

# **ARBORIST REPORT**

## **REGENT PARK PHASES 4 & 5**

**Prepared for Toronto Community Housing Corporation and  
2747199 Ontario Limited (“Delterra Inc.”)**

**Submitted on April 14<sup>th</sup>, 2022  
Revised November 25<sup>th</sup>, 2022.**

# ARBORIST REPORT

**PROJECT NAME:** Regent Park Phases 4 and 5  
**PROJECT NUMBER:** 21035  
**DATE OF INSPECTION:** September 20 to 24, 2021  
**PERSONS PRESENT:** Stanley Luk, ISA Certified Arborist ON-O994A

**DESCRIPTION:**  
Arborist Report

**LOCATION:**  
Regent Park Phase 4 and 5  
Gerrard Street municipal address # 325, 355, 361-367, 407, 415-417,  
427-433, 435-441, 463 & 473-479.  
Sackville Street municipal address # 247, 295, 319 to 325.  
Sumach Street municipal address # 259, 260, 266 to 272 & 261-267.  
River Street municipal address # 184.

PFS Studio has been retained to provide an arborist assessment report pertaining to the development site of Regent Park, Phase 4 and 5 in the City of Toronto. This report provides arborist recommendations for the existing trees within the subject site and adjacent to the subject property that will be impacted by the proposed site development. The trees identified in this report are regulated under chapter 813 of the City of Toronto Municipal Code. The current Tree Assessment Plans and Tree Protection Plans were developed in reference to the latest Regent Park Phase 4 & 5, Master Plan Layout dated April 14, 2022, as received from Karakusevic Carson Architects.

## NATURE OF WORK

The arborist inspection was conducted on September 20<sup>th</sup> to 24<sup>th</sup>, 2021 to identify existing trees located on the subject property and roadway easements. A total of 150 Private Trees (#1 to 146, 26a, 35a, 35b & 49a) were documented within the proposed Site Plan will be impacted by the proposed site development. On the adjacent property at 39 Oak Street towards the South West site plan limit, a total of 7 trees and 1 dead tree at and under 10cm in dbh (trees # 146 to 153) were documented. These trees will be retained and preserved as they are outside of the proposed Regent Park Phase 4 and 5 limit of work. This report is to be read in conjunction with Tree Assessment Plans TA1.01, TA1.02, TA1.03, TA1.04, TA1.05 and TA1.06 by PFS Studio for Trees locations, Trees information and Trees photography information. The Tree Protection Plan TP1.01, TP1.02 and TP1.03 provides the information of tree protection fencing, tree removal, tree injury and tree protection information with the most current Proposed Site Layout Plan that is available as of April 2022. The Arborist Report will be updated from time to time based on the final approved Concept Landscape and Civil Engineering Materials to inform potential Tree Preservation at the Site Plan Approval Stage.

The existing tree locations were obtained from the survey plan: Part of Block A Registered Plan 768E Part of Block A and C Registered plan 781E PART OF Block A and B, Registered Plan 784E City of Toronto, provided by J.D. Barnes, reference number 21-15-128-00, dated August 18, 2021.

This Arborist report provides information in regards to the species, health and potential for development and tree preservation as per acceptable arboricultural procedures as recommended in the '*Guide for Plant Appraisal*', prepared under contract by the '*Council of Tree and Landscape Appraisers (CTLA), an official publication of the International Society of Arboriculture (I.S.A.), 9<sup>th</sup> edition, 2000*'. The trees documented on

site are described in terms of species and Diameter at Breast Height (DBH) using a caliper tape at 1.4m from finished grade. A rating of Good / Fair / Poor / Terminal Decline and Dead has been assigned to each tree based on health, structural integrity, species response to environmental and urban stressors and the age of the tree in comparison with species longevity in urban conditions.

## **OBSERVATIONS**

### **Private Trees on Adjacent Property - 49 Oak Street**

A row of six Domestic Apple trees (*Malus domestica*) (#146 to 151) and two Black Locust trees (*Robinia pseudoacacia*) (#152, 153) located along the East property limit of 49 Oak Street and the development property. The Domestic Apple Trees were observed to be planted in a row with tree # 151 identified as being dead at the time of inspection. The Black Locust trees were located adjacent to the parking area and may have established naturally through natural seed dispersal from adjacent trees. These trees are outside of the proposed site development at Regent Park Phase 4 and 5 and the trees will be protected and preserved. These trees were not available on the survey plan 21-15-128-00 dated August 18, 2021. It is recommended that the location of these trees be surveyed and their location information provided in an updated survey plan.

Following the completion of survey locations, the establishment of tree protection zones around trees #146 to 153 must be provided in compliance under the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees (dated 2016), in the proposed Tree Protection plans and once the Construction Management Plan has been prepared for the adjacent proposed buildings.

### **Private Trees on Subject Property**

The Privately Owned landscape of the subject property consist of manicured lawn, concrete paved walkways, asphalt paved driveways, parking lots and a refuse storage terminal with shade tree plantings in the open sodded landscape, specimen tree plantings around playgrounds and courtyards and community vegetable garden plots. A total of 143 trees were documented on site with a total of 12 different tree species. The most dominant tree species consist of 66 Austrian Pine trees (*Pinus nigra*) forming 46% of the tree species matrix. The next most abundant tree species documented on site consist of 25 Norway Maples (*Acer platanoides*) at 17.5% and 18 Honeylocust (*Gleditsia triacanthos*) comprising a total of 12.5% of the tree species composition of the site. The remaining 7 tree species consists of a White Fir (*Abies concolor*), Tree of Heaven (*Ailanthus altissima*), Silver Maple (*Acer saccharinum*), Crabapple (*Malus hybrid*), White Spruce (*Picea glauca*), Red Oak (*Quercus rubra*), Japanese Yew (*Taxus cuspidata*), Little Leaf Linden (*Tilia cordata*) and Crimean Linden (*Tilia x euchlora*) forming the remaining 24% of the trees on the development site. Please refer to tree information table in Appendix 1 and Drawing Assessment Plans TA-1 to TA-6 for tree location, tree images and tree condition information.

At the time of inspection, a total of 7 Private trees located within the development limit were observed to be dead as of the time of arborist inspection. The dead trees numbered 13, 15, 60, 98, 100, 107 and 109 are exempt from Tree Protection and replacement regulations under chapter 813 of the City of Toronto Municipal Code, and should be removed to prevent fall hazards from impacting the users of the site. Please refer to drawings TA-1 to TA-6 for tree location, tree images and tree condition information.

The tree species diversity observed on site is composed of mostly non-native tree species of planted origin with the majority of trees planted as shade trees in sod around buildings and along walkways with the Crabapple trees #16, 17 and a Norway Maple tree # 55 located within community garden and vegetable beds. Trees numbered 95 to 97 and trees 106 to 109 are located adjacent to a waste transfer and loading station on the north side of Oak Street, between 184 River Street and 259 Sumach Street. Due to the heavy

vehicular traffic and waste stockpiling use, the trees in this area are in poor condition with trees # 107 and 109 being dead at the time of inspection.

The most dominant tree species documented on site consist of 66 permit sized Austrian Pine trees (#1 to 4, 6, 9 to 15, 18, 19, 28 to 30, 40 to 45, 49, 49a, 50, 56 to 60, 64, 65, 67, 68, 70 to 74, 84, to 89, 95 to 97, 107 to 111, 119 to 121, 125 to 127, 130, 131, 137, 140 to 143). Tree numbered 49a is measured at 26cm in dbh and is not protected under the City of Toronto Private Tree protection bylaws. The trees # 13, 15, 60, 107 and 109 are dead and these 5 noted trees are exempt from City of Toronto Private Tree protection bylaws regulations. Trees number 11 and 12 are Austrian Pine trees are considered Fair in health condition due to Diplodia tip blight (*Diplodia pinea*) damage to the foliage. Tree # 11 and 12 were observed to have structural defects with tree # 11 leaning at a 45 degree angle over the sidewalk, and tree # 12 being topped with a lopsided canopy that poses concerns about stability during severe snow load or ice storm events. The trees were also infected with the Diplodia tip blight fungus

Due to the presence of varying degrees of Diplodia tip blight disease on most Austrian Pine Trees on site, the preservation of this species is not recommended. The Diplodia tip blight is a disease that infects and kills new foliage on many species of Pine trees (genus *Pinus*). The infected trees will lose vigor and suffer from canopy dieback as the foliage die off from the disease. Diseased trees become vulnerable to wood boring insect and branch collapse, which creates fall hazard concerns. The viability of preserving the existing Austrian Pine trees on site may not be feasible as the Diplodia fungus primarily attack mature and overly mature Austrian Pine trees that are widespread on the Regent Park Re-development property. The trees that are in a condition of Terminal Decline due to the disease will require removal should dead and diseased limbs poses significant fall hazard concerns to the users of the site. It is the Arborist's professional opinion that the long term preservation of Austrian Pine tree species is not recommended. The Diplodia tip blight disease is firmly established on the existing trees on site and will continue to spread over time, limiting the ornamental value, health condition and reducing structural stability of the existing Austrian Pine trees over time.

A total of 25 Norway Maple trees (*Acer platanoides*) were documented on site during the Arborist inspection (# 5, 7, 20, 21, 32 to 34, 47, 51, 52, 55, 61, 69, 75, 76, 78, 83, 94, 99, 100, 117, 128, 219, 136 and 146). Tree # 29a is dying and with trunk dbh below permit sized (29cm dbh.) and is not protected under chapter 813 of the City of Toronto Municipal Code. Many trees of this species were exhibiting leaf scorch and premature leaf drop at the time of inspection. The Norway Maple tree # 100 was documented to have died at the time of inspection and is exempt from City of Toronto Private Tree protection bylaws regulations. Tree # 21 and 146 are in a condition of Terminal Decline with 90% of their canopy being dead at the time of inspection in October 2021. Further review of these trees during the Tree Removal Permit application process to re-assess the health condition of these trees is recommended if exemption from the City of Toronto Tree Protection Bylaw regulations is required to facilitate their removal.

The Norway Maple is a non-native tree species that was planted widely in the past as a fast growing ornamental tree species that is tolerant of urban conditions. However, this tree species will spread by seed into natural ravine and woodland areas, where they readily out compete and displace desirable native plant. Due to the site's proximity to the Don Valley Ravine and Rosedale Ravine system, the preservation of this tree species on site is not desirable as the Norway Maple trees on the Regent Park Phase 4 and 5 development property serves as a seed source for the dispersal of this tree into the surrounding natural areas.

A few of the Norway Maple trees on site were observed to have extensive surface root systems that have exhibited mechanical or abrasion damage from foot traffic or lawn care activities (trees # 5, 20, 32, 33, 34, 69 and 76). The surface root injury is a concern as wood decay organisms can readily gain access to the structural root system of this tree, and compromise their structural stability during severe wind storm events.

It is the professional opinion of the Arborist that the use and preservation of Norway Maple trees is not ideal as it is an invasive tree species in Southern Ontario bio region. Due to the proximity of the site to the Don Valley Ravine system, the trees on site could serve as an invasive species seed source that can spread into natural areas. This tree species has great tolerance to road salt and compacted soil that occurs in urban streetscape and parkland environments. The use of low seed producing cultivars such as *Acer platanoides* 'Crimson King' and 'Emerald' are preferred over the use of the plain species to limit their spread into natural environments. Native tree species with similar mature canopy sizes such as Sugar Maple (*Acer saccharum*), Freeman Maple (*Acer x freemanii*), Kentucky Coffee tree (*Gymnocladus dioica*), Ginkgo tree (*Ginkgo biloba*), Bur Oak (*Quercus macrocarpa*) and Red Oak (*Quercus rubra*) should be used as to replace the existing Norway Maple trees to be removed due to site development where possible.

The 10 Silver Maple trees (*Acer saccharinum*) documented on site (# 35 to 37, 62, 63, 79, 90, 91, 123) were planted as shade trees in various areas of the site, with many trees planted in the rear yards of the two storey town house units. Many of the Silver Maple trees are mature or overly mature and will require regular arborist review and scheduled tree care program to remove hazardous limbs and to reduce potential for fall hazards to impact the users of the site.

Tree # 35 is a mature Silver Maple Tree with a trunk diameter measured at 71cm in dbh. The canopy is in fair condition due to the sparse foliage density than what is normal for a healthy example of this tree species. There is evidence of extensive bark damage on the surface roots and frost cracks on the bark along the length of the trunk. These injuries to the tree are significant concerns as the Silver Maple is a tree species with soft wood that readily becomes damaged from wood decay organisms. The tree species is also prone to the shedding of limbs during high wind events as diseased limbs are unable to resist severe weather events.

A Silver Maple # 79 is documented on the west frontage of Townhouse block 261-267. This tree is in fair condition and exhibited branch tip dieback, leaf scorch and mechanical damage to the surface roots.

The trees numbered 90, 91, 92 & 123 were located in the rear yards of the low rise townhouses along the south side of Gerrard Street with trees numbered 91 & 123 showing significant heartwood decay at the junction between the root flare and the main trunk and exhibit fall hazard concerns.

Trees numbered 91 and 123 have significant cavity decay issues and their preservation is not recommended due to fall hazard concerns.

The four Tree of Heaven (*Ailanthus altissima*) #46, 112, 122 & 124 were documented on site. The trees vary in condition from Good (#124), Poor (# 46 & 122) and of Terminal Decline (#112). The tree numbered 46 exhibited significant trunk damage due to girdling by the adjacent chain link fence. Due to the proximity of this tree to the adjacent Townhouse, it is recommended that this tree be removed. Tree numbered 112 is located at the southwest intersection of Gerrard Street and River Street. Two large frost cracks on both the south and north side of the trunk were observed. Due to this tree's proximity to the adjacent pedestrian sidewalk and overhead wires, it is the professional opinion of the Arborist that this tree be removed.

The Tree of Heaven is an invasive species in North America and has a propensity to spread in many different habitat conditions. This tree species suppresses the regeneration of many native plant species through allelopathic exudates from its roots and leaves. This species will readily invade and spread into adjacent growing areas through its wind dispersed seeds and root suckers. The Tree of Heaven is also the preferred host of an invasive non-native insect pest called the Spotted Lanternfly (*Lycorma delicatula*). This insect species has been recently documented in the Eastern United States and is currently expanding its range. The Spotted Lanternfly is a sap sucking insect pest species with no known predators in North

America, and it also has a wide range of host plants which it can damage during its feeding activity and has the potential to cause extensive damage to agricultural crops and many trees and woody plant species.

The 18 Honeylocust Trees (*Gleditsia triacanthos*) documented on site consist of examples of the thornless cultivars of this species (#8, 22, 23, 48, 82, 98, 101 to 105, 113 to 116, 118, 139 and 144). This tree species is commonly used as shade tree plantings in Urban environments due to their tolerance of urban environments, tolerance to salt spray damage and fine foliage texture that allows lawn and plantings to be grown beneath its canopy. Tree # 98 is dead as of the time of Arborist inspection and tree # 116 was measured with trunk diameter below 30cm in dbh. and are exempt from the City of Toronto Tree Protection Bylaw regulations. Tree numbered 103 was documented to have sustained root flare damage at grade due to vehicular impact.

Due to the extensive use of this tree species in Ontario, a number of pests and diseases such as the Honeylocust plant bug (*Diaphnocoris chlorionis*) and Ganoderma root rot have become common in the Greater Toronto Region. Alternative tree species that can be used as substitutes for this species with tolerance to urban conditions includes the Kentucky Coffee Tree, Pagoda tree (*Sophora japonica*), Dutch Elm Disease resistant hybrid Elms (*Ulmus* hybrids) and Northern Hackberry (*Celtis occidentalis*).

A total of 12 Crab Apple Trees (*Malus* hybrid) were documented on site (#16, 17, 24 to 27, 31, 53 & 132 to 135). Trees numbered 17, 133 to 135 are below 30cm in dbh and are exempt from City of Toronto Private Tree Protection bylaws. Trees numbered 26 and 132 are in condition of Terminal Decline with severe canopy defoliation and cavity decay and their removal is recommended due to decay and fall hazard concerns. The Crabapple trees on site were observed to be in poor condition due to premature defoliation from fungal diseases and cavity decay issues. The Crabapple trees as a group are good sources of food for wildlife and pollinators, however they are susceptible to an array of fungal diseases. The Crabapple trees on site are nearing the end of their natural life span and due to heartwood decay and poor health, they are poor candidates for preservation.

The two species of Linden trees on site are natives of Europe and consists of the Little Leaf Linden (*Tilia cordata* # 38, 66, 67, 77 and 81) and the Crimean Linden (*Tilia x euchlora* # 138 and 145). The Linden trees observed on site are in Good and Fair condition with trees # 38, 66 and 81 being multi-trunk clumps. However due to poor pruning and poor thinning of co-dominant trunks during the tree's infancy, may *Tilia* trees on site have multiple trunks arising close to grade. Some of these trees have included bark and cavity decay at the junction of the co-dominant trunks.

Two Red Oak Trees # 93 and 106 (*Quercus rubra*) were documented on the development site. Tree number 93 is in fair condition but exhibited leaf scorch and branch tip dieback. Tree # 106 was observed to be in Terminal decline with over 75% of its canopy being dead. This tree is located in the garbage storage terminal and large metal garbage storage bins were stockpiled immediately beneath the dripline of this tree. Overall, the Red Oak trees in the development site are poor candidates for preservation due to their poor condition, however the Red Oak tree as a native species to Southern Ontario and their planting in the proposed tree planting plans for this site should be encouraged to become large growing shade tree species with food and habitat value for wildlife.

Three coniferous tree species in addition to the Austrian Pine were documented on site. The coniferous tree species includes three White Spruce (*Picea glauca*) trees #35a, 35b & 39, one White Fir (*Abies concolor*) # 54 and one Japanese Yew Tree #80 (*Taxus cuspidata*). The trees numbered 35a, 36b and 80 are below 30cm in dbh and are not protected under the City of Toronto Private Tree Protection bylaws.

The White Spruce # 39 and White Fir # 54 were planted close to existing buildings that will be demolished to facilitate the proposed site plan development. Due to the lopsided canopy and leaning form of the two trees,

the preservation of the two trees will likely not be possible as the building demolition process will likely require the removal of the two impacted trees.

**Trees to be Removed and Compensation Tree Replacement Planting Compensation**

In accordance to the latest Regent Park Phase 4 & 5, Master Plan Layout dated March 23, 2022, received from Karakusevic Carson Architects, the current extent of site development is required to facilitate the underground structure which supports loading and parking for the proposed Regent Park Redevelopment project.

In order to facilitate the proposed site development, the 8 trees located on the adjacent property of 39 Oak Street will be preserved and protected (147 to 154). Please refer to drawing TP-1 Tree Protection Plan by PFS Studio for Tree Protection Fence location and tree protection fencing detail information.

A total of 8 Privately owned dead trees (13, 15, 60, 98, 100, 107, 109, 152) will require removal.

A total of 11 Privately owned trees under 30 cm in dbh will require removal (17, 35a, 35b, 49a, 80, 87, 116, 133, 134, 135).

A total of 131 Privately Owned Permit Regulated Trees (1 to 12, 14, 16, 20 to 25, 27 to 31, 33 to 46, 48 to 59, 61 to 77, 79, 81 to 90, 92 to 96, 99, 101 to 105, 111, 113 to 115, 117 to 122, 124, 125, 127, 130, 131 & 136 to 145) in Good to Poor condition will require removal.

A total of 16 Privately Owned Permit sized trees in Hazardous condition and Terminal Decline will require removal (# 18, 19 26, 32, 47, 78, 91, 97, 106, 108, 112, 123, 128, 129, 132 & 146). The Arborist request that the tree removal Permit Application fees be waived to remove these trees due to tree health and fall hazards concerns. The trees to be removed are identified in Tree Protection Plan TP-1, TP-2 and TP-3 issued by PFS Studio.

As per the compensation requirements to replace the existing trees to be removed, a total of 3 new trees will be required to replace each Privately Owned Tree to be removed, and 1 new tree will be required to replace each City Tree to be removed. Any trees that are Dead, Diseased, Hazardous or in Terminal Decline must be provided with a Confirmation of Exemption from the City of Toronto Urban Forestry prior to being exempted from the Tree Removal Application and fee payment process.

The total New Private Tree planting compensation required to replace the 131 Privately Owned Permit Sized trees to be removed is at a total of 411 new trees (3 new trees to one existing tree to be removed).. The new tree plantings will be required to be installed on the subject development site where possible.

Under the current Master Plan layout, a total of 115 Privately Owned trees in Good to Poor condition will require removal. The total tree removal application fee is at \$43,432.05. The Tree Removal due to Construction Application fees is at \$377.67 per tree (as of January 2022).

The final number of existing trees to be removed, injured and protected will require revision on a site by site basis at the site plan approval stage. The Arborist Report, Tree Protection Plans and Tree removal permit application forms, compensation tree planting quantities and application fees amount will require re-calculation to coordinate with the updated Site Plans layout conditions should any changes to the Site Plan arise.

**Arborist Report Amendment 1 – dated November 25, 2022.**

**City of Toronto Urban Forestry October 26, 2022 Comment Response**

In the City of Toronto Urban Forestry dated October 26, 2022, it was stated that “The Urban Forestry department does not support the removal of the following Sixteen (16) mature healthy privately owned trees (Trees 36, 38, 62, 63, 66, 77, 79, 81, 90, 92, 113, 114, 138, 139, 144, and 145”. Following internal review and discussions, please find the following responses to the status of the noted trees:

1. The preservation of trees # 139 and 138 cannot be accomplished due to conflicts with the future Tubman Avenue Extension right of way dedication. Please review Tree Protection plan TP1.03 for the location of the future street right of way in conjunction with the locations of trees #139 and 138.
2. Following review of the architectural basement plan and the required area of excavation and construction disturbances, the preservation of trees # Trees 36, 38, 62, 63, 66, 77, 79, 81, 90, 92, 113, 114, 144 and 145 is not possible. This is due to proximity of underground parking construction but also due to the design intention to pave along Gerrard Street to provide a unified pedestrian frontage to service the residents of the proposed development. Most of the existing trees along Gerrard are currently planted in sodded soft landscape condition. If the trees are to be retained, the area within the TPZ must be retained as soft landscaping, the extent of which will likely interfere with the pedestrian clearway for the proposed retail, commercial and building access services for the residents of the proposed development.
3. It was noted that there is potential for the preservation of trees # 52 and 69 located around the proposed Library Building. The location and design of the proposed library is not available as of November 2022. The preservation status of trees #52 and 69 will be subject to the ongoing Toronto Public Library building design that will be confirmed as the information becomes available in the future.

**REPORT PREPARED BY:**



APRIL 14, 2022  
REVISED: NOV 25, 2022

Stanley Luk, ISA certified arborist # ON-0994A  
PFS STUDIO



## APPENDIX 1 TREE SPECIES TABLE

Bylaw – Applicability according to City of Toronto (COT) ranking

- Category#:
- 0 – Trees not regulated under City of Toronto Tree By-Laws
  - 1 – Trees with diameters of 30cm or more, situated on private property on subject site.
  - 2 – Trees with diameters of 30cm or more, situated on private property within 6m of the subject site.
  - 3 – Trees of all diameters situated on City owned Parkland within 6m of the subject site
  - 4 – Trees of all diameters situated within lands designated under City of Toronto Municipal code, chapter 658, Ravine Protection.
  - 5 – Trees of all diameters situated with the City road allowance adjacent to the subject site

Tag #	Botanical Name	Common Name	Dbh (CM)	Crown Spread (M)	Ht (M)	Condition	Remarks	TPZ size (M)	COT Rank	Remove	Keep
1	Pinus nigra	Austrian Pine	42	6	12	Fair	Limbed up, canopy at top 1/4 of trunk only, minor diplodia tip blight infestation of foliage.	3	1	X	
2	Pinus nigra	Austrian Pine	45	6	12	Fair	Limbed up, canopy at top 1/4 of trunk only, canopy leaning North-west, minor diplodia tip blight infestation of foliage.	3	1	X	
3	Pinus nigra	Austrian Pine	44	6	10	Fair	Limbed up, canopy at top 1/4 of trunk only, canopy leaning North-west, minor diplodia tip blight infestation of foliage.	3	1	X	
4	Pinus nigra	Austrian Pine	47	8	10	Fair	Double trunk at 50cm from base of tree, included bark between trunks, minor diplodia tip blight infestation of foliage.	3	1	X	
5	Acer platanoides	Norway Maple	55	10	8	Good	Canopy health in good condition, mechanical root flare and surface root damage.	3.6	1	X	
6	Pinus nigra	Austrian Pine	46	10	10	Good	Bark injury on west side of trunk, significant callus tissue regeneration around wound	3	1	X	
7	Acer platanoides	Norway Maple	55	12	12	Poor	1/4 of canopy had died, fungal decay observed on trunk wounds, surface root damage.	3.6	1	X	
8	Gleditsia triacanthos var. inermis	Honeylocust	53	12	12	Good	Tree in good condition	3.6	1	X	
9	Pinus nigra	Austrian Pine	50	10	12	Fair	Limbed up, canopy at top 1/4 of trunk only, minor diplodia tip blight infestation of foliage.	3	1	X	
10	Pinus nigra	Austrian Pine	31	4	12	Poor	Limbed up, canopy at top of trunk only, leader topped, minor diplodia tip blight infestation of foliage, growth stunted.	2.4	1	X	
11	Pinus nigra	Austrian Pine	38	5	8	Poor	Tree leaning east over sidewalk and roadway, canopy at top 1/4 of trunk only. Fall Hazard	2.4	1	X	
12	Pinus nigra	Austrian Pine	42	6	8	Poor	Leader dead, significant canopy damage due to diplodia tip blight fungal infestation	3	1	X	
13	Pinus nigra	Austrian Pine				Dead			0	X	
14	Pinus nigra	Austrian Pine	54	6	8	Fair	Limbed up, canopy at top 1/4 of trunk only, minor diplodia tip blight infestation of foliage.	3.6	1	X	

Tag #	Botanical Name	Common Name	Dbh (CM)	Crown Spread (M)	Ht (M)	Condition	Remarks	TPZ size (M)	COT Rank	Remove	Retain
15	Pinus nigra	Austrian Pine				Dead			0	X	
16	Malus hybrid	Crabapple	32	5	6	Fair	Tree canopy extensively pruned in the past, squash vines growing over canopy from adjacent vegetable plantings, signage and metal affixed to trunk.	2.4	1	X	
17	Malus hybrid	Crabapple	22	6	6	Fair	Tree canopy extensively pruned in the past, squash vines growing over canopy from adjacent vegetable plantings, leaning south.	1.8	0	X	
18	Pinus nigra	Austrian Pine	30	6	6	Terminal Decline	Top of tree dead, severe diplodia tip blight, asphalt paving up to the base of trunk.	2.4	1	X	
19	Pinus nigra	Austrian Pine	41	6	6	Terminal Decline	Canopy dieback, severe diplodia tip blight, asphalt paving up to the base of trunk.	3	1	X	
20	Acer platanoides	Norway Maple	45	10	10	Poor	Severe canopy dieback, cavity decay observed in pruning wounds in canopy	3	1	X	
21	Acer platanoides	Norway Maple	74	12	15	Poor	Severe canopy dieback, severe leaf scorch, cavity decay observed in pruning wounds in canopy, surface root damage.	4.8	1	X	
22	Gleditsia triacanthos var. inermis	Honeylocust	44	10	10	Fair	Minor canopy dieback, double co-dominant leader at 2m from grade	3	1	X	
23	Gleditsia triacanthos var. inermis	Honeylocust	34	10	10	Fair	Minor canopy dieback, double co-dominant leader at 1.5m from grade, included bark between leaders.	2.4	1	X	
24	Malus hybrid	Crabapple	32	6	6	Poor	Canopy sparse, severe cavity decay, insect frass observed at base of trunk.	2.4	1	X	
25	Malus hybrid	Crabapple	36	6	6	Poor	Canopy sparse, cavity decay	2.4	1	X	
26	Malus hybrid	Crabapple	43	8	8	Terminal Decline	90% of canopy defoliated, base of trunk surrounded by concrete paving.	3	1	X	
26a	Acer platanoides	Norway Maple	29	6	6	Terminal Decline	Tree canopy defoliated and in decline, tree pit paved over with asphalt.	1.8	0	X	
27	Malus hybrid	Crabapple	34	4	6	Poor	Trunk hollow due to heartwood decay, canopy growth weak and crown significantly reduced by pruning, profuse suckering on trunk.	2.4	1	X	
28	Pinus nigra	Austrian Pine	44	6	8	Fair	Minor diplodia tip blight damage in canopy, large callused wound on northwest side of trunk observed.	3	1	X	
29	Pinus nigra	Austrian Pine	47	8	8	Fair	Diplodia tip blight observed in canopy, profuse resin excretions observed on trunk, 2 co-dominant leaders originate at 2m from grade, included bark between co-dominant leaders.	3	1	X	
30	Pinus nigra	Austrian Pine	45	8	8	Fair	Diplodia tip blight observed in canopy	3	1	X	

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
31	Malus hybrid	Crabapple	38	6	6	Fair	Cavity decay and insect boreholes observed in trunk, canopy growth sparse.	2.4	1	X	
32	Acer platanoides	Norway Maple	32	6	6	Terminal Decline	90% of canopy is defoliated, surface roots damaged.	2.4	1	X	
33	Acer platanoides	Norway Maple	45	12	12	Fair	Surface root damage, leaf scorch, sparse foliage	3	1	X	
34	Acer platanoides	Norway Maple	34	6	10	Fair	Surface root damage, leaf scorch, sparse foliage	2.4	1	X	
35	Acer platanoides	Norway Maple	72	15	15	Fair	Surface root damage, leaf scorch, sparse foliage, frost cracks observed on trunk and lateral limbs, girdling roots.	4.8	1	X	
35a	Picea glauca	White Spruce	12	2	3	Poor	Canopy lopsided due to severe pruning, growth vigor poor	1.8	0	X	
35b	Picea glauca	White Spruce	22	3	4	Fair	Canopy form uneven and lower limbs removed due to poor pruning.	1.8	0	X	
36	Acer saccharinum	Silver Maple	64	12	12	Fair	Severe leaf scorch, pruning wounds in upper canopy, girdling roots.	4.2	1	X	
37	Acer saccharinum	Silver Maple	44	8	12	Poor	Canopy dieback, premature defoliation at top 50% of canopy.	3	1	X	
38	Tilia cordata	Little Leaf Linden	123	12	15	Fair	Canopy health in good condition, 6 trunks originating at 1m from grade, included bark between trunks, cavity decay observed at junction of 2 trunks.	7.4	1	X	
39	Picea glauca	White Spruce	32	6	10	Good		2.4	1	X	
40	Pinus nigra	Austrian Pine	57	4	12	Fair	Diplodia tip blight, bark injury wound on south side of trunk	3.6	1	X	
41	Pinus nigra	Austrian Pine	37	5	12	Fair	Diplodia tip blight damage in canopy	2.4	1	X	
42	Pinus nigra	Austrian Pine	36	5	12	Fair	Diplodia tip blight damage in canopy	2.4	1	X	
43	Pinus nigra	Austrian Pine	34	5	12	Fair	Diplodia tip blight damage in canopy	2.4	1	X	
44	Pinus nigra	Austrian Pine	42	5	12	Fair	Diplodia tip blight damage in canopy, surface root damage	3	1	X	
45	Pinus nigra	Austrian Pine	43	5	12	Fair	Diplodia tip blight damage in canopy, slight lean West	3	1	X	
46	Ailanthus altissima	Tree of Heaven	50	8	15	Poor	Canopy health good, trunk girdled by chain link fence, severe heartwood decay observed within the girdling wound in the trunk.	3	1	X	
47	Acer platanoides	Norway Maple	47	10	12	Terminal Decline	75% of canopy is dead, severe frost crack on south east side of trunk	3	1	X	
48	Gleditsia triacanthos var. inermis	Honeylocust	49	10	12	Good	Canopy reduced on south side for vehicular traffic clearance	3	1	X	

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
49	Pinus nigra	Austrian Pine	41	4	8	Fair	Minor diplodia tip blight damage in canopy.	3	1	X	
49a	Pinus nigra	Austrian Pine	26	2	8	Fair	Canopy growth stunted due to shade from adjacent trees.	1.8	0	X	
50	Pinus nigra	Austrian Pine	41	3	8	Fair	Canopy growth lopsided due to shade from adjacent trees.	3	1	X	
51	Acer platanoides	Norway Maple	52	8	10	Good		3.6	1	X	
52	Acer platanoides	Norway Maple	74	20	15	Good		4.8	1		Status to be finalized with Public Library Site Plan design
53	Malus hybrid	Crabapple	33	4	10	Poor	Severe canopy dieback, cavity decay on trunk.	2.4	1	X	
54	Abies concolor	White Fir	31	2	8	Fair	Table chained to base of tree, canopy vigor	2.4	1	X	
55	Acer platanoides	Norway Maple	65	10	12	Fair	Canopy growth good, cavity decay observed at pruning wounds on trunk and lateral branches.	4.2	1	X	
56	Pinus nigra	Austrian Pine	45	4	6	Fair	Minor diplodia tip blight damage in canopy.	4.2	1	X	
57	Pinus nigra	Austrian Pine	30	2	7	Poor	Diplodia tip blight damage in canopy, tree leaning east, canopy at top 1/4 of trunk only.	2.4	1	X	
58	Pinus nigra	Austrian Pine	42	4	7	Poor	Diplodia tip blight damage in canopy, tree leaning east, canopy sparse	3	1	X	
59	Pinus nigra	Austrian Pine	42	6	4	Poor	Diplodia tip blight damage in canopy, tree topped at 4m from grade, top horizontal lateral branches assumed dominance.	3	1	X	
60	Pinus nigra	Austrian Pine				Dead			0	X	
61	Acer platanoides	Norway Maple	62	12	12	Fair	Canopy health good, decay at base of tree with insect frass, pruning wounds in canopy observed.	4.2	1	X	
62	Acer saccharinum	Silver Maple	122	15	15	Good	2 codominant trunks at 1m from grade, leaf scorch	7.3	1	X	
63	Acer saccharinum	Silver Maple	82	15	15	Fair	3 codominant trunks at 1m from grade, canopy leaning east, canker burl at base of trunk.	5.4	1	X	
64	Pinus nigra	Austrian Pine	33	6	7	Fair	Diplodia tip blight in canopy, leaning south.	2.4	1	X	
65	Pinus nigra	Austrian Pine	47	8	8	Fair	2 codominant trunks at 1m from grade, diplodia tip blight in canopy	3	1	X	
66	Tilia cordata	Little Leaf Linden	107	12	12	Good	3 codominant trunks at 1.5m from grade, included bark observed between trunk junctions.	6.4	1	X	
67	Pinus nigra	Austrian Pine	36	6	12	Fair	Diplodia tip blight, canopy growth on east side of trunk only	2.4	1	X	
68	Pinus nigra	Austrian Pine	38	6	10	Fair	Diplodia tip blight in canopy	2.4	1	X	
69	Acer platanoides	Norway Maple	67	15	15	Fair	Surface roots damaged, minor branch dieback in canopy, leaf scorch	4.2	1		Status to be finalized with Public Library Site Plan design

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
70	Pinus nigra	Austrian Pine	45	5	10	Fair	Diplodia tip blight in canopy, 2 codominant leaders in canopy	3	1	X	
71	Pinus nigra	Austrian Pine	35	4	10	Fair	Diplodia tip blight in canopy, canopy on north side of trunk only, 3 codominant leaders	2.4	1	X	
72	Pinus nigra	Austrian Pine	49	6	10	Fair	Diplodia tip blight in canopy, insect bore holes observed on trunk	3	1	X	
73	Pinus nigra	Austrian Pine	34	4	8	Poor	Canopy growth stunted due to shade from adjacent trees.	2.4	1	X	
74	Pinus nigra	Austrian Pine	43	6	8	Fair	Diplodia tip blight, 2 codominant trunks originating from trunk at 2m from grade.	3	1	X	
75	Acer platanoides	Norway Maple	64	10	12	Fair	Leaf scorch, branch tip dieback	4.2	1	X	
76	Acer platanoides	Norway Maple	34	10	10	Fair	Lower limbs removed, leaf scorch, surface roots damaged	2.4	1	X	
77	Tilia cordata	Little Leaf Linden	96	12	15	Good	3 co-dominant leaders in canopy	6	1	X	
78	Acer platanoides	Norway Maple	39	6	10	Terminal Decline	1/2 of canopy on north side removed by pruning, remaining canopy in decline.	2.4	1	X	
79	Acer saccharinum	Silver Maple	118	15	15	Fair	Branch tip dieback, leaf scorch, surface roots damaged	7	1	X	
80	Taxus cuspidata	Japanese Yew	28, 26, 10	6	6	Fair	3 trunk clump shrub pruned to tree form, bark damaged observed on trunk.	1.8	0	X	
81	Tilia cordata	Little Leaf Linden	78	12	15	Good	Surface root damage	4.8	1	X	
82	Gleditsia triacanthos var. inermis	Honeylocust	57	10	12	Fair	Minor branch dieback	3.6	1	X	
83	Acer platanoides	Norway Maple	53	10	12	Fair	Minor branch tip dieback, leaf scorch, girdling roots	3.6	1	X	
84	Pinus nigra	Austrian Pine	34	4	10	Fair	Diplodia tip blight, canopy on west side of trunk only	2.4	1	X	
85	Pinus nigra	Austrian Pine	32	6	10	Fair	Diplodia tip blight, 2 codominant leaders at 2m from grade, canopy at top 1/4 of trunk only, slight lean south.	2.4	1	X	
86	Pinus nigra	Austrian Pine	30	4	10	Fair	Diplodia tip blight, canopy leaning south, canopy at top 1/4 of trunk	2.4	1	X	
87	Pinus nigra	Austrian Pine	29	4	10	Fair	Diplodia tip blight, canopy at top 1/4 of trunk	1.8	0	X	
88	Pinus nigra	Austrian Pine	32	4	10	Fair	Diplodia tip blight, top of leader twisted.	2.4	1	X	
89	Pinus nigra	Austrian Pine	46	6	10	Fair	Diplodia tip blight, 3 co-dominant horizontal lateral limbs forming canopy	3	1	X	

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
90	Acer saccharinum	Silver Maple	80	10	12	Fair	2 trunk at 1m from grade, base of trunk girdled by chain link fence	4.8	1	X	
91	Acer saccharinum	Silver Maple	58	12	12	Terminal Decline/ Fall Hazard	Canopy in good condition, wet wood decay observed in scar from previously removed co-dominant trunks on north and south side of tree. Fall Hazard	3.6	1	X	
92	Acer saccharinum	Silver Maple	110	12	15	Good	4 codominant trunks arise from main trunk at 50cm from grade	6.6	1	X	
93	Quercus rubra	Red Oak	66	10	15	Fair	Significant leaf scorch, minor tip branch dieback, dead lateral limbs observed in canopy.	4.2	1	X	
94	Acer platanoides	Norway Maple	86	12	15	Good	Canopy in good condition, wound on north side of trunk, insect fass observed in the wound, bark around wound healing with good callus growth.	5.4	1	X	
95	Pinus nigra	Austrian Pine	46	6	10	Fair	Diplodia tip blight to canopy, insect bore holes observed on trunk, canopy on south and east side of trunk only.	3	1	X	
96	Pinus nigra	Austrian Pine	45	6	10	Fair	Diplodia tip blight to canopy, insect bore holes observed on trunk	3	1	X	
97	Pinus nigra	Austrian Pine	48	6	10	Terminal Decline	Diplodia tip blight, 3 Codominant leaders in canopy, south and east oriented leaders dead.	3	1	X	
98	Gleditsia triacanthos var. inermis	Honeylocust				Dead			0	X	
99	Acer platanoides	Norway Maple	45	6	10	Good		3	1	X	
100	Acer platanoides	Norway Maple				Dead			0	X	
101	Gleditsia triacanthos var. inermis	Honeylocust	40	6	10	Good		2.4	1	X	
102	Gleditsia triacanthos var. inermis	Honeylocust	35	6	10	Good		2.4	1	X	
103	Gleditsia triacanthos var. inermis	Honeylocust	39	6	10	Fair	Root flare damage at junction with laneway paving, minor canopy dieback.	2.4	1	X	
104	Gleditsia triacanthos var. inermis	Honeylocust	41	6	10	Good		3	1	X	
105	Gleditsia triacanthos var. inermis	Honeylocust	40	6	10	Good		2.4	1	X	

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
106	Quercus rubra	Red Oak	40	6	6	Terminal Decline	75% of canopy is dead, base of tree used for large metal garbage bin storage	2.4	1	X	
107	Pinus nigra	Austrian Pine				Dead			0	X	
108	Pinus nigra	Austrian Pine	40	6	6	Terminal Decline	75% of canopy is dead, base of tree used for large metal garbage bin storage	2.4	1	X	
109	Pinus nigra	Austrian Pine				Dead			0	X	
110	Pinus nigra	Austrian Pine	43	8	8	Fair	Diplodia tip blight in canopy, slight lean east	3	1	X	
111	Pinus nigra	Austrian Pine	34	4	8	Fair	Diplodia tip blight in canopy, 2 codominant leaders in canopy, bark injury on trunk due to rubbing branches.	2.4	1	X	
112	Ailanthus altissima	Tree of Heaven	63	6	10	Terminal Decline	Cavity decay, vertical bark fissure on north side of trunk, large vertical wound on south side of trunk. Fall Hazard	4.2	1	X	
113	Gleditsia triacanthos var. inermis	Honeylocust	37	6	8	Good		2.4	1	X	
114	Gleditsia triacanthos var. inermis	Honeylocust	44	6	8	Good	2 codominant leaders at 2m from grade.	3	1	X	
115	Gleditsia triacanthos var. inermis	Honeylocust	49	6	8	Fair	Canopy sparse	3	1	X	
116	Gleditsia triacanthos var. inermis	Honeylocust	24	6	8	Poor	Canopy stunted due to shade from adjacent trees.	1.8	0	X	
117	Acer platanoides	Norway Maple	56	10	10	Fair	Leaf Scorch, root flare damage, heartwood decay observed in pruning wounds	3.6	1	X	
118	Gleditsia triacanthos var. inermis	Honeylocust	39	10	10	Good		2.4	1	X	
119	Pinus nigra	Austrian Pine	34	6	10	Fair	Diplodia tip blight in canopy, insert boreholes on trunk.	2.4	1	X	
120	Pinus nigra	Austrian Pine	45	6	10	Fair	Diplodia tip blight in canopy, insert boreholes on trunk.	3	1	X	
121	Pinus nigra	Austrian Pine	45	6	10	Fair	Diplodia tip blight in canopy, 3 codominant leaders in canopy	3	1	X	
122	Ailanthus altissima	Tree of Heaven	40	8	10	Poor	Canopy lopsided favoring west side of trunk, base of tree girdled by chain link fence	2.4	1	X	
123	Acer saccharinum	Silver Maple	61, 52	15	15	Terminal Decline/Fall Hazard	Two trunk clump, cavity with standing water inside trunk observed adjacent to the southwest leaning trunk. Fall Hazard	4.2	1	X	

Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
124	Ailanthus altissima	Tree of Heaven	30-35	10	15	Good	Double trunk clump	2.4	1	X	
125	Pinus nigra	Austrian Pine	34	4	10	Fair	Diplodia tip blight damage in canopy	2.4	1	X	
126	Pinus nigra	Austrian Pine	29	2	10	Terminal Decline	75% canopy had died.	1.8	0	X	
127	Pinus nigra	Austrian Pine	32	6	10	Fair	Diplodia tip blight in canopy, insert boreholes on trunk.	2.4	1	X	
128	Acer platanoides	Norway Maple	34	6	6	Terminal Decline	Canopy on north side only, pruning wounds on trunk on south side of trunk, canker burls observed on trunk, canopy dieback.	2.4	1	X	
129	Acer platanoides	Norway Maple	44	8	8	Terminal Decline	75% canopy had died.	3	1	X	
130	Pinus nigra	Austrian Pine	35	4	6	Fair	Diplodia tip blight in canopy, minor canopy dieback	2.4	1	X	
131	Pinus nigra	Austrian Pine	34	6	8	Fair	Minor diplodia tip blight in canopy	2.4	1	X	
132	Malus hybrid	Crabapple	34	4	6	Terminal Decline	75% of canopy is dead, cavity decay	2.4	1	X	
133	Malus hybrid	Crabapple	28	4	4	Poor	Canopy sparse, cavity decay with insect frass deposits at root flare	1.8	0	X	
134	Malus hybrid	Crabapple	28	4	4	Poor	Canopy sparse, cavity decay with insect frass deposits at root flare	1.8	0	X	
135	Malus hybrid	Crabapple	28	4	4	Poor	Canopy lopsided favoring south side of trunk, cavity decay observed in wounds on trunk	1.8	0	X	
136	Acer platanoides	Norway Maple	62	12	12	Fair	Minor canopy and branch dieback observed in canopy.	4.2	1	X	
137	Pinus nigra	Austrian Pine	34	4	6	Fair	Minor diplodia tip blight damage, canopy on east side of trunk only, tree leaning East.	2.4	1	X	
138	Tilia x euchlora	Crimean Linden	77	12	15	Fair	Minor canopy dieback at top of crown, leaf scorch observed on foliage in canopy.	4.8	1	X	
139	Gleditsia triacanthos var. inermis	Honeylocust	54	12	15	Good		3	1	X	
140	Pinus nigra	Austrian Pine	43	6	8	Fair	Minor diplodia tip blight damage in canopy, tree leaning Southeast.	3	1	X	
141	Pinus nigra	Austrian Pine	33	6	8	Fair	Minor diplodia tip blight damage in canopy.	2.4	1	X	
142	Pinus nigra	Austrian Pine	37	6	8	Fair	Minor diplodia tip blight damage in canopy.	2.4	1	X	
143	Pinus nigra	Austrian Pine	40	6	8	Poor	Severe diplodia tip blight damage in canopy.	2.4	1	X	
144	Gleditsia triacanthos var. inermis	Honeylocust	65	12	15	Good		4.2	1	X	



Tag #	Botanical Name	Common Name	Dbh (Cm)	Crown Spread (M)	Ht (M)	Condition	Remarks	Tpz Size (M)	Cot Rank	Remove	Retain
145	Tilia x euchlora	Crimean Linden	56	12	15	Fair	Surface root damage, branch tip dieback in canopy, leaf scorch on foliage in canopy.	3.6	1	X	
146	Acer platanoides	Norway Maple	63	10	12	Terminal Decline	90% of canopy is dead	4.2	1	X	
147	Malus domestica	Culinary Apple	6	3	4	Good	New tree planting	1.2	0		X
148	Malus domestica	Culinary Apple	6	3	4	Good	New tree planting	1.2	0		X
149	Malus domestica	Culinary Apple	6	3	4	Good	New tree planting	1.2	0		X
150	Malus domestica	Culinary Apple	6`	3	4	Good	New tree planting	1.2	0		X
151	Malus domestica	Culinary Apple	6	3	4	Good	New tree planting	1.2	0		X
152	Malus domestica	Culinary Apple				Dead			0		X
153	Robinia pseudoacacia	Black Locust	10	4	4	Good		1.2	0		X
154	Robinia pseudoacacia	Black Locust	10	4	4	Good	Bark injury on East side of trunk.	1.2	0		X

## **APPENDIX 2 CONSTRUCTION GUIDELINES**

Tree management recommendations in this report are made under the expectation that the following guidelines for risk mitigation and proper tree protection will be adhered to during construction. Respecting these guidelines will prevent changes to the soil and rooting conditions, contamination due to spills and waste, or physical wounding of the trees. Any plans for construction work and activities that deviate from or contradict these guidelines should be discussed with the project arborist so that mitigation measures can be implemented.

### Tree protection zones

A Tree protection zone (TPZ) is determined using either dripline or a DBH multiplier to define a radius measured in all directions from the outside of a tree's trunk. It is typically determined according to local municipal bylaw specifications and may be modified based on professional judgement of the project arborist to accommodate species specific tolerances and site specific growing conditions. For retained trees, the TPZ and fencing indicated in this report are proposed as suitable in relation to the level of disturbance proposed on the site plan provided to the project arborist. Arborist consultation is required if any additional work beyond the scope of the plans provided is proposed near the tree. Work done in addition to the proposed impacts discussed in this report may cause the tree to decline and die.

### Tree Protection Fencing

Tree protection zones (TPZs) will be protected by Tree Protection Fencing except where site features constrict roots (e.g., retaining walls or roads), where continual access is required (e.g., sidewalks), or when an acceptable encroachment into the TPZ is proposed, in which case the fencing will be modified. Tree Protection Fencing is shown on the Tree Protection Plan and, where it varies from the TPZ, the rationale is described in the inventory table in Appendix 3.

Within a TPZ, no construction activity, including materials storage, grading or landscaping, may occur without project arborist approval. Within the TPZ, the following are tree preservation guidelines based on industry standards for best practice and local municipal requirements:

- No soil disturbance or stripping.
- Maintain the natural grade.
- No storage, dumping of materials, parking, underground utilities or fires within TPZs or tree driplines.
- Any planned construction and landscaping activities affecting trees should be reviewed and approved by a consulting arborist.
- Install specially designed foundations and paving when these structures are required within TPZs.
- Route utilities around TPZs.
- Excavation within the TPZs should be supervised by a consultant arborist.
- Surface drainage should not be altered in such a way that water is directed in or out of the TPZ.
- Site drainage improvements should be designed to maintain the natural water table levels within the TPZ.

Prior to any construction activity, Tree Protection Fencing must be constructed as shown on the Tree Protection Plan. The protection barrier or temporary fencing must be at least 1.2 m in height and constructed of 2" by 4" lumber with orange plastic mesh screening. Tree Protection Fencing must be constructed prior to tree removal, excavation or construction and remain intact for the entire duration of construction.

#### Tree Crown Protection and Pruning

All heavy machinery (excavators, cranes, dump trucks, etc.) working within five meters of a tree's crown should be made aware of their proximity to the tree. If there is to be a sustained period of machinery working within five meters of a tree's crown, a line of colored flags should be suspended at eye-level of the machinery operator for the length of the protected tree area. Any concerns regarding the clearance required for machinery and workers within or immediately outside tree protection zones should be referred to the project arborist so that a zone surrounding the crowns can be established or pruning measures undertaken. Any wounds incurred to protected trees during construction should be reported to the project arborist immediately.

#### Unsurveyed Trees

Unsurveyed trees as identified in the Arborist Report in the Tree Assessment Plan have been hand plotted for approximate location only using field observations and/or Aerial Photography. The location and ownership of unsurveyed trees cannot be confirmed without a legal surveyed. The property owner or project developer must ensure that all relevant on- and off-site trees are surveyed by a legally registered surveyor, whether they are identified by the Arborist or not.

#### Regulation of Soil Moisture and Drainage

Excavation and construction activities adjacent to TPZs can influence the availability of moisture to protected trees. This is due to a reduction in the total root mass, changes in local drainage conditions, and changes in exposure including reflected heat from adjacent hard surfaces. To mitigate these concerns the following guidelines should be followed:

- Soil moisture conditions within the tree tree protection zones should be monitored during hot and dry weather. When soil moisture is inadequate, supplemental irrigation should be provided that penetrates soil to the depth of the root system or a minimum of 30 cm.
- Any planned changes to surface grades within the TPZs, including the placement of mulch, should be designed so that any water will flow away from tree trunks.
- Excavations adjacent to trees can alter local soil hydrology by draining water more rapidly from TPZs more rapidly than it would prior to site changes. It is recommended that when excavating within 6 m of any tree, the site be irrigated more frequently to account for this.

### Root Zone Enhancements and Fertilization

Root zone enhancements such as mulch, and fertilizer treatments may be recommended by the project arborist during any phase of the project if they deem it necessary to maintain tree health and future survival.

### Paving Within and Adjacent to TPZs

If development plans propose the construction of paved areas and/or retaining walls close to TPZs, measures should be taken to minimize impacts. Construction of these features would raise concerns for proper soil aeration, drainage, irrigation and the available soil volume for adequate root growth. The following design and construction guidelines for paving and retaining walls are recommended to minimize the long-term impacts of construction on protected trees:

- Structures should be designed, and excavation activities undertaken to remove and disturb as little of the rooting zone as possible. All roots greater than 2 cm in diameter should be hand pruned by a Certified Arborist.
- The natural grade of a TPZ should be maintained. Any retaining walls should be designed at heights that maintain the existing grade within 20 cm of its current level. If the grade is altered, it should be raised not reduced in height.
- Compaction of sub grade materials can cause trees to develop shallow rooting systems. This can contribute to long-term pavement damage as roots grow. Minimizing the compaction of subgrade materials by using structural soils or other engineered solutions and increasing the strength of the pavement reduces reliance on the sub-grade for strength.
- If it is not possible to minimize the compaction of sub-grade materials, subsurface barriers should be considered to help direct roots downward into the soil and prevent them from growing directly under the paved surfaces.

### Plantings within TPZs

Any plans to landscape the ground within the TPZ should implement measures to minimize negative impacts on the above or below ground parts of a tree. Existing grass layer in TPZs should not be stripped because this will damage surface tree roots. Grass layer should be covered with mulch at the start of the project, which will gradually kill the grass while moderating soil moisture and temperatures. Topsoil should be mixed with the mulch prior to planting of shrubs, but new topsoil layer should not be greater than 20 cm deep on top of the original grade. Planting should take place within the newly placed topsoil mixture and should not disturb the original rooting zone of the trees. A two-meter radius around the base of each tree should be left unplanted and covered in mulch; a tree's root collar should remain free from any amendments that raise the surface grade.

### Monitoring during construction

Ongoing monitoring by a Consultant Arborist should occur for the duration of a development project. Site visits should be more frequent during activities that are higher risk, including the first stages of construction when excavation occurs adjacent to the trees. Site visits will ensure contractors are respecting the recommended tree protection measures and will allow the arborist to identify any new concerns that may arise.

During each site visit the following measures will be assessed and reported on by a consulting arborist:

- Health and condition of protected trees, including damage to branches, trunks and roots that may have resulted from construction activities, as will the health of. Recommendations for remediation will follow.
- Integrity of the TPZ and fencing.
- Changes to TPZ conditions including overall maintenance, parking on roots, and storing or dumping of materials within TPZ. If failures to maintain and respect the TPZ are observed, suggestions will be made to ensure tree protection measures are remediated and upheld.
- Review and confirmation of recommended tree maintenance including root pruning, irrigation, mulching and branch pruning.
- Changes to soil moisture levels and drainage patterns; and
- Factors that may be detrimentally impact the trees.

### **APPENDIX 3 REPORT ASSUMPTIONS AND LIMITING CONDITIONS**

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