



# Arborist Report

## Tree Preservation Plan

**Prepared For:**

Jose Goncalves

**Site Address:**

89 Regal Rd, Toronto,

ON, M6H 2J6

**February 1<sup>st</sup>, 2022**

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## Summary

The following arborist report is with respect to a tear down, lot severance, and rebuild of two detached houses at 89 Regal Rd in Toronto. This project will also involve the tear down of the existing driveway and rebuild of two driveways, one for each building.

While on site we inventoried 38 trees, most of which are located on the east side of the property. This project will have extensive tree removals as there is limited available space for new buildings. The majority of the trees are located on the adjacent property east of the building on a local school's yard. 13 of these trees are close enough to construction that we recommend them being removed to account for the over dig of the house and construction of a new driveway. In order to remove these trees, it is recommended that the client gain consent from the school. We also recommend 2 more removals on neighboring property to account for the over dig of the building foundation. These trees are located on neighboring properties to the east and will require neighboring consent to remove.

To preserve as many trees as possible on site, 3 trees are likely to receive an injury and are recommended to be protected by hoarding. Trees #2 and 21 are recommended for low pressure root excavation under the supervision of a certified arborist. The arborist can prune roots at their discretion up to 5cm once permits to injure are obtained for these trees.

To compensate for the proposed removals of bylaw regulated trees, the city will request replacement trees be planted. With the limited space available on site, we recommend paying a cash in lieu fee (\$583 per replacement tree) to account for the 8 removals, amounting to \$4,664, this number is an estimation.

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, Jose Goncalves to develop an Arborist Report and Tree Protection Plan (TPP) for the tear down, lot severance and rebuild of two new detached houses with driveways at 89 Regal Rd in Toronto. 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 ongoing and proposed work. To account for the spatial scope of work within the site, the location of the construction as well as all trees within 6 meters of it, including any neighboring lot trees within this scope were surveyed. All trees over 5cm within the scope of the survey were included in an inventory and assessed for protection or removal needs. Small ornamental trees and shrubs were not surveyed for this report.

Recommendations for tree preservation or removal are to be provided and follow City of Toronto by-laws (Municipal Code Chapter 813).

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)

## 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. The property was not assessed for any arborist report prior to the assessment performed for this report. Conditions of the site are described as they were witnessed during the site assessment. Construction crews were not present during the assessment. Descriptions of the past and ongoing work are based on discussions with the client. No exploration of roots or digging into any grades was conducted during the assessment. Definitive assessment of any tree's root system would require an exploratory root excavation undertaken with an Air-Spade operated by a certified arborist.

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.
- Photographs included in this report are labeled copies of their originals and may have been cropped for formatting.
- All trees over 5cm within 6 meters planned construction work were collected and assessed for this report.
- Trees were studied for their proximity to existing and planned structures to determine recommendations or precautions for trees requiring removal or injury.

## Observations

- The site was inspected on October 7<sup>th</sup>, 2021, by ISA Certified Arborist Nicholas Lawson.
- 37 trees were located on this property and within 6m of nearby areas and neighboring properties. These trees were assessed and labeled 1-38, all tree inventoried are listed in the inventory and Tree Protection Plan included within Appendices 1-2.
- 9 trees are privately owned.
- 4 trees are city owned.
- 16 trees are owned by the adjacent school
- 8 trees are located on neighboring properties.
- No Construction has begun on this project at the time of the assessment.
- Most of the trees were located on the east property line owned by the school or bordering school property. These trees were in fair to poor condition.
- The trees in the front yard owned by the City were mostly in good condition.
- The majority of the trees on the eat property line will be injured or require removal with the construction of a new building and driveway along the property line.

## Discussion

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

### Regulatory context

Trees in Toronto are protected by City Municipal Code Chapter 813, which establishes permit requirements for work surrounding all trees planted on city-owned property, and all trees over 30cm in diameter on private property as well as trees protected by the ravine and natural feature protection by-law. Under the by-law, Tree Protection Zones surrounding each tree are defined by the tree's diameter and must be kept free of all construction activity above and below ground. Were any work to be required within the TPZ of a tree protected by the by-law a permit to injure the tree is required by the City of Toronto. Any tree protected by the by-law that must be removed to accommodate construction also requires permit approval to proceed. 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 (depicted in Appendix 3). This serves to prevent any incidental contact or harm to a protected tree that would constitute a contravention of the by-law and may result in fines or a stop-work order. Below is a table of TPZ distances as defined by Toronto By-laws.

| Trunk<br>Diameter<br>(DBH)                    | <10cm       | 11-<br>30cm | 31-<br>40cm | 41-<br>50cm | 51-<br>60cm | 61-<br>70cm | 71-<br>80cm | 81-<br>90cm | 91-<br>100+cm |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|
| Minimum<br>Protection<br>Distance<br>Required | <b>1.2m</b> | <b>1.8m</b> | <b>2.4m</b> | <b>3.0m</b> | <b>3.6m</b> | <b>4.2m</b> | <b>4.8m</b> | <b>5.4m</b> | <b>6.0m+</b>  |

### 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. To accomplish this, hoarding (Tree Protection Fencing (TPF)) is to be used on this construction site. The distance from trees that hoarding is installed is typically defined by the dripline pursuant to the city by-law. However, it must be understood that sometimes this distance is not achievable due to infrastructure being too close. In most situations, hoarding does not need to be installed beyond the closest extent of impermeable and/or paved surfaces. It must be further understood the hoarding 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.) On most landscapes within a private property, solid plywood hoarding best serves to protect tree trunks from inadvertent damage. However, along city streets and at driveway entrances, it is recommended that high-visibility snow fence be affixed to a wooden beam frame, which allows for proper tree protection while allowing vehicle and pedestrian traffic to maintain visibility through the tree protection zone. Hoarding 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.

### 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.

### Tree Protection Signage

It is recommended for the client to create Tree Protection Signs to affix to tree protection hoarding. A sign should be displayed on the tree protection fencing. The Toronto standard sign format is displayed in Appendix 4 within this report. Signage informs the public and reminds the contractors the significance of the TPZs and the efforts put forward by the client in tree preservation.

### Staging Areas

All staging areas are understood to be outside any trees TPZ. At no time are materials, vehicles, traffic, or debris to be stacked, staged, or piled inside the hoarding (Tree Protection Fencing). We recommend that staging of materials be done on the existing driveway or on the road.

## Conclusion

The proposed construction at 89 Regal Rd in Toronto involved the tear down of the existing building and driveway to accommodate the lot severance and construction of two new detached buildings with driveways. While on site we inventoried 38 trees and recommend the removal of 15 trees mostly along the East property line and the Injury of 3 more trees.

The majority of the removals are trees on an adjacent school property and will require neighboring consent to remove or injure these trees. A large number are in fair to poor condition with some being dead. We recommend that the client contact the school and discuss the removal and injury of these trees as they could pose a risk to residents of 89 Regal or students on the school property. We also recommend that the client gain the consent from the neighbor on the East side of the property to remove two trees for the establishment of a new foundation.

The remaining trees on site can be protected with hoarding and are expected to survive if precautions are taken. For trees number #2 and 21 we recommend low impact root excavation using an air spade or hydrovac under the supervision of a qualified arborist who can prune roots up to 5cm at their discretion. Permits to injure from City will be required for these trees.

## Recommendations

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

- The client will be required to submit an “Application to Injure or Remove Trees” for the following conditions:
  - Injury of Tree #2: A City- owned 9.5cm Serviceberry (**Permit require**)
  - Injury of Tree #21: A Privately-owned 89cm Little Leaf Linden (**Permit require**)
  - Injury of Tree #18: A Privately-owned 18cm Norway Maple
- We recommend low impact excavation of the subject roots to be injured in construction along the driveway of tree #2, it is recommended that the client apply for a permit to injure this tree and an arborist be present to supervise excavation and prune roots up to 5cm at their discretion. If structural roots are found a removal permit may be required.
- We recommend low impact excavation of the subject roots to be injured in construction for the foundation of the deck in the back yard around tree #21 it is recommended that the client apply for a permit to injure this tree and an arborist be present to supervise excavation and prune roots up to 5cm at their discretion.
- We recommend removing trees #8- 20. Consent from the adjacent school will be required

to remove these trees. A permit from the city will be required to remove trees #8, 10, 15, 17, 18 and 19.

- We recommend removing trees #36 and 37. Consent from the neighbor is required for these removals as over dig will extend to the property line.
- We recommend establishing tree protection fencing in the form of solid ¾ inch plywood sheets around trees #1 -6 and 21.
- The city is most likely going to require trees to be planted on site or a cash in lieu fee be paid to the city. With the limited space available on site, we recommend paying a cash in lieu fee of to account for the 8 removals of permit regulated trees to the value of \$583 per tree to the city of Toronto amounting to \$4,664, this number is an estimation.
- Dead and decaying stems on tree #27 in the back yard, we recommend pruning or removing some stems with consent from the school.
- We recommend no materials or equipment be moved or stored in any trees TPZ. We recommend the client stage all equipment and materials on the driveway and not in the back yard.

## Appendix 1 – Tree Protection Action Key (TPAK)

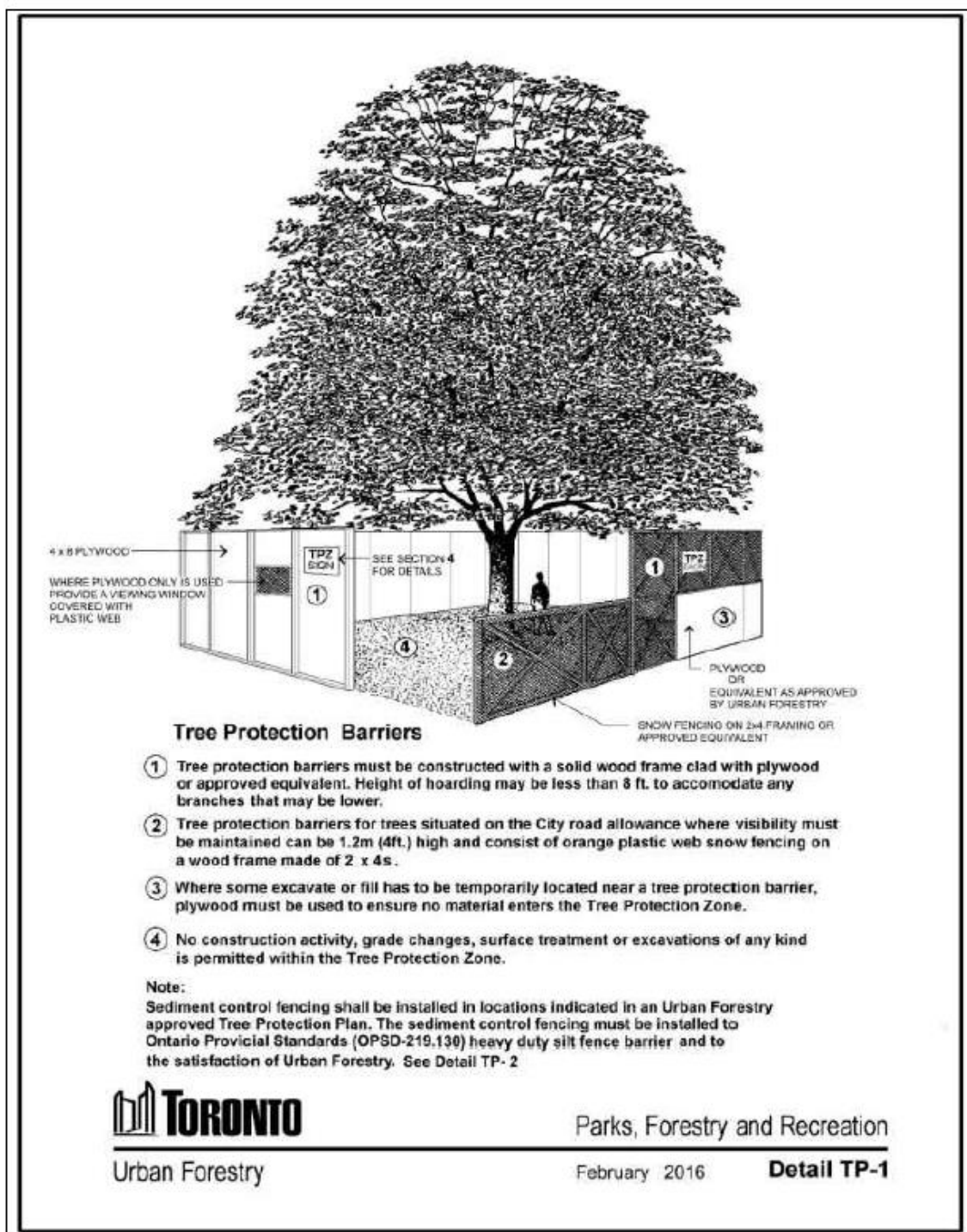
| Tree Map Number | Species             | Botanical                  | DBH (cm) @ 1.4 m | Tree Ownership (City, Private, Neighbor, Shared) | Minimum Tree Protection Distance (m) | BURLINGTON ONLY CRZ Distance (m) | Health | Structure | Overall Condition | Tree Height (m) | Crown Width (m) | Deadwood (%) | Construction inside Min TPZ? (Y/N) | Hoarding Required (Y/N) | Construction Impact (None, Low, Medium, High) | Action  | Permit Required - Private tree over 30cm DBH (Y/N) Or City tree | Notes and Observations   |
|-----------------|---------------------|----------------------------|------------------|--|--------------------------------------|----------------------------------|--------|-----------|-------------------|-----------------|-----------------|--------------|------------------------------------|-------------------------|---|---------|---|--|
| 1               | Bur Oak             | <i>Quercus macrocarpa</i>  | 9                | C  | 1.2                                  | 1.8                              | G      | F         | Good              | 4               | 1.5             | 10           | N                                  | Y                       | N   | Protect | N   | Odd canopy shape   |
| 2               | Serviceberry        | <i>Amelanchier species</i> | 9.5              | C  | 1.2                                  | 1.8                              | G      | G         | Good              | 7               | 5               | 5            | Y                                  | N                       | H   | Injure  | Y   | Exploratory root excavation recommended  |
| 3               | Serviceberry        | <i>Amelanchier species</i> | 6.5              | C  | 1.2                                  | 1.8                              | G      | F         | Good              | 6               | 4               | 5            | N                                  | Y                       | N   | Protect | N   | Unbalanced canopy  |
| 4               | Eastern White Cedar | <i>Thuja occidentalis</i>  | 17               | P  | 1.8                                  | 4.0                              | G      | G         | Good              | 9               | 4               | 5            | N                                  | Y                       | L   | Protect | N   |  |
| 5               | Eastern White Cedar | <i>Thuja occidentalis</i>  | 14               | P  | 1.8                                  | 4.0                              | G      | F         | Good              | 8               | 4               | 40           | Y                                  | Y                       | L   | Protect | N   | Dieback from top down due to access to light.                                      |
| 6               | Norway Maple        | <i>Acer platanoides</i>    | 18               | P  | 1.8                                  | 4.0                              | G      | G         | Good              | 10              | 8               | 5            | Y                                  | N                       | L   | Injure  | N   | Poorly located along driveway,   |
| 7               | Norway Maple        | <i>Acer platanoides</i>    | 29.5             | C  | 1.8                                  | 4.0                              | P      | P         | Poor              | 8               | 7               | 80           | N                                  | N                       | H   | Protect | N   | Located in front of neighboring school property.                                   |
| 8               | Silver Maple        | <i>Acer saccharinum</i>    | 70               | S  | 4.2                                  | 7.0                              | F      | F         | Fair              | 15              | 15              | 40           | Y                                  | N                       | H   | Remove  | Y   | DBH estimated due to physical restrictions. Several dead leaders and failed limbs. |
| 9               | White Elm           | <i>Ulmus americana</i>     | 10               | S  | 1.8                                  | 1.8                              | G      | F         | Fair              | 8               | 4               | 30           | Y                                  | N                       | M   | Remove  | N   | Growing into fence   |
| 10              | Tree-of-Heaven      | <i>Ailanthus altissima</i> | 80               | S  | 4.8                                  | 8.0                              | F      | F         | Fair              | 14              | 9               | 30           | Y                                  | N                       | H   | Remove  | Y   | Growing into fence, access limited to measure exact DBH.                           |
| 11              | White Elm           | <i>Ulmus americana</i>     | 17               | S  | 1.8                                  | 4.0                              | F      | F         | Fair              | 10              | 6               | 30           | Y                                  | N                       | M   | Remove  | N   |  |
| 12              | White Mulberry      | <i>Morus alba</i>          | 22               | S  | 1.8                                  | 4.0                              | G      | F         | Fair              | 10              | 9               | 10           | Y                                  | N                       | M   | Remove  | N   | Significant lean toward building.  |
| 13              | #N/A                | #N/A                       | 18               | S  | 1.8                                  | 4.0                              | D      | D         | Dead              | 3               | 3               | 100          | Y                                  | N                       | H   | Remove  | N   | Standing dead trunk  |

| Tree Map Number | Species           | Botanical               | DBH (cm) @ 1.4 m | Tree Ownership (City, Private, Neighbor, Shared) | Minimum Tree Protection Distance (m) | BURLINGTON ONLY CRZ Distance (m) | Health | Structure | Overall Condition | Tree Height (m) | Crown Width (m) | Deadwood (%) | Construction inside Min TPZ? (Y/N) | Hoarding Required (Y/N) | Construction Impact (None, Low, Medium, High) | Action  | Permit Required - Private tree over 30cm DBH (Y/N) Or City tree | Notes and Observations  |
|-----------------|-------------------|-------------------------|------------------|--|--------------------------------------|----------------------------------|--------|-----------|-------------------|-----------------|-----------------|--------------|------------------------------------|-------------------------|---|---------|---|---|
| 14              | White Elm         | <i>Ulmus americana</i>  | 15               | S  | 1.8                                  | 4.0                              | F      | F         | Fair              | 8               | 6               | 20           | Y                                  | N                       | H   | Remove  | N   | DBH estimated due to physical restructions.   |
| 15              | Manitoba Maple    | <i>Acer negundo</i>     | 48               | S  | 3.0                                  | 5.0                              | P      | P         | Poor              | 11              | 9               | 75           | Y                                  | N                       | H   | Remove  | Y   | DBH measured at 0.4m above grade. Large dead leader.  |
| 16              | White Elm         | <i>Ulmus americana</i>  | 16               | S  | 1.8                                  | 4.0                              | G      | G         | Good              | 9               | 8               | 10           | Y                                  | N                       | H   | Remove  | N   |   |
| 17              | Manitoba Maple    | <i>Acer negundo</i>     | 33.5             | S  | 2.4                                  | 4.0                              | D      | D         | Dead              | 7               | 1.5             | 95           | Y                                  | N                       | H   | Remove  | Y   |   |
| 18              | Norway Maple      | <i>Acer platanoides</i> | 36               | S  | 2.4                                  | 4.0                              | F      | F         | Fair              | 12              | 6               | 40           | Y                                  | N                       | H   | Remove  | Y   | Significant lean toward parking lot and unbalanced canopy.  |
| 19              | Manitoba Maple    | <i>Acer negundo</i>     | 40               | S  | 2.4                                  | 4.0                              | P      | P         | Poor              | 10              | 9               | 60           | Y                                  | N                       | H   | Remove  | Y   | Large trunk canker at 3m above grade, failed central leader.  |
| 20              | Manitoba Maple    | <i>Acer negundo</i>     | 16               | S  | 1.8                                  | 4.0                              | G      | G         | Good              | 5               | 6               | 40           | Y                                  | N                       | H   | Remove  | N   | Twin stem (16cm, 14cm), mis-shaped canopy, growing inside fence.  |
| 21              | Littleleaf Linden | <i>Tilia cordata</i>    | 89               | P  | 5.4                                  | 9.0                              | G      | G         | Good              | 18              | 20              | 5            | Y                                  | Y                       | M   | Injure  | Y   |   |
| 22              | Manitoba Maple    | <i>Acer negundo</i>     | 40               | S  | 2.4                                  | 4.0                              | G      | F         | Fair              | 13              | 10              | 5            | N                                  | Y                       | N   | Protect | N   | Growing into fence  |
| 23              | Littleleaf Linden | <i>Tilia cordata</i>    | 40               | N  | 2.4                                  | 4.0                              | G      | G         | Good              | 18              | 12              | 5            | N                                  | Y                       | N   | Protect | N   |   |
| 24              | Littleleaf Linden | <i>Tilia cordata</i>    | 40               | N  | 2.4                                  | 4.0                              | G      | G         | Good              | 18              | 12              | 5            | N                                  | Y                       | N   | Protect | N   |   |
| 25              | Manitoba Maple    | <i>Acer negundo</i>     | 28               | S  | 1.8                                  | 4.0                              | F      | F         | Fair              | 12              | 10              | 40           | N                                  | Y                       | N   | Protect | N   | Growing into fence, lower deadwood and fruiting bodies present on branches.                                   |
| 26              | Littleleaf Linden | <i>Tilia cordata</i>    | 30               | N  | 2.4                                  | 4.0                              | G      | F         | Good              | 14              | 9               | 20           | N                                  | Y                       | N   | Protect | N   | Growing into neighboring tree.  |
| 27              | Manitoba Maple    | <i>Acer negundo</i>     | 60               | S  | 3.6                                  | 6.0                              | G      | F         | Good              | 18              | 18              | 20           | N                                  | Y                       | N   | Protect | N   | twin stem (60cm, 60cm), Cabling recommended immediately OR stem removal. Significant targets within dripline. |
| 28              | Littleleaf Linden | <i>Tilia cordata</i>    | 40               | N  | 2.4                                  | 4.0                              | G      | F         | Good              | 14              | 10              | 5            | N                                  | Y                       | N   | Protect | N   | Growing into neighboring tree.  |
| 29              | Manitoba Maple    | <i>Acer negundo</i>     | 44               | P  | 3.0                                  | 5.0                              | F      | P         | Fair              | 12              | 16              | 20           | N                                  | Y                       | N   | Protect | N   | Significan trunk deformation. Tree leaning into property.   |
| 30              | Manitoba Maple    | <i>Acer negundo</i>     | 30               | N  | 2.4                                  | 4.0                              | P      | P         | Poor              | 9               | 12              | 50           | N                                  | Y                       | N   | Protect | N   | Growing into fence and above childrens playground. 60 degree lean.  |

| Tree Map Number | Species             | Botanical                 | DBH (cm) @ 1.4 m | Tree Ownership (City, Private, Neighbor, Shared) | Minimum Tree Protection Distance (m) | BURLINGTON ONLY CRZ Distance (m) | Health | Structure | Overall Condition | Tree Height (m) | Crown Width (m) | Deadwood (%) | Construction inside Min TPZ? (Y/N) | Hoarding Required(Y/N) | Construction Impact (None, Low, Medium, High) | Action  | Permit Required - Private tree over 30cm DBH (Y/N) Or City tree | Notes and Observations                      |
|-----------------|---------------------|---------------------------|------------------|--|--------------------------------------|----------------------------------|--------|-----------|-------------------|-----------------|-----------------|--------------|------------------------------------|------------------------|---|---------|---|---|
| 31              | Norway Maple        | <i>Acer platanoides</i>   | 13               | P  | 1.8                                  | 4.0                              | G      | G         | Good              | 9               | 8               | 5            | N                                  | Y                      | N   | Protect | N   |   |
| 32              | Pear                | <i>Pyrus species</i>      | 22               | P  | 1.8                                  | 4.0                              | P      | P         | Poor              | 10              | 5               | 70           | N                                  | Y                      | N   | Protect | N   |   |
| 33              | Manitoba Maple      | <i>Acer negundo</i>       | 22               | P  | 1.8                                  | 4.0                              | F      | F         | Fair              | 9               | 9               | 30           | N                                  | Y                      | N   | Protect | N   | Multi-Stem tree                             |
| 34              | Pear                | <i>Pyrus species</i>      | 17               | P  | 1.8                                  | 4.0                              | P      | P         | Poor              | 6               | 3               | 50           | N                                  | Y                      | N   | Protect | N   |   |
| 35              | Pear                | <i>Pyrus species</i>      | 20               | N  | 1.8                                  | 4.0                              | G      | P         | Good              | 5               | 2               | 10           | N                                  | Y                      | N   | Protect | N   | Pollard Pruning                             |
| 36              | Pear                | <i>Pyrus species</i>      | 20               | N  | 1.8                                  | 4.0                              | G      | F         | Good              | 5               | 5               | 10           | N                                  | Y                      | N   | Protect | N   | Pollard Pruning                             |
| 37              | Eastern White Cedar | <i>Thuja occidentalis</i> | 10               | N  | 1.8                                  | 1.8                              | G      | G         | Good              | 2.5             | 1               | 10           | Y                                  | N                      | H   | Remove  | N   | edge-row, all stems under 10cm in diameter. |
| 38              | Eastern White Cedar | <i>Thuja occidentalis</i> | 20               | N  | 1.8                                  | 4.0                              | G      | F         | Good              | 3               | 3               | 5            | Y                                  | N                      | H   | Remove  | N   |   |



## Appendix 3 – Hoarding (TPF) Detail





## Appendix 4 – Tree Protection Zone Sign Detail

A sign that is similar to the illustration below may be required to be mounted on all sides of a Tree Protection Barrier for trees protected by the Trees on City Streets By-law and the Private Tree By-law. The sign should be a minimum of 40cm x 60cm and made of white gator board or equivalent material.



### TREE PROTECTION ZONE (TPZ)

No grade change, storage of materials or equipment is permitted within this TPZ. Tree protection barrier must not be removed without the written authorization of City of Toronto, Urban Forestry.

For information call Urban Forestry at:  
(416) 338-TREE (8733)

## Appendix 5 – References

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11. City of Toronto, 2015. Toronto Municipal Code Chapter 813: Trees.
12. City of Toronto, 2016. Tree Protection Policy and Specifications for Construction Near Trees

### 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: <ul style="list-style-type: none"> <li>American Society of Consulting Arborists, Registered Consulting Arborist (ASCA RCA#___)</li> <li>International Society of Arboriculture, Board Certified Master Arborist (ISA BCMA #___B)</li> <li>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#_____)</li> </ul> |
| 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  |

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| 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 or 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.  |

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| 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                                       | <p>Trees have 4 walls in a process known as compartmentalization.</p> <ul style="list-style-type: none"> <li>• Wall 1 prevents decay moving up and down in a tree</li> <li>• Wall 2 prevents decay moving inward in a tree</li> <li>• Wall 3 prevents decay moving laterally in a tree</li> <li>• Wall 4 is the new growth formed on the outside of the tree, callus growth.</li> </ul> |
| Woundwood                                   | Lignified, differentiated tissues produced on woody plants after wounding.  |

## Appendix 7 – Arborist Qualifications

**Christopher Preece** is a consulting R.P.F. and Arborist with Davey Resources Group. His formal education includes a Bachelor of Environmental Management at York University with a certificate in sustainable energy as well as a Masters of forest Conservation from the University of Toronto, with a focus in long term forest productivity Mr. Preece has a varied work experience in forestry, field research and arboriculture fields. Mr. Preece has worked with well-Known forest researchers around the world helping publish one peer reviewed research paper with another in the review state. He has spent the last five years working in private forestry and Urban forestry in Southern Ontario.

### Certifications

International Society of Arboriculture Certified Arborist (ON-2547A)  
Tree Risk Assessment Qualification (TRAQ)  
Managed Forest Plan Approver (MFPA)  
Forestry Grade Exterminator License # 32964  
Registered Professional Forester R.P.F. #2613



## Appendix 8 – Photos



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9

## 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: \_\_\_\_\_