tree Tag
- Replacement Tree

NOT FOR CONSTRUCTION

Murdoch de Greeff INC
Landscape Planning & Design
200 - 554 Cuthbert Road
Victoria, BC V8Z 1G1
Phone: 250.412.2891
Fax: 250.412.2892

client
CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

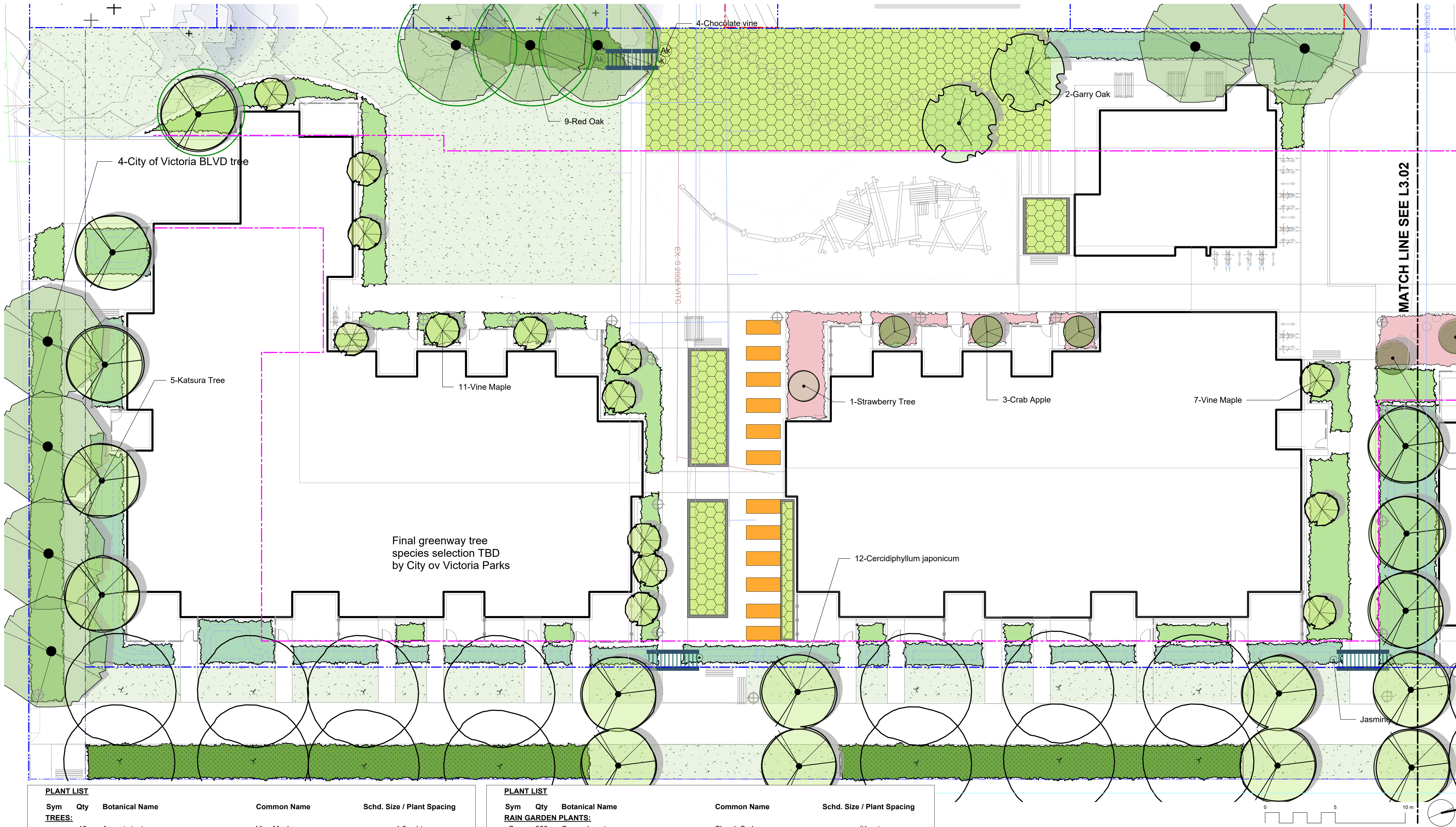
project
Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

sheet title

Tree Retention & Removal Plan

project no.	119.18
scale	1: 250 @ 24"x36"
drawn by	TB
checked by	PdG
revision no.	sheet no.

6 L1.05



BOULEVARD PLANTING NOTES

1. Boulevard trees have been placed to avoid existing and proposed infrastructure. Trees planted within 1m of an existing underground municipal service will have a root barrier installed between the root ball and the existing infrastructure.
2. Boulevard trees will be placed a minimum of 1.5m from an above ground municipal service such as fire hydrant, streetlight or driveway.
3. Final selection and placement of boulevard trees to be determined through consultation with municipal parks staff.
4. Irrigation to be installed as per Municipal Specifications, for all boulevard planting areas (unless otherwise indicated).
5. Design/build drawings for boulevard irrigation to be submitted to Landscape Architect in PDF and .dwg formats, at least two weeks prior to commencement of irrigation installation and will be reviewed by municipal staff.
6. Boulevard irrigation point of connection to be 19 mm service from existing water connection on Grant Street, refer to Civil drawings for location. Separate water meter and timer/controller, to be provided at point of connection. Timer/controller for boulevard areas must be readily accessible to municipal staff.
7. Boulevard irrigation to be inspected as per municipal specification by municipal staff. Boulevard tree irrigation system will be maintained and operated by municipality, after it is inspected and approved by municipal staff.

3

GENERAL PLANTING NOTE

1. Plant quantities and species may change between issuance of DP and Construction due to plant availability and design changes.

ON-SLAB TREE PLANTING NOTES

1. For on-slab landscape and rain planter installations, a root barrier will be installed to protect exposed water proof membranes. A dimple board (drain mat) will be installed over the root barrier in most applications.
2. Parkade walls and foundation walls will be protected with a dimple board (drain mat) to convey water to the perimeter drain and protect wall from roots.
3. A root barrier will be installed between the tree roots and perimeter drain, to minimize tree root interference with the drain, where the following conditions exist in on-grade planting areas:
a) where trees less than 8m tall are located closer than 2m from a parkade or foundation wall; b) where trees more than 8m tall are located closer than 3m from a parkade or foundation wall; and c) where perimeter drains are less than 2m deep.

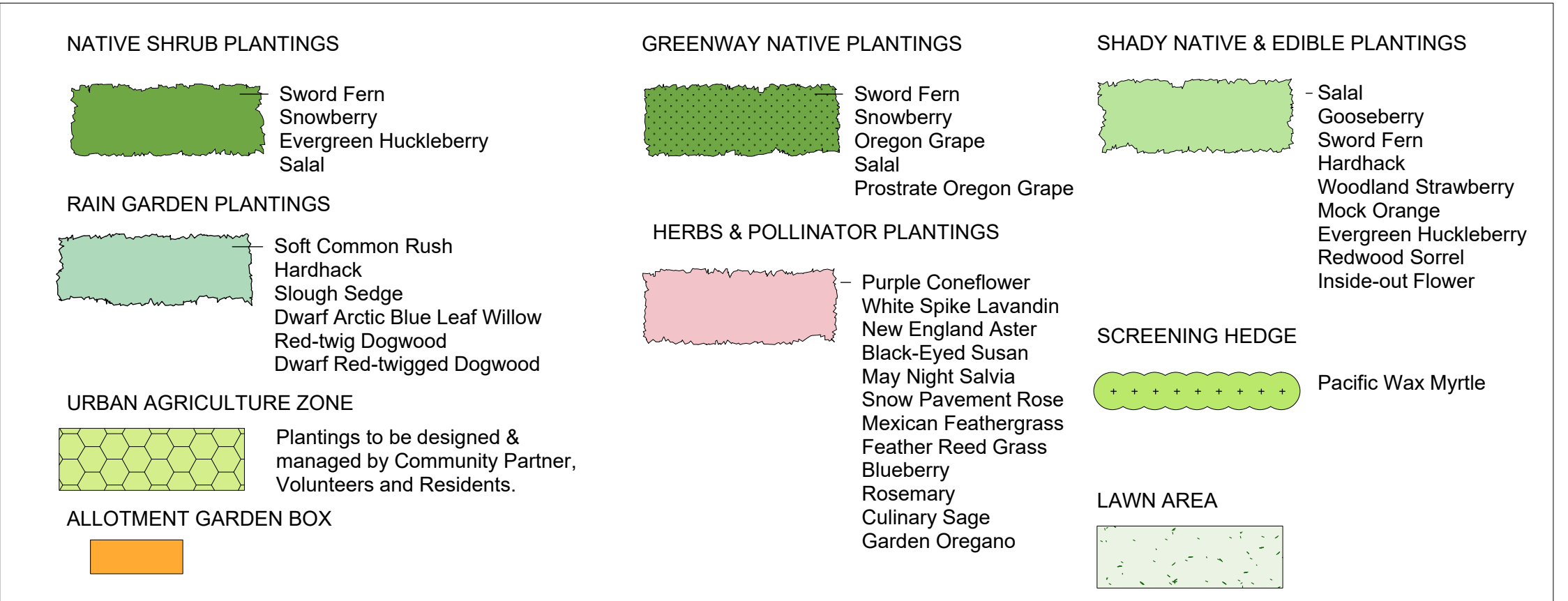
PLANT LIST

Sym	Qty	Botanical Name	Common Name	Sched. Size / Plant Spacing
TREES:				
18		Acer circinatum	Vine Maple	1.5 m ht.
1		Arbutus unedo	Strawberry Tree	1.2 m ht, b&b
4		Calocedrus decurrens	Incense Cedar	1.5 m ht, b&b
23		Cercidiphyllum japonicum	Katsura Tree	5.0cm cal, b&b
5		Chamaecyparis nootkatensis 'Pendula'	Nootka False Cypress	2.5 m ht
4		City of Victoria BLVD tree	As PER COV Parks	5.0cm cal, b&b
2		Cornus kousa 'Milky Way'	Milky Way Kousa Dogwood	multistem, 1.2 m ht, b&b
2		Cornus mas 'Golden Glory'	Cornelian Cherry Dogwood	4.0 cm cal, b&b
1		Corylus 'Felix'	Felix Hazelnut	1.5m height, b&b
3		Corylus 'Jefferson'	Jefferson Hazelnut	1.5m height, b&b
2		Ficus carica 'Mission'	Black Mission Fig	#10 pot
13		Malus 'Sugar tyme'	Crab Apple	#10 pot, Min 1.2m ht
3		Oxydendrum arboreum	Sourwood Tree	multistem, 1.5m ht, b&b
3		Picea omorika	Serbian Spruce	1.5m ht, b&b
28		Platanus acerifolia	London Planetree	4.0 cm cal, b&b
2		Pseudotsuga menziesii	Douglas Fir	1.5m ht, b&b
5		Quercus garryana	Garry Oak	4.0cm cal, b&b
9		Quercus rubra	Red Oak	5.0cm cal, b&b
HERB & POLLINATOR PLANTINGS				
Ana	134	Aster novae-angliae	New England Aster	#1 pot
Cx	15	Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	#1 pot / 1.8 m O.C.
Ep	144	Echinacea purpurea	Purple Coneflower	#1 pot
Lws	110	Lavandula x intermedia 'White Spike'	White Spike Lavandin	#1 pot
Oi	15	Origanum laevigatum 'Herrenhausen'	Garden Oregano	#1 pot
Rrs	144	Rosa rugosa 'Schneekoppe'	Snow Pavement Rose	#2 pot
Rof	33	Rosmarinus officinalis	Rosemary	#2 pot
Rf	144	Rudbeckia fulgida	Black-Eyed Susan	#1 pot
Ssm	134	Salvia 'sylvestris 'Mainacht'	May Night Salvia	#1 pot
Slo	15	Salvia officinalis	Culinary Sage	#1 pot
St	184	Stipa tenuissima	Mexican Feathergrass	#1 pot
Vsb	15	Vaccinium 'Sunshine Blue'	Blueberry	#3 pot
VINES				
Pac	2	Passiflora caerulea	Blue Passionflower	#1 pot
Jn	4	Jasminum nudiflorum	Jasmine	#1 pot
Ak	4	Akebia quinata	Chocolate vine	#2 pot
Act	4	Actinidia arguta	Hardy Kiwi	#2 pot

PLANT LIST

Sym	Qty	Botanical Name	Common Name	Sched. Size / Plant Spacing
RAIN GARDEN PLANTS:				
Co	989	Carex obnupta	Slough Sedge	#1 pot
Csc	110	Cornus sericea	Red-twig Dogwood	#3 pot
Csk	440	Cornus sericea 'Kelseyii'	Dwarf Red-twigged Dogwood	#1 pot
Jcg	989	Juncus 'Carmen's Grey'	Soft Common Rush	Sp3
Spn	23	Salix purpurea 'Nana'	Dwarf Arctic Blue Leaf Willow	#1 pot
Sd	23	Spiraea douglasii	Hardhack	1
NATIVE & EDIBLE SHRUB PLANTINGS				
Fve	188	Fragaria vesca	Woodland Strawberry	Sp3 30cm o.c.
Gsh	421	Gaultheria shallon	Salal	#1 pot, 40cm o.c.
Myc	103	Myrica californica	Pacific Wax Myrtle	#3 pot
Oo	292	Oxalis oregana	Redwood Sorrel	Sp3, 30cm o.c.
Phl	45	Philadelphus lewisii	Mock Orange	1.8
Pm	534	Polystichum munitum	Sword Fern	#1 pot
Ruc	188	Ribes uva-crispa	Gooseberry	#2 pot
Rn	113	Rosa nutkana	Nootka Rose	#1 pot
Sd	45	Spiraea douglasii	Hardhack	1
Sa	113	Symphoricarpos alba	Snowberry	#1 pot
Vsb	33	Vaccinium 'Sunshine Blue'	Blueberry	#3 pot
Bbd	26	Vaccinium 'Blue Crop' & 'Duke'	Blueberry 'Blue Crop' & 'Duke'	#3 pot
Vo	107	Vaccinium ovatum 'Thunderbird'	Evergreen Huckleberry	#3 pot
Vh	292	Vancouveriana hexandra	Inside-out Flower	0.3
GREENWAY NATIVE PLANTS:				
Gsh	183	Gaultheria shallon	Salal	0.4
Ma	26	Mahonia aquifolium	Oregon Grape	#2 pot
Mar	106	Mahonia repens	Prostrate Oregon Grape	#1 pot
Pm	106	Polystichum munitum	Sword Fern	#1 pot
Sa	106	Symphoricarpos alba	Snowberry	#1 pot

PLANTING LEGEND



NOT FOR CONSTRUCTION

6	RZ/DP Revision	20.03.05
5	For COTW	20.02.04
4	Issued for ADP	20.01.15
2	RZ/DP Revision	19.12.16
1	Rezoning/DP	19.09.26
rev no	description	date

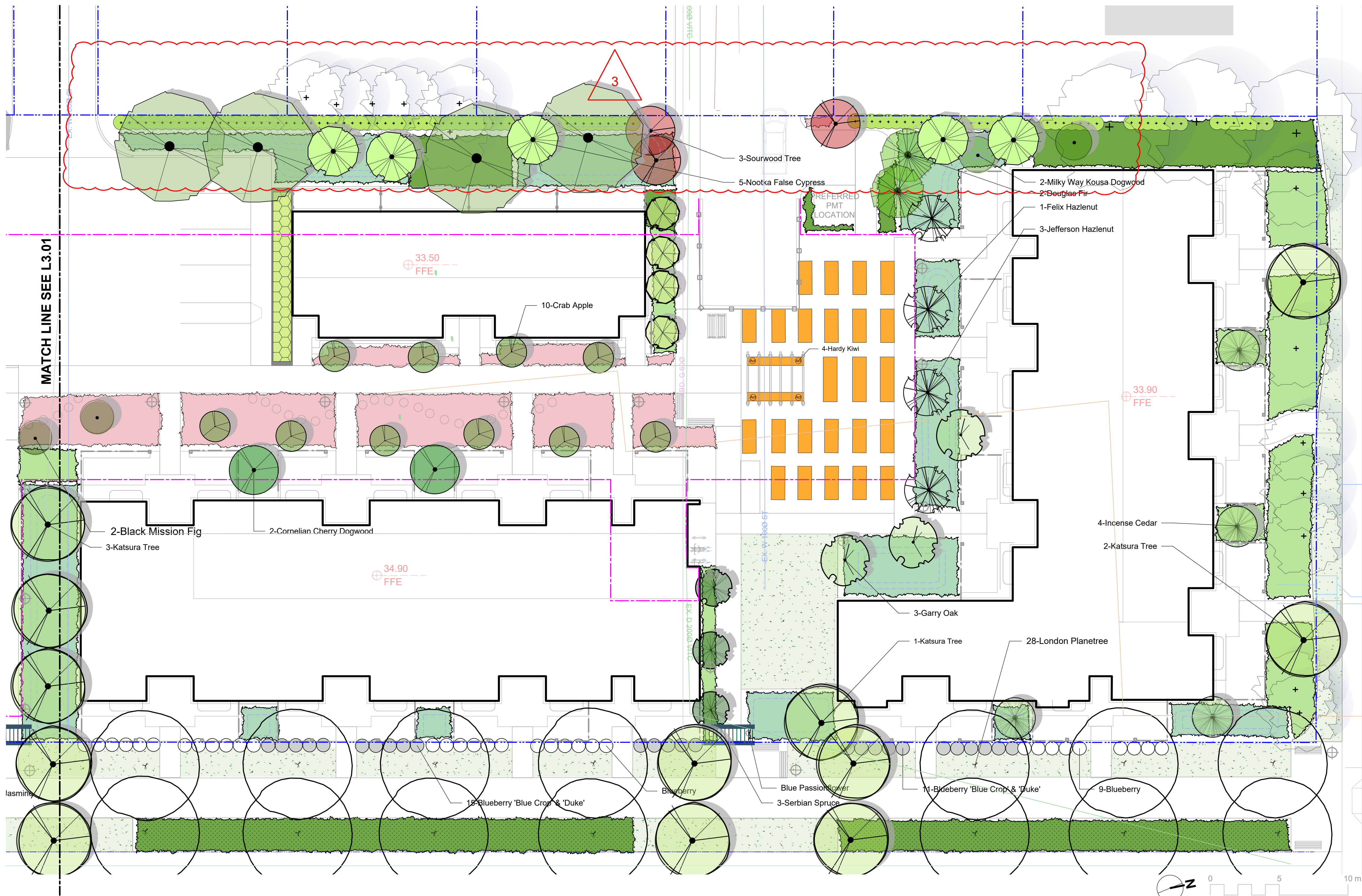
Murdoch de Greeff INC
Landscape Planning & Design
200 - 554 Cultural Road
Victoria, BC V8Z 1G1
Phone: 250.412.2891
Fax: 250.412.2892

client
CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

project
Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

sheet title
Planting Plan South

project no.	119.18
scale	1: 150 @ 24"x36"
drawn by	TB
checked by	PdG
revision no.	sheet no.
6	L3.01



PLANTING LEGEND

NATIVE SHRUB PLANTINGS

- Sword Fern
- Snowberry
- Evergreen Huckleberry
- Salal

RAIN GARDEN PLANTINGS

- Soft Common Rush
- Hardhack
- Slough Sedge
- Dwarf Arctic Blue Leaf Willow
- Red-twig Dogwood
- Dwarf Red-twigged Dogwood

URBAN AGRICULTURE ZONE

Plantings to be designed & managed by Community Partner, Volunteers and Residents.

ALLOTMENT GARDEN BOX

GREENWAY NATIVE PLANTINGS

- Sword Fern
- Snowberry
- Oregon Grape
- Salal
- Prostrate Oregon Grape

HERBS & POLLINATOR PLANTINGS

- Purple Coneflower
- White Spike Lavandin
- New England Aster
- Black-Eyed Susan
- May Night Salvia
- Snow Pavement Rose
- Mexican Feathergrass
- Feather Reed Grass
- Blueberry
- Rosemary
- Culinary Sage
- Garden Oregano

SHADY NATIVE & EDIBLE PLANTINGS

- Salal
- Gooseberry
- Sword Fern
- Hardhack
- Woodland Strawberry
- Mock Orange
- Evergreen Huckleberry
- Redwood Sorrel
- Inside-out Flower

SCREENING HEDGE

- Pacific Wax Myrtle

LAWN AREA

PLANT LIST SEE L3.01

BOULEVARD PLANTING NOTES

- Boulevard trees have been placed to avoid existing and proposed infrastructure. Trees planted within 1m of an existing underground municipal service will have a root barrier installed between the root ball and the existing infrastructure.
- Boulevard trees will be placed a minimum of 1.5m from an above ground municipal service such as fire hydrant, streetlight or driveway.
- Boulevard tree species have been picked from the municipality's list of recommended boulevard trees or have been selected due their site-adapted qualities. Final selection of boulevard trees to be determined through consultation with municipal parks staff.
- Irrigation to be installed as per Municipal Specifications, for all boulevard planting areas (unless otherwise indicated).
- Design/build drawings for boulevard irrigation to be submitted to Landscape Architect in PDF and .dwg formats, at least two weeks prior to commencement of irrigation installation and will be reviewed by municipal staff.
- Boulevard irrigation point of connection to be 19 mm service, refer to Civil drawings for location. Separate water meter and timer/controller, to be provided at point of connection. Timer/controller for boulevard areas must be readily accessible to municipal staff.
- Boulevard irrigation to be inspected as per municipal specification by municipal staff. Boulevard tree irrigation system will be maintained and operated by municipality, after it is inspected and approved by municipal staff.

GENERAL PLANTING NOTE

- Plant quantities and species may change between issuance of DP and Construction due to plant availability and design changes.

ON-SLAB TREE PLANTING NOTES

- For on-slab landscape and rain planter installations, a root barrier will be installed to protect exposed water proof membranes. A dimple board (drain mat) will be installed over the root barrier in most applications.
- Parkade walls and foundation walls will be protected with a dimple board (drain mat) to convey water to the perimeter drain and protect wall from roots.
- A root barrier will be installed between the tree roots and perimeter drain, to minimize tree root interference with the drain, where the following conditions exist in on-grade planting areas: a) where trees less than 8m tall are located closer than 2m from a parkade or foundation wall; b) where trees more than 8m tall are located closer than 3m from a parkade or foundation wall; and c) where perimeter drains are less than 2m deep.

NOT FOR CONSTRUCTION

Murdoch de Greeff INC
Landscape Planning & Design

200 - 554 Cuthbert Road
Victoria, BC V8Z 1G1

Phone: 250.412.2891
Fax: 250.412.2892

client

CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

project

Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

sheet title

Planting Plan North

project no.

119.18

scale

1: 150 @ 24"x36"

drawn by

TB

checked by

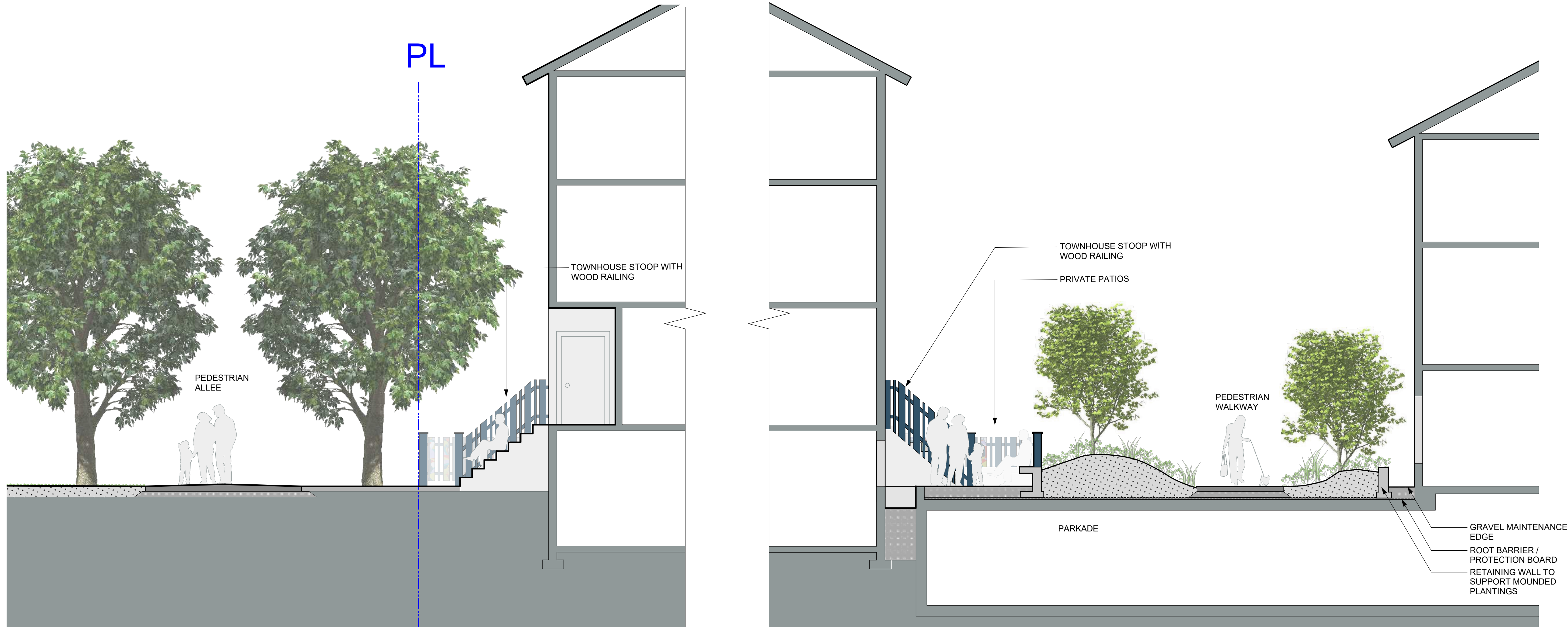
PdG

revision no.

6

sheet no.

L3.02



1 Section at Pedestrian Allee and Townhouses
Scale: 1:50



2 Section at Pedestrian Walkway
Scale: 1:50

NOT FOR CONSTRUCTION

6	RZ/DP Revision	20.03.05
5	For COTW	20.02.04
4	Issued for ADP	20.01.15
2	RZ/DP Revision	19.12.16
1	Rezoning/DP	19.09.26

rev no	description	date
--------	-------------	------



client
CRD Housing Corporation
631 Fisgard Ave.
Victoria, BC

project
Caledonia Redevelopment
Caledonia Ave.
Victoria, BC

sheet title
Landscape Sections

project no.	119.18
scale	1: 250 @ 24"x36"
drawn by	TB
checked by	PdG
revision no.	sheet no.

6

L5.01

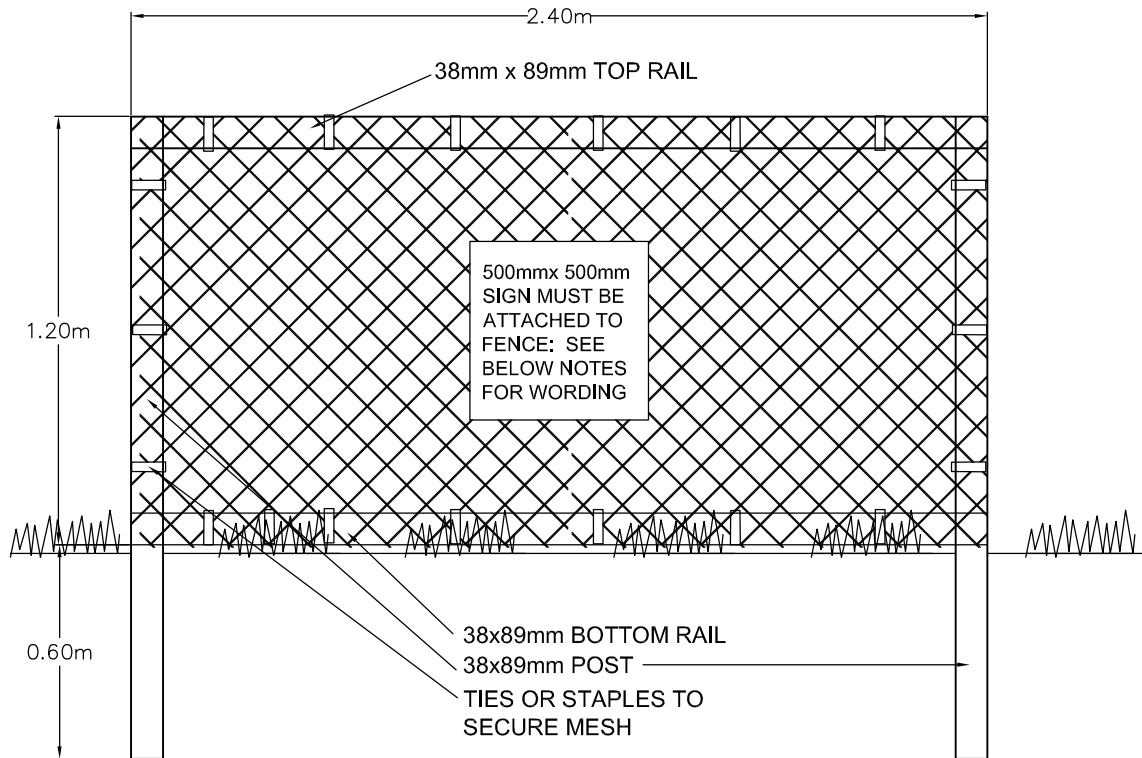
Consulting Arborists

Diagram illustrating the layers of a drainage system:

- Surfacing material
- Base layer
- Filter cloth layer
- Crushed or drain rock layer

Felted Geotextile fabric (Nilex 4535, or similar) Covered by a layer of woven Tensar BX 1200 or Amoco 2002.

1. Excavation for construction of the driveway/parking/walkway areas must remove only the top layer of sod and not result in root loss
2. A layer of medium weight felted Geotextile fabric (Nilex 4535, or similar) is to be installed over the entire area of the critical root zone that is to be covered by the paved surface. Cover this Geotextile fabric with a layer of woven Amoco 2002 or Tensar BX 1200. Each piece of fabric must overlap the adjoining piece by approximately 30-cm.
3. A 10cm layer of torpedo rock or 20-mm clean crushed drain rock, is to be used to cover the Geotextile fabric (depth dependent on desired finished grade).
4. A layer of felted filter fabric is to be installed over the crushed rock layer to prevent fine particles of sand and soil from infiltrating this layer.
5. The bedding or base layer and permeable surfacing can be installed directly on top of the Geotextile fabric.
6. Two-dimensional (such as CombiGrid 30/30 or similar) or three-dimensional geo-grid reinforcements can be installed in combination with, or instead of, the geotextile fabric specified in the attached diagram.
7. Ultimately, a geotechnical engineer should be consulted and in consultation with the project arborist may specify their own materials and methods that are specific to the site's soil conditions and requirements, while also avoiding root loss and reducing compaction to the sub-grade.



TREE PROTECTION FENCING

1. 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.
 2. ATTACH A 500mm X 500mm SIGN WITH THE FOLLOWING WORDING: WARNING- TREE PROTECTION AREA. 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



Talbot Mackenzie & Associates

Consulting Arborists

Box 48153 RPO - Uptown Victoria, BC V8Z 7H6

Ph: (250) 479-8733

Fax: (250) 479-7050

Email: tmtreehelp@gmail.com

Tree Resource Spreadsheet Methodology and 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

Crown Spread: Indicates the diameter 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

Retention Status:

- X - 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
- TBD (To Be Determined) - The impacts on the tree could be significant. However, in the absence of exploratory excavations and in an effort to retain as many trees as possible, we recommend that the final determination be made by the supervising project arborist at the time of excavation. The tree might be possible to retain depending on the location of roots and the resulting impacts, but concerned parties should be aware that the tree may require removal.
- NS - Not suitable to retain due to health or structural concerns