

1039 & 1043 Meares Street

Tree Management Plan Report

PREPARED FOR:

Jawl Residential c/o Kristina Knappett 3375 Tennyson Avenue Victoria, BC V8Z 3P7 kristina@jawlresidential.com

PREPARED BY:

Peter McAra Regional Inventory Arborist ISA Certified Arborist #PN-7521A ISA Tree Risk Assessment Qualified

PROVIDED BY:

Michael Evers Arborist Representative ISA Certified Arborist # PN-1149AT ISA Tree Risk Assessment Qualified 4370 Interurban Road Victoria, BC V9E 2C4 250-479-3873



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Summary

Kristina Knappett of Jawl Residential is in charge of designing a development on the properties of 1039 & 1043 Meares Street located in Victoria, BC. As part of the design review process, the City of Victoria requests a tree preservation plan. Ms. Knappett asked Bartlett Tree Experts to perform a tree inventory and prepare a Tree Management Plan Report for the property as part of their submission to the City of Victoria.

Of the 14 trees included in our inventory, 10 trees are protected and cannot be removed without approval from the City of Victoria. Of those 10 protected trees, 3 are municipally owned or shared trees and 7 are of a diameter at breast height (DBH) greater than 30 cm.

The plans include limited excavation in the building footings and grading within the existing parking lot for construction of the six story structure. A new single driveway access will be constructed. Other additional changes include creating the underground utilities to connect to municipal infrastructure as well as possible above ground power lines. Impacts to each tree are listed in the Tree Inventory Table (Appendix IV). Based on my evaluation of the plans:

- 2 Municipal trees will need to be removed.
- 3 trees on the site should be removed.
- 1 tree (#114) was already removed due to excavation and root loss from an adjacent property project at 1053 Meares Street.
- 7 off site trees shall be preserved.

To help protect the preserved trees from excessive construction impacts, I recommend following the Tree Preservation Guidelines found within this report.

Introduction

In March 2022, Ms. Kristina Knappett of Jawl Residential retained Bartlett Tree Experts to perform a tree inventory and prepare a Tree Management Plan Report for the properties at 1039 & 1043 Meares Street in Victoria, BC. The intended purpose of this report is to provide recommendations for tree management during construction. I have interpreted the site plans provided to help inform the client of these recommendations, while also considering the bylaws protecting trees in the City of Victoria.

Assignment

This report communicates impacts to trees from construction to the City and to the client. The City of Victoria requires a Tree Management Plan as part of their design review process. The report is intended to provide the design team with the tree related details they will need to prepare a Tree Preservation Plan to meet that requirement, including:

- observations of the health and structural condition of the trees,
- evaluation of the impacts to trees based on development plans, and
- guidelines for tree preservation throughout the development process

Limits of the Assignment

The tree assessment was performed from the ground for visual conditions. This tree inventory was not a tree risk assessment. As such, no trees were assessed for risk in accordance with industry standards, nor are there any tree risk ratings or risk mitigation recommendations provided within this report.

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

Illustrations, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

Information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plans of the property in question may not arise in the future.

City Bylaw Regulations

The City of Victoria (Protection Bylaw #21-035) protects trees that meet the following criteria:

- 1) Any tree of the following species over 50 cm in height:
 - a) Garry oak (Quercus garryana)
 - b) Arbutus (*Arbutus menziesii*)
 - c) Pacific yew (Taxus brevifolia)
 - d) Pacific dogwood (Cornus nuttallii)
- 2) Any tree with a diameter at breast height (DBH) greater than 30 cm (multi-stemmed trees DBH are equal to the sum of the three largest stems)
- 3) A hedge that contains any single stem with a diameter at breast height (DBH)
- 4) A replacement tree
- 5) A tree that is protected by a restrictive covenant in favour of the City
- 6) A tree that is on a slope where the slope grade is greater than 33 percent over 10 metres
- 7) A tree that is within 15 metres of the natural boundary of a watercourse

Based on these guidelines, 10 trees are protected and cannot be removed without approval from the City of Victoria. The protected status of each tree is listed in the Tree Inventory Table (Appendix IV).

Methods

Trees were assessed on March 1, 2022. The assessment included all trees 10 cm and greater in diameter and Street Trees of any size on, or with canopies overhanging, the site.

- 1. Assigning a sequentially number for each potentially impacted tree (trees were not tagged);
- 2. Identifying the species of tree;
- 3. Measuring the trunk diameter at a point 1.4 m above grade;
- 4. Evaluating the health and structural condition, and assigning an overall condition of Good, Fair, Poor, or Dead based on the following criteria:
 - **Good** A healthy tree that may have a slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected;
 - *Fair* Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care;
 - *Poor* Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated;

Dead

Observations

Of the 14 trees inventoried for the site, 3 were in good condition, 6 were fair, and 5 were poor on the date of the site visit (Table 1).

Common Name	Scientific Name	Dead	Poor	Fair	Good	Total
Field maple	Acer negundo	-	-	-	1	1
Red maple	Acer rubrum	-	3	2	-	5
Douglas fir	Psedotsuga menziesii	-	-	-	1	1
Cherry species	Prunus sp.	-	2	2	1	5
Yoshino cherry	Prunus yedoensis	-	-	2	-	2
Total		-	5	6	3	14

TABLE 1: TREE CONDITION AND ABUNDANCE

Tree Impacts



Photo 1: The front of the property as viewed looking in a southeastern direction. (03/01/2022)

The two municipal owned Yoshino cherry (*Prunus yedoensis*) #M101 and M-102 boulevard trees are located next to the northwest corner of the site. One tree #M-101 will require removal for the installation of a new driveway access. Tree #M-102 is to be retained, and it will require tree protection fencing around the available protected root zone. However, due to the presence of the sidewalk and road, the fencing will not be able to fully protect the entire PRZ. Instead, only the area covered with grass will be protected by fencing. Arborist supervision will be required if construction activity takes place within the PRZ. These trees are intolerant of mechanical injury as they are poor wound compartmentalizers as such any excavation

if required, should be done with as minimal an impact as possible. Any roots larger than 1 cm in diameter will require careful excavation preferably by hydro-vacuum truck or hand digging. If any pruning is required the roots encountered will be photographed and documented for forwarding to the City in the form of a monitor report. Root pruning may only be done by the supervising arborist on site. No roots larger than 3 cm in diameter may be pruned without written permission from the City of Victoria.

There is a Cherry species (*Prunus sp.*) #M-103 located adjacent to the current eastern parking lot entrance way. This tree is in poor condition and has large deadwood throughout its crown. The canopy on the west side of the tree overhangs the driveway significantly. Based off the provided

Landscape Plan L1.01 this tree is to be removed for PMT access. A permit from the City of Victoria will be required before this tree may be removed.

The other *Prunus species* #OS106-109 trees on the neighbouring property to the south will be retained. Arborist supervision will be required if construction activity takes place close to these trees. They are at a higher elevation than the parking lot, so the roots may or may not be encountered.

The small diameter Boxelder maple (*Acer negundo*) #OS-104 is located adjacent to the northwest side of the property. It is in good condition and can tolerate root pruning if required. They do not compartmentalize pruning wounds well which can lead to potential structural defects long term. The tree will require protection measures be in place and any excavation work for the new driveway access may require monitoring to ensure minimal impacts from construction.

Red maple (*Acer rubrum*) #OS-105 is on the neighbouring property adjacent to the southwest corner of the property. This tree is in poor health as it has a significant wound on its lower trunk base. Arborist supervision will be required if digging within the PRZ as described in the table. These trees are tolerant of root pruning when required as long as significant root loss is not incurred. Any roots larger than 2 cm in diameter will require careful excavation around. If root pruning is required the roots encountered will be photographed and documented for forwarding to the City in the form of a monitor report. Root pruning may only be done by the supervising arborist on site. The three Red maple trees (#110-112) are to be removed due to vicinity to the building structure and expected root loss from the project. However, it these trees are to be retained, the excavation within their PRZ's must be limited to a hydro-vacuum truck to ensure minimal root loss. These trees have a moderate tolerance to construction and minor root pruning when required. Maple tree #114 was already removed due to the root loss from excavation on the adjacent property of 1053 Meares Street.

The Douglas fir (*Pseudotsuga menziesii*) #OS-113 is located on the neighbouring property adjacent to the southeast corner. It may incur impacts from potential excavation and these trees respond well to minimal root pruning when required. Most of the tree's PRZ will be protected by the Tree Protection Fencing. Much like the other trees, any roots encountered can only be pruned by an ISA certified arborist and must be documented.

Responsibilities of Project Arborist

The duties of the project arborist include:

- Reviewing site plans and establishing tree protection zones.
- Make recommendations in relation to the retention, pruning, removal and protection of bylaw protected trees on site.
- Determining the location of tree protection fencing and plywood and ensuring that they are properly installed prior to construction commencing.
- Supervising all work performed within tree protection zones or within the protected root zones of trees.

Note: it is the responsibility of the contractor to ensure that the project arborist is on site for all work performed within the protected root zones.

To protect the retained trees from construction impacts, I recommend following the Tree Preservation Guidelines provided in this report.

	Α	В	С	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	3	3	13	0
Offsite trees	4	0	0	0
Municipal trees	3	2	2	N/A
Total	10	5	15	0

City of Victoria Tree Impact Summary

City of Victoria Replacement Tree Summary

Onsite Minimum replacement tree requirement	Count	Multiplier	Total
A. Protected trees removed	3	X 1	3
B. Replacement trees proposed per schedule "E" Part 1	1	X 1	1
C. Replacement trees proposed per schedule "E" Part 2	12	X 0.5	6
D. Replacement trees proposed per schedule "E" Part 3	0	X 1	0
E. Total Replacement trees proposed (B+C+D) Round down to the nearest whole number	nd N/A	N/A	7
F. Onsite replacement tree deficit (A-E) Record 0 if negativ	/e N/A	N/A	0
G. Onsite tree minimum lot requirement	N/A	N/A	7
H. Protected trees retained (other than specimen trees)	0	X 1	0
I. Specimen trees retained	0	Х 3	0
J. Trees per lot deficit (G – (B+C+H+I) Record 0 if negativ number	/e N/A	N/A	0
K. Offsite Protected trees removed	0	X1	0
L. Replacement trees proposed per	0	X1	0
M. Replacement tree proposed from Schedule "E" Part 2	0	X 0.5	0
N. Total replacement trees proposed (L+M) Round down a nearest whole number	to N/A	N/A	0
O. Offsite replacement tree deficit (K-N) Record 0 if negative	/e N/A	N/A	0
P. Onsite trees proposed for cash-in-lieu Enter F. or J whichever is the greatest number	<i>I.,</i> N/A	N/A	0
Q. Offsite trees proposed for cash-in-lieu Enter 0	N/A	N/A	0
R. Cash-in-lieu proposed ((P+Q) x \$2000)	N/A	N/A	0

This is based off of the lot area of 1352.3m².

Tree Preservation Guidelines

Tree preservation is intended to not only foster tree survival during development, but also to promote maintenance of tree health and beauty into the future. Retained trees that are injured or damaged during construction or are insufficiently maintained afterward become a liability rather than an asset. How individual trees respond to disturbances will depend on the extent of excavation and grading, the care with which demolition is undertaken, and the construction methods employed. Coordinating any construction activity inside the Tree Protection Zone (TPZ) can minimize these impacts.

The following recommendations will reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design Recommendations

- 1. Any changes to the plans involving the trees should be reviewed by the consulting arborist with regard to tree impacts. These include, but are not limited to, site plans, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans, and demolition plans.
- 2. **Tree Preservation Guidelines** prepared by the Project Arborist, which include specifications for tree protection during demolition and construction, should be included on all plans.
- 3. Minimize excavation at the edges of the Tree Protection Fencing and have an ISA certified arborist (w/TRAQ) on hand to monitor the process.
- 4. Ensure adequate, but not excessive, water is supplied to trees to be retained. In most cases, occasional irrigation will be required. Avoid directing runoff toward the trunks of the trees.

Tree Protection Zone

- A TREE PROTECTION ZONE shall be identified for each tree to be preserved on the Tree Protection Plan prepared by the project arborist. Tree Protection Zones should be in the maximized on site within the area available. Any excavation within the retained trees PRZ (Appendix IV – Tree Inventory Table) will require the Project Arborist to be present. Any roots during the process will be documented and a summary monitor report written and forwarded to the City of Victoria. Location of Tree Protection Fencing is illustrated on Appendix III – Landscape Plan / Tree Management Plan Map below.
 - a. Tree protection fences shall be installed to encompass the **TREE PROTECTION ZONE.** As detailed in this image below:



- b. Fences must be installed prior to beginning demolition and must remain until construction is complete.
- c. No grading, excavation, construction or storage or dumping of materials shall occur within the TREE PROTECTION ZONE. Any excavation, grading or digging within a retained tree's Protected Root Zone (TPZ) must be monitored at the time of work by the Project Arborist.
- d. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**.

Pre-demolition and Pre-construction Treatments and Recommendations

- 1. The demolition and construction superintendents shall meet with the Project Arborist before beginning work to review all work procedures, access routes, storage areas, and tree protection measures.
- Fence all trees to be retained to completely enclose the Tree Protection Zone prior to demolition, grubbing or grading. Fences are to remain until all grading and construction is completed. Location of Tree Protection Fencing is illustrated on Appendix III – Landscape Plan / Tree Management Plan Map below. The Tree PRZ radius from the trunks of the trees are listed in Tree Inventory Table (Appendix IV).

- 3. Prune trees to be preserved to remove dead branches 5 cm and larger in diameter, raise canopies if needed for construction activities.
 - a. All pruning shall be done by an ISA Certified Arborist[®] or ISA Certified Tree Worker[®] in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2019) and adhere to the most recent editions of the American National Standard Z133.1 Safety Requirements 2017 for Tree Care Operations and ANSI A300 (Part 1)- Pruning 2017.
 - b. While in the tree the arborist shall perform an aerial inspection to identify any defects, weak branch and trunk attachments and decay not visible from the ground. Any additional work needed to mitigate defects shall be reported to the property owner.
- 4. Trees to be removed shall be felled so as to fall away from TREE PROTECTION ZONE and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the Project Arborist may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.

Recommendations for Tree Protection during Construction

- 1. Any approved grading, construction, demolition or other work within the **TREE PROTECTION ZONE** should be monitored by the Project Arborist. This includes the underground services upgrades which will be required if within any retained trees PRZ.
- 2. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.
- Tree protection devices are to remain until all site work has been completed within the work area. Fences or other protection devices may not be relocated or removed without permission of the Project Arborist. Location of Tree Protection Fencing is illustrated on Appendix III – Landscape Plan Map / Tree Management Plan below.
- 4. Construction trailers, traffic and storage areas must remain outside **TREE PROTECTION ZONE** at all times.
- 5. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the Project Arborist. Roots should be cut with a saw to provide a flat and smooth cut. Removal of roots larger than 5 cm in diameter shall be avoided.
- 6. If roots are 2 cm and greater in diameter are encountered during site work and must be cut to complete the construction, the Project Arborist must be consulted to evaluate effects on the health and stability of the tree and recommend treatment and written permission must be granted from the trees owner.
- 7. Prior to grading or trenching, trees may require root pruning outside the **TREE PROTECTION ZONE.** Any root pruning required for construction purposes shall receive the prior approval of, and be supervised by, the Project Arborist.

- 8. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Project Arborist so that appropriate treatments can be applied.
- 9. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
- 10. Any tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

Maintenance of Impacted Trees

Preserved trees will experience a physical environment different from that of the pre-development conditions. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. Inspect trees annually and following major storms to identify conditions requiring treatment to manage risk associated with tree failure.

Our procedures included assessing trees for observable defects in structure. This is not to say that trees without significant defects will not fail. Failure of apparently defect-free trees does occur, especially during storm events. Wind forces, for example, can exceed the strength of defect-free wood causing branches and trunks to break. Wind forces coupled with rain can saturate soils, reducing their ability to hold roots, and blow over defect-free trees. Although we cannot predict all failures, identifying those trees with observable defects is a critical component of enhancing public safety.

Furthermore, trees change over time. Our inspections represent the condition of the tree at the time of inspection. As trees age, the likelihood of failure of branches or entire trees increases. Annual tree inspections are recommended to identify changes to tree health and structure. In addition, trees should be inspected after storms of unusual severity to evaluate damage and structural changes. Initiating these inspections is the responsibility of the client and/or tree owner.

If you have any questions about my observations or recommendations, please contact me.

Peter McAra

Peter McAra pmcara@bartlett.com

Appendix I – Site Map



Site layout provided by a satellite image.

Appendix II – Surveyor Map



Appendix III – Landscape Plan / Tree Management Plan Map



Appendix IV – Tree Inventory Table

Tree ID	Common Name Species	Structural Condition	Health Condition	DBH (cm)	Status	Canopy Radius (m)	PRZ (m)	Retention Suitability	Relative Tolerance	Disposition	Comments
M- 101	Yoshino cherry Prunus yedoensis	Good	Fair	54	Municipal	3.5	9.7	Suitable	Moderate	Remove	Boulevard tree – Tree to be removed for new driveway access.
M- 102	Yoshino cherry Prunus yedoensis	Good	Fair	42	Municipal	5	7.6	Suitable	Moderate	Retain	Boulevard tree – Arborist supervision required if digging within 7.6 m of base of tree.
M- 103	cherry species Prunus species	Fair	Poor	44	Municipal	6.5	7.9	Unsuitable	Moderate	Remove	Boulevard tree in poor health – tree to be removed for PMT access.
OS- 104	Boxelder maple Acer negundo	Good	Good	19	Unprotected	2	3.4	Suitable	Moderate	Retain	Tree can tolerate root pruning if desired for retention.
OS- 105	Red maple Acer rubrum	Poor	Poor	*30	Protected	4	5.4	Unsuitable	Moderate	Retain	Neighbouring property tree; roots may be encountered and require Arborist supervision during excavation.
OS- 106	cherry species <i>Prunus</i> species	Fair	Fair	*32	Protected	4	5.8	Suitable	Moderate	Retain	Neighbouring property tree; roots may be encountered at require Arborist supervision during excavation.
OS- 107	cherry species Prunus species	Fair	Fair	*28	Unprotected	4	5.0	Suitable	Moderate	Retain	Neighbouring property tree; roots may be encountered at require Arborist supervision during excavation.
OS- 108	cherry species Prunus species	Fair	Good	*32	Protected	4	5.8	Suitable	Moderate	Retain	Neighbouring property tree; roots may be encountered at require Arborist supervision during excavation.

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Tree ID	Common Name <i>Speci</i> es	Structural Condition	Health Condition	DBH (cm)	Status	Canopy Radius (m)	PRZ (m)	Retention Suitability	Relative Tolerance	Disposition	Comments
OS- 109	cherry species Prunus species	Fair	Poor	*20	Unprotected	4	3.6	Suitable	Moderate	Retain	Neighbouring property tree; roots may be encountered at require Arborist supervision during excavation.
110	Red maple Acer rubrum	Fair	Fair	35, 35	Protected	4.5	12.6	Suitable	Moderate	Remove	Tree not in good enough health to tolerate root loss from nearby excavation. Tree could be retained in excavation is limited within its PRZ.
111	Red maple Acer rubrum	Fair	Poor	20	Unprotected	3.5	3.6	Unsuitable	Moderate	Remove	Tree not in good enough health to tolerate root loss from nearby excavation. Tree could be retained in excavation is limited within its PRZ.
112	Red maple Acer rubrum	Good	Fair	41	Protected	4.5	7.4	Suitable	Moderate	Remove	Tree not in good enough health to tolerate root loss from nearby excavation. Tree could be retained in excavation is limited within its PRZ.
OS- 113	Douglas fir Pseudotsuga menziesii	Good	Good	*58	Protected	5	10	Suitable	Poor	Retain	Neighbouring property tree – roots may be encountered during excavation. Arborist supervision required if excavating within 10 m of base of tree.
114	Red maple Acer rubrum	N/A	N/A	57, 56	Protected	5	20	N/A	N/A	Removed	Tree has been removed for adjacent BC Housing project located at 1053 Meares Street.

*Estimated DBH for neighbours tree

Appendix V – Photographs



Tree #M-101, viewed with an east facing perspective (03/01/2022).



View of the site from a northern perspective across the street (03/01/2022).



Tree #114 incurred root loss from neighboring BC Housing project and was removed (03/01/2022).



View of the trees bases in the southeast corner of the property (03/01/2022).

Appendix VI – Report Revisions List

Version 1.0 – Original report – submitted 03/25/2022

Version 1.1 – Added Surveyor Map – submitted 03/31/2022

- Version 1.2 Revised trees to be retained submitted 05/30/2022
- Version 1.3 Updated tree #114 was removed submitted 06/01/2022
- Version 1.4 Changed retention status of tree #M-102 submitted 06/09/2022
- Version 1.5 Updated Site Plan submitted 06/09/2022

Version 1.6 – Added City of Victoria Impact Summary, added City of Victoria Replacement Tree Summary, Added details to Tree Inventory Table, reverted retention status of tree #M-102, added Report Revision List, and changed report title to Tree Management Plan from Tree Protection Plan, removed outdated Site Plan – submitted 10/19/2022