ARBORIST REPORT

4150 Westminster Place
Mississauga, Ontario April 2, 2024

Prepared for:

St. Luke's Dixie Senior Residence Corporation
Attn: Luiza Manaj, Board Administrator
4150 Westminster Place
Mississauga ON L4W 3Z7

Prepared by:

Urban Forest Innovations Inc.
1331 Northaven Drive
Mississauga, ON L5G 4E8

URBAN FOREST INNOVATIONS INC

Contents

NB: This Arborist Report has been prepared using the latest drawings and information provided by the client and/or agents and may be intended for inclusion in a site plan approval or similar planning submission. Any subsequent design or site plan changes affecting trees may require revisions to this report. New drawings and information should be provided to UFI prior to report submission to municipal planning authorities.

Links (URLs) provided to web-based resources are current to the date of the report.

EXECUTIVE SUMMARY

Urban Forest Innovations Inc. (UFI) has been retained by St. Luke's Dixie Senior Residence Corporation to prepare an updated arborist report for the proposed development application at 4150 Westminster Place in Mississauga, Ontario. The original arborist report for this project was dated June 10, 2022, prepared by UFI. The purpose of the arborist report is to document existing tree and site conditions, to evaluate anticipated impacts to site trees which may occur as a result of the proposed development, and to identify required and recommended tree protection measures and regulatory requirements associated with the proposed development.

In total, 96 trees are addressed in this report. 11 trees have been removed since the original time of field observations on July 27, 2020 and are noted as such in Appendix 1 - Tree Inventory Table. Proposed tree removals and injuries requiring permit approval are summarized in Table 1, below. Based upon the results of the present assessment, it has been determined that 75 trees may be retained and 10 trees will require removal. The proposed works will require the implementation of specific tree protection measures to ensure effective tree retention, including tree protection fencing, root-sensitive excavation and root pruning, and arborist site supervision.

Table 1: Summary of regulated tree actions at 4150 Westminster Pl., Mississauga, ON.

Proposed Action	Municipal Trees	Subtotal	Private Regulated Trees	Subtotal	Total
Injure	-	0	#31, 54, 62, 63	4	4
Remove (Development)	-	0	#32, 52, 53, 57, 58, 61	6	6
Remove (Condition)	-	0	-	0	0

INTRODUCTION

Urban Forest Innovations Inc. has been requested by St. Luke's Dixie Senior Residence Corporation to prepare an arborist report for the proposed development at 4150 Westminster Place in Mississauga, Ontario. The proposed site works include the following activities:

- Construction of a new residential building, underground parking, and driveway with additional above-ground parking adjacent to the courtyard.

This arborist report reviews the potential impacts of the proposed works upon 85 trees within or close to the limits of disturbance, and outlines required and recommended tree protection measures and regulatory requirements associated with the proposed development. General tree maintenance recommendations are also provided where appropriate. The report should be read in conjunction with all other servicing, grading and landscaping plans prepared for the project.

SITE OBSERVATIONS

Field observations were made on July 27, 2020 and November 2, 2023, by Anna Mernieks, ISA Certified Arborist ON-2224A. There was no construction activity on the site at the time of the field observations. Trees within 6 metres of the potential limits of disturbance are included in the inventory. Trees were located using the latest site drawings and information provided by the client; trees for which no surveyed locations were provided were positioned approximately with the aid of field reference markers. Tree diameter was measured at 1.4 metres above grade (DBH) and trees were assessed for health, structural condition, and risk potential. Tree groups were identified where appropriate. All trees were assessed from the ground level. No trees were tagged as part of the inventory. A full explanation of tree assessment categories is included in Appendix 2 – Tree Inventory Attributes.

RESULTS AND DISCUSSION

This section of the report outlines the key issues related to the proposed works from an arboricultural and tree preservation perspective. Specific recommendations regarding tree protection are outlined. General recommendations are also provided in Appendix 5.

By-laws and Legislation

By-laws and legislation enacted by the City of Mississauga and/or the Province of Ontario regulate the injury or destruction of trees depending upon their location, size and other factors.

Private Tree Protection By-law

The City of Mississauga's Private Tree Protection By-law (0021-2022) regulates the injury and destruction of certain privately-owned trees. Pursuant to this by-law, "no person shall injure or destroy a tree with a diameter of 15 centimetres or greater located on private property without a valid permit."

Detailed information about the Private Tree Protection by-law can be found online at: https://www.mississauga.ca/wp-content/uploads/2018/09/30121717/Private-Tree-Protection-By-law-0021-2022.pdf

Public Tree Protection By-law

The City of Mississauga's Public Tree Protection By-law (0020-2022) regulates the injury or destruction of trees located on City-owned property. Pursuant to this by-law, no City-owned tree may be injured or removed without the authorization of the City Commissioner or their designate. Permission to injure or remove a tree growing on public property may be subject to the issuance of a written permit.

Details about The City of Mississauga Public Tree Protection By-law (0020-2022), including actions which may constitute tree injury, can be found online at: https://www.mississauga.ca/wp-content/uploads/2022/03/31134316/Public-Tree-Protection-By-law-0020-2022.pdf

Boundary Trees – Ontario Forestry Act, R.S.O. 1990

The Provincial *Forestry Act, R.S.O. 1990* states:

10. (2) Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands. 1998, c. 18, Sched. I, s. 21.

    (3) Every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the land owners is guilty of an offence under this Act. 1998, c. 18, Sched. I, s. 21.

No inventoried trees appear to be growing on the boundary between the subject site and the adjacent properties.

Endangered, Rare or Protected Species – Endangered Species Act, 2007

The Provincial *Endangered Species Act, 2007* (ESA) provides for the conservation of endangered or threatened species in Ontario. The ESA identifies Species at Risk (SAR) based on the best available scientific information, protects SAR and their habitats, promotes the recovery of species that are at risk, and promotes stewardship activities to assist in the protection and recovery of SAR.

No endangered, rare or otherwise protected tree species were observed within the limits of proposed works.

Tree Removal

Tree removal will be necessary to facilitate the proposed works. Recommendations for tree removal are based upon consideration of the anticipated impacts upon trees due to implementation of the proposed works, the immediate and forecasted health and structural condition of the tree, and the ability of the tree to make continued contributions to the newly modified landscape.

Project Works

The proposed works will require the removal of 8 trees:

- Tree #32, a privately-owned multi-stemmed (24, 23, 14 cm diameters) apple species (*Malus* sp.), is proposed for removal to enable construction of parking spaces.
- Tree #52, a privately-owned multi-stemmed (10, 8, 8 cm diameters) eastern white cedar (*Thuja occidentalis*), is proposed for removal to enable widening of a drive aisle.
- Tree #53, a privately-owned multi-stemmed (15, 10 cm diameters) eastern white cedar (*Thuja occidentalis*), is proposed for removal to enable widening of a drive aisle.
- Tree #57, a privately-owned 29 cm diameter linden (*Tilia cordata*), is proposed for removal to enable construction of underground parking.
- Tree #58, a privately-owned 22 cm diameter honey locust (*Gleditsia triacanthos*), is proposed for removal to enable construction of underground parking.
- Tree #59, a privately-owned 12 cm diameter honey locust (*Gleditsia triacanthos*), is proposed for removal to enable construction of underground parking.
- Tree #60, a privately-owned 12 cm diameter honey locust (*Gleditsia triacanthos*), is proposed for removal to enable construction of underground parking.
- Tree #61, a privately-owned 15 cm diameter honey locust (*Gleditsia triacanthos*), is proposed for removal to enable construction of underground parking.

Condition

2 inventoried trees are recommended for removal for reasons unrelated to the proposed works:

- Trees #25 and 37, an 11 cm diameter ash species (*Fraxinus* sp.) and a 7 cm diameter northern catalpa (*Catalpa speciosa*), located on the subject site, were assessed as standing dead at the time of field observations and should be removed prior to the commencement of site works.

Tree Retention

All other trees addressed in this report are proposed for retention. This section outlines specific tree preservation and protection measures for retained trees. General tree protection recommendations and specifications are found in Appendix 5.

All trees to be retained within or adjacent to the limits of project works are designated for Preservation, Protection, or Injury.

Tree Preservation

No specific tree protection measures are recommended for 44 trees (#4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 26, 27, 29, 30, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 78, 79, 80, 94, 95, 96), which are located beyond anticipated construction limits and/or are protected by existing landscape features.

Tree Protection

Retained trees in proximity to the proposed works shall be protected by restricting access and land use within tree protection zones (TPZs), as through the installation of tree preservation fencing (or hoarding) that satisfies the minimum required distance (TPZ) for each tree, where possible. Minimum required TPZ distances are specified in Appendix 1, and recommended fencing configurations are illustrated in Appendix 4. Fencing is to be established in advance of all proposed works, including but not limited to material and equipment delivery, staging and storage, demolitions, excavation and grading work, and new construction activity.

Specifications for the establishment of protection fencing and signage are outlined further in Appendix 5 – Section 5.2.1.1.

Tree Injury

During site works, retained trees may undergo injury, which is understood to be the encroachment of established tree protection zones (TPZs), regardless of the extent of actual physical damage sustained by the retained tree.

In addition to tree protection fencing, trees designated for injury at 4150 Westminster Place require the implementation of the following supplemental tree protection measures:

- **Root-Sensitive Excavation and Root Pruning –** The tree protection zones of 4 by-law regulated, inventoried trees (#31, 54, 62, 63) will be impacted by excavation to enable the proposed works, resulting in injury. All excavation within TPZs shall be accomplished by root-sensitive excavation utilizing hand-digging, hydrovac or pneumatic soil excavation (e.g., Airspade). Excavations must be supervised by the project consulting arborist, who must be enabled to stop works if, during the course of excavation, significant structural or transport roots (greater than approximately 25mm diameter) are encountered, in order to properly prune the roots. Specifications for root-sensitive excavation and root pruning are outlined in Appendix 5 – Sections 5.2.1.4 and 5.2.1.5.

Tree Risk and Required Tree Maintenance

At the time of inspection, there were no immediate risks posed by any trees within the project limits.

By-law and Permit Requirements

In total, 10 privately-owned trees greater than 15 cm DBH are proposed for removal and injury:

- Trees #32, 52, 53, 57, 58, and 61, for removal.
- Trees #31, 54, 62, and 63, for injury.

An *Application to Permit the Injury or Destruction of Trees on Public and Private Property* may be required to enable the proposed removals and injuries. The form can be found online at: https://www.mississauga.ca/wp-content/uploads/2022/03/31155229/Application-to-Permit-the-Injury-or-Destruction-of-Trees-on-Public-and-Private-Property-2205_2022.pdf

Note about adjacent parkland (Shelby Park)

Field observations of the parkland adjacent to Westminster Place (the subject site) were conducted on August 1, 2023 by Anna Mernieks, ISA Certified Arborist ON-2224A. It was observed that any trees with tree protection zones that approach the limit of proposed works were captured by the original survey. The unsurveyed portion of densely vegetated adjacent parkland area is dominated by sumac (*Rhus* sp.) with secondary populations of by small (approx. 15 cm DBH or smaller) black walnut (*Juglans nigra*), manitoba maple (*Acer negundo*), ash species (*Fraxinus* sp.) white mulberry (*Morus alba*), and infrequently observed bur oak (*Quercus macrocarpa*) and hackberry (*Celtis occidentalis*). The understorey is characterized by a mixture of garlic mustard, raspberry, buckthorn, grape vine, Virginia creeper, euonymus, grasses, and burrs (see example in Figure 5). It is not anticipated that site works will have any negative impact on the vegetation in Shelby Park.

CONCLUSION

There are 96 trees associated with the proposed development at 4150 Westminster Place in Mississauga, Ontario. The proposed works will require the implementation of specific tree protection measures to ensure effective tree preservation. 6 by-law regulated trees will require removal and 4 by-law regulated trees will require injury to enable the proposed works. A 'Permit to Injure or Destroy Trees' will likely be required to enable the proposed removals and injuries.

With the implementation of the recommendations provided in this report, no significant adverse effects are anticipated as a result of the proposed works upon the long-term health and condition of inventoried trees that have been designated for retention. It is important that good arboricultural practices be undertaken during the entire course of construction. No material storage or construction access shall take place within tree protection zones (TPZs); sensitive excavation and root pruning shall be undertaken, as required; and any necessary branch and/or root pruning shall be undertaken by an ISA Certified Arborist.

APPENDIX 1 – TREE INVENTORY

Table 2: Tree inventory, 4150 Westminster Pl., Mississauga, Ontario. Tree assessments are based upon field observations undertaken on July 27, 2020 and November 3, 2023, by Anna Mernieks, ISA Certified Arborist ON-2224A. Attribute definitions are provided in Appendix 2.

Tree	Common Name	Scientific Name	DBH	DBH_M	DBH_Calc	CW	TI	CS	CV	TPZ	Loc.	Rec.	Comments
~~**1**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~26~~			~~8~~	~~F~~	~~F~~	~~F~~	~~1.8~~	~~S~~	~~-~~	[Removed]
2	Hawthorn Species	*Crataegus sp.*	17			5	G	F	G	1.5	S	P	DBH measured at 1.2 m.
3	Norway Maple	*Acer platanoides*	27			10	F	G	F	1.8	S	P	
4	Norway Maple	*Acer platanoides*	31			11	F	F	F	2.4	S	-	
5	Austrian Pine	*Pinus nigra*	35			7	G	G	G	2.4	S	-	
6	Eastern White Cedar	*Thuja occidentalis*	13			4	G	G	G	1.5	S	-	
7	Norway Maple	*Acer platanoides*	28			9	F	P	F	1.8	S	-	
~~**8**~~	~~Austrian Pine~~	~~*Pinus nigra*~~	~~41~~			~~9~~	~~G~~	~~G~~	~~G~~	~~3.0~~	~~S~~	-	[Removed]
9	Norway Maple	*Acer platanoides*	31			10	G	G	G	2.4	S	-	
10	Honey Locust	*Gleditsia triacanthos*	24			8	G	G	G	1.8	M	-	
11	Austrian Pine	*Pinus nigra*	39			10	G	G	G	2.4	S	-	
12	Norway Maple	*Acer platanoides*	33			12	F	G	G	2.4	S	-	
13	Austrian Pine	*Pinus nigra*	43			10	G	F	G	3.0	S	-	
14	Honey Locust	*Gleditsia triacanthos*	12			5	G	G	G	1.5	M	-	
15	Emerald Cedar	*Thuja occidentalis* 'Smaragd'	7			3	G	F	G	1.2	S	-	
16	Austrian Pine	*Pinus nigra*	42			9	G	G	G	3.0	S	-	
~~**17**~~	~~Austrian Pine~~	~~*Pinus nigra*~~	~~40~~			~~9~~	~~G~~	~~G~~	~~G~~	~~2.4~~	~~S~~	-	[Removed]
18	Pear Species	*Pyrus sp.*	16			4	G	F	-	-	M	-	Dead
19	Horse Chestnut	*Aesculus hippocastanum*	4			1	G	G	-	-	M	-	Dead
20	Honey Locust	*Gleditsia triacanthos*	8			3	F	G	G	1.2	M	-	
21	Norway Maple	*Acer platanoides*	5			1	G	G	G	1.2	S	-	
22	Apple Species	*Malus sp.*	16			7	G	G	G	1.5	N	-	DBH estimated.
23	Siberian Elm	*Ulmus pumila*	44			10	G	F	G	3.0	S	-	DBH measured at 1.0 m.
24	Manitoba Maple	*Acer negundo*	27			9	G	F	G	1.8	S	-	
25	Ash Species	*Fraxinus sp.*	11			5	G	G	-	-	S	R (Cond.)	Dead
26	Silver Maple	*Acer saccharinum*	90			14	F	F	G	5.4	N	-	DBH estimated.
27	White Spruce	*Picea glauca*	25			5	G	G	G	1.8	N	-	DBH estimated.
~~**28**~~	~~White Spruce~~	~~*Picea glauca*~~	~~30~~			~~9~~	~~G~~	~~G~~	~~G~~	~~1.8~~	~~S~~	~~-~~	[Removed]
29	White Spruce	*Picea glauca*	30			6	G	G	G	1.8	N	-	DBH estimated.
30	White Spruce	*Picea glauca*	15			5	G	G	G	1.5	N	-	DBH estimated.
31	Austrian Pine	*Pinus nigra*	43			11	G	G	G	3.0	S	I	
32	Apple Species	*Malus sp.*	24	23, 14	36	10	F	F	G	2.4	S	R	
33	English Oak	*Quercus robur*	15	10, 7	19	3	F	G	G	1.5	S	P	DBH estimated.
34	Magnolia Species	*Magnolia sp.*	8	7, 7	13	7	G	G	G	1.5	S	-	
35	Austrian Pine	*Pinus nigra*	36			9	G	G	G	2.4	S	-	
36	White Mulberry	*Morus alba*	8	7,6	12	5	G	G	G	1.5	S	-	
37	Northern Catalpa	*Catalpa speciosa*	7			3	G	G	-	-	S	R (Cond.)	Dead

Tree	Common Name	Scientific Name	DBH	DBH_M	DBH_Calc	CW	TI	CS	CV	TPZ	Loc.	Rec.	Comments
38	White Mulberry	*Morus alba*	20	16	26	7	F	F	G	1.8	S	-	
39	White Mulberry	*Morus alba*	11	7, 7	15	7	F	F	G	1.5	S	-	DBH measured at 0.6 m.
40	Apple Species	*Malus sp.*	21			9	G	G	G	1.8	S	-	
41	Spruce Species	*Picea sp.*	43			9	G	F	G	3.0	S	-	
42	Apple Species	*Malus sp.*	31			10	G	G	G	2.4	S	-	
43	Apple Species	*Malus sp.*	30			17	G	F	G	1.8	S	-	DBH measured at 0.4 m.
44	Austrian Pine	*Pinus nigra*	40			9	G	F	G	2.4	S	-	
45	Ivory Silk Lilac	*Syringa reticulata*	22			5	G	F	G	1.8	S	-	DBH measured at 1.0 m.
46	Apple Species	*Malus sp.*	34			8	G	F	G	2.4	S	-	Good/fair DBH measured at 0.4 m.
47	Juniper Species	*Juniperus sp.*	16	10	19	4	G	G	G	1.5	S	-	
48	Juniper Species	*Juniperus sp.*	14			4	G	G	G	1.5	S	-	
49	Juniper Species	*Juniperus sp.*	16			4	G	G	G	1.5	S	-	
50	Colorado Spruce	*Picea pungens*	30			7	G	G	G	1.8	M	P	DBH estimated.
51	Colorado Spruce	*Picea pungens*	30			7	G	G	G	1.8	M	P	DBH estimated.
52	Eastern White Cedar	*Thuja occidentalis*	10	8, 8	15	4	G	G	G	1.5	S	R	
53	Eastern White Cedar	*Thuja occidentalis*	15	10	18	4	G	F	G	1.5	S	R	DBH estimated.
54	Eastern White Cedar	*Thuja occidentalis*	21	8	22	4	G	F	G	1.8	S	I	
55	Eastern White Cedar	*Thuja occidentalis*	10			4	G	G	G	1.5	S	P	
56	Eastern White Cedar	*Thuja occidentalis*	10			4	G	G	G	1.5	S	P	
57	Linden	*Tilia cordata*	29			6	G	G	F	1.8	S	R	
58	Honey Locust	*Gleditsia triacanthos*	22			8	G	G	G	1.8	S	R	
59	Honey Locust	*Gleditsia triacanthos*	12			4	G	G	G	1.5	S	R	
60	Honey Locust	*Gleditsia triacanthos*	12			4	G	G	F	1.5	S	R	
61	Honey Locust	*Gleditsia triacanthos*	15			4	G	F	F	1.5	S	R	
62	Norway Maple	*Acer platanoides*	25			7	G	G	F	1.8	S	I	
63	Norway Maple	*Acer platanoides*	21			7	F	G	F	1.8	S	I	
64	Honey Locust	*Gleditsia triacanthos*	27			9	G	G	G	1.8	S	P	
65	Honey Locust	*Gleditsia triacanthos*	26			8	G	G	F	1.8	S	P	
~~**66**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~25~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.8~~	~~M~~	~~-~~	[Removed]
~~**67**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~22~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.8~~	~~M~~	~~-~~	[Removed]
~~**68**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~23~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.8~~	~~M~~	~~-~~	[Removed]
~~**69**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~21~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.8~~	~~M~~	~~-~~	[Removed]
~~**70**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~20~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.5~~	~~M~~	~~-~~	[Removed]
~~**71**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~21~~			~~8~~	~~F~~	~~G~~	~~P~~	~~1.8~~	~~M~~	~~-~~	[Removed]
~~**72**~~	~~Norway Maple~~	~~*Acer platanoides*~~	~~22~~			~~8~~	~~F~~	~~G~~	~~F~~	~~1.8~~	~~M~~	~~-~~	[Removed]
73	Norway Maple	*Acer platanoides*	24			8	F	F	P	1.8	S	P	
74	Austrian Pine	*Pinus nigra*	29			10	G	G	G	1.8	S	P	
75	Austrian Pine	*Pinus nigra*	37			8	G	G	G	2.4	S	P	
76	Austrian Pine	*Pinus nigra*	27			8	G	G	G	1.8	S	P	
77	Norway Maple	*Acer platanoides*	33			10	G	F	G	2.4	S	P	

Tree	Common Name	Scientific Name	DBH	DBH_M	DBH_Calc	CW	TI	CS	CV	TPZ	Loc.	Rec.	Comments
78	White Spruce	*Picea glauca*	5			3	G	G	-	-	M	-	Dead
79	White Spruce	*Picea glauca*	7			3	G	G	G	1.2	M	-	DBH estimated.
80	Colorado Spruce	*Picea pungens*	9			4	G	G	-	-	M	-	Dead
81	Elm Species	*Ulmus sp.*	7			2	G	F	G	1.2	M	P	
82	Elm Species	*Ulmus sp.*	5			2	G	G	F	1.2	M	P	
83	English Oak	*Quercus robur*	44			15	G	G	G	3.0	M	P	
84	Elm Species	*Ulmus sp.*	5			1	G	G	F	1.2	M	P	
85	Ivory Silk Lilac	*Syringa reticulata*	15			3	F	F	F	1.5	M	P	
86	Ivory Silk Lilac	*Syringa reticulata*	12			2	P	G	P	1.5	M	P	
87	Ivory Silk Lilac	*Syringa reticulata*	9			3	F	F	G	1.2	M	P	
88	Ivory Silk Lilac	*Syringa reticulata*	11			3	F	F	F	1.5	M	P	
89	Ivory Silk Lilac	*Syringa reticulata*	10			3	F	G	F	1.5	M	P	
90	Ivory Silk Lilac	*Syringa reticulata*	13			3	F	G	F	1.5	M	P	
91	Honey Locust	*Gleditsia triacanthos*	7			3	F	G	G	1.2	M	P	
92	Honey Locust	*Gleditsia triacanthos*	10			5	G	G	G	1.5	M	P	
93	Honey Locust	*Gleditsia triacanthos*	10			5	F	G	G	1.5	M	P	
94	Ash Species	*Fraxinus sp.*	11			4	G	F	G	1.5	S	-	
95	Ash Species	*Fraxinus sp.*	11	8	14	4	G	F	G	1.5	S	-	
96	Austrian Pine	*Pinus nigra*	12			4	F	G	G	1.5	S	-	Girdled by guy wire

APPENDIX 2 – TREE INVENTORY ATTRIBUTES

Species	The common and scientific names are provided for each tree.
Diameter at Breast Height (DBH)	The diameter of each tree, in centimetres, at breast height (1.4 m above grade).
Diameter of Multiple Stems (DBH_M)	The diameter of each stem of a multiple-stemmed tree. In the case of a tree with more than three stems, the diameters of the three largest stems will be listed.
Calculated DBH (DBH_Calc)	The single calculated DBH of a multiple-stemmed tree, calculated as per City of Mississauga Tree Protection guidelines.
Canopy Width (CW)	An estimation of the average diameter of the tree canopy, in metres.
Trunk Integrity (TI)	An assessment of the tree's trunk for any externally-visible defects or weaknesses. It is rated on an ascending scale of Poor-Fair-Good.
Canopy Structure (CS)	An assessment of the tree's main scaffold branches and the canopy of the tree for defects or weaknesses visible from ground level. It is also rated on an ascending scale of Poor-Fair-Good.
Canopy Vitality (CV)	An assessment of the general health and vigour of the tree, derived partly through a comparison of deadwood and live growth relative to a 100% healthy tree. The size and colour of foliage are also considered in this category. During the leaf-off season, the number and distribution of buds is an important determinant of canopy vitality. This indicator is also rated on an ascending scale of Poor (P), Fair (F), Good (G), or Dead (-).
Tree Protection Zone (TPZ)	The tree protection zone, in metres, as measured from the base of the subject tree's stem.
Location (Loc.)	The location of the tree relative to the subject site: on the subject site (S), on neighbouring property (N), on municipal property (M), or on a property boundary (B).
Recommendation (Rec.)	The recommendation for each tree: Protect (P), Injure (I), or Remove (R). Trees to be preserved with no active tree protection are denoted with a dash (-).
Comments	Comments pertaining to the tree provided as needed.

APPENDIX 3 – SELECTED FIGURES

Figure 1: Tree #31 is recommended for retention with injury, tree #32 is proposed for removal.

Figure 2: Trees #52 and 53 are proposed for removal, tree #54 is recommended for retention with injury, trees #55 and 56 are recommended for protection.

Figure 3: Trees #58-61 are proposed for removal.

Figure 4: Tree #57 is proposed for removal.

Figure 5: Shelby Park lies adjacent to the project site.

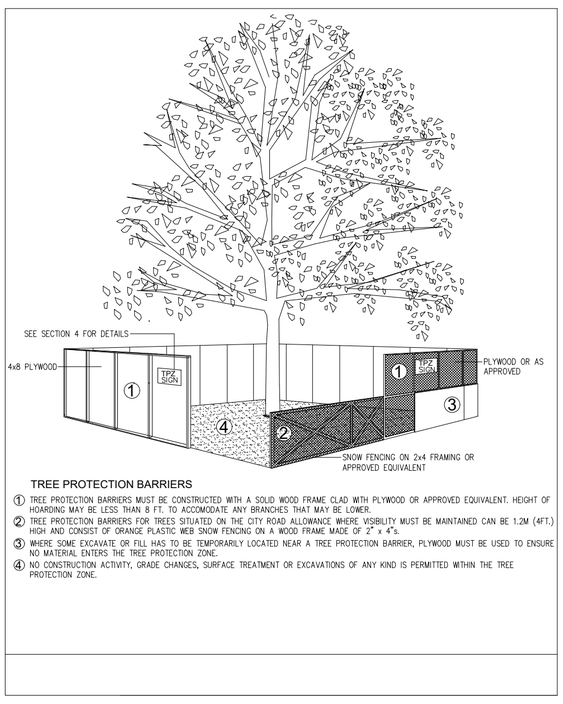
APPENDIX 4 – TREE-RELATED PLANS

Inclusions:

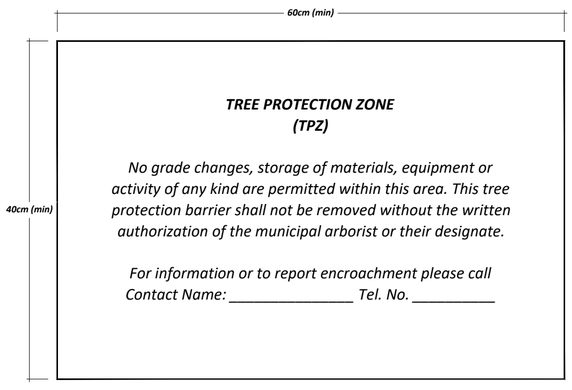
1. Tree Protection Plan, dated April 2, 2024 (1 page)

1. THIS PLAN MUST BE READ IN CONJUNCTION WITH THE MOST RECENT ARBORIST REPORT PREPARED BY URBAN FOREST INNOVATIONS INC (UFI).
2. REFER TO UFI ARBORIST REPORT FOR A FULL INVENTORY OF TREE SPECIES AND REMOVAL REQUIREMENTS.
3. NO GROUNDBREAKING ACTIVITIES OR DEMOLITION SHOULD OCCUR UNTIL ALL TREE PRESERVATION REQUIREMENTS HAVE BEEN MET. OF PRIMARY CONCERN IS THE ESTABLISHMENT OF PROPER HOARDING AT TREE PROTECTION ZONES (TPZ).
4. A UFI CONSULTING ARBORIST SHOULD BE CONSULTED FOR ALL WORK THAT IMPACTS THE TREE PROTECTION ZONE.
5. THE LOCATION OF THE TREE PROTECTION ZONES HAVE BEEN CLEARLY INDICATED ON THE SITE PLAN. FENCING SHALL REMAIN IN PLACE UNTIL ALL SITE WORK HAS BEEN COMPLETED, AND MAY NOT BE REMOVED, RELOCATED, OR OTHERWISE ALTERED WITHOUT THE WRITTEN PERMISSION OF THE CONSULTING ARBORIST.
6. A QUALIFIED ARBORIST WILL UNDERTAKE PROPER ROOT PRUNING WHEN AND IF ROOTS OF RETAINED TREES ARE TO BE EXPOSED, DAMAGED OR SEVERED BY CONSTRUCTION ACTIVITIES. EXPOSED ROOTS WILL BE COVERED WITH SOIL OR MULCH AS SOON AS POSSIBLE TO PREVENT FURTHER DAMAGE AND DESICCATION. ROOT PRUNING PRIOR TO EXCAVATION WILL HELP PREVENT UNNECESSARY DAMAGE TO TREE ROOTS.
7. THE TREE PROTECTION ZONE SHOULD BE POSTED WITH SIGNS. WITHIN THE TREE PROTECTION ZONE THERE WILL BE NO:
   - GRADE CHANGES
   - DUMPING OR STORAGE OF ANY MATERIALS
   - USE OF ANY MACHINERY WITHOUT PRIOR APPROVAL
   - LANDSCAPING WITH HEAVY MACHINERY
   - ACTIVITY OF ANY KIND WITHOUT PERMISSION OF THE CONSULTING ARBORIST
7. EFFORTS SHOULD BE MADE TO ROUTE ALL UNDERGROUND UTILITIES AROUND THE TREE PROTECTION ZONES. IF THIS IS NOT POSSIBLE, THEY SHOULD BE BORED OR TUNNELED UNDER THE ROOT ZONE OF THE TREES (MINIMUM 1.6 M). USING TRADITIONAL TRENCHING METHODS, THERE WILL BE SIGNIFICANT ROOT DAMAGE TO THE TREES THAT ARE BEING PRESERVED. WHERE POSSIBLE IT IS STRONGLY RECOMMENDED THAT ANY INSTALLATION OF UNDERGROUND UTILITIES (WATER, SEWAGE OR HYDRO) SHOULD UTILIZE A NON-DESTRUCTIVE METHODOLOGY SUCH AS DIRECTIONAL BORING, AIRSPADE TECHNOLOGY OR HYDROVAC REMOVAL OF SOIL.
8. IF INJURY SHOULD OCCUR TO RETAINED TREES DURING CONSTRUCTION, THE CONSULTING ARBORIST SHOULD EVALUATE THEM SO THAT APPROPRIATE TREATMENTS CAN BE RECOMMENDED AND PERFORMED.
9. ALL CONTRACTORS SHOULD BE INFORMED OF THE TREE PROTECTION MEASURES AND GUIDELINES AT A PRE-CONSTRUCTION MEETING.
10. MONITORING OF THE TREES AND THE TREE PROTECTION ZONE SHOULD BE CONDUCTED BY THE CONSULTING ARBORIST THROUGHOUT THE DURATION OF THE PROJECT.

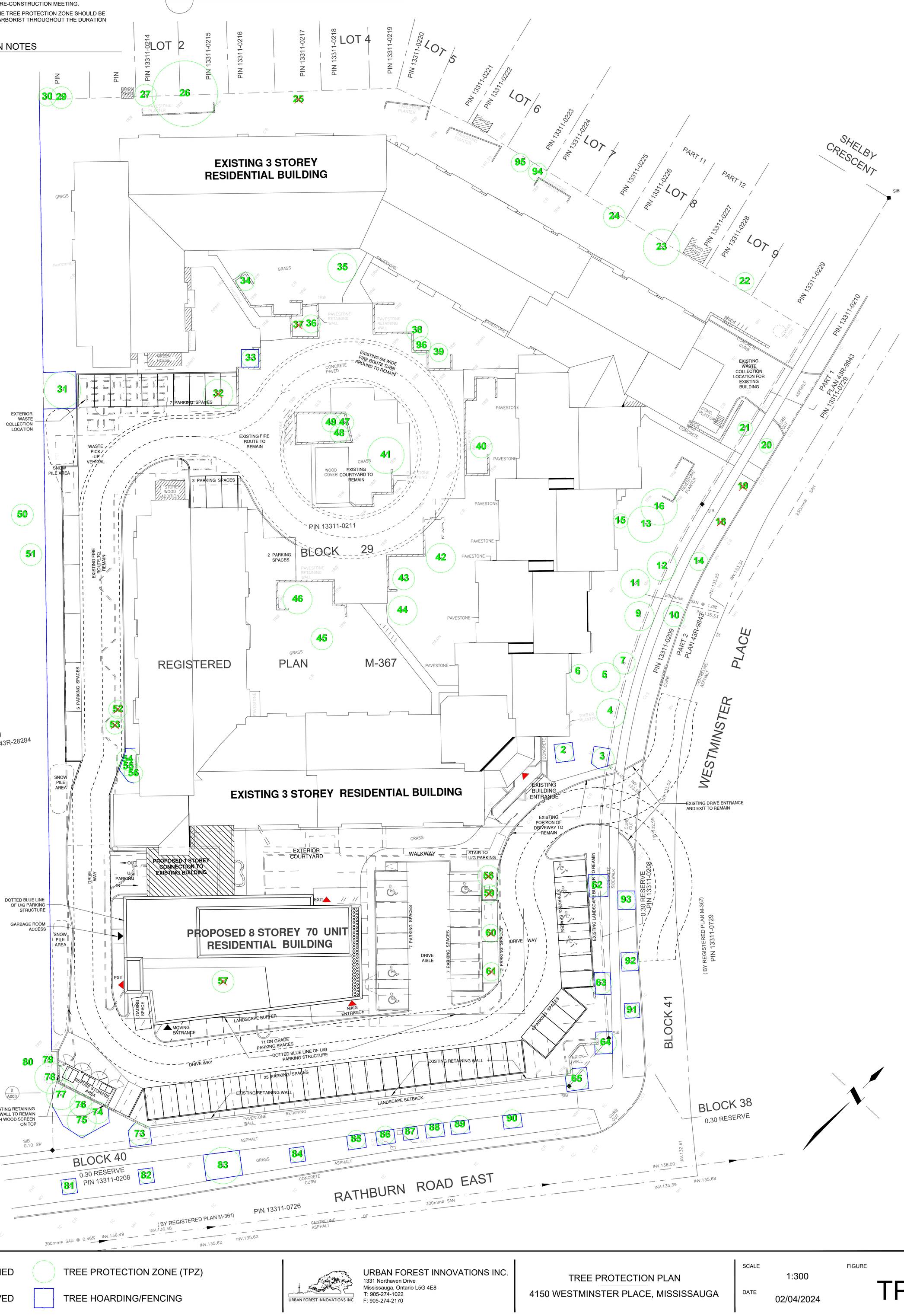
TREE PROTECTION NOTES



TREE PROTECTION FENCING DETAIL



TREE PROTECTION SIGNAGE DETAIL



URBAN FOREST INNOVATIONS INC.
1331 Northaven Drive
Mississauga, Ontario L5G 4E8
T: 905-274-1022
F: 905-274-2170

TREE PROTECTION PLAN
4150 WESTMINSTER PLACE, MISSISSAUGA

SCALE 1:300
DATE 02/04/2024
FIGURE TP-1

APPENDIX 5 – TREE PROTECTION SPECIFICATIONS

5.1 Scope and Purpose

This section outlines specifications for tree protection, and **not all recommendations may apply to the subject project**. Refer to the main body of the arborist report for tree-by-tree protection recommendations.

5.2 General Provisions

5.2.1 Tree Protection

Four important tree protection measures should be undertaken on the project site if trees are to be preserved in a manner which will maintain their health over the long term. These include:

1. Establishment of tree protection fencing and/or hoarding around adequately-sized Tree Protection Zones (TPZs) prior to the commencement of any construction activity;
2. Installation of root zone compaction protection where compaction may be caused by construction traffic or materials/equipment storage and staging;
3. Implementation of root-sensitive excavation wherever Tree Protection Zones (TPZs) or significant rooting areas may be encroached upon by excavation and/or grading, and;
4. Root pruning in advance of conventional excavation, on an as-needed basis.

5.2.1.1 Tree Protection Zones (TPZs)

The purpose of a Tree Protection Zone (TPZ) is to prevent root damage, soil compaction and soil contamination, and workers and machinery must not encroach upon Tree Protection Zones in any way.

To prevent access and ensure that the TPZ is effective, the following steps shall be implemented in the establishment of TPZ fencing and/or hoarding.

1. The locations of TPZs should be clearly identified on the project Site Plan and associated tree-related plans. Typically, TPZs are to be shown as circles around tree location points, and drawn to scale in accordance with the minimum required TPZ radius, as specified in Appendix 1.
2. No groundbreaking activities or demolition should occur until all tree protection requirements have been met and the consulting arborist has confirmed the establishment of Tree Protection Zone fencing and/or hoarding.
3. Hoarding shall consist of 4’ x 8’ sheets of plywood lain lengthwise and supported using “L” shaped supports to prevent root damage. Hoarding shall be affixed to the frame in such a manner as to prevent removal of individual sections or movement of the entire hoarding structure. Construction fencing can be used where pedestrian or motorist sightlines may be obscured by solid hoarding. Framed construction fencing can also be used to frame large Tree Protection Zones or tree groups, with expressed prior approval of the municipal arborist or their designate. Framed fencing must be supported by a solid 2’ × 4’ frame. Fencing and/or hoarding

shall be maintained intact throughout the duration of the construction project, unless otherwise specified.

4. Upon installation, all tree protection fencing and/or hoarding must be approved by the municipal arborist or their designate.
5. All fencing and/or hoarding is to remain in place in good condition throughout the entire duration of the project. No fencing and/or hoarding is to be removed, relocated or otherwise altered without the written permission of the municipal arborist or their designate.
6. No grade change, excavation, or storage of fill, equipment or supplies is permitted within the TPZ at any time. Any encroachment of the TPZ shall not be undertaken without expressed written permission of the municipal arborist or their designate. TPZ encroachment may constitute Tree Injury as defined by various municipal tree protection policies and by-laws, and may subject the responsible parties to prescribed penalties.
7. All contractors and supervisors should be informed of the tree protection requirements, including potential penalties, at a pre-construction meeting.
8. Trees and TPZs should be regularly monitored by a consulting arborist throughout the duration of the project.
9. If TPZ encroachment should occur at any time during construction, the consulting arborist should evaluate the trees immediately so that appropriate treatment can be performed in a in a timely manner.
10. Signage similar to the figure shown below should be mounted on each side of TPZ fencing and/or hoarding immediately upon establishment and should be maintained for the duration of the project. Every sign should have minimum dimensions of 40 cm × 60 cm.

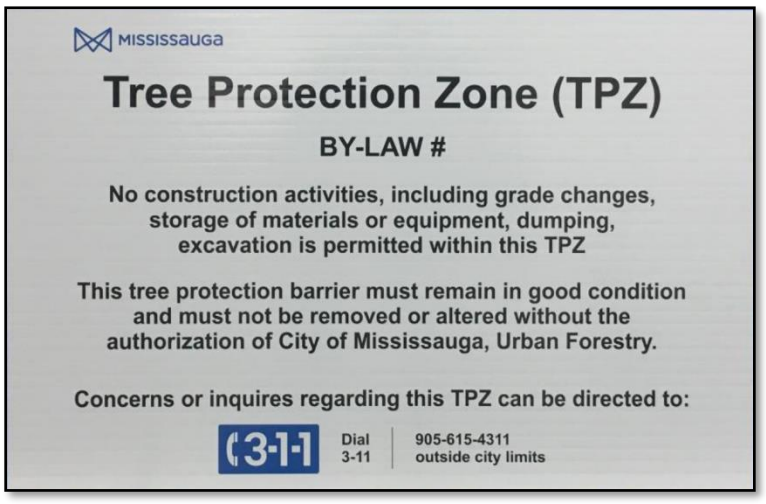


Figure 6: Sample TPZ information sign.

5.2.1.2 Root Zone Compaction Protection

Where traffic or access through the root zone is anticipated, a Root Zone Compaction Protection treatment should be installed.

Where limited non-vehicular access across the root zone is anticipated (e.g., occasional foot traffic, wheelbarrow), a Light Root Zone Compaction Protection specification should be implemented:

Installation of medium-weight non-woven geotextile fabric or landscape cloth over affected area;

Installation of 150 mm of wood chips over the fabric area;

Installation of ½" plywood over wood chip mulch, and;

Installation of appropriate covering material, if desired.

Where moderate non-vehicular access across the root zone is anticipated (e.g., materials staging) a Moderate Root Zone Compaction Protection specification should be implemented:

Installation of medium-weight non-woven geotextile fabric or landscape cloth over affected area;

100 mm of granular clear stone lain over fabric area;

Installation of medium-weight non-woven geotextile fabric or landscape cloth over the stone;

Installation of 150 mm of wood chips over fabric area, and;

Installation of ½" plywood over wood chip mulch.

In areas where frequent non-vehicular access or longer-term materials storage in the root zone is anticipated, or in areas where additional measures must be implemented to ensure complete exclusion of excavation activity, a Horizontal Hoarding/Excavation Exclusion specification should be implemented:

Installation of medium-weight non-woven geotextile fabric or landscape cloth over affected area;

Installation of 3 stacked and joined courses of 4" x 4" timbers around the area to be protected (including cross-members or joists, as required to maintain structural integrity);

Installation of wood chip mulch in entire protected area, and;

Installation of 2 layers of ¾" plywood or 1 steel plate over the protected area.

In areas where vehicular access or severe potential root zone compaction are anticipated, such as site access roads, temporary parking areas or heavy machine staging areas, a more robust Heavy Root Zone Compaction Protection specification should be developed and implemented on a site-specific basis. Key elements of such a specification may include multiple steel plates over load-dissipating materials, or modular geocellular systems such as Permavoid ArborRaft.

5.2.1.3 Tree-sensitive Demolition

Trees are often damaged by demolition activities undertaken during the clearing stage of the development process. For trees to be adequately protected during site demolitions, root-sensitive demolition protections must be implemented within Tree Protection Zones, as described below:

1. Prior to the commencement of site demolition, tree protection fencing must be established for retained trees.
2. Hardscape materials shall be broken up by hand or hand-operated machinery only (e.g., a hand-operated jackhammer to break up pavement, building foundations, etc.).
3. Machinery should be operated at shallow angles and broken-up materials should be removed by pulling away radially from the protected tree bases, or parallel to the direction of anticipated or observed root growth.
4. Upon removal of demolished materials, uncovered vertical soil profiles must be maintained in good structural integrity and prevented from disintegration (i.e. crumbling, erosion, fragmentation, etc.). Between the time of demolitions and new construction, exposed vertical soils may require shoring reinforcement, including a layer of burlap between shoring and exposed soil.
5. Following demolitions, affected TPZ areas should be reinstated with a high quality soil, such as triple mix soil, to provide a favourable growing medium for the development of new roots of the injured trees. Soil amendments, such as biochar, may also be considered for backfills inclusion. Soil depth should be sufficient to match existing surrounding soil grades.
6. Any roots exposed by demolition should be inspected and, where necessary, pruned by the supervising Certified Arborist in order to minimize permanent root damage.

5.2.1.4 Root-sensitive Excavation

Efforts should be made to exclude excavation or grade changes, including cutting or filling, from all TPZs. Where this is not possible, and unless otherwise specified, excavation shall utilize a root-sensitive methodology such as hand-digging, hydrovac or pneumatic (e.g., AirSpade) soil excavation, as specified in the arborist report.

Root-sensitive excavation must be conducted in advance of excavation using conventional excavation machinery. The objective of root-sensitive excavation is twofold: 1) to determine whether roots will be present beneath areas to be excavated and therefore determine the likely extent of damage to trees to be retained, and 2) to enable proper root pruning, as described below.

Root-sensitive excavation typically entails the creation of a trench approximately 200-300 mm wide between the subject tree (e.g., outside the established tree protection fencing) and the area to be excavated, without damaging existing significant roots. Unless otherwise specified, root-sensitive excavation should be undertaken to a minimum depth of 800 mm, unless excavation is proposed to a

shallower final depth. If excavation is for exploratory reasons and root pruning is not anticipated, equipment utilized during root-sensitive excavation should be operated at reduced pressures to prevent damage to root bark.

No excavation, whether undertaken by conventional or root-sensitive means shall take place within established tree protection zones without expressed written permission of the municipal arborist or their designate.

5.2.1.5 Root Pruning

Root pruning can help reduce the stresses experienced by a tree with root damage, encourage the growth of new fine and feeder roots, and prevent the spread of decay. Root pruning should be undertaken in conjunction with root-sensitive excavation in advance of conventional excavation, or immediately afterwards if unexpected roots are encountered. Root pruning should only be undertaken by an ISA Certified Arborist, and in the manner outlined below:

1. Roots that are severed, exposed, or diseased and are greater than 2.0 cm in diameter should be properly pruned. All roots must be pruned with clean and sharp hand tools only. Shovels, picks or other construction tools shall not be used to prune roots. Wound dressings or pruning paint must not be used to cover the ends of any cut.
2. Roots should be pruned in a similar fashion as branches, taking care to maintain the integrity of the root bark ridge. Root should be pruned back to native soil; root stubs must not be left upon completion of root pruning.
3. Prolonged exposure of tree roots must be avoided – exposed roots should covered and kept moist with soil, mulch, irrigation, or at least moistened burlap if they are to be exposed for longer than 3 hours. All cut roots should be covered with soil or excavated trenches should be backfilled with native material as soon as possible following root pruning.

5.2.1.6 Crown Pruning

During the course of project works, the branches of retained trees may interfere with project works, including site access, materials storage, and new construction. Where any project works present an unavoidable conflict with the branches of retained trees, appropriate clearance crown pruning shall be performed in the manner outlined below:

1. Wherever possible, branches found to be in conflict with construction and equipment should be temporarily tied back, using non-constricting knots to secure the branch. If branches cannot be safely tied back without causing branch damage, including breaking or bark stripping, pruning should be performed, as required.
2. No branches larger than 10 cm in diameter shall be removed, and no more than 20% of the total live crown volume shall be removed from the tree.

3. Crown pruning shall be conducted by an ISA Certified Arborist in accordance with good arboricultural practice, as detailed in the pruning standard *ANSI A300 Part 1 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, Pruning*, and in the ANSI Z133.1 safety standard.

5.2.2 Post-construction Care

The following recommendations should be implemented upon completion of construction to ensure that the health and condition of retained and newly-planted trees is maintained and improved.

5.2.2.1 Retained Trees

1. Trees which have been retained through the construction process should be regularly monitored by an ISA Certified Arborist for signs of construction-induced stress, which may not be apparent until 3-6 years after site disturbance.
2. Wherever possible, root zone amelioration including watering and mulching should be undertaken. However, treatments such as fertilization should be avoided unless directly specified by the project consulting arborist.
3. Any physical damage to retained trees should be assessed by the project consulting arborist and properly mitigated, as required. If necessary, broken limbs or exposed roots should be pruned, damaged bark should be traced, and soil decompaction and/or decontamination should be undertaken by an ISA Certified Arborist. Stability of trees with significant root zone disturbance should be assessed, and advanced stability assessment or mitigation should be implemented if necessary.

5.2.2.2 New Trees

1. All newly planted trees and shrubs should be provided with a bed of composted woodchip mulch 10-15 cm thick, extending to at least the dripline of the plant. Mulch should be periodically replaced as it decomposes, and weeds should be removed from the mulch bed manually. The mulch must not touch the bark of the tree and under no circumstances should it be mounded up against the stem in a “volcano” style. This is especially damaging for young trees with thin bark.
2. All new plantings should be watered at least once per week during the growing season within the first two years after planting. Watering intensity should be increased during periods of drought. Watering should be deep and slow, ensuring that water penetrates to deep roots. Trees should not be watered directly adjacent to the trunk, but rather in a circular pattern extending from the trunk to at least the dripline. The soil should be allowed to dry in between watering periods to allow air to reach the roots.
3. Minimal pruning should be undertaken in the first two years after planting. Foliage should be retained to allow for the roots to establish. Only dead, crossing and broken branches should be pruned back to an appropriate pruning point at the time of planting.

APPENDIX 6 – LIMITATIONS OF ASSESSMENT

It is the policy of Urban Forest Innovations to attach the following clause regarding limitations. We do this to ensure that the client is aware of what is technically and professionally realistic in assessing and retaining trees.

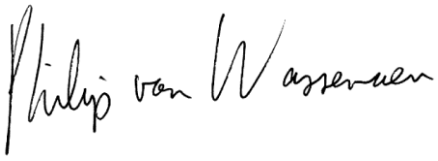
The assessment(s) of the tree(s) presented in this report has been made using accepted arboricultural techniques. These may include, among other factors, a visual examination of: the above-ground parts of the tree(s) for visible structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of pests or pathogens, discoloured foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the proximity of property and people. Except where specifically noted, the tree(s) was not cored, probed, climbed or assessed using any advanced methods, and there was no detailed inspection of the root crown(s) involving excavation.

Notwithstanding the recommendations and conclusions made in this report, it must be recognized that trees are living organisms, and their health and vigour constantly change over time. They are not immune to changes in site or weather conditions, or general seasonal variations. Weather events such as wind or ice storms may result in the partial or complete failure of any tree, regardless of assessment results.

While reasonable efforts have been made to accurately assess the overall condition of the subject tree(s), no guarantee or warranty is offered, expressed or implied, that the tree(s) or any of its parts will remain standing or in stable condition. It is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree or its component parts, regardless of the assessment methodology implemented. Inevitably, a standing tree will always pose some level of risk. Most trees have the potential for failure under adverse weather conditions, and the risk can only be eliminated if the tree is removed.

Although every effort has been made to ensure that this assessment is reasonably accurate, the tree(s) should be re-assessed periodically. The assessment presented in this report is only valid at the time of inspection.

Respectfully submitted by,



Anna Mernieks, Hon. B.Sc.
ISA Certified Arborist ON-2224A
anna@urbanforestinnovations.com

Philip van Wassenaer, B.Sc., MFC
ISA Certified Arborist ON-0361A
ASCA RCA #678
pwassenaer1022@rogers.com

Urban Forest Innovations Inc.
1331 Northaven Drive
Mississauga, ON L5G 4E8
T: (905) 274-1022
F: (905) 274-2170
W: urbanforestinnovations.com