Tree Conservation Report 424 Churchill Avenue North Ottawa, Ontario



Prepared for GSI Properties By Arcadis IBI Group August 12, 2024

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1 Introduction and Overview

Arcadis IBI Group (IBI) was retained by GSI Properties to prepare a Tree Conservation Report for the proposed development property at 424 Churchill Avenue located in Ottawa, Ontario.

The subject property (Study Area) has an area of approximately 0.11 ha and is currently a commercial plaza with the associated parking lot. The proposed project includes the development of the subject property with a midrise tower that includes underground parking. The property is bounded by Danforth Avenue to the north and Byron Avenue to the south.

The report and plans will become part of any and all formal *Planning Act* submissions. It is informed by and aligns with the following:

• The City of Ottawa Tree Protection By-law No. 2020-340

Tree Conservation Plan, drawings TPP-1 (dated October 7, 2022), must be read and understood in conjunction with this report.

2 Methodology

Mr. Tim McCormick, OALA, CSLA, ISA Certified Arborist ON-0899A, completed an onsite review and assessment of the trees within the subject property on May 7, 2022. Ms. Brittany Semmler, Ecologist completed an additional review on August 7, 2022. The Study Area included the subject property and adjacent private property within 5.0 m of the property boundaries. Trees within the Study Area that were 10 cm diameter at breast height (DBH) and greater were inventoried and assigned unique tree identifications.

Each tree inventoried had the following data gathered: tree species, DBH in centimetres, health condition, and dripline radius in metres. The location of each tree was total station surveyed and is included on the Tree Preservation/Enhancement Plan (TPEP Plan), drawings No. TPP-1 and TPP-2. Tree data has been compiled into Table 1 and is included in Appendix A of this document.

2.1 Definitions of Measurements for Tree Inventory Data Collection

Tree assessment includes specific measurements as part of the field review. Outlined below are measurements taken as part of the field tree inventory:

DBH: Measurement of the trunk at 1.4 m above grade. Expressed as diameter in centimetres.

Drip line: Measurement of the approximate extents of the branches as measured from the trunk of the tree. This also represents the general root zone of the tree. Expressed as a radius in metres.

2.1.1 Tree Condition Assessment

Excellent: (Healthy)

No major branch mortality: crown is reasonably normal with less than 10% branch or twig mortality; no signs of decay.

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Very Good: (Healthy)

Minimal major branch mortality: crown is reasonably normal with twig dieback in 10-20% of the crown; minimal signs of decay.

Good: (Light Decline)

Branch mortality, twig dieback in 20-30% of the crown: broken branches or crown missing based on presence of old snags is less than 26%; minor evidence of decay.

Fair: (Moderate Decline)

Branch mortality, twig dieback in 40-50% of the crown: broken branches or crown area missing based on presence of old snags is 50% or less; decay evident.

Poor: (Severe Decline)

Branch mortality, twig dieback in more than 50% of the crown: broken branches or crown area missing based on presence of old snags in more than 50%; decay resulting in high hazard assessment.

Dead:

Tree is dead, either standing or down: phloem under bark has brown streaks: few epicormic shoots may be present.

3 Observations

The property at 424 Churchill Avenue North is bounded by Byron Avenue to the south and Danforth Avenue to the north, refer to Figure 1. A total of thirty-five (35) trees were inventoried within the subject property boundary and another four (4) trees located on adjacent properties or at the boundary edge that were reviewed within the overall Study Area. The trees reviewed consisted of only deciduous species. Several of the species are non-native or invasive species. There are isolated native species intermixed on the property. The trees are located primarily along north side of the property below a retaining wall that extends through the subject property.

Figure 1: Aerial Imagery of Study Area (Google Earth image)



3.1 Species

Species observed in the Study Area included: Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Black Walnut (*Juglans nigra*), Burr Oak (*Quercus macrocarpa*), Common Buckthorn (*Rhamnus cathartica*), Basswood (*Tilia americana*), and White Elm (*Ulmus americana*).

3.1.1 Species at Risk

There were no rare, endangered, threatened, or significant tree or shrub species observed within the subject area or adjacent residential properties.

3.1.2 Invasive Species

Present within the Study Area were two (2) non-native invasive species (Norway Maple and Common Buckthorn) and one (1) native invasive (Manitoba Maple). These invasive species are considered threats to the local ecosystem and biodiversity as they can quickly outcompete native plants. Control of these invasive species requires long-term management and one-off removals can encourage spread. As such, only those invasive species located within the active development area will be removed.

3.2 Shared Boundary Trees and Impacts to Trees on Adjacent Properties

During the field inventory it was observed that there is one (1) tree are located at or in close proximity to the property boundaries. Per Section 10(2) of *The Forestry Act*, RSO 1990, C. F.26, "Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands." A desktop analysis of the surveyed tree locations was completed to identify ownership and shared boundary trees. Any tree located on a property boundary or within close proximity (~0.3 m) has been assumed to be a shared boundary tree.

An additional four (4) trees located beyond the subject property boundaries may be impacted by the proposed works and development. Tree protection fencing (TPF) is recommended along the property limit where these trees are located (see Appendix A for TPF recommendations).

The location and presumed ownership information for each tree is included in Table 1 (Appendix A). Any impacts to trees on adjacent properties or shared boundary trees will require written approval from all property owners prior to initiation of any work and/or tree removals on site. Written approvals shall be appended to this report for City records prior to the City's authorization for site demolition.

4 Analysis

4.1 Trees to be Preserved and Protected

Based on the layout of the subject property, location of the trees, and necessary site work to facilitate the construction onsite, there will be no trees preserved or protected on the subject site. Tree 1, Tree 2, Tree 5, and Tree 6 will be preserved and protected on the adjacent property. Tree preservation fencing will be erected at the property limit to protect these trees during construction.

4.2 Trees to be Removed

There are thirty-four (34) trees that will need to be removed to facilitate the construction of the proposed building and development. There is one (1) dead tree within property that will also be removed within the proposed building area.

4.3 Tree Preservation/Removal Summary

Thirty-five (35) trees were inventoried on the subject property and another four (4) on adjacent properties, for a total of thirty-nine (39) trees included in the detailed inventory and assessment.

Based on the information presented above, the following is a summary of recommendations for the proposed development of the subject property:

- Four (4) trees are recommended to be preserved and protected.
- Thirty-five (35) trees are recommended to be removed:
 - Thirty-four (34) live trees and one (1) dead tree.

5 Recommendations

5.1 Tree Protection Fencing

Tree Protection Fencing (TPF) is to be installed on site along the western property line to protect four (4) trees on the adjacent property (Appendix A). The limits of TPF have been indicated on the Tree Conservation Plan sheet TPP-1 and shall be considered to delineate the limits of work. All TPF shall conform to the City of Ottawa's current standards and Tree Protection Specification as shown on Detail 1-TPP2.

6 Construction Impact Mitigation

6.1 Potential Construction Impacts to Trees

Trees are living organisms that react to changes in their environment. Trees can be damaged during construction without showing signs of damage until some years later. Most of the impacts relate to the removal of roots that results in the slow death of the tree as a result of its inability to absorb sufficient water and nutrients. Contained within this section are descriptions of the potential impacts this project may have on the trees, and impact mitigation methods that are intended to aid in the mitigation of impact during construction.

6.1.1 Soil Compaction and Root Damage

The leading cause of construction damage to trees is compaction of the soil around the roots or within the Tree Protection Zone (TPZ). The TPZ is the area around the tree or group of trees in which no grading or construction activity may occur. Equipment entering a TPZ compresses the air pockets around the roots inhibiting the tree from absorbing nutrients and water. This damage ultimately degrades the health of the tree. Accordingly, during the removal stage, equipment use within the TPZ should be restricted to ensure that the tree's roots are not disturbed, thereby assisting in maintaining their continued health. The TPZ is protected and delineated by the TPF.

6.1.2 Mechanical Damage

Equipment can physically damage the trees through striking the trunk, limbs, and/or roots. Felled trees can also cause damage during the tree removal stage of construction. Some damage is unavoidable due to the proximity of adjacent trees; however, by using proper equipment and best management practices the damage can be minimized. The Contractor should be held responsible for all avoidable damage to the trees during all stages of development. Note: trees shall always be felled away from adjacent trees to be retained.

6.1.3 Root Damage

The success of tree preservation is dependent not only on protecting the root zone from compaction and damage, it is also contingent upon the ability to ensure that the structural roots within the root plate are not disturbed. Impacts to this area may result in the structural failure of these trees. Excavating soil 1 m outside a tree's drip line, or within a drip line can damage roots by tearing and splitting back to the stem. This damage can later lead to rot that can kill the tree. All work within the drip line of an existing tree shall be approved by an Arborist. When excavating the top 30-60 cm of soil adjacent to trees, care must be taken. Excavation should cleanly sever the roots prior to stripping and removal of soil. Exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree.

6.2 Protecting and Managing Trees During Construction

The following recommendations are presented to provide appropriate tree protection and management during the future development and construction of this project:

- Tree Protection Fencing (TPF) should be installed to protect all trees identified for preservation. TPF should conform to City of Ottawa standards and the locations indicated on the TPP (Appendix A). Upon installation of the TPF, the Contractor should contact the Project Arborist to review and approve the fencing and its location prior to commencement of any site work. This should be coordinated with City staff for approval. The TPF should remain intact throughout the entire construction period, as specified on the plans. The TPF should be inspected monthly and repaired as required and should be removed at the completion of all site works.
- 2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside the window of April 1 to August 31. This window offers protection through the main migratory bird nesting and bat maternity roosting season. If removals occur within the restricted activity period, due diligence measures, including pre-clearing nest and roost sweeps will be employed to reduce risk to nesting birds protected under the *Migratory Birds Convention Act, 1994* and Species at Risk Bats under the *Endangered Species Act, 2007*, and all applicable regulations. These surveys are required to be completed by a qualified biologist experienced in bird and bat identification and monitoring.
- 3. The TPZ is the area around a retained tree that is to be protected by TPF. The TPZ is not to be used for any type of storage (e.g., storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.
- 4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact

with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to City Policies and By-laws shall be carried out.

- 5. Upon completion of the tree removals, all felled trees are to be removed from the subject property. No lumber or brush from the clearing is to be stored onsite. Any chipping, cutting or brush clean-up is to be completed outside the bird nesting season (i.e., *not* between April 1 and August 31). If these activities are to occur within the restricted activity period, due diligence measures, including pre-clearing nest sweeps will be employed to reduce risk to nesting birds protected under the *Migratory Birds Convention Act, 1994* and *Migratory Birds Regulations*. These surveys will be completed by a qualified biologist.
- 6. Excavation adjacent to trees to be preserved must be completed with due care and attention. Excavation should cleanly sever the roots prior to stripping and removal of soil. Should roots be encountered during excavation all exposed roots with a diameter greater than 2.5 cm (1 inch) shall be pruned back to the soil face to prevent damage to the tree. Roots smaller than 2.5m (1 inch) should be cleanly cut using a sharpened spade or bypass pruners at the limits of excavation.

7 Disclaimer

The assessment of the trees presented within this report has been prepared using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition if the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees in all circumstances. Inevitably a standing tree will always pose some risk. Most trees have the potential for failure provided with the necessary combinations of stresses and elements. This risk can only be eliminated if the tree is removed.

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

Respectfully Submitted,

Tide /

Tim McCormick, OALA, CSLA, ISA Certified Arborist ON-0899A Associate Director

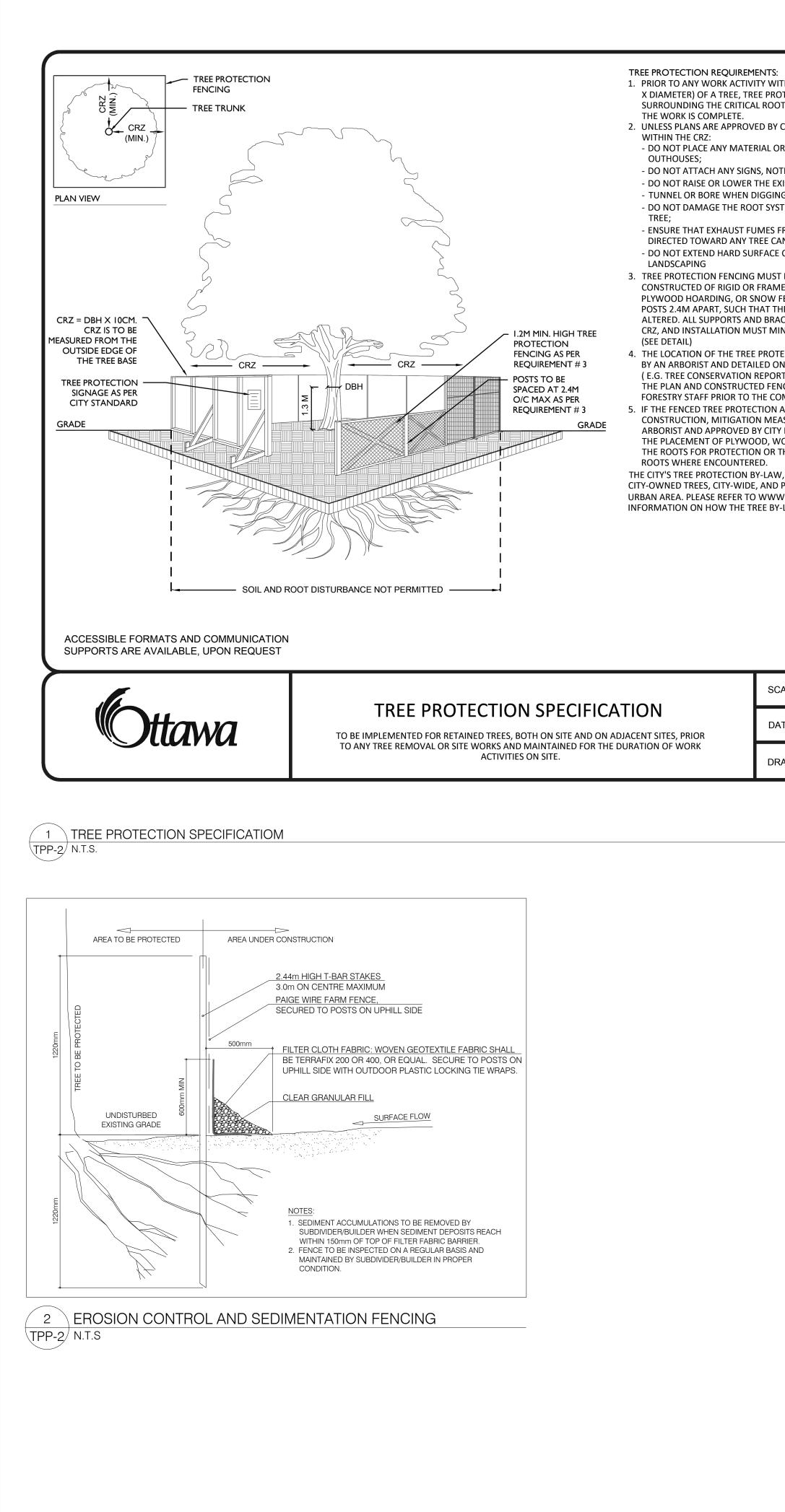
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Appendix A

Tree Conservation Plan TPP-1 and TPP-2





ROTECTION FENCI	CAL ROOT ZONE (CRZ = 10 NG MUST BE INSTALLED EMAIN IN PLACE UNTIL
Y CITY FORESTRY	STAFF, FOR WORK
OR EQUIPMENT -	INCLUDING
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	R BRANCHES OR ANY
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MED MATERIALS / FENCE ON A 2"X THE FENCE LOCAT RACING MUST BE	2M IN HEIGHT, AND (E.G. MODULOC - STEEL, 4″ WOOD FRAME) WITH TON CANNOT BE PLACED OUTSIDE OF THE E TO EXISTING ROOTS.
ON ANY ASSOCIA DRT, TREE INFORM ENCING MUST BE COMMENCEMENT N AREA MUST BE EASURES MUST B TY FORESTRY STA WOOD CHIPS, OR	G MUST BE DETERMINED TED PLANS FOR THE SITE MATION REPORT, ETC). APPROVED BY CITY TOF WORK. REDUCED TO FACILITATE E PRESCRIBED BY AN FF. THESE MAY INCLUDE STEEL PLATING OVER JNING AND CARE OF
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AWING NO.:	1 of 1

Table 1 - Existing Tree Inventory424 Churchill, Ottawa, Ontario

Project #: 139413 Diameter at Drip Line Breast Height Multistem Overall Tag # Species Common Name Radius **Recommended Acti** (DBH) cm or Tree Condition (cm) range (cm) Protection to installed property limits with reduced protection are Acer negundo Manitoba Maple 10 480 Good Protection to installed property limits with American Elm 22 280 Fair reduced protection are 2 Ulmus americana Remove - Due to gradi and infrastructure 11 250 Poor improvement 3 Acer platanoides Norway Maple Remove - Due to grad and infrastructure lorway Maple 11 200 Good improvement Acer platanoides Protection to installed property limits with 11 Good reduced protection are 5 Malus spp. 200 Apple spp. Protection to installed property limits with 500 Good reduced protection are Black Walnut 26 6 Juglans nigra Remove - Due to gradi and infrastructure improvement 7 Acer negundo Manitoba Maple 11 350 Fair Remove - Due to gradi and infrastructure improvement 350 8 Ulmus americana American Elm 25 Poor Remove - Due to build construction and Norway Maple 13 490 Very Good excavation 9 Acer platanoides Remove - Due to build construction and excavation 10 Acer negundo Manitoba Maple 11 370 Good Remove - Due to gradi and infrastructure 11 Acer negundo 850 improvement Manitoba Maple 37 Very Good Remove - Due to grad and infrastructure improvement 12 Acer platanoides 17 360 Very Good lorway Maple Remove - Due to gradi and infrastructure improvement 12 280 Poor 13 Acer negundo Manitoba Maple Remove - Due to build construction and excavation American Elm 15 50 Poor 14 Ulmus americana Remove - Due to build construction and excavation 440 Poor Manitoba Maple 19 15 Acer negundo Remove - Due to build construction and excavation 16 Unknown 19 240 Dead Jnknown Remove - Due to grad and infrastructure improvement 17 Acer platanoides 580 orway Maple 19 Very Good Remove - Due to gradi and infrastructure improvement 18 Rhamnus cathartica Common Buckthorn 10 730 Good Remove - Due to build construction and excavation 19 Acer negundo Manitoba Maple 25 1220 Very Good Remove - Due to grad and infrastructure improvement 20 Acer negunao vianitopa iviapie Remove - Due to gradi and infrastructure improvement 21 Tilia americana 11 520 Yes Poor asswood Remove - Due to gradi and infrastructure improvement 540 22 Tilia americana Basswood 12 Yes Good Remove - Due to gradi and infrastructure improvement 360 23 Acer platanoides Norway Maple 15 Very Good ---Remove - Due to gradi and infrastructure improvement 24 Acer negundo Manitoba Maple 35 1090 Yes Poor Remove - Due to gradi and infrastructure improvement 25 Ulmus americana 470 Good American Elm 20 ----Remove - Due to gradi and infrastructure improvement American Elm 16 440 Good 26 Ulmus americana Remove - Due to gradi and infrastructure improvement 1040 Good Black Walnut 20 27 Juglans nigra Remove - Due to gradi and infrastructure improvement 14 Dead 28 Tilia americana Basswood Remove - Due to gradi and infrastructure improvement 710 Good Manitoba Maple 18 29 Acer negundo ---Remove - Due to gradi and infrastructure improvement 30 Acer negundo 350 Manitoba Maple 19 Very Good ---Remove - Due to gradi and infrastructure improvement 15 410 Good 31 Acer negundo Manitoba Maple Remove - Due to grad and infrastructure improvement Manitoba Maple 11 0 Dead 32 Acer negundo ----Remove - Due to gradi and infrastructure improvement Common Buckthorn 11 810 Very Good 33 Rhamnus cathartica Remove - Due to gradi and infrastructure 430 improvement 34 Tilia americana 28 Poor Basswood Remove - Due to gradi and infrastructure improvement 35 Acer negundo Manitoba Maple 12 Dead 0 Remove - Due to gradi and infrastructure improvement 11 30 36 Acer platanoides Very Good Norway Maple ---Remove - Due to gradi and infrastructure improvement 37 Acer negundo Manitoba Maple 27 810 Yes Poor Remove - Due to gradi and infrastructure improvement 38 Acer negundo 450 14 Yes Very Good Manitoba Maple Remove - Due to gradi and infrastructure improvement 220 22 Yes Very Good 39 Quercus macrocarpa Burr Oak

Notes	Ownership
Note s	Private on adjoining site
Hard lean to south	Private on adjoining site
Lean to south	Private on site
	Private on site
	Private on adjoining site
	Private on adjoining site
	Private on site
	Private on site
	Private on site
	Private on site
	City Tree
	City Tree
l lean north	Private on site
	Private on site
	City Tree
	City Tree
	City Tree
	City Tree
	City Tree
	City Tree City Tree