Arborist Report

Pre-Construction Assessment

Prepared For:
Carly Forrester

Site Address:
4094 Tomken Rd.
Mississauga, ON, L4W 1J5

Prepared: September 26th,2022
Revised: August 8th, 2023

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Summary

The following Arborist Report is with respect to the proposed condo development and associated landscaping at 4094 Tomken Rd in Mississauga. Construction access will be off Tomken Rd via the driveway and material storage can be anywhere outside the Tree Protection Zones (TPZs). This report serves to document the condition and provide recommendations to preserve trees within and surrounding this property in advance of future construction work.

80 trees were assessed on site:

- Privately-owned trees at 4094 Tomken Rd: **57**
- Neighbor-owned trees: **23**

34 trees are recommended to be preserved throughout construction

- No digging or material storage is to take place within their Tree Protection Zones (TPZs) and the trees should not be injured.

6 trees (#105, 136, 138, 139, 161, and 174) will have construction within their TPZs and are expected to be injured.

- Permits are required to injure all 6 trees.

40 trees (#107-113, 127-135, 141-155, 158-160, 162, 163, and 177-180) are recommended to be removed prior to construction.

- All 40 trees are within the footprint of the proposed development and associated landscaping and must be removed to accommodate construction.
- Permits are required to remove all trees **except trees# 110, 112, 127 150, 154, 160, and 177**.

It is imperative for all crew contracted to perform this construction to thoroughly understand this report and the recommendations stated within.

Introduction

Davey Resource Group (DRG) was retained by the client, Carly Forrester, to develop an Arborist Report and Tree Protection Plan (TPP) for the proposed condo development and associated landscaping at 4094 Tomken Rd in Mississauga. The intent of this report is to provide the client with the documentation necessary for work to continue.

An inventory and assessment of all the trees within the scope of the assignment was conducted. The Arborist was to document the current condition, size, and location of the trees as they relate to the proposed work. All trees within the scope of the survey were included in an inventory and assessed for protection or removal needs. Small trees and shrubs were not surveyed for this report.

Recommendations for tree preservation or removal are to be provided. This report must be accompanied by the following additional documents:

1. A full printing of the tree inventory performed by Davey Resource Group (DRG), otherwise known as the Tree Protection Action Key (TPAK). (Appendix 1)
2. The construction maps with the Arborist Comments, otherwise known as the Tree Protection Plan (TPP). (Appendix 2)

It is imperative for all crew contracted to perform this construction to thoroughly understand this report and the recommendations stated within.

Limitations of the Assignment

It must be understood that DRG is the assessor of the trees in relation to tree preservation practices. The construction supervisors should incorporate the information and recommendations provided within this report into their construction methodology to complete their project in a reasonable manner.

This Arborist Report is based on the project scope and details for tree preservation as discussed. All proposed construction methods are limited to what was provided in the site plans. Estimates, measurements and comments regarding tree preservation were based on the proposed construction plans and field observations.

This Arborist Report was compiled from field data collected from the ground. A basic visual assessment of the tree was performed. No level of ISA Tree Risk Assessment was performed. More data on risk may be obtained through a basic or advanced ISA Tree Risk Assessment.

Methods

- Tools used to assess the trees included a metric DBH measuring tape, metric measuring tape, and camera.
- All trees 10 cm DBH and over on the private property as well as all trees 10 cm DBH and over on neighbouring property and trees of all sizes on city owned property within 6 meters of planned construction work were included in the inventory.
- Trees were studied for their proximity to existing and planned structures to determine recommendations or precautions for trees requiring removal or injury.
- Where there were multiple stems on a tree, the DBH for all trunk diameters at 1.4 m above the ground were calculated using the sum of squares.

Observations

- The site was inspected on June 15, 2022, by ISA Certified Arborist Adam Mohamed (ON-2333A).
- Weather conditions were 20ºC and sunny.
- No evidence of construction was present, and work had not yet started.
- No material storage or soil compaction within Tree Protection Zones was observed.
- Construction access will be off Tomken Rd via the driveway and material storage can be anywhere outside the Tree Protection Zones (TPZs).
- 80 trees were assessed for this report and labeled #101-180 in the Tree Protection Action Key and Tree Protection Plan included within Appendices 1 and 2.
- **65** trees were in good condition and **13** trees were in fair condition, and **2** trees were in poor condition.
- For further details and observations, refer to the Tree Protection Action Key (Appendix 1).

Discussion

To preserve and protect trees, proper recommendations must be followed and abided by the client for the duration of the project.

Regulatory context

The City of Mississauga Private Tree Protection By-law 0021-2022 states that:

1. No person shall injure or destroy a Heritage Tree unless they receive approval to do so under the requirements of the Ontario Heritage Act, 2005.

2. No person shall injure or destroy any tree each with a diameter greater than 15 centimeters on a lot within one calendar year without first obtaining a permit pursuant to this By-law.

Trees that are verified as dead, dying, or hazardous are exempt from permit fees but a permit is still required. "Hazard" means a tree that is a potential safety concern to property or life but not an immediate threat.

The Owner is to be aware of the Migratory Birds Convention Act, 1994. This Act is implemented by Environment Canada and the Owner is to make every effort to avoid the removal of vegetation from the period of March 31st to August 31st. It is the Owner's responsibility to ensure no birds are nesting in trees to be removed at the time of the tree removals.

Replacement Trees

If removing healthy trees on a property, replacement trees are required for each removal based on the diameter of the trees being removed. You can plant a replacement tree yourself on your property based on the criteria below or you are required to pay a predetermined fee for a tree to be planted on City property by City staff. If you choose to replace the tree(s) yourself, replacement trees must be at least 1.8 m tall if for coniferous (evergreen) trees or at least 6 cm in diameter for deciduous (leafy) trees. As a general rule, 1 replacement tree is required for each 15cm of diameter of tree being removed.

PUBLIC TREE REPLACEMENT CHART Min. 60mm Diameter Deciduous/1.8m Height Coniferous	
Diameter at Breast Height (DBH) in cm	Number of Replacement Trees
6-15	1
16-30	2
31-45	3
46-60	4
61-75	5
76-90	6
91-105	7
106-120	8
>120	9

Within the scope of this project, a total of 37 trees are proposed for removal. As determined by the tree inventory listed in this report, a total of **72** trees will be required for replanting. The site plans include locations for at least 80 new shade trees, as well as numerous smaller trees and shrubs. These landscaping plans are to be provided separately as part of the submissions to the city of Mississauga for review and permitting.

Tree Protection Zones

Tree Protection Zones surrounding each tree are defined by the trunk diameter as per City of Mississauga Tree Preservation & Protection Standards. Tree Protection Zones and must be kept free of all construction activity above and below ground. If work is proposed within 6 meters of a tree but not within its TPZ, it is in the best interest of the client to protect it using a Tree Protection Fence built to city standards. This serves to prevent any incidental contact or harm to a protected tree that would constitute a contravention of a by-law and may result in fines or a stop-work order.

Tree Protection Zone Table

Trunk Diameter (cm)	Minimum Tree Protection Zone (TPZ) Distance from Trunk (m)	Minimum Tree Protection Zone (TPZ) Distance from Trunk (m) for trees in Open Spaces and Woodlands
<10 cm	1.2	2.4
10-20	1.5	2.4
21-30	1.8	3.6
31-40	2.4	4.8
41-50	3.0	6.0
51-60	3.6	7.2
61-70	4.2	8.4
71-80	4.8	9.6
81-90	5.4	10.8
91-100	6.0	12.0
>100	6 cm per 1 cm DBH	12 cm per 1 cm DBH

Tree Protection Hoarding (Appendix 3)

It is in the best interest of the client to take every precaution possible to minimize damage to trees where work is taking place, and to avoid any unnecessary injury to trees outside of work areas. On this construction site, Tree Protection Fencing (TPF) is recommended to protect trees from soil compaction and root cutting. The distance from trees that TPF is installed is typically defined by the dripline pursuant to a city by-law. However, it must be understood that sometimes this distance is not achievable due to infrastructure being too close. In most situations, TPF does not need to be installed beyond the closest extent of impermeable and/or paved surfaces. It must be further understood the TPF distance sometimes must accommodate a larger TPZ (than the typical MTPZ distance) due to a limited root growing area/volume (this area is typically defined by the project arborist).

TPF locations will be indicated on the Tree Protection Plan (Appendix 2) which has been included in this report but will be printed to-scale for use on-site and in permit applications. Within the scope of this project, TPF is recommended to be established around trees at variable distances indicated on the tree protection plan. These distances may be achieved across softscapes and hardscapes surrounding trees, protecting their Tree Protection Zones.

Problems will arise for tree preservation efforts when anyone removes the TPF, even temporarily. It takes one instance of soil compaction from a heavy machine for roots to suffer from air and water deprivation and for the tree to become stressed. It is imperative to install and maintain in good condition the TPF to prevent

this from happening by utilizing horizontal hoarding whenever necessary. See the Mississauga Tree Preservation Protection Standards for details.

Root Pruning

Similar to pruning the upper canopy of the tree, roots are best removed (if needed) via target pruning practices and not by being torn off. Using mechanical tools or excavation equipment to remove or prune roots often leaves ragged edges, stripped bark, or splintered tissue. These surfaces are difficult for a tree to heal over and provide a high surface area for potential decay pathogens (bacteria, fungus, insects), to enter a tree. Minimizing the cross section of pruned roots allows for the most efficient recovery for the tree. Roots that are larger in diameter than 20% of its parent trunk's DBH are structurally integral to a tree and must be pruned with discretion. Root pruning is recommended to be carried out by a licensed professional, such as an ISA Certified Arborist.

Staging Areas

All staging areas are understood to be outside the TPZ. At no time are materials, vehicles, traffic or debris to be stacked, staged, or piled inside the Tree Protection Fencing.

Conclusion

To account for the proposed construction of a condo development at 4094 Tomken Rd in Mississauga, we assessed 80 trees for preservation, injury, or removal.

11 trees (#101-104, 106, 137, 140, 156, 157, 175, and 176) can be fully preserved during construction. All of these trees are private trees located on the property at 4094 Tomken Rd. We recommend installing Tree Protection Fencing (TPF) to protect their roots from soil compaction and damage during construction. No digging or material storage is to take place within their Minimum Tree Protection Zones (MTPZs) and the trees should not be injured.

23 trees (#114-126, and 164-173) are recommended to be preserved using the existing wood board fence. Trees#114-117 are in the backyard of neighbouring property 1010 Wetherby Lane, and trees# 118-120 are in the backyard of 1014 Wetherby Lane. Trees# 121-126 and 164-173 are in the backyard of 4101 Westminster Place.

6 trees (#105, 136, 138, 139, 161, and 174**)** will have construction within their TPZs and are expected to be injured (All are private trees located on the property at 4094 Tomken Rd).

- Tree#105 and 174 will have excavation of the parking lot edge within their TPZs
- Trees#136, 138, 139, and 161 will have excavation for the pathways within their TPZs
- The level of impact will be low for trees #105, 136, 138, 139, and174, and medium for trees# 161. All trees are expected to recover and survive after root pruning.
- **All of the tree injuries will require permits**

40 trees (#107-113, 127-135, 141-155, 158-160, 162, 163, and 177-180) are recommended to be removed prior to construction (All are private trees located on the property at 4094 Tomken Rd).

- All 40 trees are within the footprint of the proposed development and associated landscaping and must be removed to accommodate construction.
- Permits are required to remove all trees **except trees# 110, 112, 127, 150, 154, 160, and 177**.

Recommendations

In accordance with the numbering of trees in the inventory listed on the Tree Protection Action Key (TPAK, Appendix 1), we have provided the following recommendations.

Trees to be fully protected are specified with "Protect" in the "Action" column in the TPAK

- We recommend the client install and properly maintain Tree Protection Fencing (TPF) following the Tree Protection Plan (Appendix 2) prior to and during construction work. We recommend all materials storage be kept outside of TPZs at all times during construction.
- **For Trees #101-104, 106, 137, 140, 156, 157, 175, and 176**, we recommend the fencing be built of plywood boards affixed to a wooden post frame following City of Mississauga specifications and/or 1.2 meter (4 ft) high orange plastic web snow fencing on 2" x 4" frame. Where orange plastic web snow fencing creates a restriction to sightlines, page wire fencing with reflective tape can be used.
- Tree Protection Signage provided should be affixed to all Tree Protection Fences.
- **For Trees #114-126, and 164-173**, we recommend using the existing wood board fence to preserve these trees.

Trees likely to be injured are specified with "Injure" in the "Action" column in the TPAK.

- **For Trees #105 and 174**, we recommend excavation of the parking lot edge by low-pressure Hydro-Vac or hand-digging within the TPZs under supervision of a Certified Arborist as well as root pruning by a Certified Arborist.
- **For Trees #136, 138, 139, and 161**, we recommend excavation of the pathways within the TPZs by hand-digging under supervision of a Certified Arborist as well as root pruning by a Certified Arborist.
- All of these trees should also be protected by TPF in form of plywood boards affixed to a wooden post frame following City of Mississauga specifications and/or 1.2 meter (4 ft) high orange plastic web snow fencing on 2" x 4" frame.
- **All tree injuries will require permits as all trees are over 15 cm DBH and regulated by the City of Mississauga Private Tree Bylaw.**

Trees requiring removal are specified with "Remove" in the "Action" column in the TPAK.

- **For Trees #107-113, 127-135, 141-155, 158-160, 162, 163, and 177-180** are within the footprint of the proposed development and associated landscaping and must be removed to accommodate construction.
- Removal permits are required for all trees **except trees #110, 112, 127, 150, 154, 160, and 177**. These eight trees don't require permits because they are less than 15 cm DBH and not regulated by the bylaw.
- Construction access will be off Tomken Rd via the driveway and material storage can be anywhere outside the Tree Protection Zones (TPZs).
- Replacement planting requirements as determined by the tree inventory listed in this report and city of Mississauga by-laws total **74** trees. The site plans include locations for at least 80 new shade trees, as well as numerous smaller trees and shrubs. Replacement trees are to be native large-growing trees, at least 6cm caliper diameter for hardwoods, or 1.8m height for conifers.

Appendix 1 – Tree Protection Action Key (TPAK)

Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
101	101	Sugar Maple	*Acer saccharum*	30	Private	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	TPF
102	102	Austrian Pine	*Pinus nigra*	30	Private	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	TPF
103	103	Austrian Pine	*Pinus nigra*	52	Private	3.6	G	G	G	12.2	6.1	100	0	N	L	Preserve	N	TPF
104	104	Austrian Pine	*Pinus nigra*	22	Private	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	TPF
105	105	Austrian Pine	*Pinus nigra*	22	Private	1.8	G	G	G	12.2	9.1	100	0	Y	L	Injure	Y	Hand-dig or hydro-vac to excavate parking lot edge, arborist root pruning. TPF.
106	106	Austrian Pine	*Pinus nigra*	20	Private	1.5	G	G	G	12.2	6.1	100	0	N	L	Preserve	N	TPF
107	107	Colorado Blue Spruce	*Picea pungens*	31	Private	2.4	G	G	G	15.2	9.1	100	0	Y	H	Remove	Y	
108	108	Honey Locust	*Gleditsia triacanthos*	16	Private	1.5	G	G	G	6.1	9.1	100	0	Y	H	Remove	Y	
109	109	Honey Locust	*Gleditsia triacanthos*	16	Private	1.5	G	G	G	6.1	9.1	100	0	Y	H	Remove	Y	
110	110	Honey Locust	*Gleditsia triacanthos*	14	Private	1.5	G	G	G	6.1	9.1	100	0	Y	H	Remove	Y	
111	111	Honey Locust	*Gleditsia triacanthos*	15	Private	1.5	G	G	G	6.1	9.1	100	0	Y	H	Remove	Y	
112	112	Honey Locust	*Gleditsia triacanthos*	13	Private	1.5	G	F	F	6.1	9.1	70	30	Y	H	Remove	Y	One dead branch.
113	113	Honey Locust	*Gleditsia triacanthos*	26	Private	1.8	G	F	F	9.1	9.1	100	0	Y	H	Remove	Y	Abnormal root flare growth.
114	114	Colorado Blue Spruce	*Picea pungens*	20	Neighbour	1.5	G	F	F	15.2	9.1	70	30	N	L	Preserve	N	Estimated DBH, needles missing. TPF.
115	115	Common buckthorn	*Rhamnus carthartica*	10	Neighbour	1.5	G	G	G	3	9.1	100	0	N	L	Preserve	N	Estimated DBH. TPF.

Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
116	116	Common buckthorn	*Rhamnus carthartica*	10	Neighbour	1.5	G	G	G	3	9.1	100	0	N	L	Preserve	N	Estimated DBH. TPF.
117	117	Manitoba maple	*Acer negundo*	10	Neighbour	1.5	G	G	G	3	9.1	100	0	N	L	Preserve	N	Estimated DBH.TPF.
118	118	Eastern White cedar	*Thuja occidentalis*	10	Neighbour	1.5	G	G	G	6.1	9.1	100	0	N	L	Preserve	N	Estimated DBH, 2 stem hedgerow (5-10 cm DBH)
119	119	Cherry	*Prunus species*	11	Neighbour	1.5	G	G	G	9.1	9.1	100	0	N	L	Preserve	N	Estimated DBH
120	120	Colorado Blue Spruce	*Picea pungens*	11	Neighbour	1.5	G	G	G	9.1	9.1	100	0	N	L	Preserve	N	Estimated DBH
121	121	Honey Locust	*Gleditsia triacanthos*	12	Neighbour	1.5	G	G	G	6.1	9.1	100	0	N	L	Preserve	N	Estimated DBH. TPF.
122	122	Honey Locust	*Gleditsia triacanthos*	30	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH. TPF.
123	123	Cherry	*Prunus species*	20	Neighbour	1.5	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH. TPF.
124	124	Colorado Blue Spruce	*Picea pungens*	22	Neighbour	1.8	G	G	G	15.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
125	125	Colorado Blue Spruce	*Picea pungens*	22	Neighbour	1.8	G	G	G	15.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
126	126	Colorado Blue Spruce	*Picea pungens*	25	Neighbour	1.8	G	G	G	15.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
127	127	Honey Locust	*Gleditsia triacanthos*	12	Private	1.5	P	P	P	6.1	9.1	60	40	Y	H	Remove	Y	Dieback in top of crown
128	128	Wiilow	*Salix species*	32	Private	2.4	G	G	G	9.1	9.1	100	0	Y	H	Remove	Y	
129	129	Wiilow	*Salix species*	29	Private	1.8	G	F	F	9.1	9.1	100	0	Y	H	Remove	Y	Multistem (18, 23), missing leaves, trunk wound
130	130	Honey Locust	*Gleditsia triacanthos*	32	Private	2.4	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
131	131	Honey Locust	*Gleditsia triacanthos*	36	Private	2.4	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	

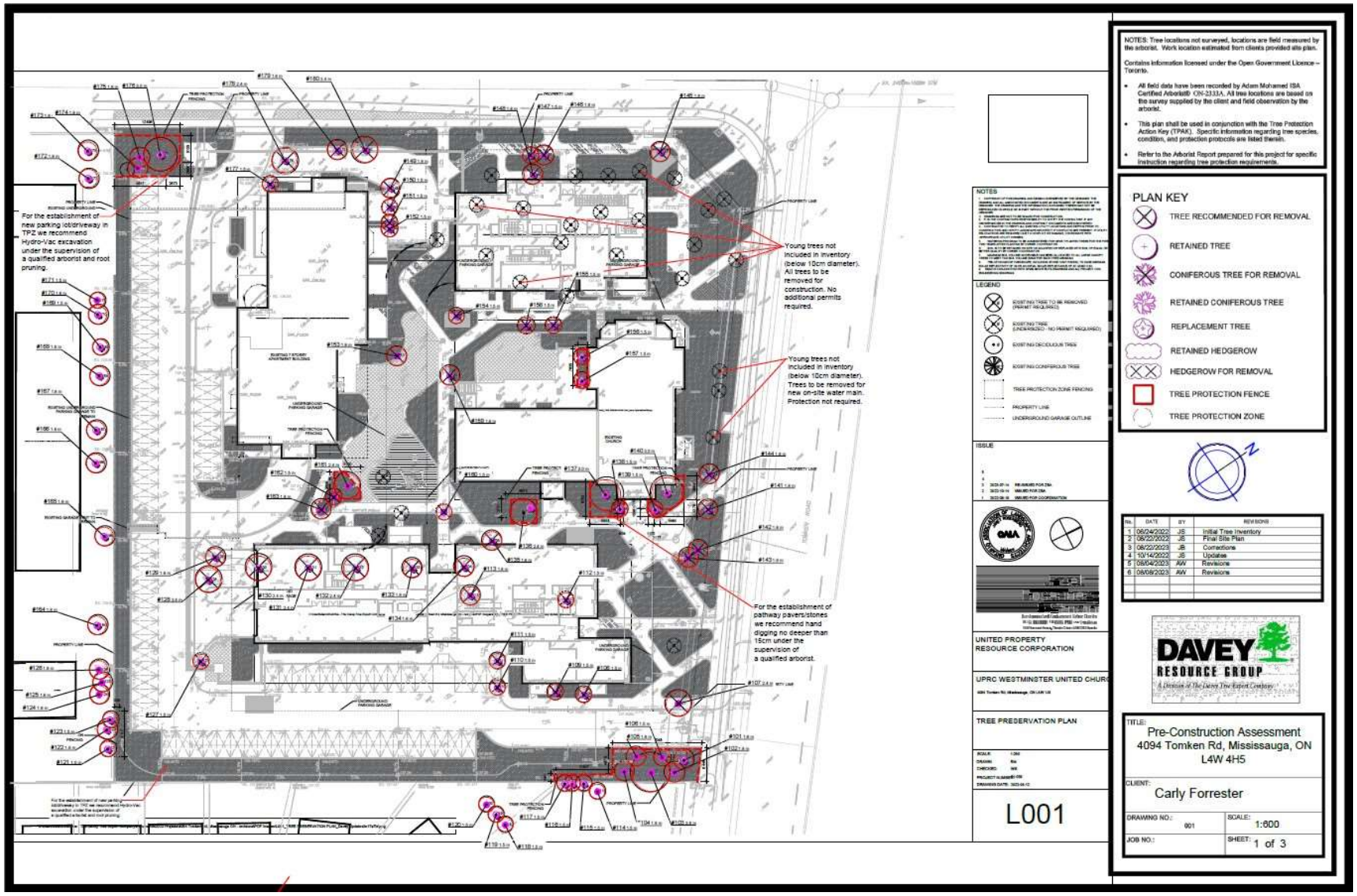
Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
132	132	Honey Locust	*Gleditsia triacanthos*	36	Private	2.4	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
133	133	Honey Locust	*Gleditsia triacanthos*	25	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
134	134	Honey Locust	*Gleditsia triacanthos*	30	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
135	135	Honey Locust	*Gleditsia triacanthos*	26	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
136	136	Honey Locust	*Gleditsia triacanthos*	39	Private	2.4	G	G	G	12.2	9.1	100	0	Y	L	Injure	Y	Hand digging for new pathways, arborist root pruning. TPF.
137	137	English oak	*Quercus robur*	41	Private	3.0	G	G	G	18.3	9.1	100	0	Y	L	Preserve	N	Hand digging for new pathways, arborist root pruning. TPF.
138	138	Pear	*Pyrus sp*	17	Private	1.5	F	F	F	15.2	9.1	70	30	Y	L	Injure	Y	Multistem (17, 8), one stem dead. Hand digging for new pathways, arborist root pruning. TPF.
139	139	Pear	*Pyrus sp*	11	Private	1.5	F	F	F	15.2	9.1	70	30	Y	L	Injure	Y	Multistem (11, 8, 10). Hand digging for new pathways, arborist root pruning. TPF.
140	140	English oak	*Quercus robur*	43	Private	3.0	G	G	G	18.3	9.1	100	0	Y	L	Preserve	N	Hand digging for new pathways, arborist root pruning. TPF.
141	141	Norway maple	*Acer platanoides*	23	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
142	142	Colorado Blue Spruce	*Picea pungens*	22	Private	1.8	F	F	F	15.2	9.1	70	30	Y	H	Remove	Y	Missing leaves.
143	143	Colorado Blue Spruce	*Picea pungens*	25	Private	1.8	G	G	G	15.2	9.1	100	0	Y	H	Remove	Y	TPF
144	144	Norway maple	*Acer platanoides*	23	Private	1.8	F	F	F	12.2	9.1	70	30	N	L	Remove	Y	Missing leaves, trunk damage.
145	145	Sugar Maple	*Acer saccharum*	25	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
146	146	Sugar Maple	*Acer saccharum*	21	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	

Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
147	147	Sugar Maple	*Acer saccharum*	17	Private	1.5	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
148	148	Sugar Maple	*Acer saccharum*	28	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
149	149	Lilac species	*Syringa species*	21	Private	1.8	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	Multistem (13, 9, 9, 10)
150	150	Lilac species	*Syringa species*	13	Private	1.5	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	
151	151	Lilac species	*Syringa species*	16	Private	1.5	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	Multistem (14, 8)
152	152	Pear	*Pyrus species*	20	Private	1.5	G	G	G	9.1	9.1	100	0	Y	H	Remove	Y	Estimated DBH
153	153	White pine	*Pinus strobus*	22	Private	1.8	G	G	G	12.2	9.1	70	30	Y	H	Remove	Y	Missing needles
154	154	Freeman maple	*Acer x Freemani*	10	Private	1.5	G	G	G	9.1	9.1	100	0	Y	H	Remove	Y	
155	155	Cherry	*Prunus species*	20	Private	1.5	G	G	G	9.1	9.1	100	0	N	L	Remove	Y	Estimated DBH
156	156	Crabapple	*Malus sylvestris*	13	Private	1.5	G	G	G	9.1	9.1	100	0	N	L	Preserve	N	Estimated DBH, Multistem (10, 3, 8). TPF.
157	157	Crabapple	*Malus sylvestris*	16	Private	1.5	G	G	G	9.1	9.1	100	0	N	L	Preserve	N	Estimated DBH, Multistem (10, 8, 10). TPF.
158	158	Pear	*Pyrus species*	17	Private	1.5	G	G	G	9.1	9.1	100	0	N	L	Remove	Y	Multistem (14, 10)
159	159	Crabapple	*Malus sylvestris*	26	Private	1.8	G	G	G	9.1	9.1	100	0	Y	H	Remove	Y	
160	160	Juniper	*Juniperus species*	11	Private	1.5	G	G	G	9.1	9.1	100	0	Y	H	Remove	Y	Estimated DBH
161	161	Colorado Blue Spruce	*Picea pungens*	32	Private	2.4	G	G	G	15.2	9.1	100	0	Y	M	Injure	Y	Hand digging for new pathways, arborist root pruning. TPF.
162	162	White spruce	*Picea glauca*	18	Private	1.5	F	F	F	15.2	9.1	70	30	Y	M	Remove	Y	
163	163	Colorado Blue Spruce	*Picea pungens*	27	Private	1.8	F	F	F	15.2	9.1	70	30	Y	L	Remove	Y	

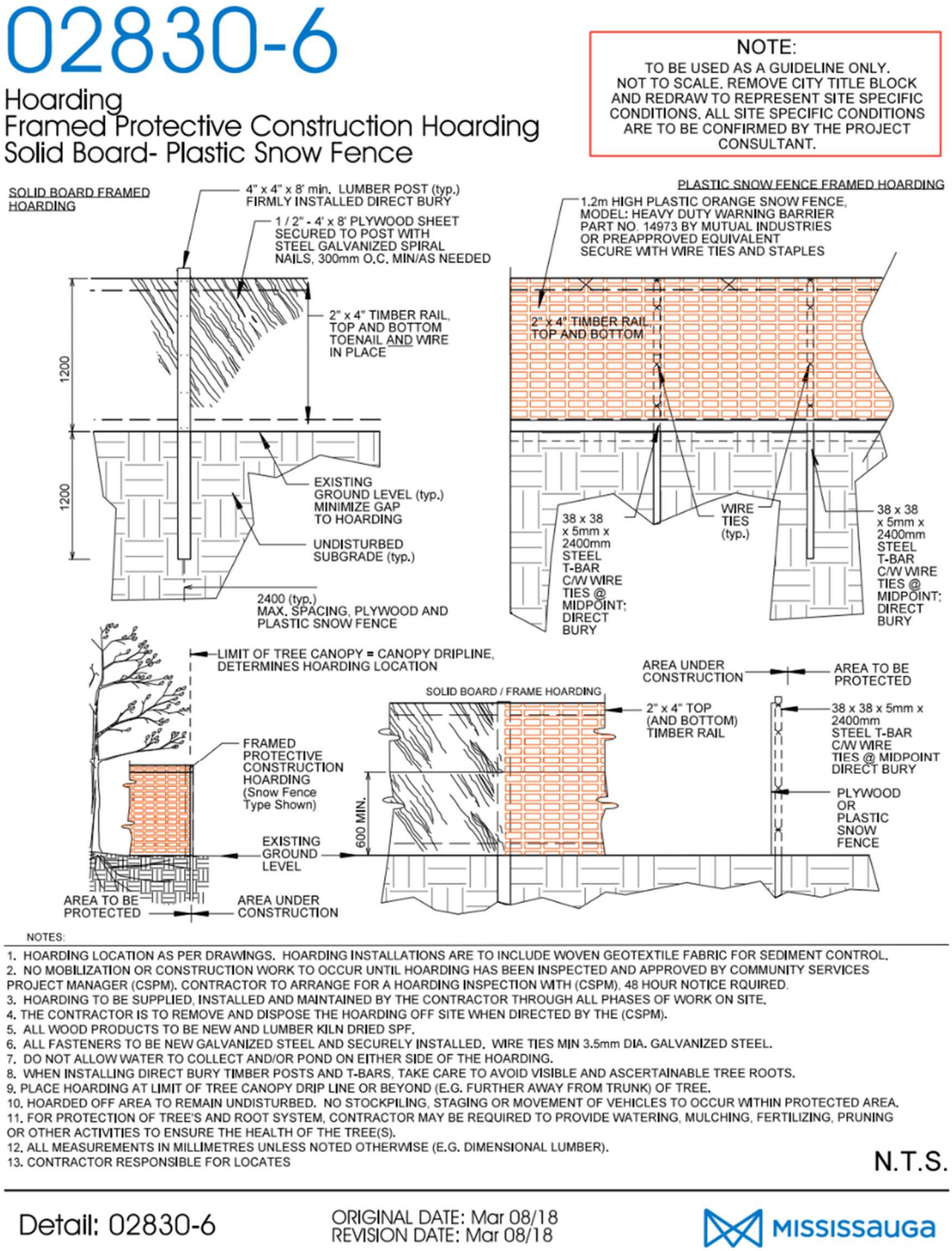
Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
164	164	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
165	165	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	F	F	12.2	9.1	70	30	N	L	Preserve	N	Estimated DBH, missing leaves
166	166	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
167	167	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	F	F	12.2	9.1	70	30	N	L	Preserve	N	Estimated DBH, missing leaves
168	168	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
169	169	White mulberry	*Morus alba*	15	Neighbour	1.5	G	G	G	6.1	9.1	100	0	N	L	Preserve	N	Estimated DBH
170	170	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
171	171	Colorado Blue Spruce	*Picea pungens*	10	Neighbour	1.5	G	G	G	9.1	9.1	100	0	N	L	Preserve	N	Estimated DBH
172	172	Honey Locust	*Gleditsia triacanthos*	25	Neighbour	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	Estimated DBH
173	173	Honey Locust	*Gleditsia triacanthos*	30	Neighbour	1.8	P	P	P	12.2	9.1	50	50	N	L	Preserve	N	Estimated DBH, half of tree without leaves
174	174	Austrian Pine	*Pinus nigra*	22	Private	1.8	G	G	G	9.1	9.1	100	0	Y	L	Injure	Y	Multistem (14, 17); hand-dig or hydro-vac to excavate parking lot edge, arborist root pruning. TPF.
175	175	Austrian Pine	*Pinus nigra*	23	Private	1.8	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	TPF
176	176	Littleleaf linden	*Tilia cordata*	44	Private	3.0	G	G	G	12.2	9.1	100	0	N	L	Preserve	N	TPF
177	177	Lilac species	*Syringa species*	10	Private	1.5	G	G	G	6.1	9.1	100	0	Y	H	Remove	Y	
178	178	Littleleaf linden	*Tilia cordata*	34	Private	2.4	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	

Tree Tag Number	Tree Map Number	Species	Botanical	DBH (cm) @ 1.4 m	Tree Ownership	Minimum Tree Protection Distance (m)	Health	Structure	Overall Condition	Tree Height (m)	Crown Width (m)	Live Crown Ratio (%)	Deadwood (%)	Construction inside Min TPZ? (Y/N)	Construction Impact (None, Low, Medium, High)	Action	Permit Required? (Y/N)	Observations and Recommendations
179	179	Littleleaf linden	*Tilia cordata*	28	Private	1.8	G	F	F	12.2	9.1	70	30	Y	H	Remove	Y	Missing leaves.
180	180	Littleleaf linden	*Tilia cordata*	32	Private	2.4	G	G	G	12.2	9.1	100	0	Y	H	Remove	Y	

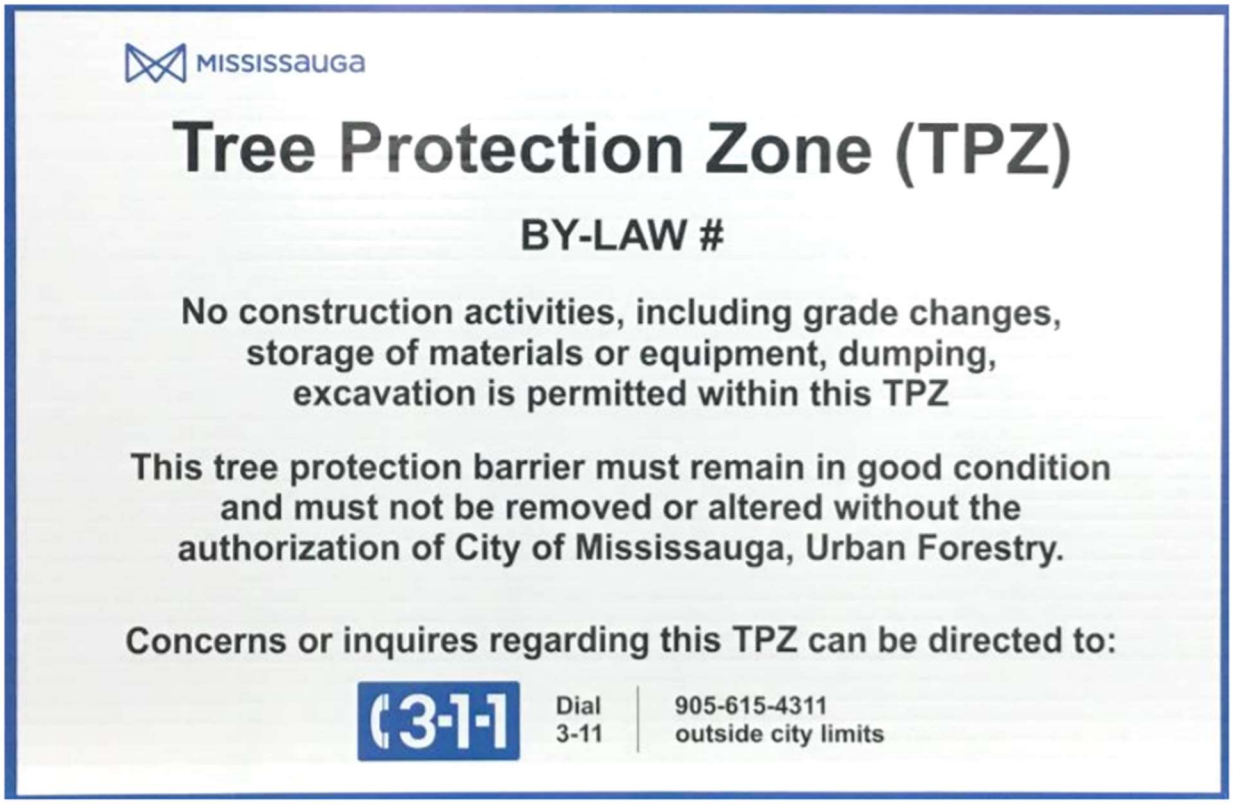
Appendix 2 – Tree Protection Plan (Preview – to be printed to scale at 11x17")



Appendix 3 – Hoarding (TPF) Detail



Appendix 4 – Tree Protection Zone Sign Detail



Appendix 5 – References

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2. Dujesiefken, Dr. Dirk, 2012. Director of the Institute for Tree Care in Germany, The CODIT Principle, research presented on cambial regrowth on trees after injury at the Annual ISA Conference in Kingston Ontario
3. Sinclair and Lyon, 2005. Diseases of Trees and Shrubs, Second Edition
4. ISA, 2010. Glossary of Arboricultural Terms
5. Neely and Watson, ISA, 1994 and 1998. The Landscape Below Ground 1 and 2
6. Matheny and Clark, ISA, 1994. A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas, 2nd Edition
7. Matheny and Clark, ISA 1998. Trees and Development, A Technical Guide to Preservation of Tree During Land Development
8. PNW-ISA, 2011. Tree Risk Assessment in Rural Areas and Urban/Rural Interface, Version 1-5
9. Todd Hurt & Bob Westerfield, 2005.Tree Protection During Construction and Landscaping Activities

Appendix 6 – Glossary of Common Arboricultural Terms

Arborist	A professional who possesses the technical competence gained through experience and related training to provide for or supervise the management of trees and other woody plants in residential, commercial, and public landscapes.
ANSI A300	Acronym for American National Standards Institute. In the United States, industry-developed, national consensus standards of practice for tree care.
Bark Tracing	Cutting away torn or injured bark to leave a smooth edge.
Branch Bark Ridge	Raised strip of bark at the top of a branch union, where the growth and expansion of the trunk or parent stem and adjoining branch push the bark into a ridge.
Callus wood	Undifferentiated tissue formed by the cambium, usually as the result of wounding.
Clinometer	A device used to calculate the height of trees.
Consulting Arborist	An Arboricultural consultant is one of the following: ● American Society of Consulting Arborists, Registered Consulting Arborist (ASCA RCA#___) ● International Society of Arboriculture, Board Certified Master Arborist (ISA BCMA #_____B) ● ISA Certified Arborist/Municipal Specialist in good standing for a minimum of 6 years with 6 years of proven experience in a management role related to arboriculture, and has attested and signed to a code of ethics related to arboriculture (ISA#_____)
Compartmentalization	Natural defense process in trees by which chemical and physical boundaries are created that act to limit the spread of disease and decay organisms
Critical Root Zone – (CRZ)	Area of soil around a tree where the minimum amounts of roots considered critical to the structural stability or health of the tree are located. CRZ determination is sometimes based on the drip line or a multiple of dbh (12:1, 12cm of ground distance from the trunk for every cm of dbh) but because root growth is often asymmetric due to site conditions, on-site investigation is preferred.
Daylighting	Also known as Hydro-vac, this is the process by which soil is vacuumed up. In the context of tree care this allows workers to access the soil below the roots without mortal damage to significant roots.
DBH	Acronym for tree diameter at breast height. Measured at 1.4m above ground.
Decurrent	Rounded or spreading growth habit of the tree crown.
Directional Pruning	Providing clearance by pruning branches that could significantly affect the integrity of utility facilities or other structures and leaving in place branches that could have little or no effect.
Dripline	Imaginary line defined by the branch spread of a single parent or group of plants

Excurrent	Tree growth habit characterized by a central leader and a pyramidal crown.
Included bark	Bark that becomes embedded in a crotch (union) between branch and trunk or between codominant stems. Causes a weak structure.
Lion's Tailing	Poor pruning practice in which an excessive number of branches are thinned from the inside and lower part of specific limbs or a tree crown, leaving mostly terminal foliage. Results in poor branch taper, poor wind load distribution, and higher risk of branch failure.
MTPZ	Acronym for Minimum Tree Protection Zone, also known as the Structural Root Zone (SRZ), which is the distance from the tree equal to 6 times the dbh, within which the likelihood of encountering roots that are structural supports for the tree.
Moment	Rotational force that is created by any line force on a body. The magnitude of a moment is defined as the product of the force magnitude and perpendicular distance from the line of action of the force to the axis of which the moment is being calculated.
Mortality Spiral	A sequence of stressful events or conditions causing the decline and eventual death of a tree.
Mulch	Material that is spread of sometimes sprayed on the soil surface to reduce weed growth, to retain soil moisture and moderate temperature extremes, to reduce compaction from pedestrian traffic or to prevent damage from lawn-maintenance equipment, to reduce erosion or soil spattering onto adjacent surfaces, to improve soil quality through its eventual decomposition, and/or to improve aesthetic appearance of the landscape. Mulch can be composed of chipped, ground, or shredded organic material such as bark, wood, or recycled paper; unmodified organic material such as seed hulls; organic fiber blankets or mats; or inorganic material such as plastic sheeting.
Organic Matter	Material derived from the growth (and death) of living organisms. The organic components of the soil.
CRZ	Acronym for Critical Root Zone, also known as the Critical Root Zone (see definition above), within which there is a high likelihood of encountering roots that are necessary for the survival for the tree.
Project Arborist	The consulting arborist retained to provide all tree preservation recommendations to the project manager or contractors on a given construction project.
Qualified Arborist	An arborist who has documented related training (i.e. ISA, MTCU, or equivalent) and on-the-job experience (minimum of 5 years)
Radial trenching	Technique for aerating the soil or alleviating compaction around a tree by removing and replacing soil (which may be amended) in trenches (typically 300mm deep and 150mm wide) made in a spoke like pattern (radially from the trunk) in the root zone to improve conditions for root growth.
Reaction Wood	Wood formed in leaning or crooked stems or on lower or upper sides of branches as a means of

	counteracting the effects of gravity.
Removal Cut	A cut that removes a branch at its point of origin. Collar cut.
Reduction Cut	A pruning cut that reduces the length of a branch or stem back to a lateral branch large enough to assume apical dominance.
Resistograph®	A brand name of a device consisting of a specialized micro-drill bit that drills into trees and graphs density differences that are used to detect decay.
Soft-Scaped	Landscaping practices that do not involved solid or deeply dug foundations. Patios consisting of slab rocks laid on-top of the soil with minimal excavation and base (less than 10cm) and causing minimal damage to existing tree roots.
Static Support System	Cabling system that utilizes rigid materials such as rods and steel cables to limit movement and provide constant support of limbs.
Structural cells	Modular system consisting of units of soil and integrated support structures that serve both as a foundation for paved surfaces and a hospitable environment for tree root growth,
Structural pruning	Pruning to establish a strong arrangement or system of scaffold branches.
Structural Soil™	Pavement substrate that can be compacted to meet engineering specifications yet remains penetrable be tree roots in the urban environment. Composed of angular crushed stone, clay loam, and hydrogel mixed in a weight ratio of 100:20:0.03. Developed at the Urban Horticulture Institute, Cornell University, Ithaca, NY.
Supersonic Air Excavation Techniques (SSAT)	A methodology using a device that directs a jet of highly compressed air to excavate soil. Used within the root zone of trees to avoid or minimizing damage to the roots, or near underground structures such as pipes and wires to avoid or minimize damage to them.
Tree Protection Zone (TPZ)	Defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction. TPZ is sometimes based on a minimum multiple of dbh (e.g. 6:1, 6cm of ground distance from the trunk for 1cm of dbh)
Walls	Trees have 4 walls in a process known as compartmentalization. ● Wall 1 prevents decay moving up and down in a tree ● Wall 2 prevents decay moving inward in a tree ● Wall 3 prevents decay moving laterally in a tree ● Wall 4 is the new growth formed on the outside of the tree, callus growth.
Woundwood	Lignified, differentiated tissues produced on woody plants after wounding.

Appendix 7 – Arborist Qualifications

Adam Mohamed is an ISA Certified Urban Forestry and Arboricultural Technician with Davey Resource Group. His formal education includes a Bachelor of Arts in biology from Carleton University, and a Graduate Certificate in Ecosystem Restoration from Niagara College. He has 5 to 7 years of work and volunteer experience in forestry and arboriculture practices such as inventory, tree-planting, surveys, and site-monitoring.

Education and Certifications
International Society of Arboriculture Certified Arborist (ON-2333A)
Bachelor of Arts in Biology from Carleton University in 2003
Graduate Certificate in Ecosystem Restoration from Niagara College in 2009
Certified for Ecological Land Classification for Southern Ontario
Tree Risk Assessment Qualification

Alex Weegen is a Consulting Arborist with Davey Resource Group. They have obtained a Bachelor of Science in Ecology focusing on resource conservation from the University of Guelph, and later completed a Master of Forest Conservation at University of Toronto. They have over 9 years of varied work experience in forestry, arboriculture, tree inventory and tree risk assessment.

Certifications

- International Society of Arboriculture Certified Arborist® (ON-1951A)
- International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ)
- Registered Professional Forester in training
- Certified Ontario Tree Marker

Appendix 8 – Photographs

Fig 1.Tree #101

Fig. 2 Trees #102-106 (front to rear)

Fig.3 Tree #107

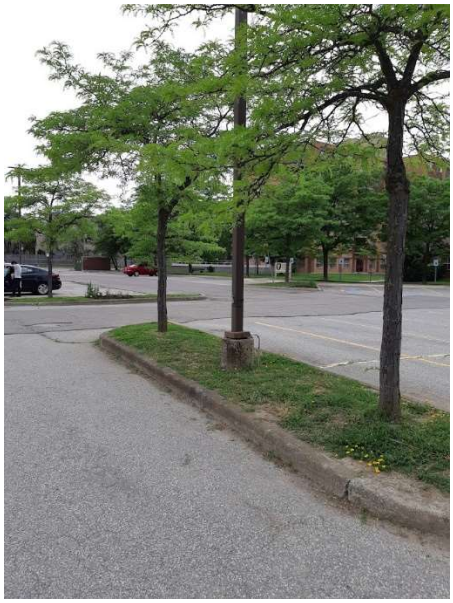

Fig.4 Trees #108-109 (front to rear)

Fig.5 Trees #110-111 (left to right)

Fig.6 Tree #112

Fig.7 Tree #113

Fig.8 Trees #114-117 (left to right) behind fence at 1010 Wetherby Lane

Fig 9. Trees #118-120 (left to right) behind fence at 1014 Wetherby Lane.

Fig 10. Trees #121-123 (left to right) behind fence at 4101 Westminster Place

Fig 11. Trees #124-126 (left to right) behind the fence at 4101 Westminster Place

Fig 12. Trees #127

Fig 13. Trees #128-129 (left to right)

Fig 14. Trees #130-132 (left to right)

Fig 15. Trees #133

Fig 16. Trees #134-136 (front to rear)

Fig 17. Trees #137-138 (left to right)

Fig 18. Trees #138-139 (front to rear)

Fig 19. Tree #140

Fig 20. Tree #141

Fig 21. Trees #142-143 (left to right)

Fig 22. Tree #144

Fig 23. Tree #145

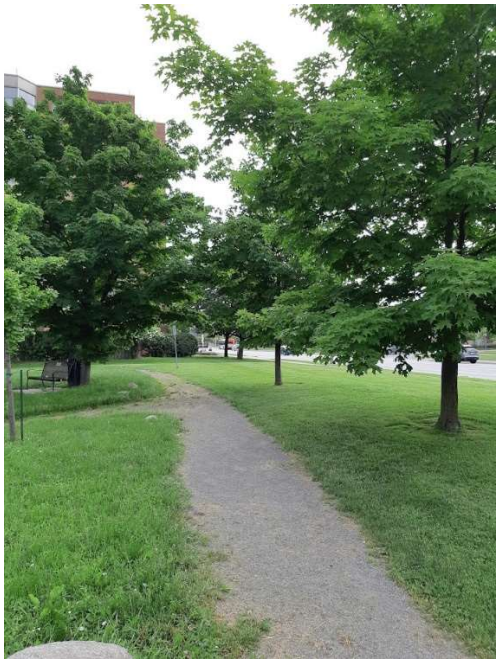

Fig 24. Trees #146-148 (right to left)

Fig 25. Trees #149-151 (right to left)

Fig.26 Tree #152

Fig 27. Tree #154

Fig 28. Tree #155


Fig 29. Tree #158


Fig 30. Tree #159


Fig 31. Trees #156-157 (front to rear)


Fig 32. Tree #160 (tree close to building)

Fig 33. Trees #161-163 (right to left)

Fig 34. Trees #164-165 (left to right) behind fence at 4101 Westminster Pl.

Fig 35. Trees #166-168 (left to right) behind fence at 4101 Westminster Pl.

Fig 36. Trees #169-170 (left to right) behind fence at 4101 Westminster Pl.

Fig 37. Trees #171-172 (left to right) behind fence at 4101 Westminster Pl.

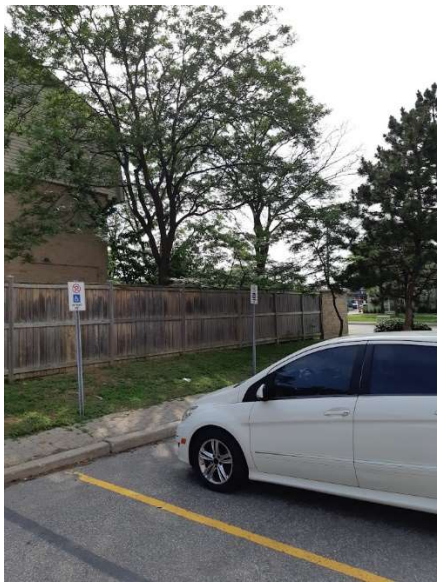

Fig 38. Tree #173 behind fence at 4101 Westminster Pl

Fig 39. Trees #174-176 (left to right)

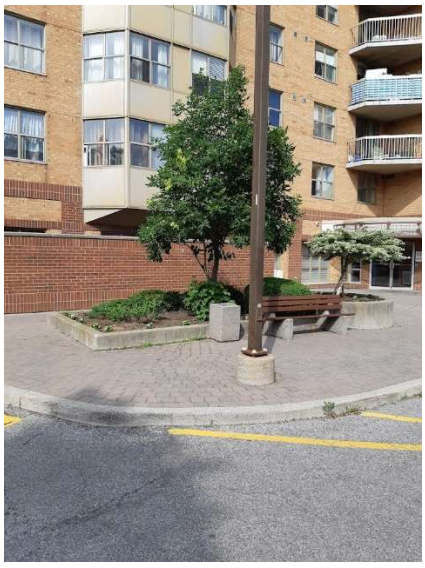

Fig 40. Tree #177

Fig 41. Tree #178

Fig 42. Trees #179-180 (front to rear)

Conditions of Assessment Agreement

This Conditions of Assessment Agreement is made pursuant to and as a provision of Davey Resource Group, a division of The Davey Tree Expert Co. of Canada, Limited ("Davey"), providing tree assessment services as agreed to between the parties, the terms and substance of which are incorporated in and made a part of this Agreement (collectively the "Services").

Trees are living organisms that are subject to stress and conditions and which inherently impose some degree or level of risk. Unless a tree is removed, the risk cannot be eliminated entirely. Tree conditions may also change over time even if there is no external evidence or manifestation. In that Davey provides the Services at a point in time utilizing applicable standard industry practices, any conclusions and recommendations provided are relevant only to the facts and conditions at the time the Services are performed. Given that Davey cannot predict or otherwise determine subsequent developments, Davey will not be liable for any such developments, acts, or conditions that occur including, but not limited to, decay, deterioration, or damage from any cause, insect infestation, acts of god or nature or otherwise.

Unless otherwise stated in writing, assessments are performed visually from the ground on the above-ground portions of the tree(s). However, the outward appearance of trees may conceal defects. **Therefore, to the extent permitted by law, Davey does not make and expressly disclaims any warranties or representations of any kind, express or implied, with respect to completeness or accuracy of the information contained in the reports or findings resulting from the Services beyond that expressly contracted for by Davey in writing, including, but not limited to, performing diagnosis or identifying hazards or conditions not within the scope of the Services or not readily discoverable using the methods applied pursuant to applicable standard industry practices.** Further, Davey's liability for any claim, damage or loss caused by or related to the Services shall be limited to the work expressly contracted for.

In performing the Services, Davey may have reviewed publicly available or other third- party records or conducted interviews and has assumed the genuineness of such documents and statements. Davey disclaims any liability for errors, omissions, or inaccuracies resulting from or contained in any information obtained from any third- party or publicly available source.

Except as agreed to between the parties prior to the Services being performed, the reports and recommendations resulting from the Services may not be used by any other party or for any other purpose. The undersigned also agrees, to the extent permitted by law, to protect, indemnify, defend and hold Davey harmless from and against any and all claims, demands, actions, rights and causes of action of every kind and nature, including actions for contribution or indemnity, that may hereafter at any time be asserted against Davey or another party, including, but not limited to, bodily injury or death or property damage arising in any manner from or in any way related to any disclaimers or limitations in this Agreement.

By accepting or using the Services, the customer will be deemed to have agreed to the terms of this Agreement, even if it is not signed.

Acknowledged by:

Name of Customer: _____

Authorized Signature: _____

Date: _____