



1027458 ONTARIO INC.

# Banwell and McHugh Mixed Use Developments

Tree Inventory and Preservation Study



March 31, 2023



SENT BY ELECTRONIC MAIL ONLY

The Corporation of the City of Windsor  
350 City Hall Square, Suite 210  
Windsor, Ontario  
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Attention: Yemi Adeyeye

***Tree Inventory and Preservation Study for the Banwell and McHugh Mixed Use Developments***

Please find enclosed the results of a Tree Inventory completed to identify existing trees for a proposed mixed use development northwest and southwest of McHugh Street and Banwell Road, in the City of Windsor. This report outlines the results of the inventory which occurred on February 8 and 15, 2023. These results were used to prepare a Preservation Study report to support a Zoning By-law Amendment and Official Plan Amendment. The report summarizes the results of the tree inventory conducted for areas potentially impacted by the proposed development and provides recommendations for trees to be removed or retained.

Sincerely,

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Encls. Tree Inventory and Preservation Study

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## 1.0 Introduction

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Dillon Consulting Limited (“Dillon”) was retained by 1027458 Ontario Inc. (the “proponent”), to conduct a Tree Inventory and Preservation Study (TIPS) to support a Zoning By-law Amendment and Official Plan Amendment for a proposed mixed use development in the City of Windsor (the “City”). The need for a TIPS was identified in a Pre-submission Consultation letter received from the City.

The proposed development will be located northwest and southwest of the intersection of McHugh Street and Banwell Road (Appendix A; Figure 1). Dillon’s services included documentation of existing trees within the properties that make up the development area in addition to a 6 m buffer onto adjacent lands (the “Project Location”). The TIPS and Tree Inventory figures summarize the tree inventory conducted by Dillon for lands within and adjacent to the Project Location and provide recommendations regarding tree removals and preservation, as well as information related to applicable tree protection policies.

This TIPS has been written to support the proposed development and will be submitted to the City. It contains a detailed inventory of trees within the Project Location that may be potentially impacted by construction. Additionally, it describes the development and anticipated construction impacts to trees.

### 1.1 Development Description

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The proponent is proposing to develop the Project Location into a mixed use development.

## 2.0 Background and Applicable Policy

The following section has been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established policies with the purpose of protecting the ecological features and functions within the province of Ontario and within the County of Essex specifically. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below can be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Study Area (Appendix A; Figure 1).

### 2.1 Information Sources

Secondary source information was used to identify known environmental constraint areas and to map the significant natural heritage features such as watercourses, woodlands, and potential wildlife occurrences. Table 1 lists the relevant policies and legislation applicable to the protection of natural heritage features within the City of Windsor, and more specifically, the Project Location; as well as supporting guidance documents and resources consulted respective to each policy. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Eco-region 7E specifically.

Table 1: Policies, Legislation, and Background Resources Searched

Source	Record Reviewed/Requested
Government of Canada	
Environment Canada	<ul style="list-style-type: none"> <li>Species at Risk Registry: Accessed to determine the at-risk status of wildlife species under Schedule 1 of the Species at Risk Act (SARA; 2002)</li> </ul>
Fisheries and Oceans Canada (DFO)	<ul style="list-style-type: none"> <li>Aquatic Species at Risk Map: Accessed to determine aquatic at-risk occurrences</li> </ul>
Government of Ontario	
Ministry of the Environment, Conservation and Parks (MECP)	<ul style="list-style-type: none"> <li>Endangered Species Act (ESA; 2007)</li> <li>Species at Risk in Ontario (SARO) List (O. Reg. 230/08)</li> <li>Client's Guide to Preliminary Screening for Species at Risk (2019)</li> </ul>
Ministry of Natural Resources and Forestry (MNRF)	<ul style="list-style-type: none"> <li>Natural Heritage Information Centre (NHIC) database (Squares: 17LG4286, 17LG4287, 17LG4288, 17LG4385, 17LG4386, 17LG4387, 17LG4388, 17LG4485, 17LG4486, 17LG4487; MNRF, 2023)</li> <li>Technical Memo: Aylmer District MNRF Guidance on Identifying Activities/Areas not Likely to Contravene the Endangered Species Act, 2007 in the County of Essex &amp; City of Windsor (2016)</li> </ul>

Source	Record Reviewed/Requested
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	<ul style="list-style-type: none"> <li>• Agricultural Information Atlas (OMAFRA, 2023); reviewed area drains</li> </ul>
Municipal Government(s)	
City of Windsor	<ul style="list-style-type: none"> <li>• Update to the CNHS Inventory (2008)</li> <li>• Official Plan (2013)</li> </ul>
Additional Sources	
Wildlife Atlases and Distribution Data	<ul style="list-style-type: none"> <li>• Ontario Breeding Bird Atlas (OBBA; Cadman et al., 2008). Second Atlas (2001-2005) – data for square 17LG48 – grid based on 10 km<sup>2</sup> system.</li> </ul>
	<ul style="list-style-type: none"> <li>• Christmas Bird Count (CBC; Birds Canada, 2023). Count circle North Shore (ONNS) – Historical Records from 2000 – 2022.</li> </ul>
	<ul style="list-style-type: none"> <li>• Rare Vascular Plants of Ontario (Fourth Edition; Oldham and Brinker, 2009). Distribution data for rare vascular plants.</li> </ul>
	<ul style="list-style-type: none"> <li>• Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2023). List of reptile and amphibian species occurrences for square 17LG48.</li> </ul>
	<ul style="list-style-type: none"> <li>• Ontario Butterfly Atlas (OBA; Toronto Entomologists Association, 2023). List of butterfly species occurrences for square 17LG48.</li> </ul>
	<ul style="list-style-type: none"> <li>• Atlas of the Mammals of Ontario (Dobbyn, 1994). Distribution data for mammals.</li> </ul>
	<ul style="list-style-type: none"> <li>• Bumble Bees of North America (Williams et al., 2014). Distribution data for bumble bees.</li> </ul>

2.1.1 Endangered Species Act

In June 2008, the Endangered Species Act (ESA; 2007) came into effect in Ontario. The purpose of the ESA is to identify Species at Risk (SAR) based on the best available scientific information; to protect SAR and their habitats, to promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario. There are several applicable regulations under the ESA. These regulations serve to identify which species and habitat receive protection and provide direction on the current implementation of the ESA by the MECP.

In addition, preliminary screening for SAR was carried out using select sources from Table 1. After considering suitable habitat preferences and species ranges, our preliminary screening results show the potential for several SAR in the general area. For more information about the preliminary screening results for SAR, refer to **Section 4.3**.



### 2.1.2 City of Windsor

The requirement for this TIPS is based on the Pre-submission Consultation letter received from the City. Further to this requirement, Volume I (Procedures), Chapter 10, Section 10.2.14 of the City's Official Plan has additional, specific requirements. The City By-law 135-2004 (Trees on Highways) applies to this project, as the By-law regulates the planting of trees and prohibits the destruction or injuring of trees on highways in the City or on any lands owned by the City. The proposed project would entail the development of some City-owned lands.

### 2.1.3 Migratory Birds Convention Act

Environment and Climate Change Canada implements the Migratory Birds Convention Act (MBCA; 1994) to protect migratory birds and their nests. A person shall not harm a migratory bird or nest without authorization under the regulations. In order to mitigate potential affects to migratory birds, vegetation removals shall occur outside of the breeding bird season (April 1 to August 31) to avoid the core period of bird nesting. If vegetation removal is required within this period, an avian survey is recommended to be conducted by a qualified biologist within the planned vegetation removal area before the removal activities to determine the presence or absence of nesting birds. If no active bird nest is observed during the survey, vegetation removal may proceed if conducted within 48 hours of completing the survey. Avian survey results shall be valid for 48 hours from the completion of the survey. Should an active bird nest be observed during the survey, vegetation removal that may harm a migratory bird or nest shall be avoided until a subsequent survey confirms the nest is no longer active and/or until authorization is obtained.

## 3.0 Methods

### 3.1 Tree Inventory

A tree inventory was conducted on February 8 and 15, 2023, within the Project Location and a 6 m buffer. Trees subject to the inventory were those with a diameter-at-breast-height (DBH) of 10 centimetres (cm) or greater. The collected data pertained to trees that require removal to facilitate development or trees anticipated to be retained and protected during construction operations. The information recorded consisted of the following:

- Identification of species or genus where determinable using reasonable assumptions based on location, leaves, bark, bud, branches, and growth habit;
- Measurement of (DBH) at 1.4 metres (m) from the ground;
- Assignment of a unique identification number for trees  $\geq 10$  cm DBH, where applicable. Note: Trees with multiple stems split below breast height were given one unique identification number;
- A Level 2 (basic) qualitative visual assessment to determine tree or tree grouping condition, following the condition health rating system detailed in Table 2;
- Marking coordinates using a handheld Global Positioning System (GPS) unit; and
- If determinable and/or applicable, providing recommendations regarding preservation, protection, or removal.

The Level 2 basic assessment that was completed for trees within the Project Location is a detailed visual inspection of the trees and surrounding area to obtain an opinion of the health condition of each tree. It includes a non-invasive inspection of each tree (i.e. looking at the site conditions, buttress roots, trunk, and branches). This basic assessment is the standard basic assessment that is performed by arborists, though only includes conditions that are detected from the ground. The results from a basic assessment should not be relied on for internal, below-ground, and/or upper-crown condition or defects as these areas may be impossible to see or difficult to assess from ground-level.

The condition rating designated to each tree was based on the results of the basic assessment. The hazard potential of trees were assessed using the method outlined in the International Society of Arboriculture publication *A Photographic Guide to the Evaluation of Hazard Trees in Urban Area - 2<sup>nd</sup> Edition* (Matthey and Clark, 1994). Using this guide, an overall condition rating (i.e. dead, hazard, poor, fair, good, or excellent) was given to each tree meeting a 10 cm or greater DBH. These condition ratings are useful when evaluating the retention and/or replacement value of individual trees. Trees were identified using reasonable means available at the time of survey, such as leaf, bud, and bark characteristics, tree form, and branch orientations.

Table 2: Tree Condition Rating Categories

Condition	Description
Dead	A specimen tree is considered dead when it has no living tissue.
Hazard	The specimen tree could either be alive or dead but the tree in its part could pose an imminent hazard to people or property during normal weather conditions. These trees have the potential for splitting, breaking, and/or falling over during inclement weather, and because of their proximity to various targets (i.e. people or property), could cause personal injury and/or severe damage to municipal infrastructure and/or private property.
Poor	Trees in poor condition show major symptoms of decline. At least 50% of main scaffold branches are dead, missing, or in a diseased state. The trunk shows evidence of advanced rot, deadwood, or is hollow throughout. Twig development on the main branches or throughout the canopy is poor and may have limited sucker growth. Callus growth around wounds is minimal. A tree in poor condition could decline further to become a safety hazard. Removal prior to development should be considered if it is considered a hazard tree.
Fair	Trees in fair condition show moderate symptoms of decline in lower canopy or scaffold branches, but more than 50% of scaffold branches are present and viable. The trunk shows limited evidence of rot or insect damage. Good callus growth is present near wound areas. Trees that have scaffold branches that are healthy, but are in a “Y” formation, may also be included in this category, if “included-bark” is evident as the risk of splitting or breakage increases as the tree matures. Removal or preservation of these trees depends on the location of the specimen and associated target potential, and would depend on the species, and its tolerance to grading, trenching and surviving in an urban environment. Some major arboricultural maintenance may be required and may include major scaffold or secondary branch removal, bracing, and/or cabling.
Good	The specimen tree shows no symptoms of decline in the trunk, and all scaffold branches are present and are in good condition. Most scaffold branches are at right angles to the trunk, and show good vigour. Small amounts of dead wood may be present in secondary branches, but account for less than 25% of the canopy. Depending on the grading in the immediate area, a tree in good condition would be recommended for preservation. Such a tree would typically survive to maturity without major arboricultural maintenance.
Excellent	The specimen tree shows no symptoms of decline in trunk, scaffold, or secondary branches. Trees in this condition have an excellent growth habit and should typically survive to maturity without major arboricultural maintenance.

### 3.2 SAR Habitat Assessment

Species at Risk are defined as those species that are listed as Threatened or Endangered under the ESA and aquatic species listed under Schedule 1 of the SARA, as well as migratory birds protected under the Migratory Birds Convention Act, 1994 and listed under Schedule 1 of the SARA. Based on the results of the preliminary SAR screening, a SAR habitat assessment was conducted on February 8 and 15, 2023. The Project Location was assessed for presence of SAR, with a focus on assessing the potential for the Project Location to support SAR habitat given the timing in which the site investigation was completed.

Results of the SAR assessment is discussed in **Section 4.3**.

## 4.0 Results

### 4.1 City of Windsor

The purpose of the City's Official Plan is to provide guidance for the physical development of the municipality over a 20 year period while taking into consideration important social, economic, and environmental matters. As such, the City's Official Plan provides policy framework that will guide: where new development can locate; how existing and future neighbourhoods will be strengthened; how Windsor's environment will be enhanced; what municipal infrastructure, such as roads, watermains, sewers, and parks, will be provided; and when and in what order Windsor will grow (City of Windsor, 2013).

The City's OP designates the Project Location as Mixed Use and Business Park (Schedule D – Land Use; Appendix B) and Banwell Road Mixed Use Corridor and Business Park (Schedule ER-2 – Land Use Plan; Appendix B). The closest Natural Heritage, Open Space, and Community Park designations are located over 100 m north of the Project Location (north of Firgrove Drive) associated with Elizabeth Kishkon Park (Schedule C – Development Constraint Areas, Schedule D – Land Use, Schedule ER-2 – Land Use Plan, and Schedule ER-3 – Greenway System Plan; Appendix B).

### 4.2 Tree Inventory

The inventory documented 310 trees (283 client-owned trees and 27 not client-owned trees) with a DBH of 10 cm or greater within the Project Location. The locations of the inventoried trees are presented in Appendix A with photographs of the assessed trees included in Appendix C. Detailed tree inventory results including species, DBH, condition, and other relevant information recorded during the tree inventory are provided in Appendix D.

A total of 20 species of trees were documented, with 16 species identified to the species level and four species identified to the genus level. Additionally, there were trees that could not be identified due to their poor condition and were labeled as "unknown". Manitoba Maple (*Acer negundo*) was the dominant species, accounting for 32% of the trees inventoried, followed by Eastern Cottonwood (*Populus deltoides* ssp. *deltoides*) at 17%. A summary of inventoried trees can be found in Table 3 below.

Overall, out of the 310 documented trees, 260 (84%) are native to Ontario, while 21 (7%) are non-native species. The remaining 29 trees (9%) could not be classified as non-native or native due to their condition or because identification only to genus level was possible.

Table 3: Summary of Inventoried Trees by Species

Family	Scientific Name	Common Name	SARA <sup>1</sup>	ESA <sup>2</sup>	SRank <sup>3</sup>	Invasive Priority for Control <sup>4</sup>	Count
Cupressaceae	<i>Juniperus virginiana</i>	Eastern Red Cedar	---	---	S5	---	1
Fabaceae	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	THR	THR	S2	---	20
Fagaceae	<i>Quercus alba</i>	White Oak	---	---	S5	---	1
Fagaceae	<i>Quercus macrocarpa</i>	Bur Oak	---	---	S5	---	10
Fagaceae	<i>Quercus rubra</i>	Northern Red Oak	---	---	S5	---	8
Juglandaceae	<i>Juglans nigra</i>	Black Walnut	---	---	S4	---	1
Tiliaceae	<i>Tilia americana</i>	American Basswood	---	---	S5	---	22
Rosaceae	<i>Crataegus</i> sp.	Hawthorn species	---	---	---	---	16
Rosaceae	<i>Prunus serotina</i>	Wild Black Cherry	---	---	S5	---	1
Rosaceae	<i>Prunus</i> sp.	Cherry species	---	---	---	---	7
Rosaceae	<i>Pyrus</i> sp.	Pear species	---	---	---	---	1
Salicaceae	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	---	---	S5	---	51
Salicaceae	<i>Populus grandidentata</i>	Large-tooth Aspen	---	---	S5	---	21
Salicaceae	<i>Salix</i> sp.	Willow species	---	---	---	---	1
Aceraceae	<i>Acer negundo</i>	Manitoba Maple	---	---	S5	C2	98
Aceraceae	<i>Acer rubrum</i>	Red Maple	---	---	S5	---	1
Aceraceae	<i>Acer x freemanii</i>	Freeman's Maple	---	---	SNA	---	4
Anacardiaceae	<i>Rhus hirta</i>	Staghorn Sumac	---	---	S5	---	1
Moraceae	<i>Morus alba</i>	White Mulberry	---	---	SNA	C1	20
Ulmaceae	<i>Ulmus americana</i>	American Elm	---	---	S5	---	20
---	unknown	unknown	---	---	---	---	5
<b>Total</b>							<b>310</b>

<sup>1</sup>Status identified under the federal Species at Risk Act: THR = Threatened; <sup>2</sup>Status identified under the provincial Endangered Species Act: THR = Threatened; <sup>3</sup>SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S5 = widespread and secure, S4 = common and apparently secure, S2 = very rare and imperiled, SNA = not applicable; <sup>4</sup>Invasive Exotic Plant Species Rankings for Southern Ontario (Draft - Urban Forest Associates/MNRF 2014). Category 1 (C1) - Top Priority: Widespread invasive species that exclude most other species and dominate sites indefinitely. Some are an imminent threat to human health. They are the top priority for control, but control may be difficult and some are beyond control at present. Biocontrols may be the only affective long-term control option. Plants in this category are a threat to a natural area wherever they occur because they disperse widely and benefit from human disturbances. Control where possible and do not plant; --- denotes no information or not applicable.

### 4.3 SAR Habitat Assessment

Through background review, several SAR listed in Table 4 have been identified with the potential to occur within the vicinity of the Project Location.

Table 4: Species at Risk with the potential to occur within the vicinity of the Study Area

Scientific Name	Common Name	SARA <sup>1</sup>	ESA <sup>2</sup>	SRank <sup>3</sup>	Info Source <sup>4</sup>
<b>Reptiles</b>					
<i>Thamnophis butleri</i>	Butler's Gartersnake	END	END	S2	MNRF, ORAA
<b>Mammals</b>					
<i>Myotis leibii</i>	Eastern Small-footed Myotis	---	END	S2S3	MWH
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH
<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3	MWH
<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH

<sup>1</sup>Status identified under the federal Species at Risk Act: END = Endangered; <sup>2</sup>Status identified under the provincial Endangered Species Act: END = Endangered; <sup>3</sup>SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S4 = common and apparently secure, S3 = rare to uncommon and vulnerable, S2 = very rare and imperiled, SU or ? = uncertain due to insufficient information; <sup>4</sup>Information sources include: MNRF = previous correspondence with the MNRF regarding an adjacent property (dated November 1, 2018), MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, ORAA = Ontario Reptile and Amphibian Atlas; --- denotes no information or not applicable.

Although the Project Location has the potential to support SAR habitat, due to the current and past land use (i.e. dominant agricultural landscape dating back to 1947 based on historical aerial imagery; Appendix C), there is a low likelihood for the proposed works to impact potential SAR and/or SAR habitat. No SAR were observed during the SAR assessment.

#### Butler's Gartersnake

Butler's Gartersnake habitat is characterized by open areas with dense grasses (e.g. meadow, grasslands, old fields, tallgrass prairie) often in close proximity to wet areas (e.g. marshes, small bodies of water; COSEWIC, 2010). The Project Location is dominated by agriculture and maintained lawn, with a narrow strip of vegetation (i.e. treed fencerow; Appendix C). As such, the Project Location would not represent suitable Butler's Gartersnake habitat.

#### SAR Bats

During the tree inventory, cavities were observed in two trees (tree 13 and tree 180; Appendix C). With the presence of tree cavities, suitable SAR bat roosting habitat is present. As such, tree removal for these specific trees should be conducted outside of the active bat active season (no removal between April 1 to September 30). Should removals be required during this season, appropriate bat exit surveys should be conducted by a qualified biologist. Ideally, bat exit surveys should be conducted during June. Each candidate roost should be monitored on two separate evenings under appropriate weather conditions (i.e., temperature above 10 degrees Celsius, no rain, and low wind). Monitoring should take place from 30 minutes before sunset until 60 minutes after sunset.

### Kentucky Coffee-tree

Although not identified during the preliminary screening for SAR, Kentucky Coffee-tree (listed as Threatened under the ESA) was observed during the tree inventory. Twenty Kentucky Coffee-tree were observed in the southeastern part of the Project Location. Kentucky Coffee-tree typically grow in rich floodplain woodlands and woodland edges of marshes (COSEWIC, 2000), but they are also frequently planted as an ornamental tree. As planted populations can be fairly common, they are not considered within the Kentucky Coffee-tree recovery strategy (Environment Canada, 2014). Considering the current and past land use, the Project Location does not constitute suitable, natural habitat (Appendix C). Looking at historical aerial imagery from 1947, the area around the Kentucky Coffee-tree location has several small structures/houses with dominant agriculture on adjacent lands. Based on aerial imagery, we believe at least one Kentucky Coffee-tree was planted within this area at some time in the past. Since then, the structures/houses have been removed, the greater area has been developed, and we believe the planted Kentucky Coffee-tree(s) have spread clonally. Nevertheless, according to the site plan, 17 of the 20 Kentucky Coffee-tree that were observed are proposed to be retained. Please refer to Section 5.0 below for tree preservation details.

## 5.0

# Tree Preservation and Removals

This section provides preliminary recommendations for tree removal and preservation. A summary of the analysis used to determine tree retention or removal is also provided. Based on the current site plan (including building envelopes, hard surfaces, etc.), of the 310 trees identified within the Study Area, 78 are observed to be preserved (58 client-owned trees and 20 not client-owned trees). Refer to Appendix A; Figure 2 for the locations of identified trees in relation to the site plan. It should be noted that during detailed design, effort will be made to retain as many other trees as possible as landscaping trees.

## 5.1

## Tree Removals

Of the inventoried trees, 232 trees are required to be removed (225 client-owned trees and seven not client-owned trees). The seven not client-owned trees are located within the Leathorne Street ROW and are City-owned subject to by-law 135-2004 Trees on Highways.

Ten client-owned trees in the southeastern part of the Project Location were observed to already be marked for removal. During the tree inventory, it was assumed that the City had marked these trees for removal due to their poor condition and their close proximity to the sidewalk on the western side of Banwell Road. During a recent meeting with the City (March 21, 2023), the City indicated that the trees were not marked by them, but likely by a local resident. The City concluded the 10 marked trees can be removed without compensation.

Trees recommended for removal are symbolized in red (client-owned) and orange (not client-owned) on the Tree Inventory figure (Appendix A) and are identified in the tree inventory table (Appendix D). Of the 232 trees identified for removal, 106 trees are in excellent condition, 84 trees are in good condition, 18 trees are in fair condition, 14 trees are in poor condition, and 10 trees are dead.

Client-owned tree removals should be conducted by qualified and ISA-certified arborist following best arboricultural practices. Removal activities should avoid or minimize impacts to adjacent trees to be preserved (as identified below), and timing of removals should consider the project schedule of other construction activities (e.g. conduct removals following the installation of site fencing and/or tree protection fencing).

## 5.2

## Tree Preservation

Of the inventoried trees, 78 are recommended to be retained (58 client-owned trees and 20 not client-owned trees).

During the detailed design stage, if any trees are to be retained, it is important to consider the potential impacts of construction activities on preserved trees. These impacts may include changes to soil conditions due to alterations in grade, as well as physical damage. Compaction of the soil, either by design or due to using heavy machinery within root zones, can affect root systems during construction. Similarly, the placement or removal of fill material within a root zone can cause root system impairments (e.g. lack of oxygen). Trees require a loosely compact soil medium for root growth, oxygen uptake, and absorption of water and nutrients. Soil compaction and grading changes within the root zone can inhibit root growth and function, and these impacts have the potential to result in a decline in the overall condition of a tree. In addition, accidental contact between construction equipment and trees can cause physical damage to the trunk and crown.

The following recommendations are provided regarding the trees to be preserved.

### 5.2.1 Pre-construction Maintenance

Prior to construction activities, overhanging limbs of trees to be preserved should be pruned in a manner that minimizes physical damage and promotes quick wound closure and regeneration. Maintenance of limbs should be carried out by a qualified arborist.

Trees recommended for preservation which have declined in condition or become hazardous since the writing of this report should be reassessed by an arborist upon commencement and/or completion of construction and removed.

### 5.2.2 Tree Protection Measures

A tree's Critical Root Zone (CRZ) is the below-ground area containing the primary roots that are most critical to its survival and which are most susceptible to disturbance impacts. The size of the CRZ is typically proportional to the tree's age and stem diameter, and can be estimated as a circular area around the tree's stem, with a radius calculated based on the tree's DBH (Appendix A, Figure 2).

To minimize the impact of adjacent construction work, a Tree Protection Zone (TPZ) should be established for each tree to be retained. The intent of a TPZ is to protect a tree's roots and soil to ensure impacts on overall health and stability are minimized. The TPZ would align with the CRZ. An example of tree protection fencing is provided in Appendix E.

The TPZ calculated for trees to be preserved was made using a standard calculation from the ISA. The TPZ is calculated by multiplying the DBH by 12 and dividing by 100 to provide the TPZ in metres (Appendix D). Protection fencing should be installed at the edge of the TPZ, where possible. The fenced TPZ should be clear of building materials, waste, soil stockpiles, and construction equipment. Subject to finalization of construction plans, the following activities should not occur within the TPZ:

- Construction;
- Altering of grade by adding fill, excavating, trenching, scraping, dumping, or disturbance of any kind;
- Storage of construction materials, equipment, soil, construction waste, or debris;
- Disposal of any liquids (e.g. concrete slurry, gas, oil, paint);
- Movement of vehicles, equipment, or pedestrians; and
- Parking of vehicles or machinery.

If the above recommendations are followed, potential impacts to root zones from compaction are expected to be minor and localized. There should be no excavation (e.g. stripping or trenching) within the TPZ though in some instances, a TPZ which extends into the construction zone may require minor adjustments to facilitate access for construction personnel, equipment and may require excavation.

Directional micro-tunneling, track boring, and other sub-surface drilling can generally be undertaken within the limits of a TPZ without impacts on the respective tree, depending on the depth of drilling. Open-face cuts that require root pruning within a TPZ should be completed under the supervision of an ISA Certified Arborist or approved tree professional. An exploratory dig to expose the roots that may be impacted can be completed either by hand, using an air pressure dry-vac method (low air pressure has less impact on roots); air spade or other suitable alternative should be completed prior to commencing with open face cuts within the TPZ.

### 5.2.3 Post-construction Tree Maintenance and Monitoring

Post-construction tree maintenance methods will be used as required to repair any damage caused to trees by construction activities. These include, but are not limited to the following:

- Treating trunk and crown injuries (e.g. pruning, cabling, bracing, repairing wounds to damaged bark and trunks, etc.);
- Irrigation and drainage;
- Mulching; and
- Aeration of the root zone for compacted areas.

Within 12 months of the completion of construction, an assessment of preserved trees, if available, within the Project Location should be conducted. Trees which are dead, in poor health, or hazardous should be removed or pruned, as determined by a qualified arborist. Tree removal should occur prior to home occupancy to avoid foreseeable risk of trees falling and causing damage or harm to people and/or property.

Compensation plantings should be monitored periodically after construction to ensure survival. Should tree condition decline, necessary steps should be taken to ensure that the impacted trees are restored or replaced.

Post-construction maintenance and monitoring are to be carried out by a qualified arborist skilled in the above-listed methods.

### 5.3 Compensation for Tree Removals

A Landscape and Planting Plan, detailing where tree compensation will occur and what species are recommended for planting will be submitted to the City after exact development extents are known and therefore, the number of trees to be preserved is also and following Site Plan Control Approval.

Upon finalization of the Landscape and Planting Plan, and subject to discussion with the City, compensation in the form of landscape trees (e.g. within parks, lots, or boulevards) and/or restoration plantings on- or off-site may be required.

Species, condition, size/DBH, and other characteristics of existing trees should be considered in discussions regarding fair compensation for removals. For compensation on the client-owned trees, we recommend that DBH replacement for excellent (99), good (79), and fair (14) trees that are also not already marked for removal (192 total trees) may be appropriate to determine the number of plantings required or equal monetary compensation.

## Conclusion

Dillon Consulting Limited was retained by 1027458 Ontario Inc., to undertake a Tree Inventory and Preservation Study to support a proposed development located at northwest and southwest of McHugh Street and Banwell Road in the City of Windsor. An inventory of trees and SAR habitat assessment was completed on February 8 and 15, 2023 and 310 trees were documented. To facilitate construction of the proposed development, 215 client-owned, private trees that are also not already marked for removal are required to be removed. A total of 78 trees (58 client-owned trees and 20 not client-owned trees) are recommended for preservation during construction, however it should be noted that during detailed design, effort will be made to retain as many other trees as possible as landscaping trees. Detailed recommendations for tree removals, maintenance, and preservation were provided.

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# Appendix A

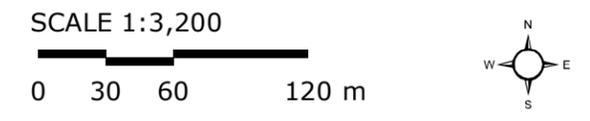
## Figures



**1027458 ONTARIO INC.  
BANWELL AND MCHUGH -  
MIXED USE DEVELOPMENT**  
TREE INVENTORY AND  
PRESERVATION STUDY

**PROJECT LOCATION**  
FIGURE 1

- Project Location (8.45 ha)
- Study Area (6 m buffer)
- Collector
- Local Road
- Railway
- Constructed Drain



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-27

# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

TREE INVENTORY AND  
PRESERVATION STUDY

## PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2A

 Project Location (8.45 ha)

 Study Area (6 m buffer)

 Collector

 Proposed Development

### Tree Inventory

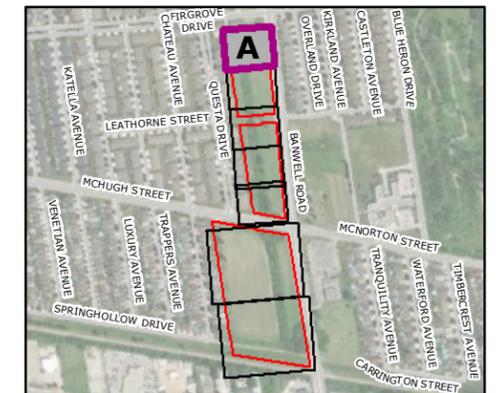
 Tree to be Retained

 Tree to be Removed

 Tree to be Retained (not client-owned)

 CRZ

BANWELL ROAD



SCALE 1:350

0 4 8 16 m

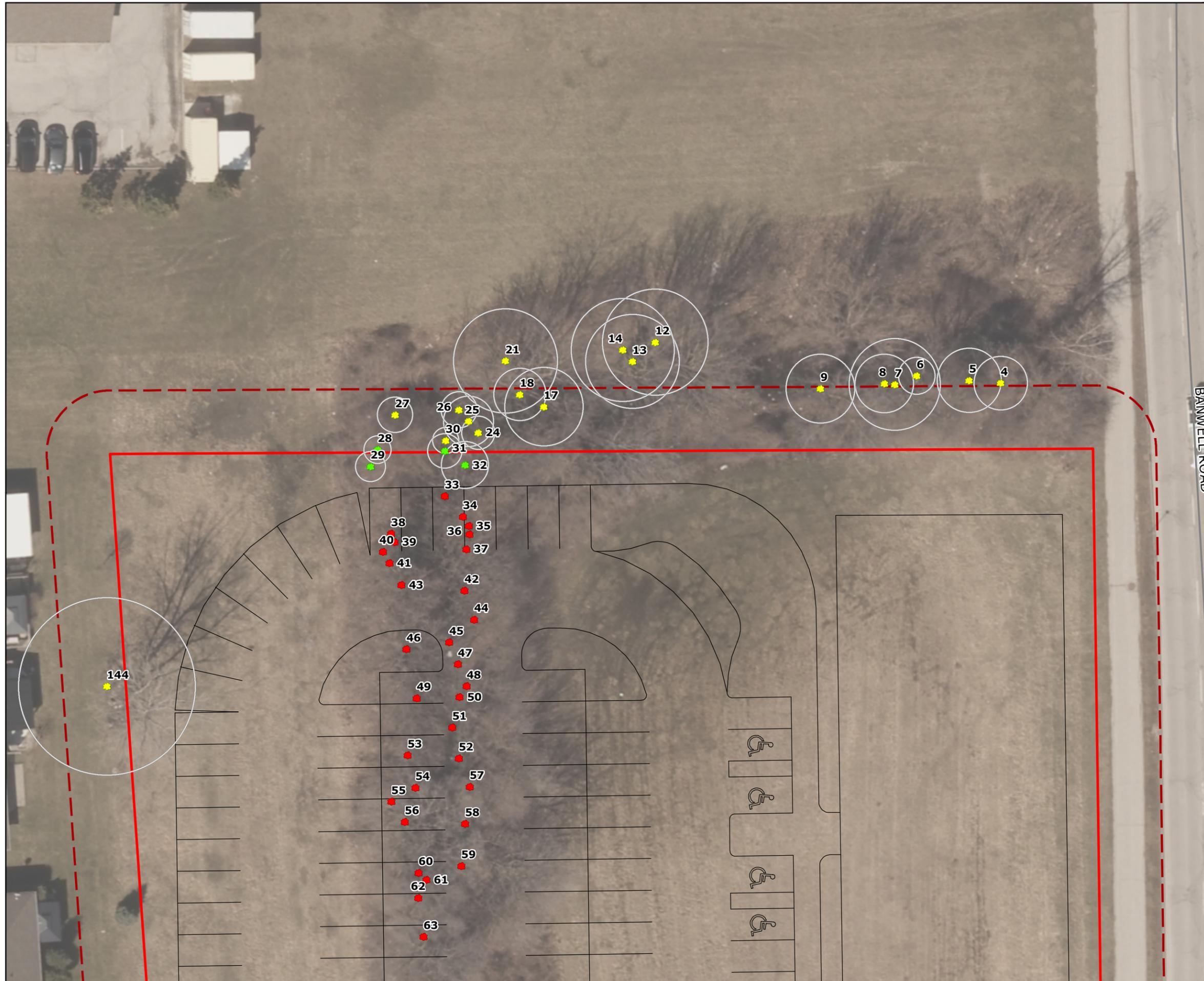


MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28





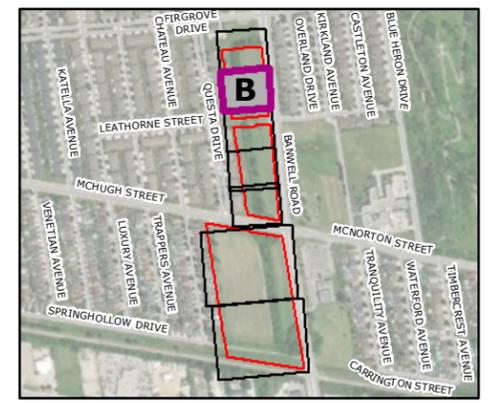
BANWELL ROAD

# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

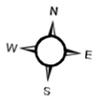
## TREE INVENTORY AND PRESERVATION STUDY

### PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2B

- Project Location (8.45 ha)
  - Study Area (6 m buffer)
  - Collector
  - Proposed Development
- Tree Inventory**
- Tree to be Removed



SCALE 1:350



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



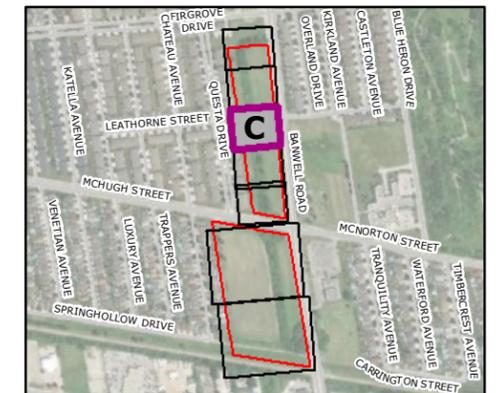
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STATUS: DRAFT  
DATE: 2023-03-28

# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

## TREE INVENTORY AND PRESERVATION STUDY

### PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2C

-  Project Location (8.45 ha)
  -  Study Area (6 m buffer)
  -  Collector
  -  Local Road
  -  Proposed Development
- Tree Inventory**
-  Tree to be Removed
  -  Tree to be Retained (not client-owned)
  -  Tree to be Removed (not client-owned)
  -  CRZ



SCALE 1:350

0 4 8 16 m



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28



# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

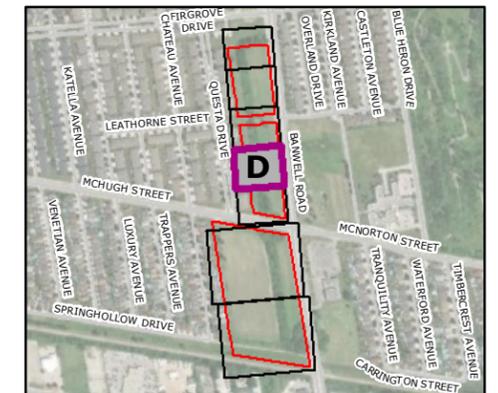
TREE INVENTORY AND  
PRESERVATION STUDY

## PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2D

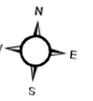
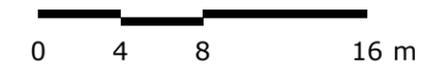
-  Project Location (8.45 ha)
-  Study Area (6 m buffer)
-  Proposed Development

### Tree Inventory

-  Tree to be Removed



SCALE 1:350



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28



# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

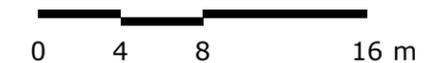
TREE INVENTORY AND  
PRESERVATION STUDY

## PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2E

-  Project Location (8.45 ha)
  -  Study Area (6 m buffer)
  -  Collector
  -  Proposed Development
- Tree Inventory**
-  Tree to be Retained
  -  Tree to be Removed
  -  CRZ



SCALE 1:350



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28



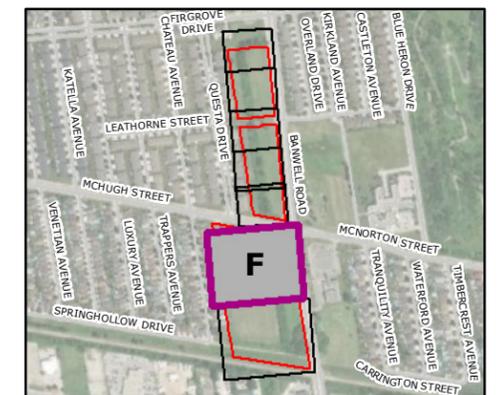


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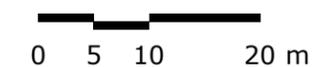
TREE INVENTORY AND  
PRESERVATION STUDY

## PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS FIGURE 2F

- Project Location (8.45 ha)
  - Study Area (6 m buffer)
  - Collector
  - Proposed Development
- Tree Inventory**
- Tree to be Retained
  - Tree to be Removed
  - CRZ



SCALE 1:650



MAP DRAWING INFORMATION:  
DATA PROVIDED BY MNR, CITY OF WINDSOR, ESRI AERIAL IMAGERY

MAP CREATED BY: DDR  
MAP CHECKED BY: BTM  
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28

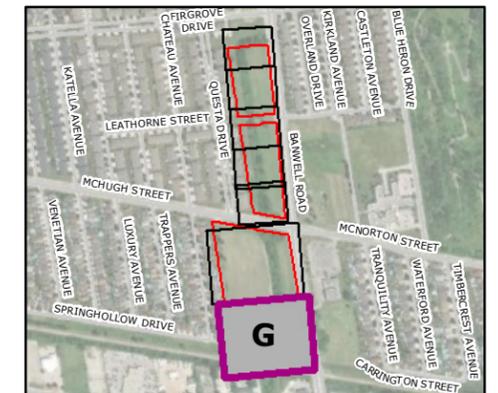
# 1027458 ONTARIO INC. BANWELL AND MCHUGH - MIXED USE DEVELOPMENT

TREE INVENTORY AND  
PRESERVATION STUDY

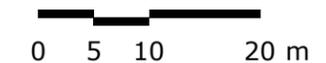
## PROPOSED DEVELOPMENT AND POTENTIAL IMPACTS

FIGURE 2G

-  Project Location (8.45 ha)
  -  Study Area (6 m buffer)
  -  Collector
  -  Railway
  -  Constructed Drain
  -  Proposed Development
- Tree Inventory**
-  Tree to be Retained
  -  Tree to be Removed
  -  Tree to be Retained (not client-owned)
  -  CRZ



SCALE 1:650

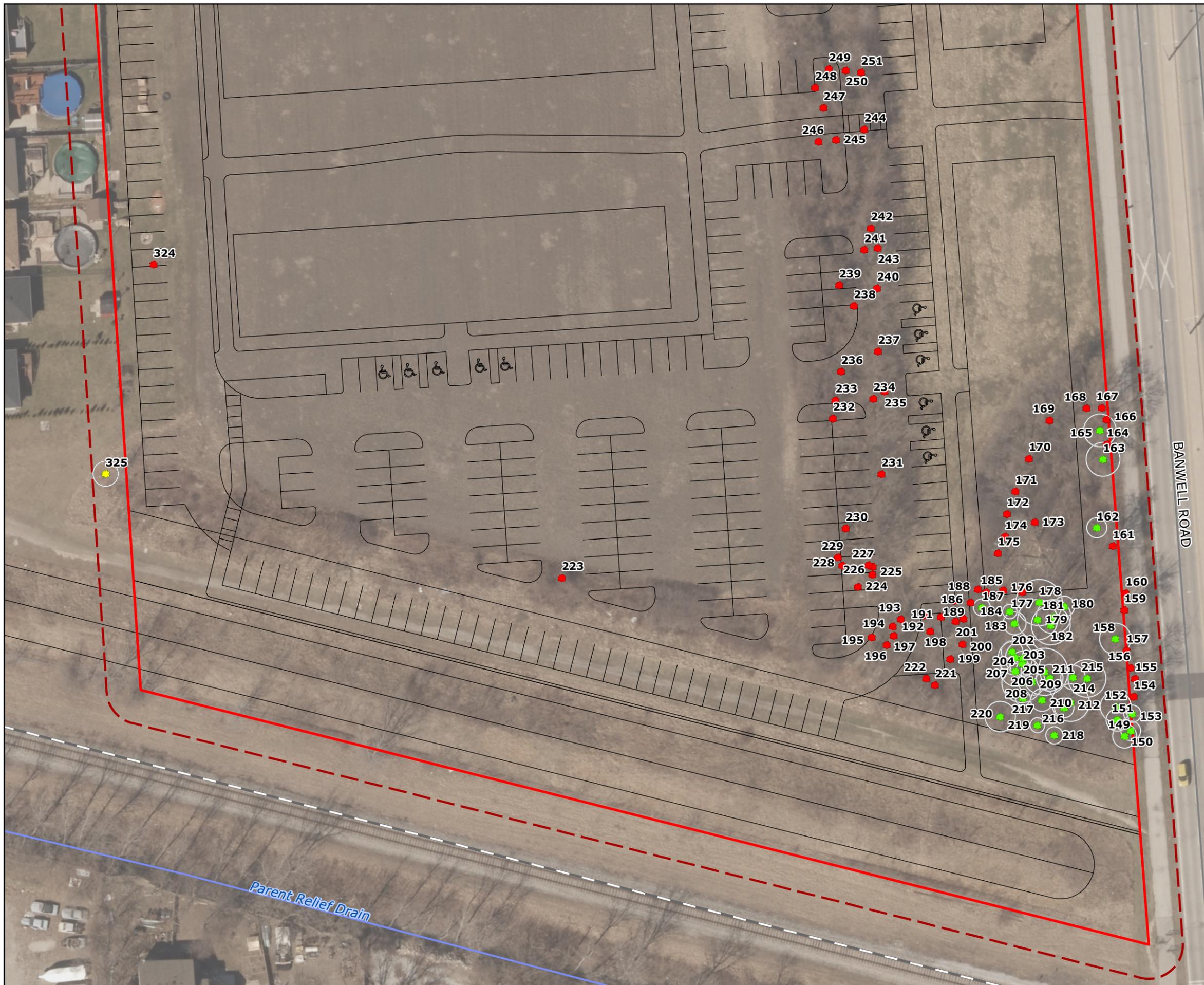


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DATA PROVIDED BY MNR. CITY OF WINDSOR, ESRI AERIAL IMAGERY

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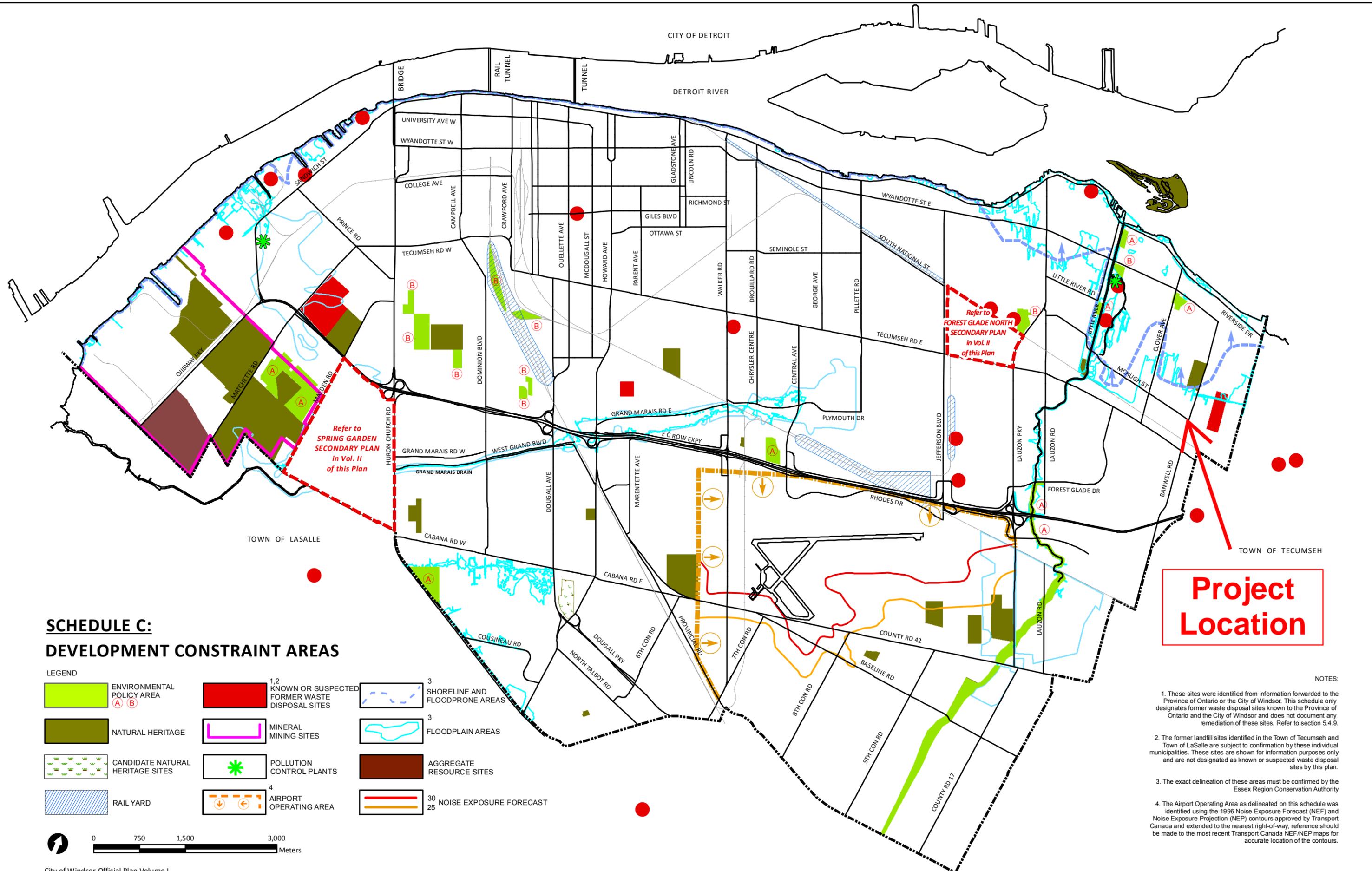


PROJECT: 22-5144  
STATUS: DRAFT  
DATE: 2023-03-28



# Appendix B

## Background Mapping



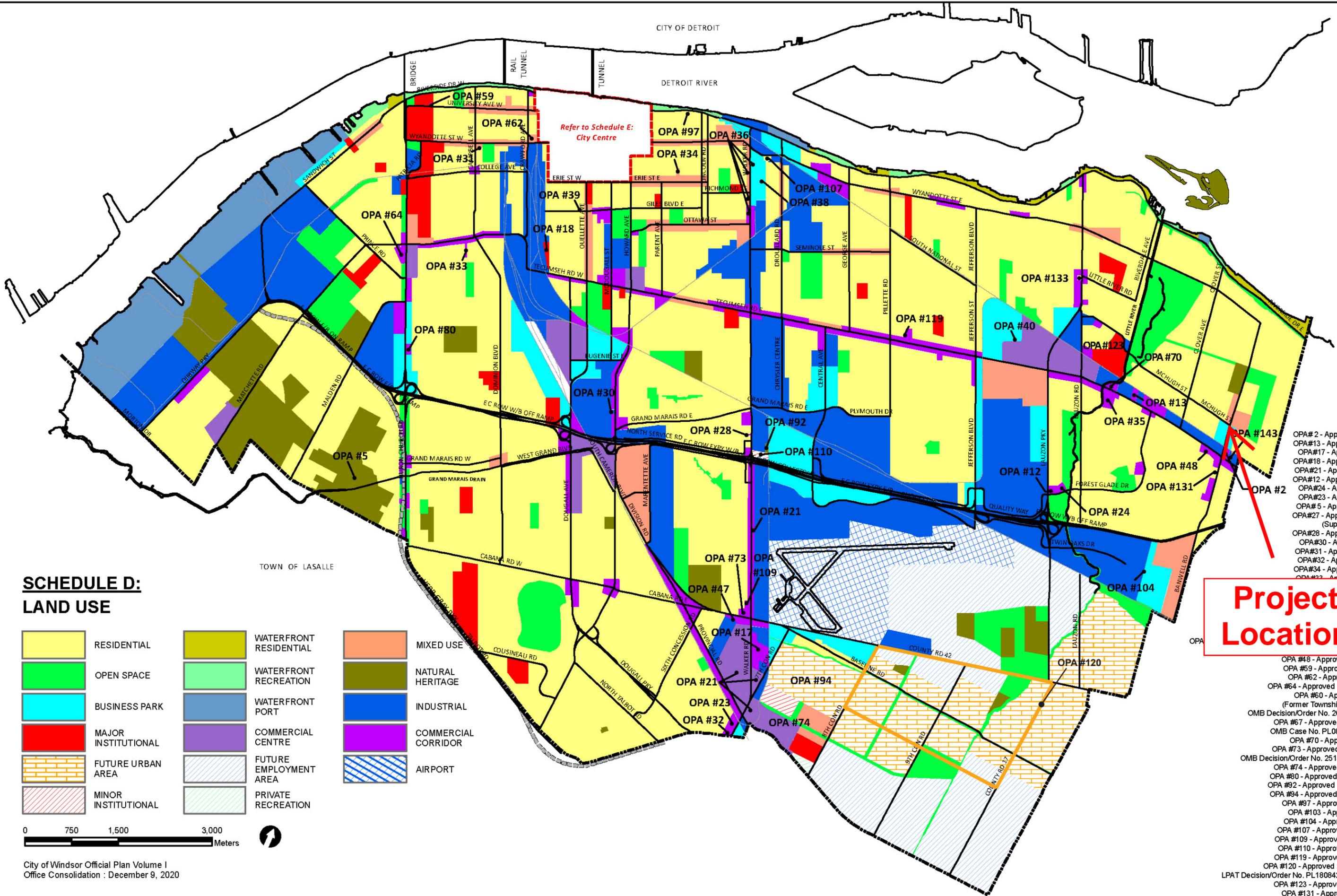
**SCHEDULE C:  
DEVELOPMENT CONSTRAINT AREAS**

LEGEND	
	ENVIRONMENTAL POLICY AREA (A) (B)
	NATURAL HERITAGE
	CANDIDATE NATURAL HERITAGE SITES
	RAIL YARD
	1,2 KNOWN OR SUSPECTED FORMER WASTE DISPOSAL SITES
	MINERAL MINING SITES
	POLLUTION CONTROL PLANTS
	4 AIRPORT OPERATING AREA
	3 SHORELINE AND FLOODPRONE AREAS
	3 FLOODPLAIN AREAS
	AGGREGATE RESOURCE SITES
	30/25 NOISE EXPOSURE FORECAST

**Project Location**

- NOTES:**
1. These sites were identified from information forwarded to the Province of Ontario or the City of Windsor. This schedule only designates former waste disposal sites known to the Province of Ontario and the City of Windsor and does not document any remediation of these sites. Refer to section 5.4.9.
  2. The former landfill sites identified in the Town of Tecumseh and Town of LaSalle are subject to confirmation by these individual municipalities. These sites are shown for information purposes only and are not designated as known or suspected waste disposal sites by this plan.
  3. The exact delineation of these areas must be confirmed by the Essex Region Conservation Authority
  4. The Airport Operating Area as delineated on this schedule was identified using the 1996 Noise Exposure Forecast (NEF) and Noise Exposure Projection (NEP) contours approved by Transport Canada and extended to the nearest right-of-way, reference should be made to the most recent Transport Canada NEF/NEP maps for accurate location of the contours.





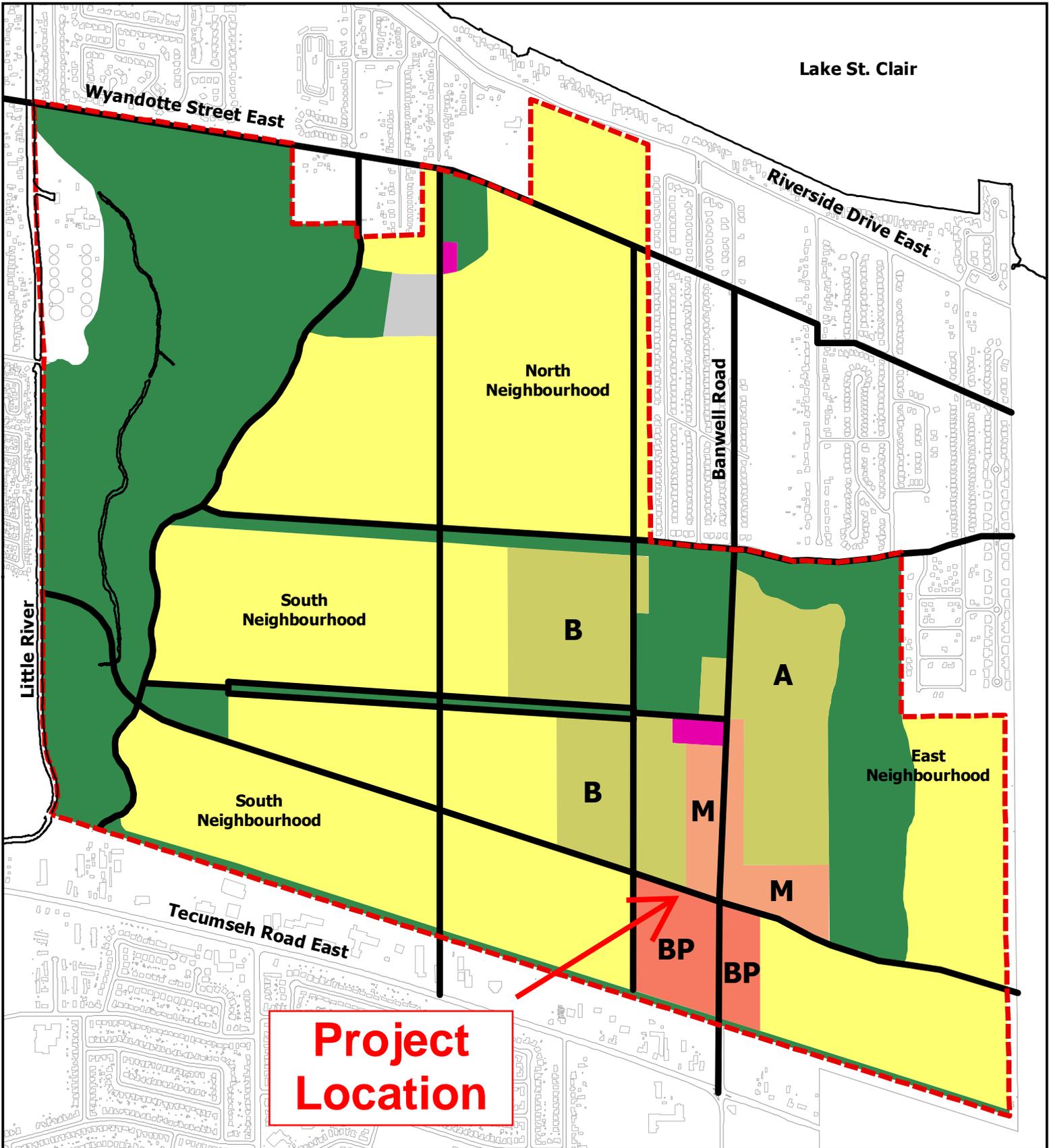
**SCHEDULE D:  
LAND USE**

	RESIDENTIAL		WATERFRONT RESIDENTIAL		MIXED USE
	OPEN SPACE		WATERFRONT RECREATION		NATURAL HERITAGE
	BUSINESS PARK		WATERFRONT PORT		INDUSTRIAL
	MAJOR INSTITUTIONAL		COMMERCIAL CENTRE		COMMERCIAL CORRIDOR
	FUTURE URBAN AREA		FUTURE EMPLOYMENT AREA		AIRPORT
	MINOR INSTITUTIONAL		PRIVATE RECREATION		



- AS AMENDED BY:
- OPA#2 - Approved: Dec. 11, 2000
  - OPA#13 - Approved: Nov. 22, 2001
  - OPA#17 - Approved: Jan. 3, 2002
  - OPA#18 - Approved: Mar. 15, 2002
  - OPA#21 - Approved: July 16, 2002
  - OPA#12 - Approved: Aug. 21, 2002
  - OPA#24 - Approved: Oct. 7, 2002
  - OPA#23 - Approved: Oct. 9, 2002
  - OPA#5 - Approved: Oct. 29, 2002
  - OPA#27 - Approved: Dec. 16, 2002 (Superseded by OPA #40)
  - OPA#28 - Approved: Dec. 16, 2002
  - OPA#30 - Approved: Apr. 7, 2003
  - OPA#31 - Approved: Apr. 14, 2003
  - OPA#32 - Approved: May 5, 2003
  - OPA#34 - Approved: May 20, 2003
  - OPA#22 - Approved: June 2, 2003
  - Aug. 11, 2003 by OPA #40
  - March 3, 2004
  - March 26, 2004
  - July 21, 2004
  - July 21, 2004 / OPA #131
  - May 10, 2005
  - OPA #48 - Approved: August 18, 2005
  - OPA #59 - Approved: March 27, 2007
  - OPA #62 - Approved: June 15, 2007
  - OPA #64 - Approved: September 20, 2007
  - OPA #60 - Approved: May 7, 2007 (Former Township of Sandwich South)
  - OMB Decision/Order No. 2667 - October 5, 2007
  - OPA #67 - Approved: December 4, 2015
  - OMB Case No. PL080049 - April 26, 2016
  - OPA #70 - Approved: April 20, 2009
  - OPA #73 - Approved: September 7, 2006
  - OMB Decision/Order No. 2513 - February 12, 2009
  - OPA #74 - Approved: December 4, 2009
  - OPA #80 - Approved: November 22, 2010
  - OPA #92 - Approved: September 19, 2016
  - OPA #94 - Approved: December 21, 2016
  - OPA #97 - Approved: October 6, 2014
  - OPA #103 - Approved: June 1, 2015
  - OPA #104 - Approved: June 24, 2015
  - OPA #107 - Approved: August 15, 2016
  - OPA #109 - Approved: February 6, 2017
  - OPA #110 - Approved: August 22, 2016
  - OPA #119 - Approved: October 15, 2018
  - OPA #120 - Approved: September 17, 2018
  - LPAT Decision/Order No. PL180842 - December 3, 2019
  - OPA #123 - Approved: January 21, 2020
  - OPA #131 - Approved: August 4, 2020
  - OPA #133 - Approved: November 9, 2020
  - OPA #143 - Approved: June 13, 2022

**Project Location**



Lake St. Clair

Wyandotte Street East

Riverside Drive East

North Neighbourhood

Banwell Road

South Neighbourhood

B

A

East Neighbourhood

South Neighbourhood

B

M

M

Tecumseh Road East

BP

BP

**Project Location**

# EAST RIVERSIDE PLANNING AREA

## SCHEDULE ER-2 : LAND USE PLAN



- |                                  |  |                           |
|----------------------------------|--|---------------------------|
| Residential Neighbourhood        | <b>M</b> Banwell Road Mixed Use Corridor | School Site               |
| <b>A</b> Core Residential Area A | <b>BP</b> Business Park                  | Open Space                |
| <b>B</b> Core Residential Area B | Institutional                            | Boundary of Planning Area |

Wyandotte Street East

Riverside Drive East

Banwell Road

Little River

RP1

NP2

NP1

LP1

LP2

LP3

CP1

CP2

RP2

NP4

RP4

NP3

LP4

LP5

RP4

LP6

RP3

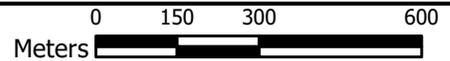
RP4

Tecumseh Road East

Project Location

# EAST RIVERSIDE PLANNING AREA

## SCHEDULE ER-3 : GREENWAY SYSTEM PLAN



- RP Regional Park
- CP Community Park
- NP Neighbourhood Park
- LP Local Park
- Boundary of Planning Area



- ### Legend
- Assessment Parcel
  - ANSI
  - Earth Science Provincially Significant/sciences de la terre d'importance provinciale
  - Earth Science Regionally Significant/sciences de la terre d'importance régionale
  - Life Science Provincially Significant/sciences de la vie d'importance provinciale
  - Life Science Regionally Significant/sciences de la vie d'importance régionale
  - Evaluated Wetland
  - Provincially Significant/considérée d'importance provinciale
  - Non-Provincially Significant/non considérée d'importance provinciale
  - Unevaluated Wetland
  - Woodland
  - Conservation Reserve
  - Provincial Park
  - Natural Heritage System

0 0.3 Kilometres

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

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Projection: Web Mercator



Search for Address

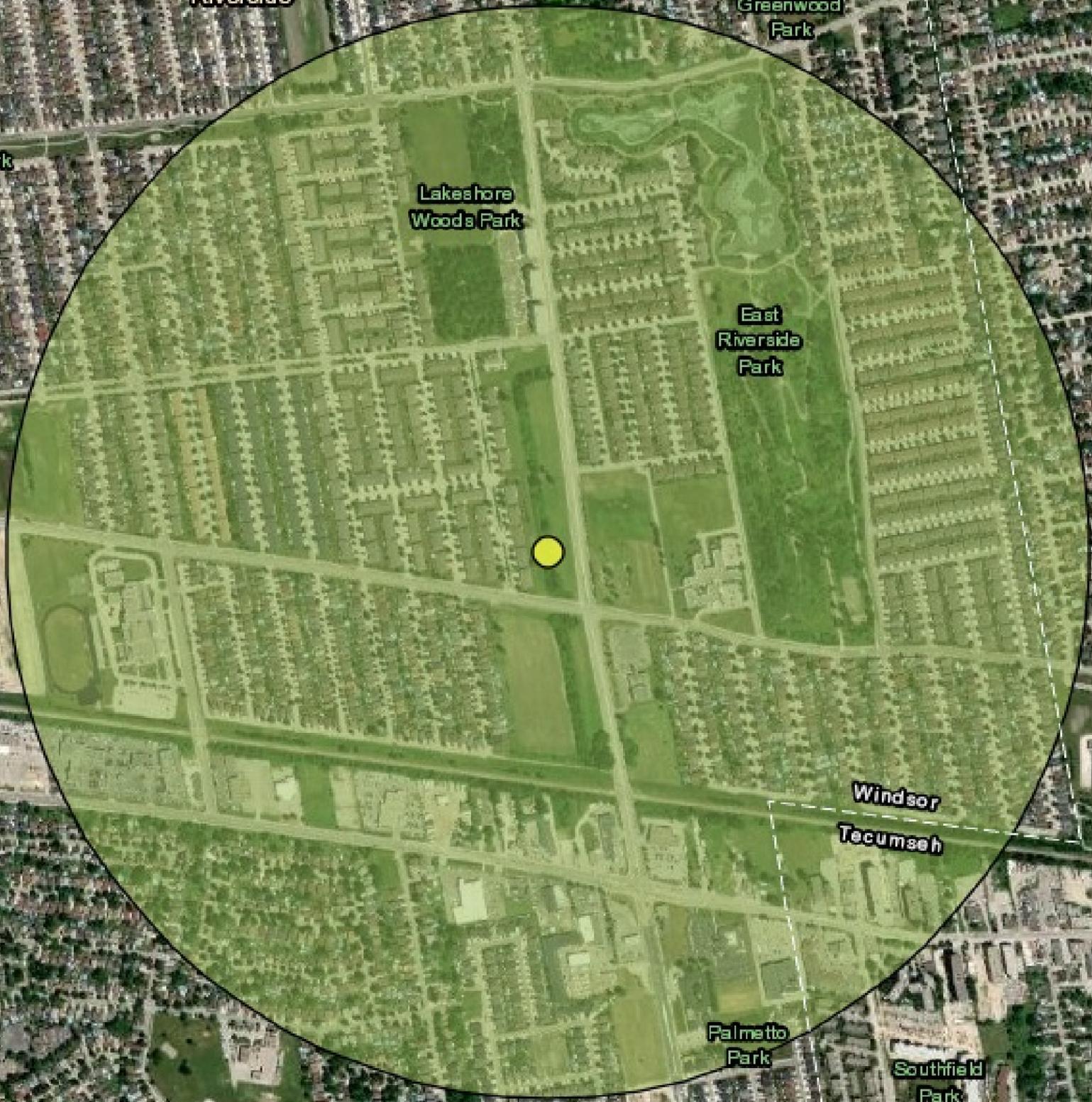
### Find Aquatic Species at Risk

Select Area Results

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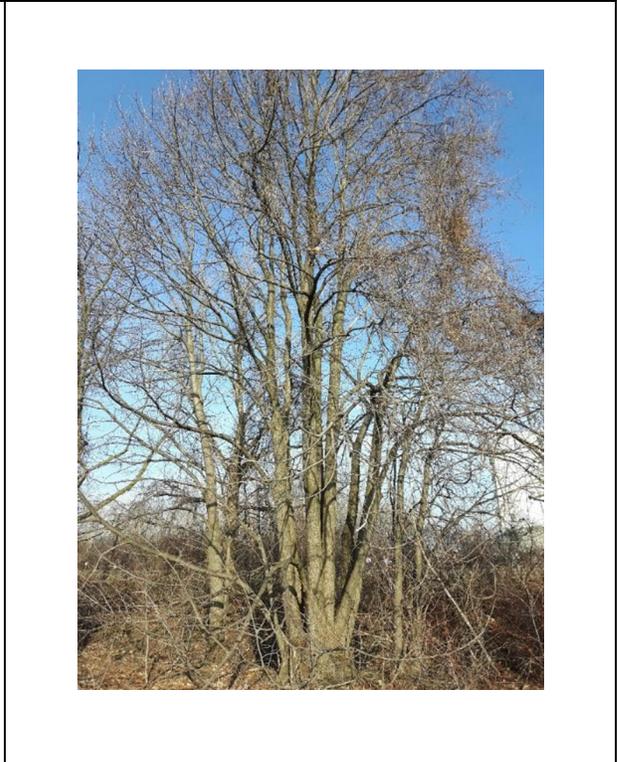
Critical habitat for these species is found within the outlined area:  
No critical habitat

Species at risk found (or potentially found) within the outlined area:  
No species found



# Appendix C

## Tree Photographs



Tree 4 (left): Bur Oak  
Tree 5 (right): American Basswood

Trees 8 (left), 7 (centre), and 6 (right): American Basswood



Tree 9: Bur Oak

Tree 12 (left): American Elm

	
<p>Tree 14 (left) and 13 (right): American Elm</p>	<p>Tree 17 (left): American Elm Tree 18 (right): American Basswood</p>
	
<p>Tree 21 (one left of far right): Bur Oak</p>	<p>Tree 24 (left): American Elm Tree 25 (centre) and 26 (right): American Basswood</p>



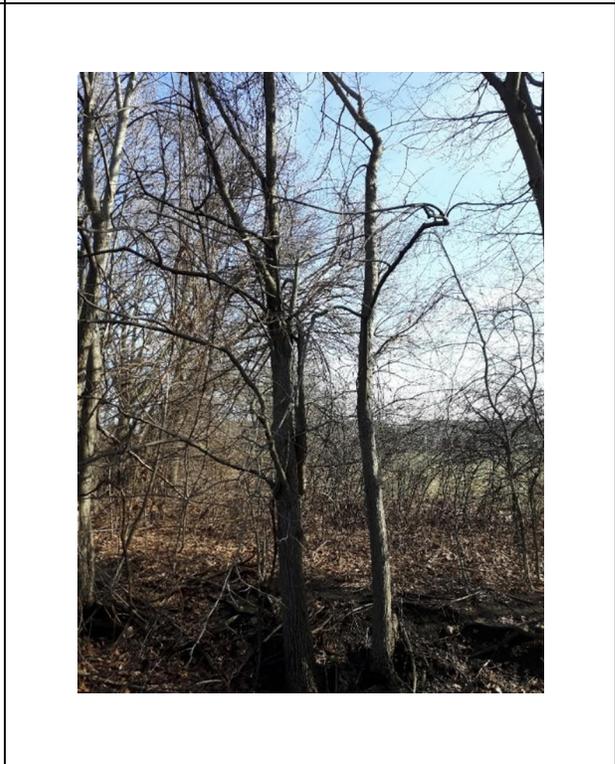
Tree 27: Hawthorn species



Tree 29 (left) and 28 (right): American Elm



Tree 30 (left), 31 (centre), and 32 (right): American Basswood



Tree 33: American Basswood

	
<p>Tree 37 (left), 36 (one right of left), 35 (one left of right), and 34 (right): American Basswood</p>	<p>Tree 41 (left), 40 (one right of left), and 39 (one left of right): American Basswood Tree 38 (right): Eastern Cottonwood</p>
	
<p>Tree 42-63: 5 Eastern Cottonwood, 4 American Basswood, 1 White Oak, 6 Bur Oak, 1 unknown, 4 American Elm, 1 Northern Red Oak</p>	<p>Tree 64: Eastern Red Cedar</p>



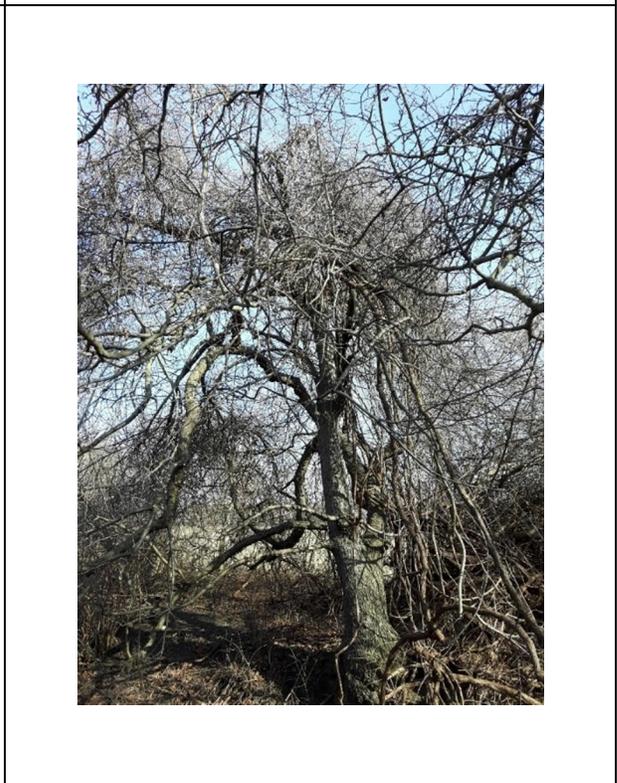
Tree 65: Cherry species



Tree 66: Eastern Cottonwood



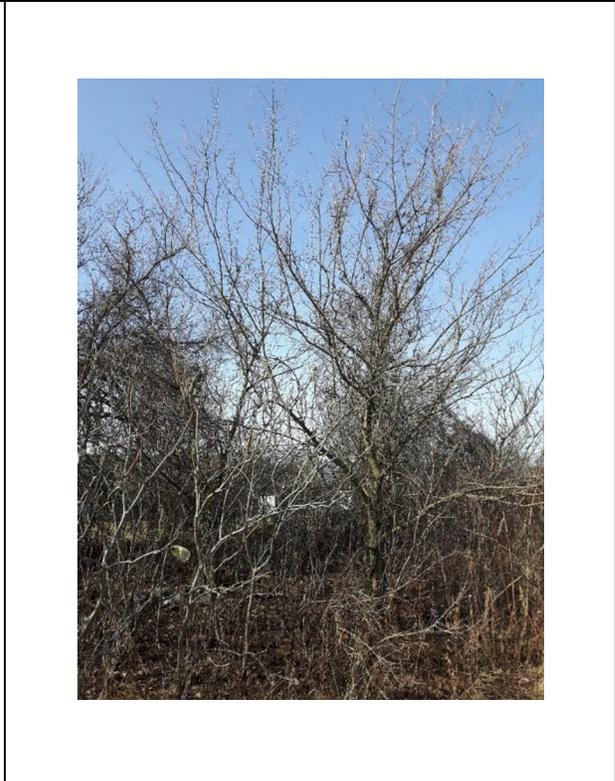
Tree 67: Eastern Cottonwood



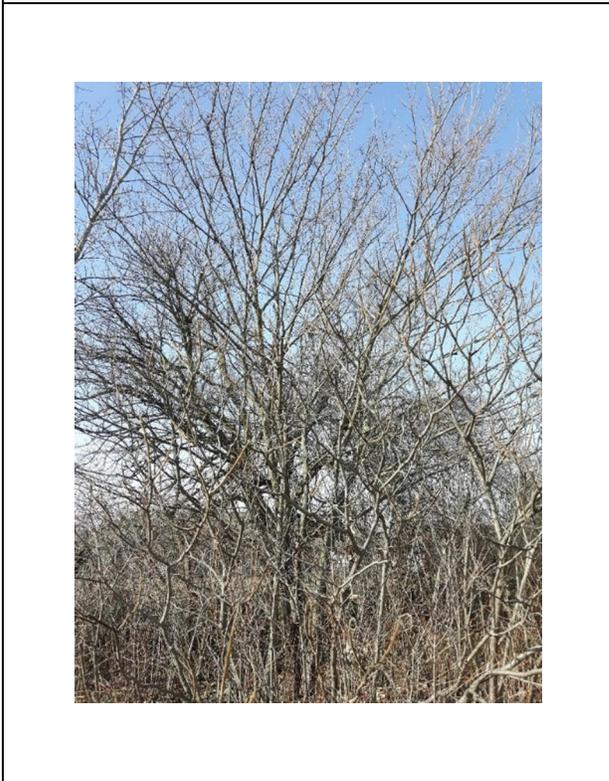
Tree 68: Wild Black Cherry



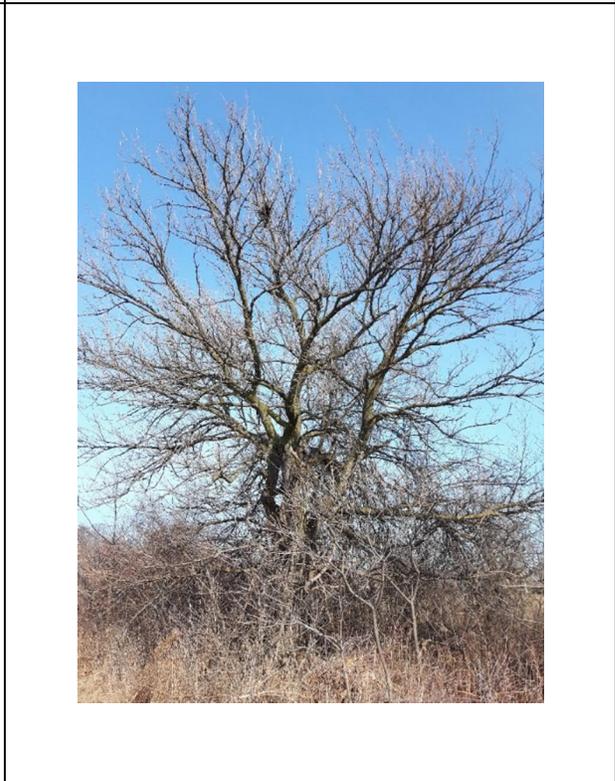
Tree 69: Hawthorn species



Tree 71 (left) and 70 (right): Eastern Cottonwood



Tree 72: Eastern Cottonwood



Tree 73: Eastern Cottonwood

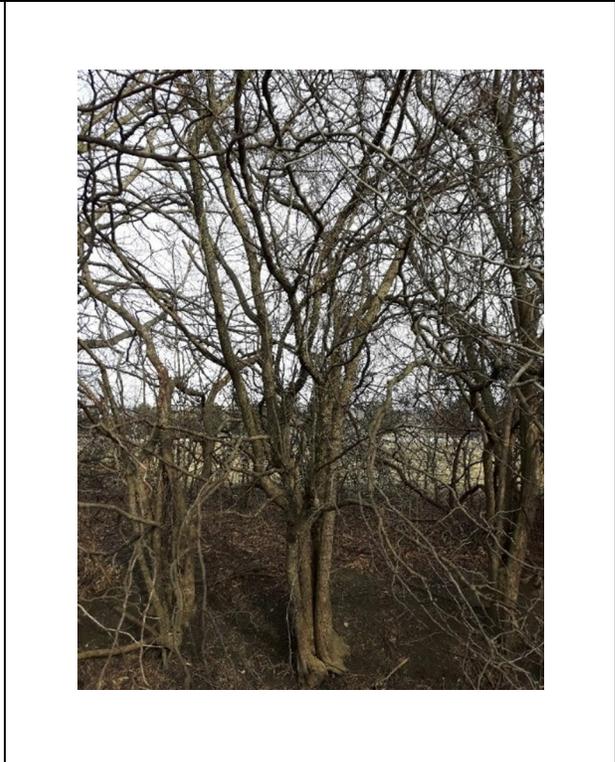
	
<p>Tree 74 (left) and 75 (right): Eastern Cottonwood</p>	<p>Tree 76 (left), 77 (centre), and 78 (right): Eastern Cottonwood</p>
	
<p>Tree 79: Eastern Cottonwood</p>	<p>Tree 80: Eastern Cottonwood</p>

	
<p>Tree 81-88: 8 Eastern Cottonwood</p>	<p>Tree 89: White Mulberry</p>
	
<p>Tree 90 (left): Hawthorn species Tree 91 (centre) and 92 (right): Cherry species</p>	<p>Tree 94 (left): Northern Red Oak Tree 93 (centre): Freeman's Maple Tree 95 (right): Hawthorn species</p>

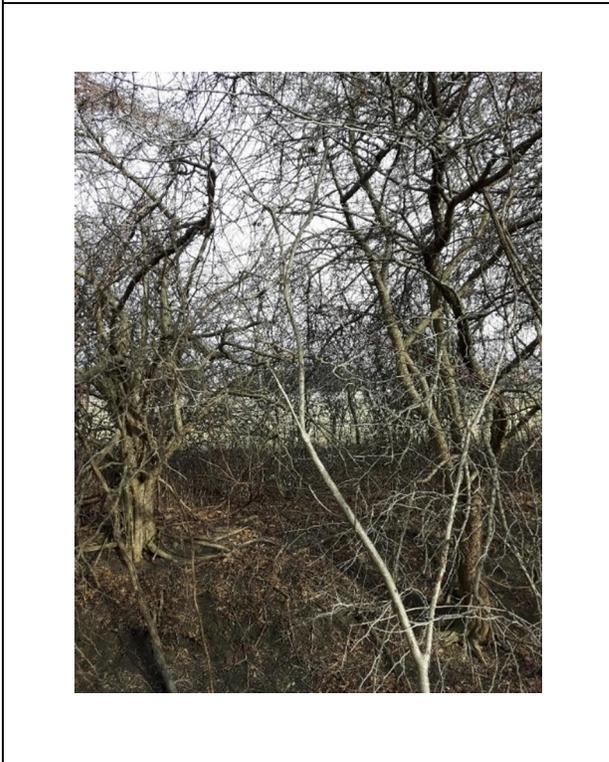
	
<p>Tree 96: Hawthorn species</p>	<p>Tree 97: Hawthorn species</p>
	
<p>Tree 98: Manitoba Maple</p>	<p>Tree 99 (left) and 100 (centre): Hawthorn species Tree 101 (right): Bur Oak</p>



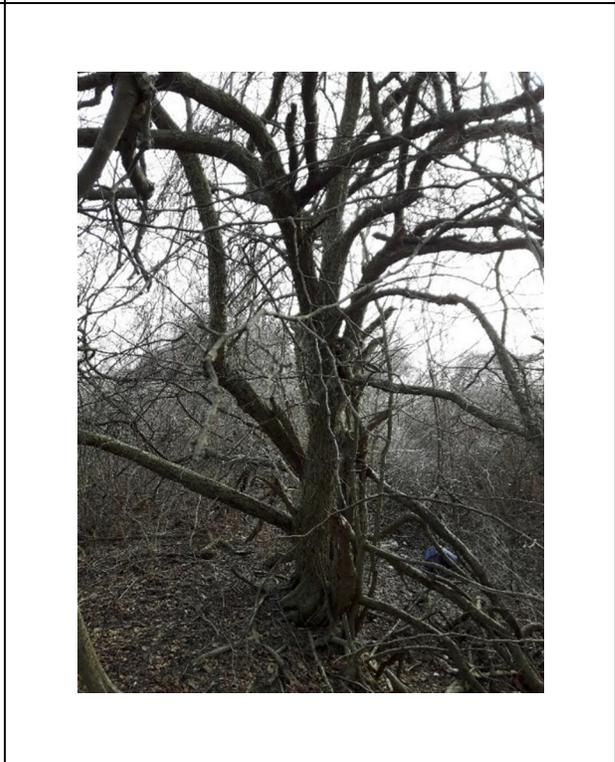
Tree 102: Hawthorn species



Tree 103 (left), 104 (centre), and 105 (right):  
Hawthorn species



Tree 106 (left) and 107 (right): Hawthorn species



Tree 108: Hawthorn species

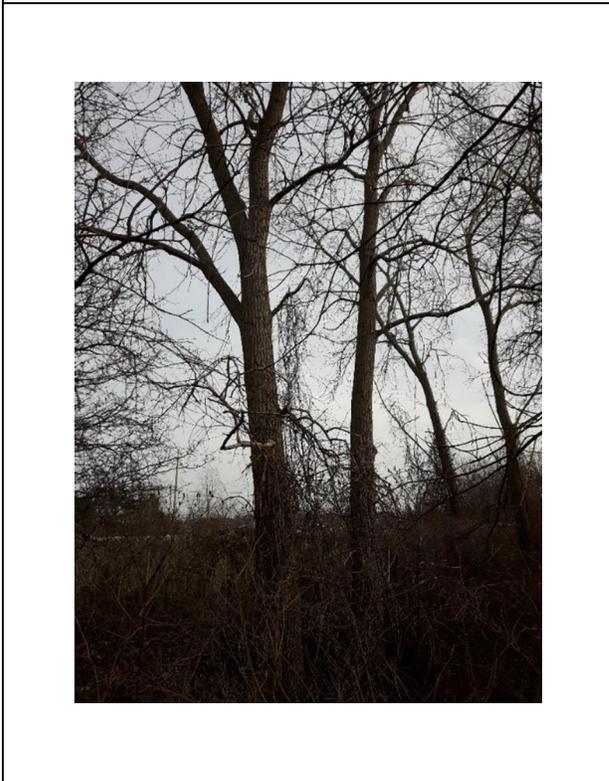
	
<p>Tree 109: Northern Red Oak</p>	<p>Tree 110: Manitoba Maple</p>
	
<p>Tree 111: Hawthorn species</p>	<p>Tree 112: Manitoba Maple</p>



Tree 113: Manitoba Maple



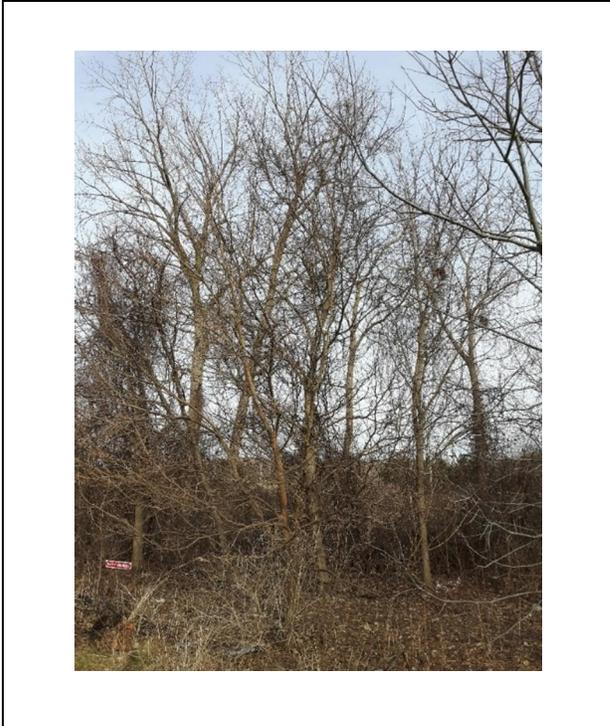
Tree 114: Manitoba Maple



Tree 115 (left) and 116 (right): Eastern Cottonwood



Tree 117: Manitoba Maple



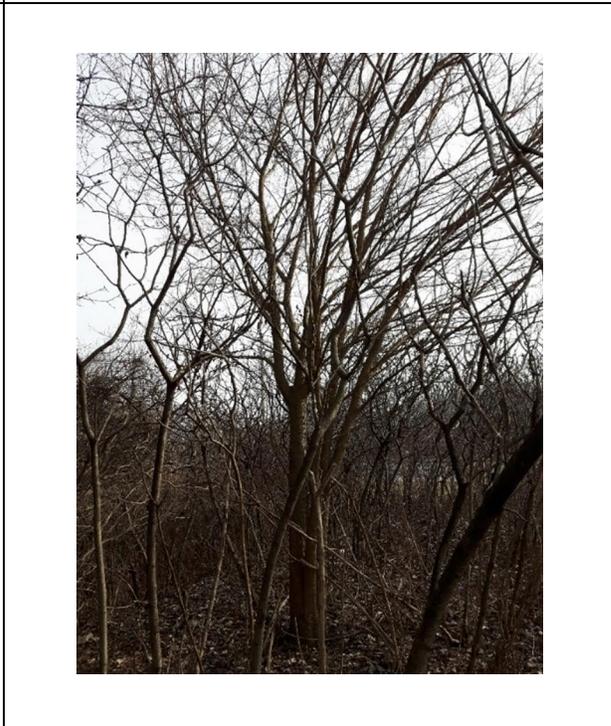
Tree 118 (left): White Mulberry  
Tree 119 (one right of left), 120 (one left of right), and  
121 (right): Manitoba Maple



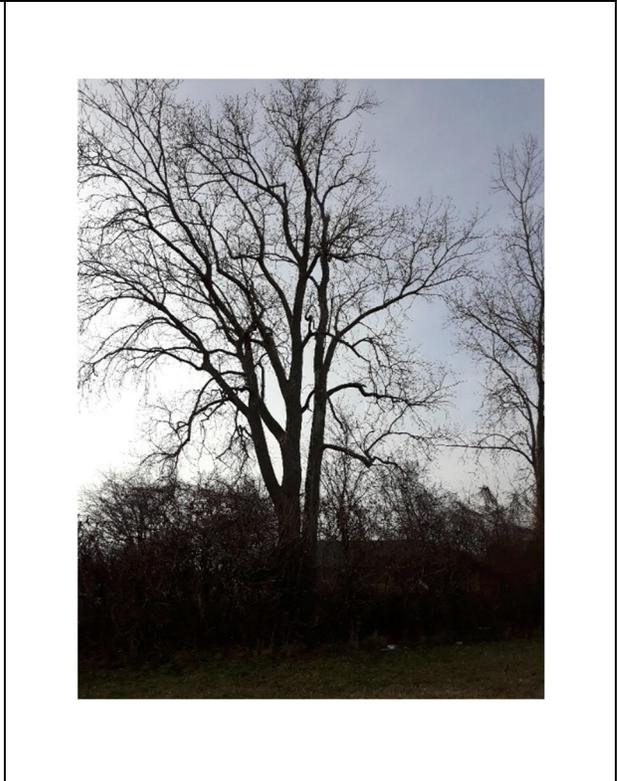
Tree 122 (left): Black Walnut  
Tree 123 (right): Manitoba Maple



Tree 124 (left): Manitoba Maple  
Tree 125 (right): Cherry species

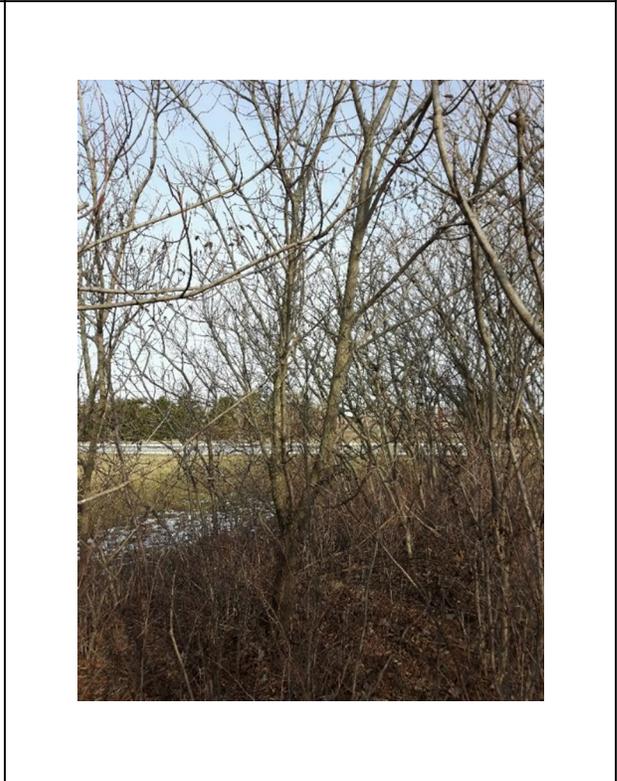
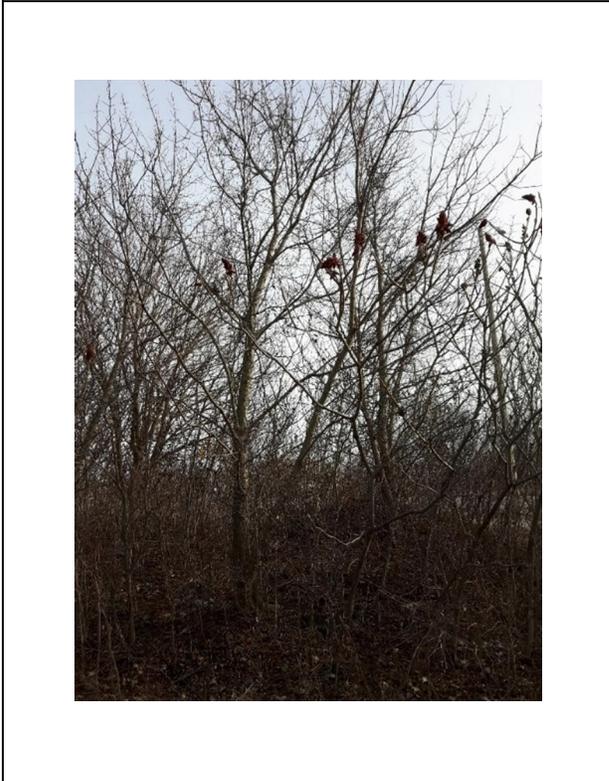


Tree 126: Manitoba Maple



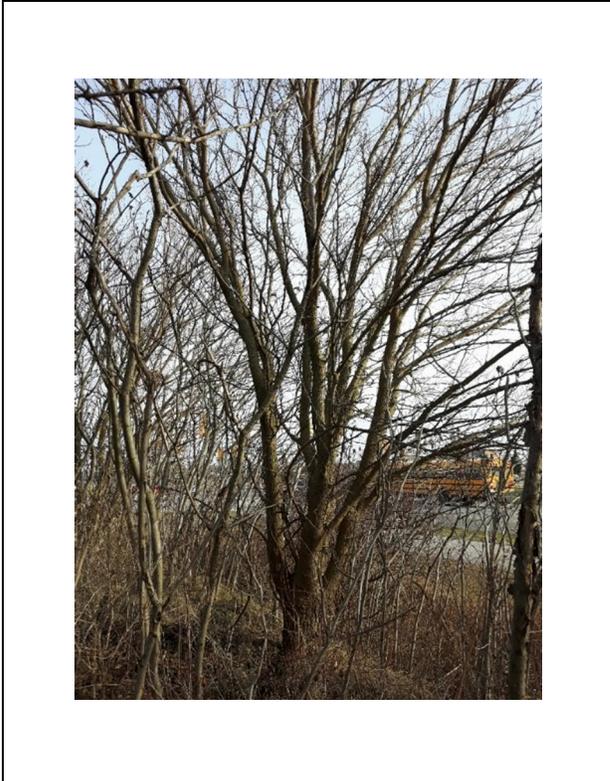
Tree 128 (left) and 127 (right): Eastern Cottonwood

Tree 130 (left) and 129 (right): Eastern Cottonwood

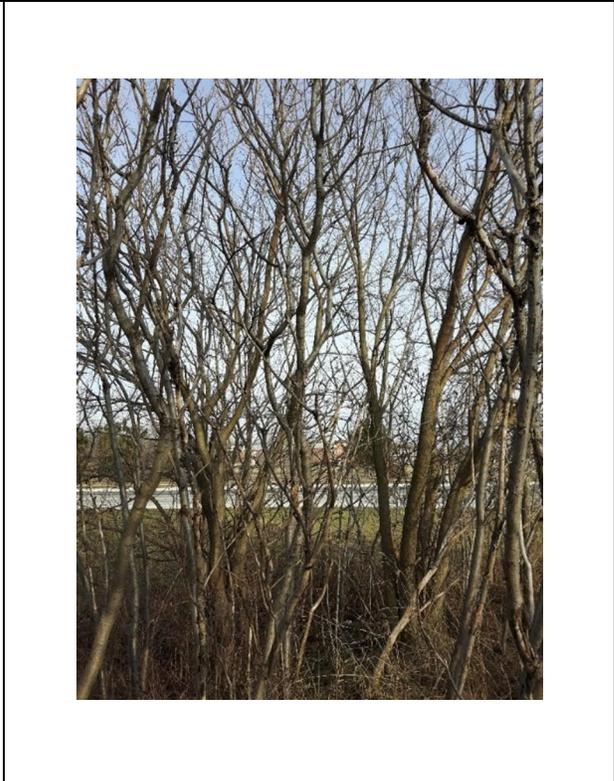


Tree 131 (left) and 132 (right): Manitoba Maple

Tree 133: Manitoba Maple



Tree 134: White Mulberry



Tree 135 (left) and 136 (right): White Mulberry



Tree 137: Willow species



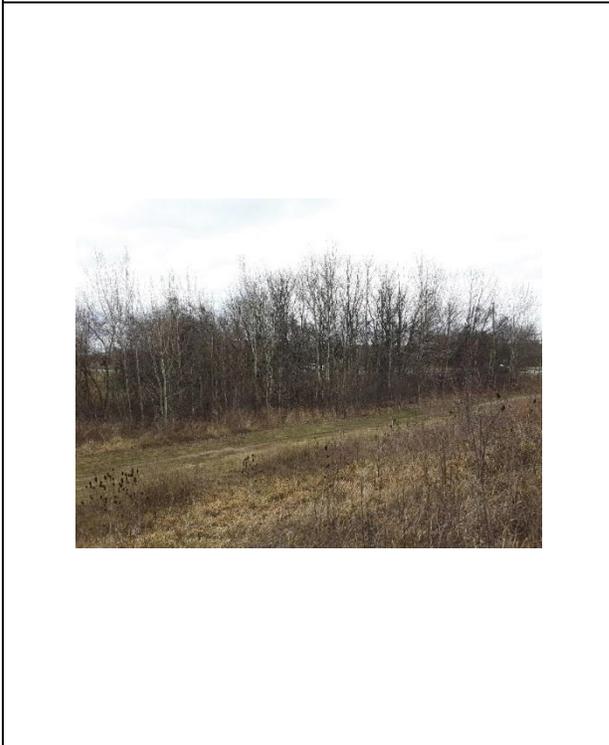
Tree 138-142: 5 Northern Red Oak



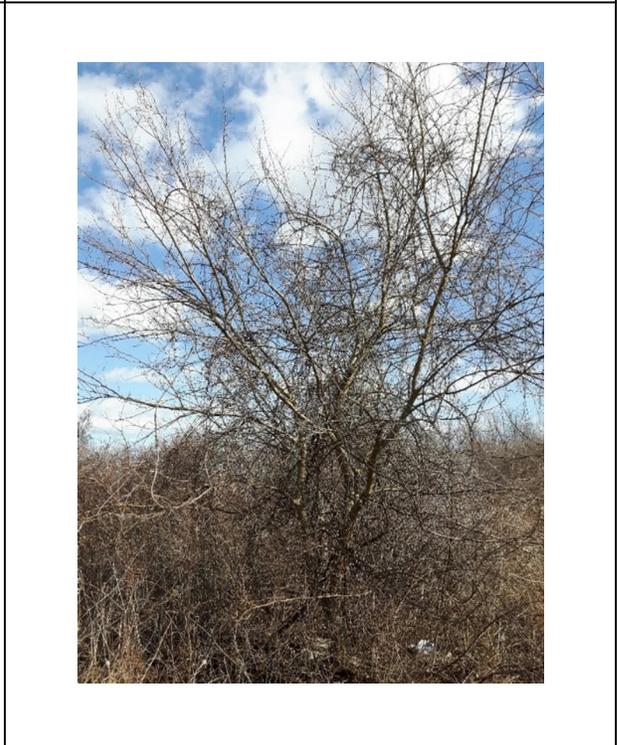
Tree 143: Freeman's Maple



Tree 144: Eastern Cottonwood



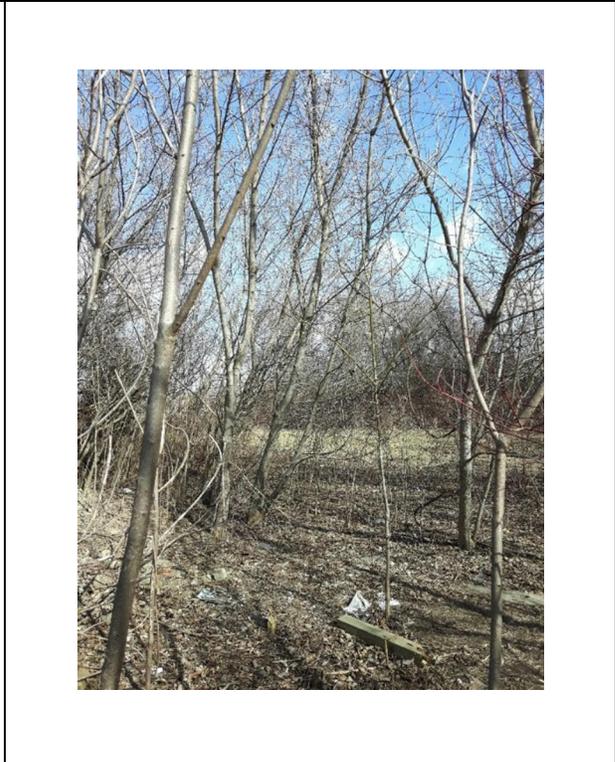
Tree 149-222: 21 Large-tooth Aspen, 27 Manitoba Maple, 3 Cherry species, 20 Kentucky Coffee-tree, and 3 unknown



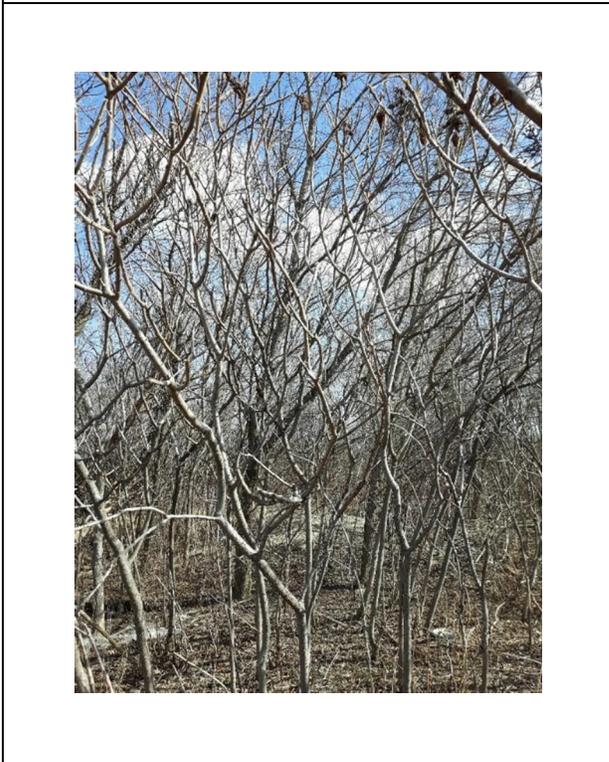
Tree 223: White Mulberry



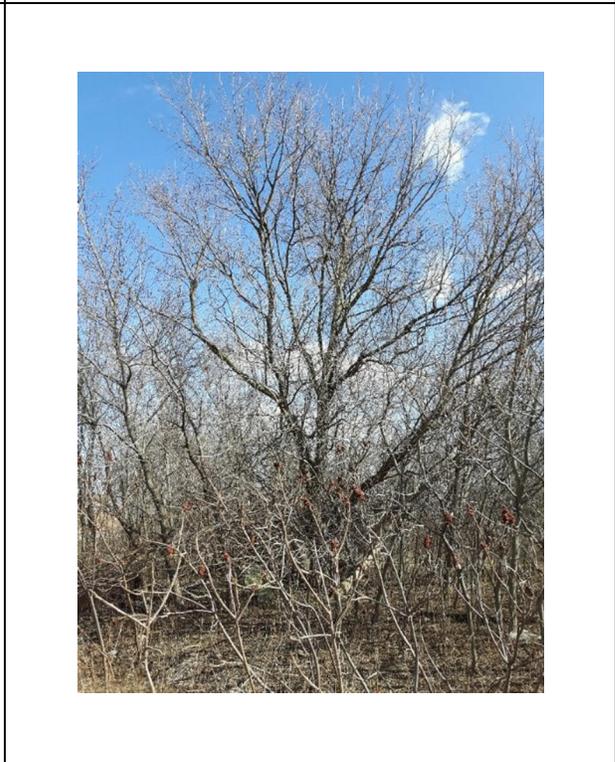
Tree 224: Manitoba Maple



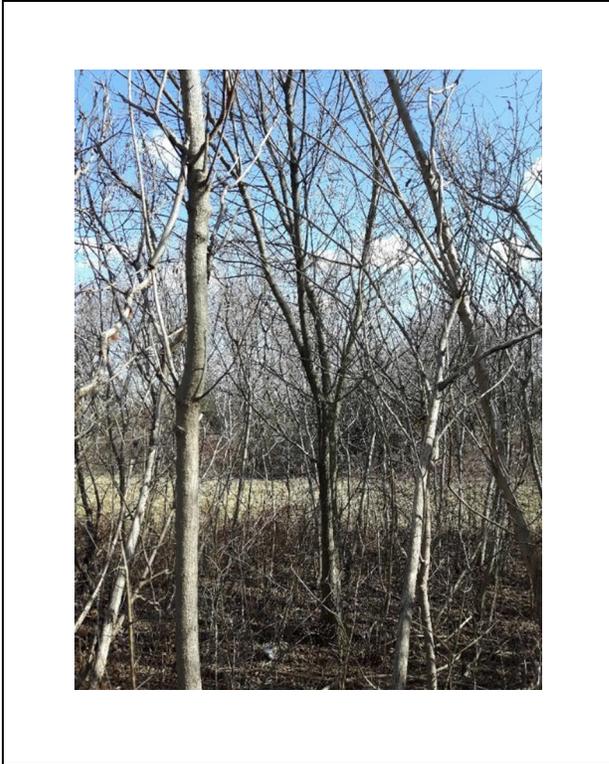
Tree 227 (left), 226 (centre), and 225 (right):  
Manitoba Maple



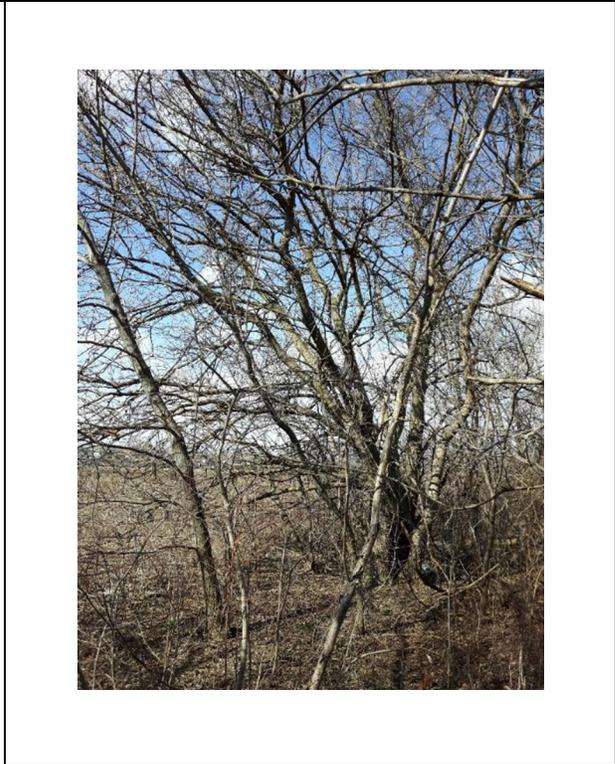
Tree 229 (left) and 228 (right): Manitoba Maple



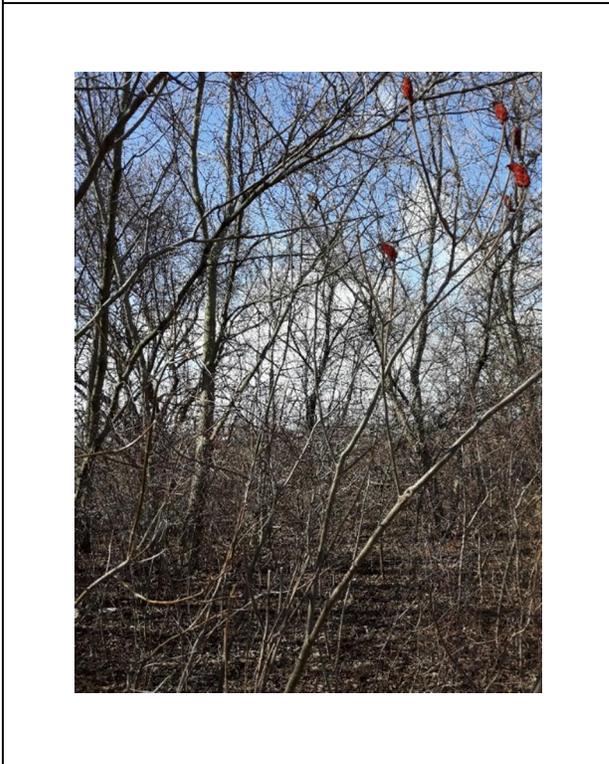
Tree 230: White Mulberry



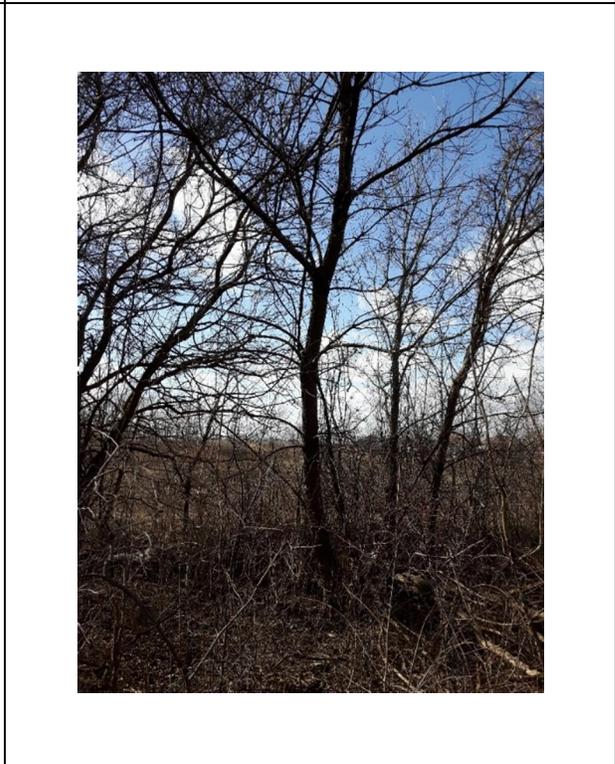
Tree 231: Manitoba Maple



Tree 232 (left): Manitoba Maple  
Tree 233 (right): White Mulberry



Tree 234 (left) and 235 (right): Manitoba Maple

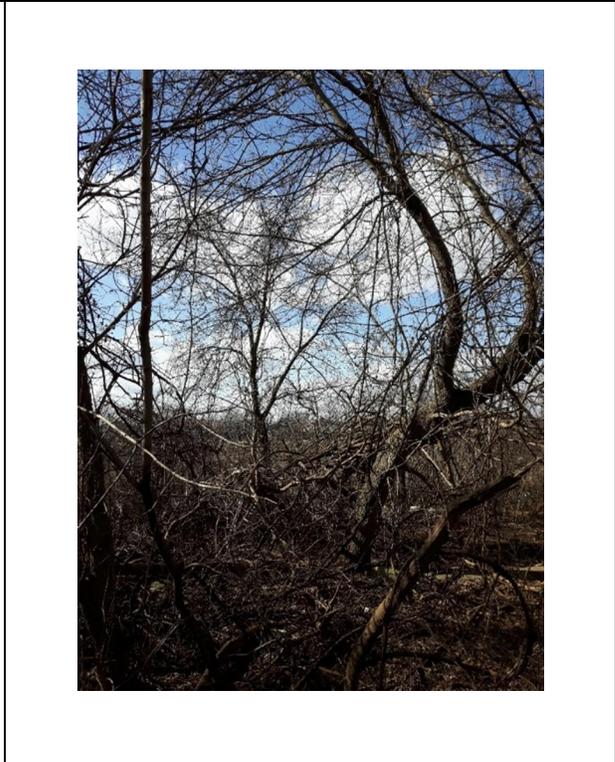


Tree 236: Manitoba Maple

	
<p>Tree 237: Manitoba Maple</p>	<p>Tree 238 (left): Manitoba maple Tree 239 (right): unknown</p>
	
<p>Tree 240: Manitoba Maple</p>	<p>Tree 241 (left), 242 (centre), and 243 (right): Manitoba Maple</p>



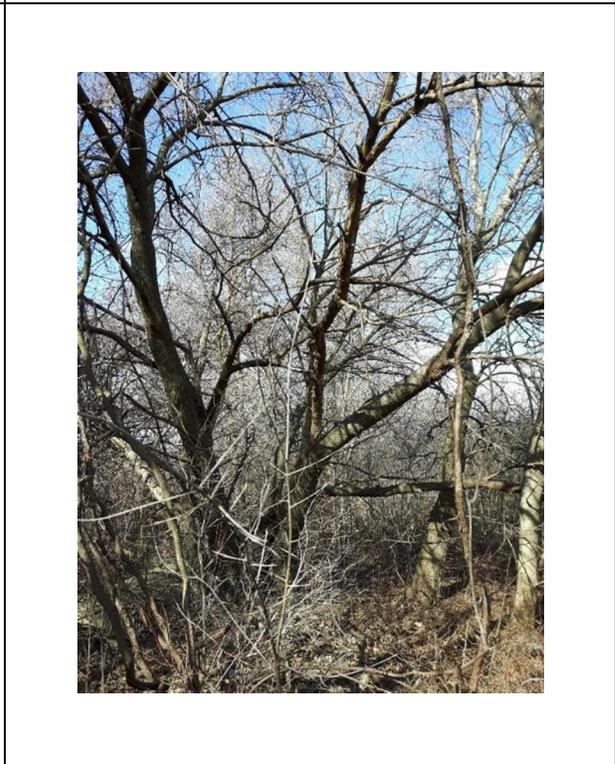
Tree 244: Manitoba Maple



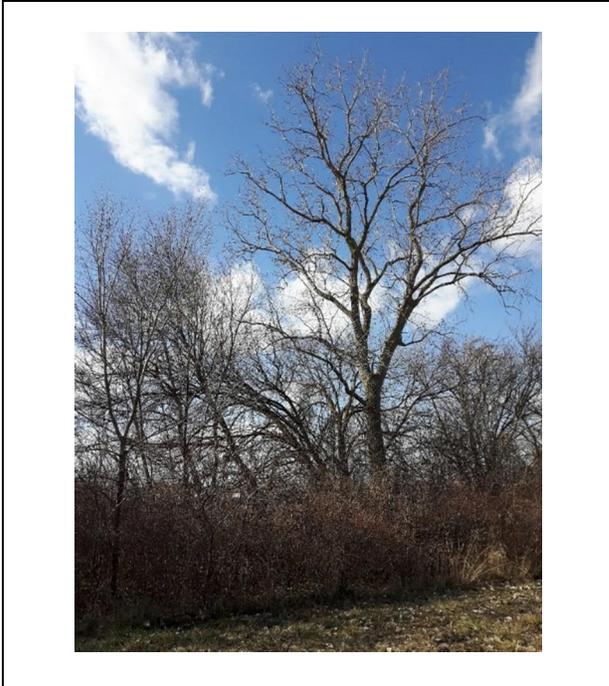
Tree 246 (left) and 245 (right): Manitoba Maple



Tree 247 (left) and 248 (right): Manitoba Maple

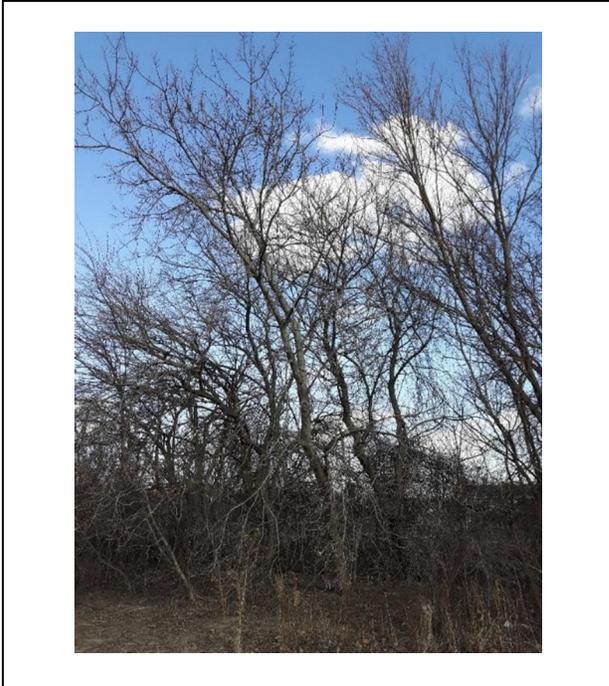


Tree 249 (left): White Mulberry  
Tree 250 (centre) and 251 (right): Manitoba Maple



Tree 252 (left): Manitoba Maple  
Tree 253 (one right of left) and 256 (right): Eastern Cottonwood  
Tree 254 (centre) and 255 (one left of right): White Mulberry

Tree 257 (left) and 260 (right): Manitoba Maple  
Tree 258 (one right of left) and 259 (one left of right): White Mulberry



Tree 261 (left) and 263 (right): Manitoba Maple  
Tree 262 (centre): White Mulberry

Tree 264 (left): Manitoba Maple  
Tree 265 (right): White Mulberry



Tree 266 (left) and 267 (right): Manitoba Maple



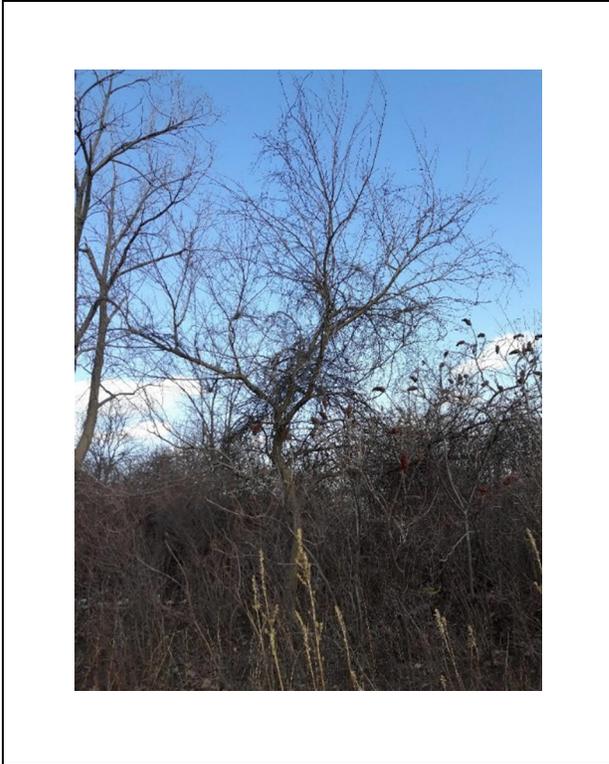
Tree 268: Manitoba Maple



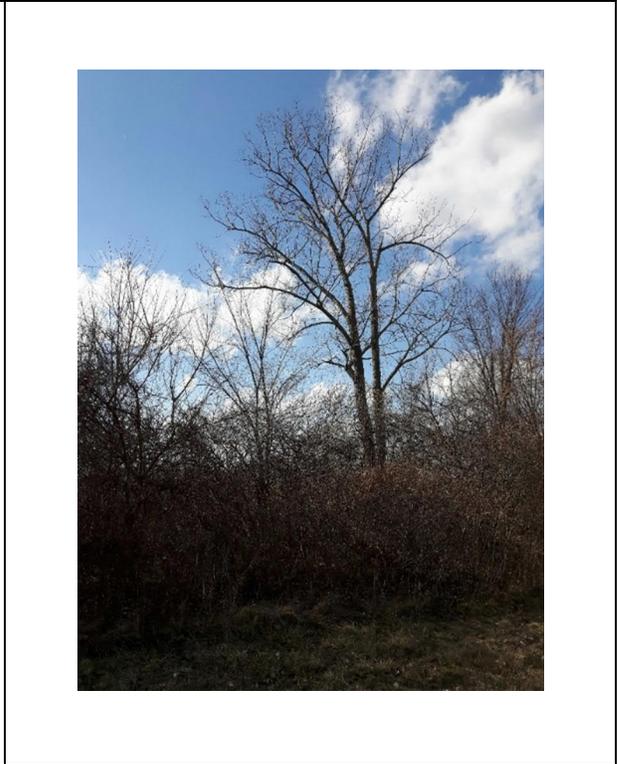
Tree 269: White Mulberry



Tree 270: White Mulberry



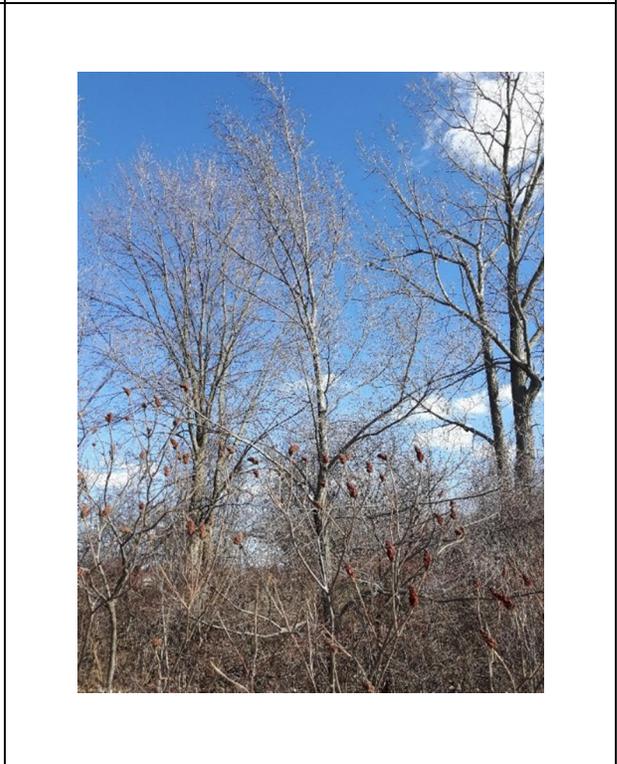
Tree 271: White Mulberry



Tree 272 (left): American Elm  
Tree 273 (right): Eastern Cottonwood



Tree 274: American Elm



Tree 275: Eastern Cottonwood

	
<p>Tree 276: Eastern Cottonwood</p>	<p>Tree 277-318: 8 Eastern Cottonwood, 7 American Elm, 23 Manitoba Maple, 2 White Mulberry, 1 Freeman's Maple, and 1 Staghorn Sumac</p>
	
<p>Tree 320 (left): Freeman's Maple Tree 319: Eastern Cottonwood</p>	<p>Tree 321: Pear species</p>



Tree 322: Eastern Cottonwood



Tree 323: Eastern Cottonwood



Tree 324: Red Maple



Tree 325: Eastern Cottonwood

	
<p>Northeast part of the Project Location looking south. Regularly-maintained lawn adjacent to Banwell Road.</p>	<p>Proposed Leathorne Street ROW looking north. Regularly-maintained lawn adjacent to Banwell Road.</p>
	
<p>Proposed Leathorne Street ROW looking south. Regularly-maintained lawn adjacent to Banwell Road.</p>	<p>Southeast part of the Project Location looking north. Regularly-maintained lawn adjacent to Banwell Road.</p>



South of McHugh Street looking north. Agricultural lands.



South of McHugh Street looking south. Agricultural lands.



Southwestern part of the Project Location looking west. Berm between railroad and residential subdivision.



Kentucky Coffee-tree bark.



Kentucky Coffee-tree canopy.



Kentucky Coffee-tree stand in the southeastern part of the Project Location with lots of dumped garbage.



Kentucky Coffee-tree stand in the southeastern part of the Project Location.



Southeastern part of the Project Location looking south. Sidewalk adjacent to Banwell Road with 10 marked trees nearby.

# Appendix D

## Detailed Tree Inventory

## Appendix D - Detailed Tree Inventory

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
4	<i>Quercus macrocarpa</i>	Bur Oak	21.1	2.53	Good	VITI-SP	Retain - not client-owned	Not within construction footprint
5	<i>Tilia americana</i>	American Basswood	25.3	3.04	Good	VITI-SP	Retain - not client-owned	Not within construction footprint
6	<i>Tilia americana</i>	American Basswood	14.5,12.5	1.74	Excellent		Retain - not client-owned	Not within construction footprint
7	<i>Tilia americana</i>	American Basswood	19.9,24.6,17.8,25.8,36.1,23.2	4.33	Excellent		Retain - not client-owned	Not within construction footprint
8	<i>Tilia americana</i>	American Basswood	23.1	2.77	Excellent		Retain - not client-owned	Not within construction footprint
9	<i>Quercus macrocarpa</i>	Bur Oak	27.2	3.26	Good	VITI-SP	Retain - not client-owned	Not within construction footprint
12	<i>Ulmus americana</i>	American Elm	31.7,29.8,41.8	5.02	Excellent		Retain - not client-owned	Not within construction footprint
13	<i>Ulmus americana</i>	American Elm	37.1	4.45	Excellent		Retain - not client-owned	Not within construction footprint
14	<i>Ulmus americana</i>	American Elm	17.2,40.7	4.88	Excellent		Retain - not client-owned	Not within construction footprint
17	<i>Ulmus americana</i>	American Elm	12.3,19.9,21.3,31.0,14.6	3.72	Fair	Exposed roots	Retain - not client-owned	Not within construction footprint
18	<i>Tilia americana</i>	American Basswood	11.6,20.7,19.3	2.48	Excellent		Retain - not client-owned	Not within construction footprint
21	<i>Quercus macrocarpa</i>	Bur Oak	41.1,40.7,20.2,15.7	4.93	Excellent		Retain - not client-owned	Not within construction footprint
24	<i>Ulmus americana</i>	American Elm	13.1	1.57	Excellent		Retain - not client-owned	Not within construction footprint
25	<i>Tilia americana</i>	American Basswood	19.4,16.2,19.8	2.38	Excellent		Retain - not client-owned	Not within construction footprint
26	<i>Tilia americana</i>	American Basswood	14.2,12.7	1.70	Excellent		Retain - not client-owned	Not within construction footprint
27	<i>Crataegus sp.</i>	Hawthorn species	12.8,13.1,13.9,10.7	1.67	Excellent		Retain - not client-owned	Not within construction footprint
28	<i>Ulmus americana</i>	American Elm	10.8	1.30	Excellent		Retain	Not within construction footprint
29	<i>Ulmus americana</i>	American Elm	11.9	1.43	Excellent		Retain	Not within construction footprint
30	<i>Tilia americana</i>	American Basswood	10.3	1.24	Excellent		Retain - not client-owned	Not within construction footprint
31	<i>Tilia americana</i>	American Basswood	12.9,13.6	1.63	Excellent		Retain	Not within construction footprint
32	<i>Tilia americana</i>	American Basswood	18.6,17.0	2.23	Excellent		Retain	Not within construction footprint
33	<i>Tilia americana</i>	American Basswood	18.2,14.1	2.18	Excellent		Remove	Within construction footprint
34	<i>Tilia americana</i>	American Basswood	21.8,12.6,24.9	2.99	Excellent		Remove	Within construction footprint
35	<i>Tilia americana</i>	American Basswood	12.7,13.2	1.58	Excellent		Remove	Within construction footprint
36	<i>Tilia americana</i>	American Basswood	12.0,13.9,23.0	2.76	Excellent		Remove	Within construction footprint
37	<i>Tilia americana</i>	American Basswood	24.7	2.96	Excellent		Remove	Within construction footprint
38	<i>Populus deltoides ssp. deltoides</i>	Eastern Cottonwood	19.2,21.3	2.56	Excellent		Remove	Within construction footprint
39	<i>Tilia americana</i>	American Basswood	22.2	2.66	Excellent		Remove	Within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
40	<i>Tilia americana</i>	American Basswood	10.1,13.6	1.63	Poor		Remove	Within construction footprint
41	<i>Tilia americana</i>	American Basswood	24.2	2.90	Excellent		Remove	Within construction footprint
42	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	22.4,21.7,15.2,14.6	2.69	Excellent		Remove	Within construction footprint
43	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	31.8,33.0,28.2,25.7	3.96	Excellent		Remove	Within construction footprint
44	<i>Tilia americana</i>	American Basswood	16.5	1.98	Excellent		Remove	Within construction footprint
45	<i>Tilia americana</i>	American Basswood	17.2,15.4	2.06	Excellent		Remove	Within construction footprint
46	<i>Quercus alba</i>	White Oak	28.8	3.46	Excellent		Remove	Within construction footprint
47	<i>Tilia americana</i>	American Basswood	16.8,17.4	2.09	Excellent		Remove	Within construction footprint
48	<i>Quercus macrocarpa</i>	Bur Oak	15.8	1.90	Excellent		Remove	Within construction footprint
49	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	15.0,14.0	1.80	Dead		Remove	Within construction footprint
50	Unknown	Unknown	41.8,38.0,12.6	4.56	Dead	Unknown due to dead, no cavities	Remove	Within construction footprint
51	<i>Quercus macrocarpa</i>	Bur Oak	30.2	3.62	Excellent		Remove	Within construction footprint
52	<i>Tilia americana</i>	American Basswood	12.3,13.6,25.1,30.1	3.61	Excellent		Remove	Within construction footprint
53	<i>Quercus macrocarpa</i>	Bur Oak	17.2,13.6	2.06	Excellent		Remove	Within construction footprint
54	<i>Quercus macrocarpa</i>	Bur Oak	44.2	5.30	Excellent		Remove	Within construction footprint
55	<i>Quercus macrocarpa</i>	Bur Oak	30.4,12.7	3.65	Excellent		Remove	Within construction footprint
56	<i>Ulmus americana</i>	American Elm	37.2	4.46	Excellent		Remove	Within construction footprint
57	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	24.9,13.9	2.99	Excellent		Remove	Within construction footprint
58	<i>Ulmus americana</i>	American Elm	22.3,20.7	2.68	Excellent		Remove	Within construction footprint
59	<i>Quercus macrocarpa</i>	Bur Oak	32.2	3.86	Good	VITI-SP	Remove	Within construction footprint
60	<i>Ulmus americana</i>	American Elm	22.4	2.69	Excellent		Remove	Within construction footprint
61	<i>Ulmus americana</i>	American Elm	20.5	2.46	Excellent		Remove	Within construction footprint
62	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	40.7	4.88	Excellent		Remove	Within construction footprint
63	<i>Quercus rubra</i>	Northern Red Oak	46.2,28.8	5.54	Excellent		Remove	Within construction footprint
64	<i>Juniperus virginiana</i>	Eastern Red Cedar	20.5	2.46	Excellent		Remove	Within construction footprint
65	<i>Prunus</i> sp.	Cherry species	20.7,18.8,12.5,10.9,11.6	2.26	Excellent		Remove	Within construction footprint
66	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	12.8	1.54	Excellent		Remove	Within construction footprint
67	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	10.4	1.25	Excellent		Remove	Within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
68	<i>Prunus serotina</i>	Wild Black Cherry	47.6	5.71	Poor	Large and numerous VITI-SP	Remove	Within construction footprint
69	<i>Crataegus</i> sp.	Hawthorn species	12.5,12.9,11.1,13.6,12.9	1.63	Excellent		Remove	Within construction footprint
70	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	13.5	1.62	Excellent		Remove	Within construction footprint
71	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	13.2	1.58	Excellent		Remove	Within construction footprint
72	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	12.2,15.1	1.81	Excellent		Remove	Within construction footprint
73	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	57.1,48.0	6.85	Fair		Remove	Within construction footprint
74	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	20.3	2.44	Excellent		Remove	Within construction footprint
75	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	31.6	3.79	Excellent		Remove	Within construction footprint
76	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	23.8	2.86	Excellent		Remove	Within construction footprint
77	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	36.5,23.1	4.38	Excellent		Remove	Within construction footprint
78	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	22.4	2.69	Excellent		Remove	Within construction footprint
79	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	34.7,34.2,15.9	4.16	Excellent		Remove - not client-owned	Within construction footprint
80	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	23.6,49.1	5.89	Excellent		Remove	Within construction footprint
81	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	11.1	1.33	Excellent		Remove - not client-owned	Within construction footprint
82	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	24.2	2.90	Excellent		Remove - not client-owned	Within construction footprint
83	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	20	2.40	Excellent		Remove - not client-owned	Within construction footprint
84	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	23.6	2.83	Excellent		Remove - not client-owned	Within construction footprint
85	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	58.3	7.00	Excellent		Remove - not client-owned	Within construction footprint
86	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	18.3	2.20	Excellent		Remove - not client-owned	Within construction footprint
87	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	11.3,20.0,21.6	2.59	Excellent		Remove	Within construction footprint
88	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	31.5	3.78	Excellent		Remove	Within construction footprint
89	<i>Morus alba</i>	White Mulberry	14.7,37.5	4.50	Excellent		Remove	Within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
90	Crataegus sp.	Hawthorn species	29.7,20.2,12.0	3.56	Good		Remove	Within construction footprint
91	Prunus sp.	Cherry species	10.2,11.5,15.4	1.38	Good		Remove	Within construction footprint
92	Prunus sp.	Cherry species	10.3,10.7,11.0,10.8	1.32	Good		Remove	Within construction footprint
93	Acer x freemanii	Freeman's Maple	62.0,65.1,56.4,55.3	7.81	Excellent		Remove	Within construction footprint
94	Quercus rubra	Northern Red Oak	16.6	1.99	Excellent		Remove	Within construction footprint
95	Crataegus sp.	Hawthorn species	13.5	1.62	Excellent		Remove	Within construction footprint
96	Crataegus sp.	Hawthorn species	16.7	2.00	Excellent		Remove	Within construction footprint
97	Crataegus sp.	Hawthorn species	15.7	1.88	Excellent		Remove	Within construction footprint
98	Acer negundo	Manitoba Maple	34.9	4.19	Good	VITI-SP	Remove	Within construction footprint
99	Crataegus sp.	Hawthorn species	12.8,13.0	1.56	Excellent		Remove	Within construction footprint
100	Crataegus sp.	Hawthorn species	13.2	1.58	Dead		Remove	Within construction footprint
101	Quercus macrocarpa	Bur Oak	37.4	4.49	Excellent		Remove	Within construction footprint
102	Crataegus sp.	Hawthorn species	36.9	4.43	Excellent		Remove	Within construction footprint
103	Crataegus sp.	Hawthorn species	10.9,11.0,11.8,12.1	1.45	Excellent		Remove	Within construction footprint
104	Crataegus sp.	Hawthorn species	10.3,15.4,15.1,13.8	1.85	Dead		Remove	Within construction footprint
105	Crataegus sp.	Hawthorn species	12.1,14.9	1.79	Excellent		Remove	Within construction footprint
106	Crataegus sp.	Hawthorn species	12.2,10.8,16.3	1.96	Poor	Snapped limb	Remove	Within construction footprint
107	Crataegus sp.	Hawthorn species	18.8	2.26	Good		Remove	Within construction footprint
108	Crataegus sp.	Hawthorn species	31.2,15.9,16.1,13.9	3.74	Poor	Snapped stems (boles)	Remove	Within construction footprint
109	Quercus rubra	Northern Red Oak	22.5	2.70	Poor	VITI-SP	Remove	Within construction footprint
110	Acer negundo	Manitoba Maple	15.7,16.5	1.98	Good		Remove	Within construction footprint
111	Crataegus sp.	Hawthorn species	28.0,19.9	3.36	Good		Remove	Within construction footprint
112	Acer negundo	Manitoba Maple	11.1,20.2	2.42	Excellent		Remove	Within construction footprint
113	Acer negundo	Manitoba Maple	28.7	3.44	Excellent		Remove	Within construction footprint
114	Acer negundo	Manitoba Maple	16.8,17.3	2.08	Excellent		Remove	Within construction footprint
115	Populus deltoides ssp. deltoides	Eastern Cottonwood	61.8	7.42	Excellent		Remove	Within construction footprint
116	Populus deltoides ssp. deltoides	Eastern Cottonwood	56.8	6.82	Excellent		Remove	Within construction footprint
117	Acer negundo	Manitoba Maple	21.6	2.59	Poor	VITI-SP	Remove	Within construction footprint
118	Morus alba	White Mulberry	10.7	1.28	Excellent		Remove	Within construction footprint
119	Acer negundo	Manitoba Maple	120	14.40	Excellent		Remove	Within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
120	<i>Acer negundo</i>	Manitoba Maple	19.9	2.39	Excellent		Remove	Within construction footprint
121	<i>Acer negundo</i>	Manitoba Maple	16.6	1.99	Excellent		Remove	Within construction footprint
122	<i>Juglans nigra</i>	Black Walnut	21.4	2.57	Excellent		Remove	Within construction footprint
123	<i>Acer negundo</i>	Manitoba Maple	11.6	1.39	Fair	VITI-SP	Remove	Within construction footprint
124	<i>Acer negundo</i>	Manitoba Maple	16	1.92	Fair	VITI-SP	Remove	Within construction footprint
125	<i>Prunus</i> sp.	Cherry species	10.6	1.27	Good		Remove	Within construction footprint
126	<i>Acer negundo</i>	Manitoba Maple	11.7,12.8	1.54	Excellent		Remove	Within construction footprint
127	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	28.5	3.42	Excellent		Remove	Within construction footprint
128	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	35.5	4.26	Excellent		Remove	Within construction footprint
129	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	22	2.64	Excellent		Remove	Within construction footprint
130	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	133	15.96	Fair	Main stem split	Remove	Within construction footprint
131	<i>Acer negundo</i>	Manitoba Maple	14.7	1.76	Excellent		Retain	Not within construction footprint
132	<i>Acer negundo</i>	Manitoba Maple	12.1	1.45	Excellent		Retain	Not within construction footprint
133	<i>Acer negundo</i>	Manitoba Maple	11	1.32	Excellent		Retain	Not within construction footprint
134	<i>Morus alba</i>	White Mulberry	12.9,12.1,12.9,16.4,13.4	1.97	Excellent		Retain	Not within construction footprint
135	<i>Morus alba</i>	White Mulberry	14.5,15.7,16.3,13.6,10.2	1.96	Excellent		Retain	Not within construction footprint
136	<i>Morus alba</i>	White Mulberry	14.5,12.6,14.2,15.5	1.86	Excellent		Retain	Not within construction footprint
137	<i>Salix</i> sp.	Willow species	27.0,37.1,16.9,34.6,26.6,21.2	4.45	Good		Remove	Within construction footprint
138	<i>Quercus rubra</i>	Northern Red Oak	15.6	1.87	Excellent		Remove	Within construction footprint
139	<i>Quercus rubra</i>	Northern Red Oak	11.1,14.3	1.72	Excellent		Remove	Within construction footprint
140	<i>Quercus rubra</i>	Northern Red Oak	12.5	1.50	Excellent		Remove	Within construction footprint
141	<i>Quercus rubra</i>	Northern Red Oak	14.2	1.70	Excellent		Remove	Within construction footprint
142	<i>Quercus rubra</i>	Northern Red Oak	11.4	1.37	Excellent		Remove	Within construction footprint
143	<i>Acer x freemanii</i>	Freeman's Maple	35.1	4.21	Excellent		Retain - not client-owned	Not within construction footprint
144	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	70	8.40	Excellent		Retain - not client-owned	Not within construction footprint
149	<i>Populus grandidentata</i>	Large-tooth Aspen	17.6	2.11	Good		Retain	Not within construction footprint
150	<i>Acer negundo</i>	Manitoba Maple	13.5,14.3	1.72	Good		Retain	Not within construction footprint
151	<i>Acer negundo</i>	Manitoba Maple	16.4	1.97	Good		Retain	Not within construction footprint
152	<i>Populus grandidentata</i>	Large-tooth Aspen	16.5,22.7,21.8	2.72	Dead		Retain	Not within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
153	Acer negundo	Manitoba Maple	12.7	1.52	Good		Retain	Not within construction footprint
154	Populus grandidentata	Large-tooth Aspen	23.0,22.6	2.76	Dead	Marked for removal	Remove	Marked for removal
155	Acer negundo	Manitoba Maple	12.4,15.8,13.1	1.90	Good	Marked for removal	Remove	Marked for removal
156	Acer negundo	Manitoba Maple	18.6	2.23	Fair	Marked for removal	Remove	Marked for removal
157	Acer negundo	Manitoba Maple	21.8	2.62	Fair	Marked for removal	Remove	Marked for removal
158	Acer negundo	Manitoba Maple	11.7,14.7,19.2,23.0	2.76	Fair		Retain	Not within construction footprint
159	Populus grandidentata	Large-tooth Aspen	20.8,22.6	2.71	Good	Marked for removal	Remove	Marked for removal
160	Acer negundo	Manitoba Maple	12.8,16.9	2.03	Good	Marked for removal	Remove	Marked for removal
161	Acer negundo	Manitoba Maple	13.7,30.2,28.8	3.62	Good	Marked for removal	Remove	Marked for removal
162	Acer negundo	Manitoba Maple	14.6	1.75	Poor		Retain	Not within construction footprint
163	Acer negundo	Manitoba Maple	24.8,13.0	2.98	Poor	Limbs snapped	Retain	Not within construction footprint
164	Acer negundo	Manitoba Maple	47.2	5.66	Fair	Marked for removal, limbs cut	Remove	Marked for removal
165	Acer negundo	Manitoba Maple	24	2.88	Good		Retain	Not within construction footprint
166	Acer negundo	Manitoba Maple	36.3	4.36	Fair	Marked for removal, limbs cut	Remove	Marked for removal
167	Acer negundo	Manitoba Maple	27.2,14.7	3.26	Good	Marked for removal	Remove	Marked for removal
168	Acer negundo	Manitoba Maple	20.1,32.0,44.1	5.29	Dead/Fair		Remove	Within construction footprint
169	Acer negundo	Manitoba Maple	16.8,11.4,17.9,13.2	2.15	Poor		Remove	Within construction footprint
170	Acer negundo	Manitoba Maple	33.8,33.2,14.1,11.1,14.3,29.3	4.06	Fair		Remove	Within construction footprint
171	Prunus sp.	Cherry species	13.6,15.2,14.0,15.0	1.82	Poor		Remove	Within construction footprint
172	Prunus sp.	Cherry species	10.3,10.9	1.31	Fair		Remove	Within construction footprint
173	Acer negundo	Manitoba Maple	18.2,15.0,29.9	3.59	Poor	Snapped main limb	Remove	Within construction footprint
174	Acer negundo	Manitoba Maple	11.6	1.39	Excellent		Remove	Within construction footprint
175	Acer negundo	Manitoba Maple	14.3	1.72	Good		Remove	Within construction footprint
176	Gymnocladus dioicus	Kentucky Coffee-tree	12.7,21.3	2.56	Good		Remove	Within construction footprint
177	Gymnocladus dioicus	Kentucky Coffee-tree	28.1	3.37	Good		Remove	Within construction footprint
178	Gymnocladus dioicus	Kentucky Coffee-tree	33.9,22.9,12.8,10.7	4.07	Good		Retain	Not within construction footprint
179	Gymnocladus dioicus	Kentucky Coffee-tree	22.7,18.5,17.5,29.4,11.1	3.53	Good		Retain	Not within construction footprint
180	Acer negundo	Manitoba Maple	14.4,15.2,14.0	1.82	Dead	11 cavities	Retain	Not within construction footprint
181	Gymnocladus dioicus	Kentucky Coffee-tree	19.4,25.2	3.02	Good		Retain	Not within construction footprint
182	Gymnocladus dioicus	Kentucky Coffee-tree	21.3,28.5,20.9	3.42	Good		Retain	Not within construction footprint
183	Gymnocladus dioicus	Kentucky Coffee-tree	10.8,16.0,16.8	2.02	Good		Retain	Not within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
184	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	10.6,10.6	1.27	Good		Retain	Not within construction footprint
185	Unknown	Unknown	14.6	1.75	Dead	Unknown due to dead	Remove	Within construction footprint
186	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	12.6	1.51	Good		Remove	Within construction footprint
187	<i>Populus grandidentata</i>	Large-tooth Aspen	12.3	1.48	Excellent		Retain	Not within construction footprint
188	<i>Prunus</i> sp.	Cherry species	17.8	2.14	Good		Remove	Within construction footprint
189	<i>Acer negundo</i>	Manitoba Maple	11.3	1.36	Good		Remove	Within construction footprint
190	<i>Populus grandidentata</i>	Large-tooth Aspen	19.8	2.38	Excellent		Remove	Within construction footprint
191	<i>Populus grandidentata</i>	Large-tooth Aspen	15.4	1.85	Excellent		Remove	Within construction footprint
192	<i>Acer negundo</i>	Manitoba Maple	17.1	2.05	Good		Remove	Within construction footprint
193	<i>Acer negundo</i>	Manitoba Maple	12.7,16.0,16.1	1.93	Good		Remove	Within construction footprint
194	<i>Populus grandidentata</i>	Large-tooth Aspen	11.8	1.42	Excellent		Remove	Within construction footprint
195	<i>Populus grandidentata</i>	Large-tooth Aspen	11.4,13.2,14.6,14.4	1.75	Excellent		Remove	Within construction footprint
196	<i>Populus grandidentata</i>	Large-tooth Aspen	16.2	1.94	Excellent		Remove	Within construction footprint
197	<i>Populus grandidentata</i>	Large-tooth Aspen	16	1.92	Dead		Remove	Within construction footprint
198	<i>Acer negundo</i>	Manitoba Maple	17.3	2.08	Good		Remove	Within construction footprint
199	<i>Acer negundo</i>	Manitoba Maple	14.2	1.70	Good		Remove	Within construction footprint
200	<i>Populus grandidentata</i>	Large-tooth Aspen	28.7,14.7,13.0	3.44	Excellent/Dead	Two dead boles	Remove	Within construction footprint
201	Unknown	Unknown	14.9	1.79	Dead	Unknown due to dead	Remove	Within construction footprint
202	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	15.9,10.6	1.91	Good		Retain	Not within construction footprint
203	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	21.5,21.5,25.0	3.00	Good		Retain	Not within construction footprint
204	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	13.0,18.6	2.23	Good		Retain	Not within construction footprint
205	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	16.5,25.7	3.08	Good		Retain	Not within construction footprint
206	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	11.7,16.4	1.97	Good		Retain	Not within construction footprint
207	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	17.6,10.2,14.3,21.9	2.63	Good		Retain	Not within construction footprint
208	<i>Populus grandidentata</i>	Large-tooth Aspen	29.2,16.2	3.50	Dead/Poor		Retain	Not within construction footprint
209	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	19.6	2.35	Good		Retain	Not within construction footprint
210	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	16.6	1.99	Good		Retain	Not within construction footprint
211	Unknown	Unknown	34.3	4.12	Dead	Unknown due to dead	Retain	Not within construction footprint
212	<i>Populus grandidentata</i>	Large-tooth Aspen	27.4	3.29	Dead		Retain	Not within construction footprint
213	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	15.0,15.2,19.4	2.33	Good		Retain	Not within construction footprint
214	<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	17.9,12.8	2.15	Good		Retain	Not within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
215	Populus grandidentata	Large-tooth Aspen	27.6	3.31	Poor		Retain	Not within construction footprint
216	Gymnocladus dioicus	Kentucky Coffee-tree	14.2	1.70	Good		Retain	Within construction footprint
217	Populus grandidentata	Large-tooth Aspen	11	1.32	Dead		Retain	Within construction footprint
218	Populus grandidentata	Large-tooth Aspen	12.7	1.52	Excellent		Retain	Not within construction footprint
219	Populus grandidentata	Large-tooth Aspen	10.8	1.30	Excellent		Retain	Not within construction footprint
220	Populus grandidentata	Large-tooth Aspen	22.2	2.66	Excellent		Retain	Not within construction footprint
221	Populus grandidentata	Large-tooth Aspen	13.3,12.8	1.60	Excellent		Remove	Within construction footprint
222	Populus grandidentata	Large-tooth Aspen	15.7	1.88	Excellent		Remove	Within construction footprint
223	Morus alba	White Mulberry	11.3	1.36	Excellent		Remove	Within construction footprint
224	Acer negundo	Manitoba Maple	12	1.44	Fair		Remove	Within construction footprint
225	Acer negundo	Manitoba Maple	10.5	1.26	Good		Remove	Within construction footprint
226	Acer negundo	Manitoba Maple	10.9	1.31	Good		Remove	Within construction footprint
227	Acer negundo	Manitoba Maple	10.4	1.25	Good		Remove	Within construction footprint
228	Acer negundo	Manitoba Maple	14.3	1.72	Good		Remove	Within construction footprint
229	Acer negundo	Manitoba Maple	15.5	1.86	Good		Remove	Within construction footprint
230	Morus alba	White Mulberry	41.3	4.96	Poor	Bole split	Remove	Within construction footprint
231	Acer negundo	Manitoba Maple	11.7,15.0	1.80	Good		Remove	Within construction footprint
232	Acer negundo	Manitoba Maple	16.7	2.00	Good		Remove	Within construction footprint
233	Morus alba	White Mulberry	14.7,40.2,46.1	5.53	Fair		Remove	Within construction footprint
234	Acer negundo	Manitoba Maple	14.2	1.70	Good		Remove	Within construction footprint
235	Acer negundo	Manitoba Maple	16.6	1.99	Good		Remove	Within construction footprint
236	Acer negundo	Manitoba Maple	19.3	2.32	Poor	VITI-SP	Remove	Within construction footprint
237	Acer negundo	Manitoba Maple	21.8	2.62	Poor	VITI-SP	Remove	Within construction footprint
238	Acer negundo	Manitoba Maple	16.9	2.03	Good		Remove	Within construction footprint
239	Unknown	Unknown	53	6.36	Dead	Unknown due to dead	Remove	Within construction footprint
240	Acer negundo	Manitoba Maple	28.8	3.46	Good		Remove	Within construction footprint
241	Acer negundo	Manitoba Maple	29.2	3.50	Good		Remove	Within construction footprint
242	Acer negundo	Manitoba Maple	17.1	2.05	Good		Remove	Within construction footprint
243	Acer negundo	Manitoba Maple	21.8	2.62	Good		Remove	Within construction footprint
244	Acer negundo	Manitoba Maple	23.1	2.77	Fair		Remove	Within construction footprint
245	Acer negundo	Manitoba Maple	30.3	3.64	Good		Remove	Within construction footprint

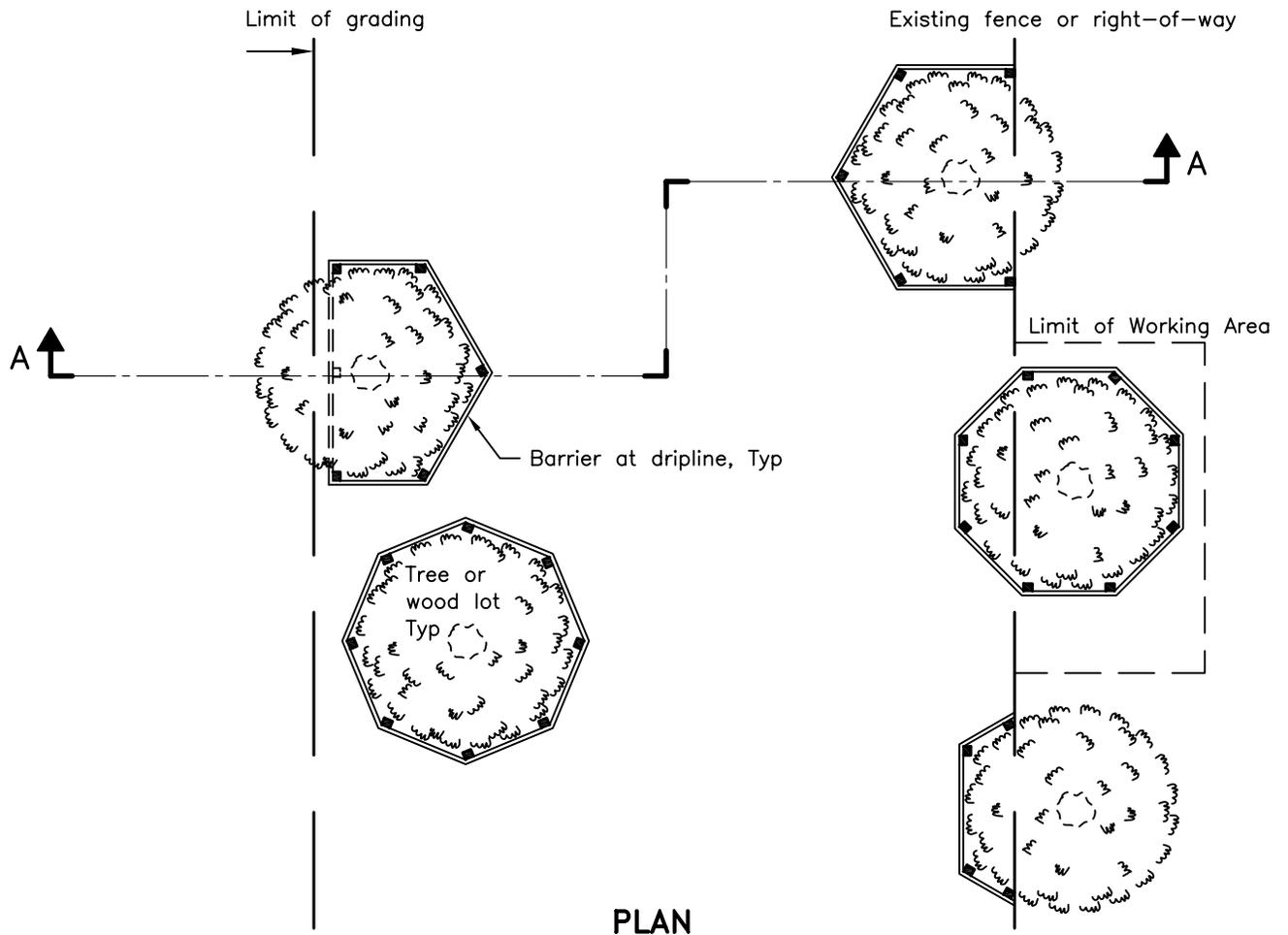
Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
246	<i>Acer negundo</i>	Manitoba Maple	17.7	2.12	Good		Remove	Within construction footprint
247	<i>Acer negundo</i>	Manitoba Maple	22.6	2.71	Good		Remove	Within construction footprint
248	<i>Acer negundo</i>	Manitoba Maple	14.3	1.72	Good		Remove	Within construction footprint
249	<i>Morus alba</i>	White Mulberry	20.9,21.7,14.6,11.2,13.0	2.60	Poor	Bad condition due to concrete culvert	Remove	Within construction footprint
250	<i>Acer negundo</i>	Manitoba Maple	27.2	3.26	Good		Remove	Within construction footprint
251	<i>Acer negundo</i>	Manitoba Maple	16.9	2.03	Poor	Poor due to nearby MORUALB leaning and rubbing	Remove	Within construction footprint
252	<i>Acer negundo</i>	Manitoba Maple	11.1,11.6	1.39	Good		Remove	Within construction footprint
253	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	22.8,15.5	2.74	Good		Remove	Within construction footprint
254	<i>Morus alba</i>	White Mulberry	34	4.08	Fair		Remove	Within construction footprint
255	<i>Morus alba</i>	White Mulberry	57.9,50.6,22.9	6.95	Fair		Remove	Within construction footprint
256	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	65.9	7.91	Excellent		Remove	Within construction footprint
257	<i>Acer negundo</i>	Manitoba Maple	31.1	3.73	Good		Remove	Within construction footprint
258	<i>Morus alba</i>	White Mulberry	18.2,18.8	18.80	Good		Remove	Within construction footprint
259	<i>Morus alba</i>	White Mulberry	20.2	2.42	Good		Remove	Within construction footprint
260	<i>Acer negundo</i>	Manitoba Maple	12.6	1.51	Good		Remove	Within construction footprint
261	<i>Acer negundo</i>	Manitoba Maple	25.5	3.06	Good		Remove	Within construction footprint
262	<i>Morus alba</i>	White Mulberry	34.3,22.0,12.9,10.9	4.12	Fair		Remove	Within construction footprint
263	<i>Acer negundo</i>	Manitoba Maple	41.1	4.93	Good		Remove	Within construction footprint
264	<i>Acer negundo</i>	Manitoba Maple	37.9,17.7,14.0,11.8	4.55	Good		Remove	Within construction footprint
265	<i>Morus alba</i>	White Mulberry	16	1.92	Good		Remove	Within construction footprint
266	<i>Acer negundo</i>	Manitoba Maple	15.2	1.82	Good		Remove	Within construction footprint
267	<i>Acer negundo</i>	Manitoba Maple	14.0,14.7,13.8	1.76	Good		Remove	Within construction footprint
268	<i>Acer negundo</i>	Manitoba Maple	24.2	2.90	Good		Remove	Within construction footprint
269	<i>Morus alba</i>	White Mulberry	28.2	3.38	Good		Remove	Within construction footprint
270	<i>Morus alba</i>	White Mulberry	15.9	1.91	Good		Remove	Within construction footprint
271	<i>Morus alba</i>	White Mulberry	26.2,15.4,12.2	3.14	Good		Remove	Within construction footprint
272	<i>Ulmus americana</i>	American Elm	13.7,13.0	1.64	Good		Remove	Within construction footprint
273	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	71.7	8.60	Excellent		Remove	Within construction footprint
274	<i>Ulmus americana</i>	American Elm	36.3	4.36	Excellent		Remove	Within construction footprint

Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
275	Populus deltoides ssp. deltoides	Eastern Cottonwood	14.5	1.74	Excellent		Remove	Within construction footprint
276	Populus deltoides ssp. deltoides	Eastern Cottonwood	20.2	2.42	Excellent		Remove	Within construction footprint
277	Populus deltoides ssp. deltoides	Eastern Cottonwood	14.8	1.78	Excellent		Remove	Within construction footprint
278	Ulmus americana	American Elm	23	2.76	Good		Remove	Within construction footprint
279	Acer negundo	Manitoba Maple	17.7	2.12	Good		Remove	Within construction footprint
280	Acer negundo	Manitoba Maple	20.5	2.46	Good		Remove	Within construction footprint
281	Acer negundo	Manitoba Maple	16.9	2.03	Good		Remove	Within construction footprint
282	Morus alba	White Mulberry	15.7,16.8	2.02	Fair		Remove	Within construction footprint
283	Ulmus americana	American Elm	31	3.72	Good		Remove	Within construction footprint
284	Populus deltoides ssp. deltoides	Eastern Cottonwood	12.7	1.52	Good		Retain	Not within construction footprint
285	Acer x freemanii	Freeman's Maple	21.8	2.62	Excellent		Remove	Within construction footprint
286	Acer negundo	Manitoba Maple	10.6	1.27	Good		Retain	Not within construction footprint
287	Acer negundo	Manitoba Maple	16.2	1.94	Good		Remove	Within construction footprint
288	Acer negundo	Manitoba Maple	10.2,10.8	1.30	Good		Remove	Within construction footprint
289	Acer negundo	Manitoba Maple	11.0,10.7	1.32	Good		Retain	Not within construction footprint
290	Acer negundo	Manitoba Maple	12.1	1.45	Good		Retain	Not within construction footprint
291	Acer negundo	Manitoba Maple	15.7	1.88	Good		Retain	Not within construction footprint
292	Acer negundo	Manitoba Maple	10.2,11.0	1.32	Good		Remove	Within construction footprint
293	Ulmus americana	American Elm	11.1,10.1	1.33	Good		Retain	Not within construction footprint
294	Ulmus americana	American Elm	10.9	1.31	Excellent		Retain	Not within construction footprint
295	Ulmus americana	American Elm	12	1.44	Good		Retain	Not within construction footprint
296	Acer negundo	Manitoba Maple	11.2	1.34	Good		Remove	Within construction footprint
297	Ulmus americana	American Elm	10.2,10.1,11.1,10.9,11.9	1.43	Good		Retain	Not within construction footprint
298	Populus deltoides ssp. deltoides	Eastern Cottonwood	12.1	1.45	Excellent		Retain	Not within construction footprint
299	Acer negundo	Manitoba Maple	12.9	1.55	Good		Remove	Within construction footprint
300	Populus deltoides ssp. deltoides	Eastern Cottonwood	20.7	2.48	Excellent		Remove	Within construction footprint
301	Populus deltoides ssp. deltoides	Eastern Cottonwood	19.1	2.29	Excellent		Remove	Within construction footprint
302	Populus deltoides ssp.	Eastern Cottonwood	37.1	4.45	Excellent		Remove	Within construction footprint

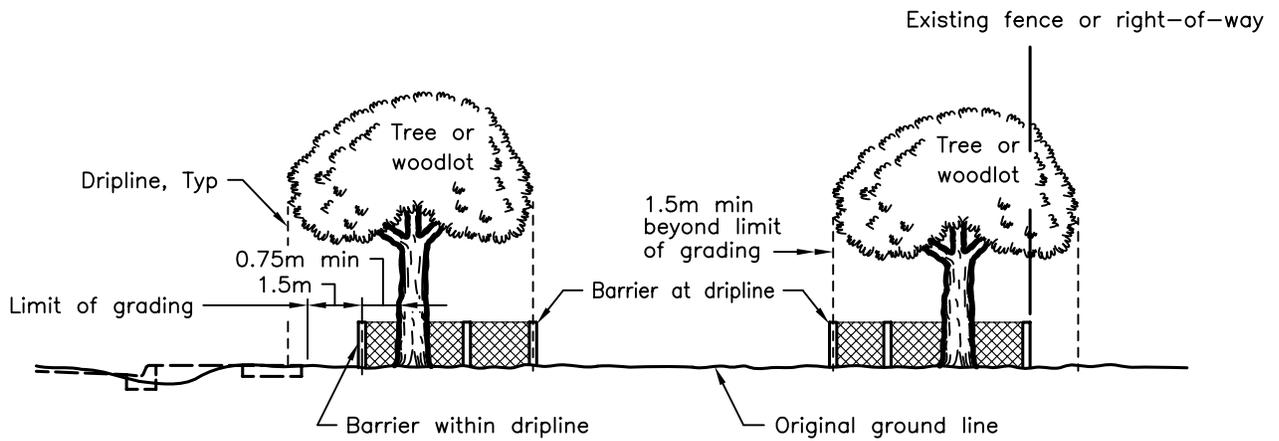
Figure ID	Scientific Name	Common Name	DBH (cm)	Critical Root Zone/Tree Protection Zone (m)	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation
	deltoides							
303	Rhus typhina	Staghorn Sumac	12.2	1.46	Fair		Remove	Within construction footprint
304	Populus deltoides ssp. deltoides	Eastern Cottonwood	33.4	4.01	Excellent		Remove	Within construction footprint
305	Acer negundo	Manitoba Maple	10.2,11.8	1.42	Good		Remove	Within construction footprint
306	Acer negundo	Manitoba Maple	14.7	1.76	Good		Remove	Within construction footprint
307	Acer negundo	Manitoba Maple	21	2.52	Good		Remove	Within construction footprint
308	Acer negundo	Manitoba Maple	13.1	1.57	Good		Remove	Within construction footprint
309	Populus deltoides ssp. deltoides	Eastern Cottonwood	39.7	4.76	Excellent		Remove	Within construction footprint
310	Acer negundo	Manitoba Maple	11.2,11.5,16.0	1.92	Good		Remove	Within construction footprint
311	Acer negundo	Manitoba Maple	14.9	1.79	Good		Remove	Within construction footprint
312	Acer negundo	Manitoba Maple	14.7	1.76	Good		Remove	Within construction footprint
313	Acer negundo	Manitoba Maple	13.4	1.61	Good		Remove	Within construction footprint
314	Ulmus americana	American Elm	15.2	1.82	Good		Remove	Within construction footprint
315	Acer negundo	Manitoba Maple	15.6,29.7	3.56	Good		Remove	Within construction footprint
316	Acer negundo	Manitoba Maple	26.7,14.9,10.9	3.20	Good		Remove	Within construction footprint
317	Acer negundo	Manitoba Maple	25.5	3.06	Good		Remove	Within construction footprint
318	Morus alba	White Mulberry	36.1	4.33	Good		Remove	Within construction footprint
319	Populus deltoides ssp. deltoides	Eastern Cottonwood	22	2.64	Excellent		Retain	Not within construction footprint
320	Acer x freemanii	Freeman's Maple	18.2	2.18	Excellent		Retain	Not within construction footprint
321	Pyrus sp.	Pear species	17.1	2.05	Excellent		Remove	Within construction footprint
322	Populus deltoides ssp. deltoides	Eastern Cottonwood	44.4,40.5	5.33	Excellent		Remove	Within construction footprint
323	Populus deltoides ssp. deltoides	Eastern Cottonwood	40.5,45.5	5.46	Excellent		Remove	Within construction footprint
324	Acer rubrum	Red Maple	12.1	1.45	Excellent		Remove	Within construction footprint
325	Populus deltoides ssp. deltoides	Eastern Cottonwood	18.3	2.20	Excellent		Retain - not client-owned	Not within construction footprint

# Appendix E

## Ontario Standard Barrier for Tree Protection



PLAN



SECTION A-A

ONTARIO PROVINCIAL STANDARD DRAWING

Nov 2007

Rev 0

BARRIER FOR TREE PROTECTION



OPSD 220.010