



**Waterloo West Side Employment Lands,
Waterloo ON
Tree Management Plan**

August 2018

Prepared for:

City of Waterloo
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Waterloo ON N2J 4P9

Prepared by:

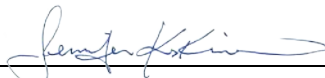
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161413446

Sign-off Sheet

This document entitled West Side Employment Lands, Waterloo ON, was prepared by Stantec Consulting Ltd. ("Stantec") for the account of The City of Waterloo (the "Client"), to support the permitting process for the Clients applications for a Zoning By-law, Official Plan Amendment and Draft Plan of Subdivision (the "Application") for the West Side Employment Lands Project (the "Project"). In connection thereto, this document may be reviewed and used by the provincial and municipal government agencies participating in the permitting process in the normal course of their duties. Except as set forth in the previous sentence, any reliance on this document by any third party for any other purpose is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____


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WATERLOO WEST SIDE EMPLOYMENT LANDS, WATERLOO, ON TREE MANAGEMENT PLAN

Introduction
August 2018

1.0 INTRODUCTION

Stantec Consulting Limited (Stantec) has been retained by The City of Waterloo to prepare a Tree Management Plan (TMP) for the development of the Waterloo West Side Employment Lands (herein referred to as WSEL). The TMP has been prepared to support the Official Plan Amendment and Zoning By-Law Amendment as well as the Draft Plan of Subdivision application.

1.1 EXISTING SITE

The WSEL lands is currently designated Open Space in addition to Business Employment in the City of Waterloo Official Plan and Zoned Agricultural (A) in the City's Zoning By-Law. It is comprised of 928, 960 and 980 Erb Street West, as well as 100 Wilmot Line (former Golf Academy Lands). The Project site is bound by Columbia Street West to the north, Wilmot Line to the West, Erb Street West to the south, and the Hydro One Networks Inc. (HONI) Transmission Corridor to the east. The WSEL is currently comprised of a former golf course, active agricultural and fallow fields, a former cider mill, and a temporary stormwater management facility that serves the Costco site. The WSEL is 43.6ha (107.7 acres) in size.



2.0 METHODOLOGY

The tree inventory and assessments were conducted by Miss. Jennifer Koskinen on May 23rd, 2017. The inventory and assessment included trees located within the property boundary, and trees on adjacent lands that may be impacted by the development or proposed grading work.

A detailed inventory data was collected for any trees 10 cm diameter at breast height (DBH) or greater, and <10cm DBH. Inventory data includes tree species, general health condition, DBH, and dripline radius. Isolated trees that were located along the Right-of-Way (ROW) of Wilmot Line and Columbia Street were tagged with a numbered steel tree tag (i.e., trees #1, #2, and #3 etc.). The remaining trees located within the WSEL property were grouped into Units, (i.e., Unit 1, Unit 2 etc.). The tree data has been compiled in Table 1 Detailed Tree Inventory table located in Appendix B, on Drawings L-905 and L-906.

The legal survey locations of tagged trees and approximate locations of vegetation Units have been identified on the Tree Management Plan (TMP) Drawings L-900 to L-904, located in Appendix 'B'.

2.1 TREE CONDITION RATING

Outlined below are the detailed guidelines utilized for the classification of condition rating:

Excellent: (Vigour Class 6: Healthy)

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

Good: (Vigour Class 5: Light Decline)

Branch mortality, twig dieback in 11-25% of the crown: broken branches or crown missing based on presence of old snags is less than 26%; minor evidence of decay.

Fair: (Vigour Class 4: Moderate Decline)

Branch mortality, twig dieback in 26-50% of the crown: broken branches or crown area missing based on presence of old snags is 50% or less; decay evident.

Poor: (Vigour Class 3: Severe Decline)

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

Dead: (Vigour Class 2: Dead due to Natural Causes)

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

Dead: (Vigour Class 1: Dead due to Human Causes)

Tree removed: tree has been sawed or girdled by human activity.



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Observations, Analysis and Recommendations
August 2018

3.0 OBSERVATIONS, ANALYSIS AND RECOMMENDATIONS

3.1 OBSERVATIONS

The WSEL property has significant grade changes throughout the site. There are hedgerows that line sections of property boundaries between the agricultural lands, residential properties, the former golf course, and sections of the Right-of-Way (ROW) adjacent to Wilmot Line and Columbia Street West. Within the property there are sporadic clumps of trees. The following is a tree species list that were observed onsite and included in the inventory:

Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Red Maple (*Acer rubrum*), Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Russian Olive (*Elaeagnus angustifolia*), Green Ash (*Fraxinus pennsylvanica*), Honeylocust (*Gleditsia triacanthos* var. *inermis*), Butternut hybrid (*Juglans* sp.), Black Walnut (*Juglans nigra*), Apple sp. (*Malus* sp.), White Mulberry (*Morus alba*), White Spruce (*Picea glauca*), Red Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), Cottonwood (*Populus deltoides*), Domestic Cherry (*Prunus* sp.), Buckthorn sp. (*Rhamnus* sp.), Willow sp. (*Salix* sp.), Weeping Willow (*Salix babylonica*), Common Lilac (*Syringa vulgaris*), Eastern White Cedar (*Thuja occidentalis*), Basswood (*Tilia americana*), and Elm sp. (*Ulmus* sp.).

The trees included in the inventory vegetation units have been described below with general observations and characterizations of the trees to provide an understanding of the treed areas observed on the property.

3.1.1 Butternut Hybrids Observed Onsite

Butternut trees were observed in Units 13 and 14 in the WSEL property. Jennifer Koskinen Butternut Health Assessor, completed an assessment of the trees on June 19th, 2017, and provided a BHA report to the Ministry of Natural Resources and Forestry, Guelph District Office, on August 29th, 2017. The nine, (9), trees included in the assessment were all determined to be hybrids. The MNRF did not complete an audit after 30 days, as such these trees are able to be removed. Refer to Appendix 'A' for the BHA report.

3.1.2 Unit 1

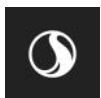
Approximate number of trees: 5

Tree Species: Willow sp., and Manitoba Maple

DBH (cm) range: 10cm to 15cm

Average Condition: Good to Fair

Location and general description: Unit1 is a vegetation clump located along the property boundary of the former golf course and the private property on Wilmot Line.



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3.1.3 Unit 2

Approximate number of trees: 5

Tree Species: Willow sp., and Manitoba Maple

DBH (cm) range: 10cm to 28cm

Average Condition: Good

Location and general description: Unit 2 is a small hedgerow along the east property line of the private property located on Wilmot Line.

3.1.4 Unit 3

Approximate number of trees: 47

Tree Species: Domestic Cherry, Manitoba Maple, Apple sp.,

DBH (cm) range: 10cm to 50cm

Average Condition: Poor

Location and general description: Unit 3 is located along the south property boundary of the private property on Wilmot Line and the agriculture land included in the WSEL.

3.1.5 Unit 4

Approximate number of trees: Multiple saplings

Tree Species: Willow sp.

DBH (cm) range: <10cm

Average Condition: Good

Location and general description: A naturalized clump located on former golf course lands by club house.

3.1.6 Unit 5

Approximate number of trees: 4

Tree Species: Domestic Cherry, and Willow sp.

DBH (cm) range: <10cm to 15cm

Average Condition: Fair

Location and general description: Unit 5 is a tree clump located by the small pond adjacent to the former club house area.

3.1.7 Unit 6

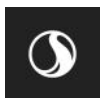
Approximate number of trees: 10

Tree Species: Domestic Cherry, Manitoba Maple, and Willow sp.

DBH (cm) range: <10cm to 30cm

Average Condition: Good to Fair

Location and general description: Unit 6 is a clump of trees and shrubs located adjacent to the entrance road by the golf course club house. Shrubs include Dogwood sp. (*Cornus sp.*), and Currant sp. (*Ribes sp.*).



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3.1.8 Unit 7

Approximate number of trees: 15

Tree Species: Honeylocust, Green Ash, and Red Maple

DBH (cm) range: <10cm to 25cm

Average Condition: Good/Fair/Poor

Location and general description: Unit 7 includes predominantly isolated trees located within and around the parking lot of the former golf course adjacent to the club house.

3.1.9 Unit 8

Approximate number of trees: 9

Tree Species: Green Ash, Silver Maple, Red Maple, Willow sp., Cherry sp., and Apple sp.

DBH (cm) range: <10cm to 31cm

Average Condition: Good/Fair/Poor

Location and general description: Unit 8 are predominantly isolated trees planted along the entrance road to the former golf course parking area.

3.1.10 Unit 9

Approximate number of trees: 5

Tree Species: Willow sp.

DBH (cm) range: <10cm to 16cm

Average Condition: Good/Fair/Poor

Location and general description: Unit 9 is a vegetation grouping of young willow saplings and trees, along with dense Red Osier Dogwood (*Cornus sericea*) located within the golf course play area.

3.1.11 Unit 10

Approximate number of trees: 4

Tree Species: Willow sp., and White Mulberry

DBH (cm) range: <10

Average Condition: Good

Location and general description: Unit 10 is a grouping of naturalized trees and Red Osier Dogwood located up on a slope within the former golf course play area.

3.1.12 Unit 11

Approximate number of trees: 25

Tree Species: Manitoba Maple, Russian Olive, Domestic Cherry, Apple sp., and Elm sp.

DBH (cm) range: <10cm to 23cm

Average Condition: Good to Fair

Location and general description: These trees were located just east outside of the former golf course play area. The trees were predominantly located on a down slope from the former golf course play area amongst dense ground hog holes. Apple trees are likely from the orchard that this site is historically known for in the Region.



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3.1.13 Unit 12

Approximate number of trees: 16

Tree Species: Cottonwood and Willow sp.

DBH (cm) range: 25cm to 50cm

Average Condition: Good/Fair/Poor/Dead

Location and general description: Unit 12 is a treed feature located along the edge of the former golf course where the play area stops.

3.1.14 Unit 13

Approximate number of trees: 24

Tree Species: Butternut hybrid, Eastern White Cedar, Apple sp. White Spruce, Black Walnut, and Basswood.

DBH (cm) range: <10cm to 42cm

Average Condition: Good/Poor

Location and general description: Unit 13 includes a row of Butternut trees which were determined through a Butternut Health Assessment (BHA) to be hybrid trees. These trees were also cultivated for the fruit. Apple trees likely from the historical orchard were also located in this area. The trees in this unit predominantly lined the limit of play area for the former golf course.

3.1.15 Unit 14

Approximate number of trees: 26

Tree Species: Black Walnut, Eastern White Cedar, Butternut hybrid, White Spruce, Apple sp., and Basswood.

DBH (cm) range: <10cm to 44cm

Average Condition: Good

Location and general description: This grouping of trees were located adjacent to the cider mill building within the east area of WSEL. The larger diameter trees had been planted however this area has become naturalized with some young Black Walnut, White Spruce, and Butternut hybrid trees.

3.1.16 Unit 15

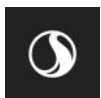
Approximate number of trees: 37

Tree Species: Apple sp., Weeping Willow, Apple sp., Common Lilac, Domestic Cherry, Eastern White Cedar, Buckthorn, White Pine, and Red Pine

DBH (cm) range: <10cm to 65cm

Average Condition: Good

Location and general description: These trees are located within the cider mill building area and most of the evergreen trees form a hedgerow along the edge of the agricultural land. The hedgerow stops at the road that enters from Erb's Road and extends past Costco and stops at the WSEL.



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3.1.17 Unit 16

Approximate number of trees: 31

Tree Species: Manitoba Maple, Apple sp., Manitoba Maple, and Domestic Cherry

DBH (cm) range: 10cm to 45cm

Average Condition: Fair

Location and general description: Unit 16 is a small section of hedgerow that separates two agriculture lands within the WSEL property.

3.1.18 Unit 17

Approximate number of trees: 11

Tree Species: Weeping Willow, Norway Maple, Silver Maple, White Spruce, and Manitoba Maple,

DBH (cm) range: 18cm to 132cm

Average Condition: Good

Location and general description: Unit 17 is located on a property which was previously used as residential.

Currently there is no building on the property only a gravel entrance/driveway. These trees were landscaped trees on this residential property and primarily lines the property border.

3.1.19 Unit 18

Approximate number of trees: 20

Tree Species: Manitoba Maple, Silver Maple, Norway Maple, White Spruce, and Weeping Willow.

DBH (cm) range: 10cm to 135cm

Average Condition: Fair

Location and general description: Unit 18 is located on a property which was previously used as residential.

Currently there is no building on the property only a gravel entrance/driveway. These trees were landscaped trees on this residential property and primarily lines the property border

3.1.20 Trees #359 to #379, and Tree #36, #37 Located along Wilmot Line and Columbia Street West

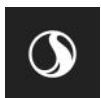
Approximate number of trees: 23

Tree Species: Apple sp., Domestic Cherry, Black Cherry, White Elm, and Sugar Maple

DBH (cm) range: 14cm to 82cm

Average Condition: Good/Fair/Poor

Location and general description: The Apple trees are predominantly adjacent to the Wilmot Line ROW. The other trees noted are located along Columbia Street ROW. The Apple trees are from the historical orchard, while the Sugar Maple are large diameter trees that create a presence along Columbia.



WATERLOO WEST SIDE EMPLOYMENT LANDS, WATERLOO, ON TREE MANAGEMENT PLAN

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August 2018

3.2 ANALYSIS AND RECOMMENDATIONS

The Draft Plan of Subdivision has been designed to maximize the property for future development of the blocks to house a future business park for the City of Waterloo. The design identifies a connection road (Platinum Drive) from Erb Street West to Columbia Street West, with new internal roads that extend off this collector road and bisect the WSEL. These roads will provide access to all the proposed development blocks. A new stormwater management facility is proposed within the HONI transmission corridor. This facility will be owned and operated and maintained by the City of Waterloo. Once this facility is built and operational the temporary facility currently within the WSEL site will be decommissioned.

Upon review of the proposed grading and road locations, there are no opportunities to retain trees on the WSEL property. Tree removals must follow the Migratory Bird protocol as identified in Section 4.1.



4.0 CONSTRUCTION IMPACT MITIGATION AND MANAGEMENT

4.1 MANAGING TREES DURING CONSTRUCTION

The following recommendations are presented to provide appropriate tree management during the construction for this project.

1. Removals are to be completed outside of migratory bird nesting season from, approximately, April 1 to August 31. Removals may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).
2. Upon completion of the tree removals, all felled trees are to be removed from the site. No lumber or brush from the clearing is to be stored on the site. Any chipping, cutting or brush cleanup are to be completed outside of the bird nesting season. These works may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).
3. The following is the process that shall be carried out if tree removals are requested during the restricted time indicated in the Migratory Birds Convention Act:
 - Contact a qualified individual (i.e., Wildlife Biologist) to determine if nesting birds are within the tree removal disturbance area. Stantec has a qualified bird specialist on staff that can be contacted
 - If the bird specialist has determined that there are nesting birds on site, there will be no tree removals/chipping conducted within the boundary set out by the specialist. Tree removals can resume within this area at the end of the nesting season, August 31, or if the migratory bird specialist has determined the birds have left the nest.
 - If the bird specialist determines there are no migratory birds nesting within the disturbance area, the contractor has 7 days to conduct removals. At the end of 7 days, if removals and chipping is not complete, the bird specialist will return to the site and proceed with another assessment. If there are still no birds, work can resume for another 7 days. This process will continue until all removals and chipping is complete.



WATERLOO WEST SIDE EMPLOYMENT LANDS, WATERLOO, ON TREE MANAGEMENT PLAN

Disclaimer
August 2018

5.0 DISCLAIMER

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

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

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

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



APPENDIX A

Butternut Health Assessment

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August 29th, 2017

RE: Westside Employment Lands, property 928 Erb Street, Waterloo, ON
BHA Report Number: 1
Date(s) of Butternut health assessment: June 19th, 2017

Dear Mr. McFadden,

This letter is in regard to my assessment of the Butternut trees on your property. Please read this letter carefully as it contains important information about the Endangered Species Act, 2007 (ESA).

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the ESA from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about Butternut is also available at: <http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>.

If you are eligible to kill, harm or take Butternut under section 23.7 of the regulation, your first step is to submit the BHA Report and the original data forms enclosed in this package to the local MNR District Manager. Note that the MNR will not accept photocopies. The BHA Report must be submitted at least 30 days prior to registering to kill, harm, or remove a Butternut tree. During this 30 day

Links:

Endangered Species Act, 2007:

http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

Ontario Regulation 242/08 (refer to section 23.7):

http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm

Summary of changes related to Butternut:

<http://www.ontario.ca/environment-and-energy/butternut-trees-your-property>

MNR office locations:

http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html

period, no Butternut trees (of any category) may be killed, harmed, or removed, and MNR may contact you for an opportunity to examine the trees.

If MNR chooses to examine the trees, a representative of the MNR will contact you using the information you supplied when you submitted the BHA Report. After the examination has been completed, MNR will notify you if the examination results change whether you are eligible for the regulation.

If you are eligible to follow the rules in regulation under section 23.7, you may register your activity using the "Notice of Butternut Impact" form on the [MNR Registry](#) **after** the 30 day period has elapsed.

If you are **not** eligible to follow the rules in regulation under section 23.7, please contact the local Ministry of Natural Resources (MNR) office to determine whether you will need to seek a permit. A link to the directory of MNR offices is provided in the text box on the previous page.

As a designated Butternut Health Assessor (BHA), I am providing the following Butternut Health Assessor's Report for the trees located at the above noted property, for which I completed an assessment during the site visit on the above noted date. If there are other Butternut trees at the site that may be affected by the activity and they are not identified in this report, they too must be assessed by a BHA.

Note that municipal by-laws and legislation other than the ESA may also be applicable to the removal or harming of trees.

Please retain this letter and a copy of the BHA Report for your records, along with any other documentation you may receive from the MNR should an examination of the trees occur. If you have any questions, please do not hesitate to contact me or your [local MNR district office](#).

Sincerely,



Jennifer Koskinen, HBESfcon
ISA Certified Arborist, BHA

Enclosures:

1. Butternut Health Assessor's Report
2. Tree Locations, Google Map
3. Original data forms
4. Photo page, butternut hybrid photos

Butternut Health Assessor's Report

Jennifer Koskinen, BHA #234
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Property description: Westside Employment Lands, property 928 Erb Street, Waterloo, ON

BHA Report Number: 1

Date(s) of Butternut health assessment: June 19th, 2017.

Date BHA Report prepared: August 29th, 2017.

Map datum used: ☒ NAD83 ☐ WGS84

Total number of trees assessed in this BHA Report: 9

The assessed trees were numbered on site using number marked on flagging tape.
The numbers at the site correspond to the tree numbers used in this report.

This BHA Report includes the following tables:

- Table 1: Butternut trees proposed to be killed, harmed, or taken
- Table 2: Butternut trees that are **not** proposed to be killed, harmed or taken
- Table 3: Trees determined to be hybrid Butternuts
- Table 4: Summary of Assessment Results

Table 1: Butternut trees proposed to be killed, harmed, or taken

Tree #	UTM coordinates	Category ¹ (1, 2, or 3 ²)	dbh ³ (cm)	Cultivated? (Y/N)	Proposed to be: (enter one: killed, harmed or taken)	Reason tree is proposed to be killed, harmed or taken:

¹ The extent to which the tree is affected by Butternut Canker is presented in the Excel document titled, "BHA Tree Analysis" that accompanies this BHA Report.

² The rules in regulation under section 23.7 of O. Reg. 242/08 are not applicable to Category 3 trees.

³ dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)

Table 2: Butternut trees that are **not** proposed to be killed, harmed or taken

Tree #	UTM coordinates	Category (1, 2, or 3)	dbh ⁴ (cm)	Cultivated? (Y/N)

Table 3: Trees determined to be hybrid Butternuts

Tree #	UTM coordinates
1	17536904810580
2	175336944810578
3	175336964810574
4	175337104810566
5	175337104810566
6	175337384810528
7	175337514810519
8	175337504810502
9	175337574810492

Table 4: Summary of Assessment Results

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
Category 1	0	- A Category 1 tree is one that is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut in the area in which the tree is located; and is considered “non-retainable”. - During the 30 day period that follows your submission of this BHA Report to the MNR District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNR may contact you for an opportunity to examine the trees. - Category 1 trees may be killed, harmed or taken after the 30 day period that follows submission of this BHA Report to the MNR District Manager, unless the results of an MNR examination indicate that the assessment has not been conducted in accordance with the document entitled “Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the <i>Endangered Species Act, 2007</i>”.
Category 2	0	- A Category 2 tree is one that is not affected by Butternut Canker, or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of butternut in the area in which the tree is located, and is considered “retainable”. - During the 30 day period that follows your submission of this BHA Report to the MNR District

⁴ dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
		Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNR may contact you for an opportunity to examine the trees. - Activities that may kill, harm or take up to a maximum of ten (10) Category 2 trees may be eligible to follow the rules in section 23.7 of Ontario Regulation 242/08, in accordance with the conditions and requirements set out in the regulation. - Refer to e-Laws for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm
Category 3	0	- A Category 3 tree is one that may be useful in determining sources of resistance to Butternut Canker, and is considered “archivable”. - Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08. - Visit the MNR website using the link below for information on how to seek an ESA authorization, or consider an alternative that will avoid killing, harming or taking any Category 3 trees: http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_HOW_DO_GET_PER_EN.html
Cultivated	0	- An activity that involves killing, harming, or taking a cultivated Butternut tree that was not required to be planted to fulfill a condition of an ESA permit or a condition of a regulation, may be eligible for the exemption provided by subsection 23.7 (11) of O. Reg. 242/08. - Prior to undertaking the activity, the owner or occupier of the land on which the Butternut is located (or person acting on their behalf) will need to determine whether the exemption for cultivated trees is applicable by determining whether or not the tree was cultivated as a result of the requirements for an exemption under O. Reg. 242/08 or a condition of a permit issued under the ESA. This information can be accessed by contacting the local MNR district office: http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html - The owner or occupier of the land on which the Butternut is located (or person acting on their behalf) is encouraged to append the details regarding whether the tree was planted to satisfy a requirement (e.g., the permit number or registration number) to this BHA Report for their records.
Hybrid	9	Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.

NOTE: This concludes the summary of the BHA Report. A complete BHA Report must include the original (hard copy) data forms (i.e., all completed sets of Form 1 and Form 2), an electronic copy of the Excel data analysis spreadsheet, and one printed copy of the Excel data analysis spreadsheet.

Google Maps 928 Erb St W



Imagery ©2017 Google, Map data ©2017 Google Canada 100 m

49731

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE
BLOCK LETTERS)**Shaded fields are mandatory for Butternut Health Assessments**Fill when Form 1 indicates canker is well
established. The information on Form 2
must be filled out for all trees when doing a
Butternut Health Assessment.

WAT Site Code(A,B,...Z, AA...)

Surveyor ID
or BHA # 234

Date (dd/mm/yyyy)

Surveyor Last Name KOSKINEN

19-06-2017

Tree ID Numbering: 1,2,3....Starting from 1 for each site

Tree # Zone Easting Northing
1 17 533690 4810580

Crown Class 1 Live Crown % 35 Main Stem Length(m) 1
 Below crown Seed Signs
 Butternut Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Twig Dieback 6 #Stems
 Branch Dieback 6
 Defoliation 6
 Discolouration 6 DBH(cm)

Assess below live crown
 #Epic-Live 6 #Open #Sooty
 #Epic-Dead 2 Root
 Bark Type S =<2m
 # Callused Wounds 0 >2m

Metres from badly cankered tree
☐ < 40 ☐ > 40 ☐ None FoundCompeting Species
 J U G L X B I

HYBRID TREE.

Tree # Zone Easting Northing
2 17 533694 4810378

Crown Class 1 Live Crown % 80 Main Stem Length(m) 1
 Below crown Seed Signs
 Butternut Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Twig Dieback 3 #Stems
 Branch Dieback 3
 Defoliation 6
 Discolouration 6 DBH(cm)

Assess below live crown
 #Epic-Live 3 #Open #Sooty
 #Epic-Dead 0 Root
 Bark Type S =<2m
 # Callused Wounds 0 >2m

Metres from badly cankered tree
☐ < 40 ☐ > 40 ☐ None FoundCompeting Species
 J U G L X B I

HYBRID TREE

Tree # Zone Easting Northing
3 17 533696 4810574

Crown Class 1 Live Crown % 85 Main Stem Length(m) 2
 Below crown Seed Signs
 Butternut Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Twig Dieback 1 #Stems
 Branch Dieback 1
 Defoliation 22
 Discolouration 22 DBH(cm)

Assess below live crown
 #Epic-Live 10 #Open #Sooty
 #Epic-Dead 4 Root
 Bark Type S =<2m
 # Callused Wounds 0 >2m

Metres from badly cankered tree
☐ < 40 ☐ > 40 ☐ None FoundCompeting Species
 J U G L X B I

HYBRID TREE

Tree # Zone Easting Northing
4 17 533710 4810566

Crown Class 1 Live Crown % 85 Main Stem Length(m) 2
 Below crown Seed Signs
 Butternut Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Twig Dieback 3 #Stems
 Branch Dieback 3
 Defoliation 16
 Discolouration 16 DBH(cm)

Assess below live crown
 #Epic-Live 1 #Open #Sooty
 #Epic-Dead 1 Root
 Bark Type S =<2m
 # Callused Wounds 0 >2m

Metres from badly cankered tree
☐ < 40 ☐ > 40 ☐ None FoundCompeting Species
 J U G L X B I

HYBRID TREE . DBH = 16, 10, 13

Tree # Zone Easting Northing
5 17 533710 4810566

Crown Class 1 Live Crown % 80 Main Stem Length(m) 2
 Below crown Seed Signs
 Butternut Origin Male Flowers
 Natural Female Flowers
 Planted Seed Set
 Unknown None

Twig Dieback 6 #Stems
 Branch Dieback 6
 Defoliation 15
 Discolouration 15 DBH(cm)

Assess below live crown
 #Epic-Live 0 #Open #Sooty
 #Epic-Dead 0 Root
 Bark Type S =<2m
 # Callused Wounds 0 >2m

Metres from badly cankered tree
☐ < 40 ☐ > 40 ☐ None FoundCompeting Species
 J U G L X B I

HYBRID TREE : DBH = 15, 7, 13, 7, 9, 10

Please enter matching page link code on forms 1 and 2

Page Link

533690

(Contact Information follows all applicable
privacy policies and guidelines)

Please return forms to:
 Forest Gene Conservation Association
 Suite 233, 286 Charlotte St.
 Peterborough, ON, K9J 2V4
 www.fgca.net

49731



Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE
BLOCK LETTERS)

Fill when Form 1 indicates canker is well
established. The information on Form 2
must be filled out for all trees when doing a
Butternut Health Assessment.

Shaded fields are mandatory for Butternut Health Assessments

WAT Site Code(A,B,...Z, AA...)

Surveyor ID
or BHA # 234

Date (dd/mm/yyyy)
19-06-2017

Surveyor Last Name KOSKINEN

Tree ID Numbering: 1,2,3...Starting from 1 for each site

Tree # Zone Easting Northing
6175337384810528

Crown Class 85 Live Crown % 1 Main Stem Length(m)
Below crown Seed Signs
Butternut Origin Male Flowers
Natural Female Flowers
Planted Seed Set
Unknown None

Twig Dieback 2 #Stems
Branch Dieback 2
Defoliation 27 DBH(cm)
Discolouration 27

Assess below live crown
#Epic-Live 3 #Open #Sooty
#Epic-Dead 7 Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
□ < 40 □ > 40 □ None Found

Competing Species

HYBRID TREE . DBH = 27, 7

Tree # Zone Easting Northing
7175337514810519

Crown Class 100 Live Crown % <1 Main Stem Length(m)
Below crown Seed Signs
Butternut Origin Male Flowers
Natural Female Flowers
Planted Seed Set
Unknown None

Twig Dieback 1 #Stems
Branch Dieback 1
Defoliation 1 DBH(cm)
Discolouration 1

Assess below live crown
#Epic-Live 0 #Open #Sooty
#Epic-Dead 0 Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
□ < 40 □ > 40 □ None Found

Competing Species
MALUSAP
JUGLXB/
JUGLNI

HYBRID TREE

Tree # Zone Easting Northing
8175337504810502

Crown Class 95 Live Crown % 3 Main Stem Length(m)
Below crown Seed Signs
Butternut Origin Male Flowers
Natural Female Flowers
Planted Seed Set
Unknown None

Twig Dieback 3 #Stems
Branch Dieback 3
Defoliation 18 DBH(cm)
Discolouration 18

Assess below live crown
#Epic-Live 0 #Open #Sooty
#Epic-Dead 0 Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
□ < 40 □ > 40 □ None Found

Competing Species
PICEGLA
MALUSAP

HYBRID TREE DBH = 18, 15, 10

Tree # Zone Easting Northing
9175337574810492

Crown Class 70 Live Crown % 2 Main Stem Length(m)
Below crown Seed Signs
Butternut Origin Male Flowers
Natural Female Flowers
Planted Seed Set
Unknown None

Twig Dieback 2 #Stems
Branch Dieback 2
Defoliation 14 DBH(cm)
Discolouration 14

Assess below live crown
#Epic-Live 0 #Open #Sooty
#Epic-Dead 0 Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
□ < 40 □ > 40 □ None Found

Competing Species
PICEGLA

HYBRID TREE DBH = 14, 13

Tree # Zone Easting Northing
1

Crown Class Live Crown % Main Stem Length(m)
Below crown Seed Signs
Butternut Origin Male Flowers
Natural Female Flowers
Planted Seed Set
Unknown None

Twig Dieback #Stems
Branch Dieback
Defoliation DBH(cm)
Discolouration

Assess below live crown
#Epic-Live #Open #Sooty
#Epic-Dead Root
Bark Type =<2m
Callused Wounds >2m

Metres from badly cankered tree
□ < 40 □ > 40 □ None Found

Competing Species

Please enter matching page link code on forms 1 and 2

Page Link 533690

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privacy policies and guidelines)

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Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731



Tree 1



Tree 2



Tree 3



Tree 4



Tree 5



Tree 6



Tree 7



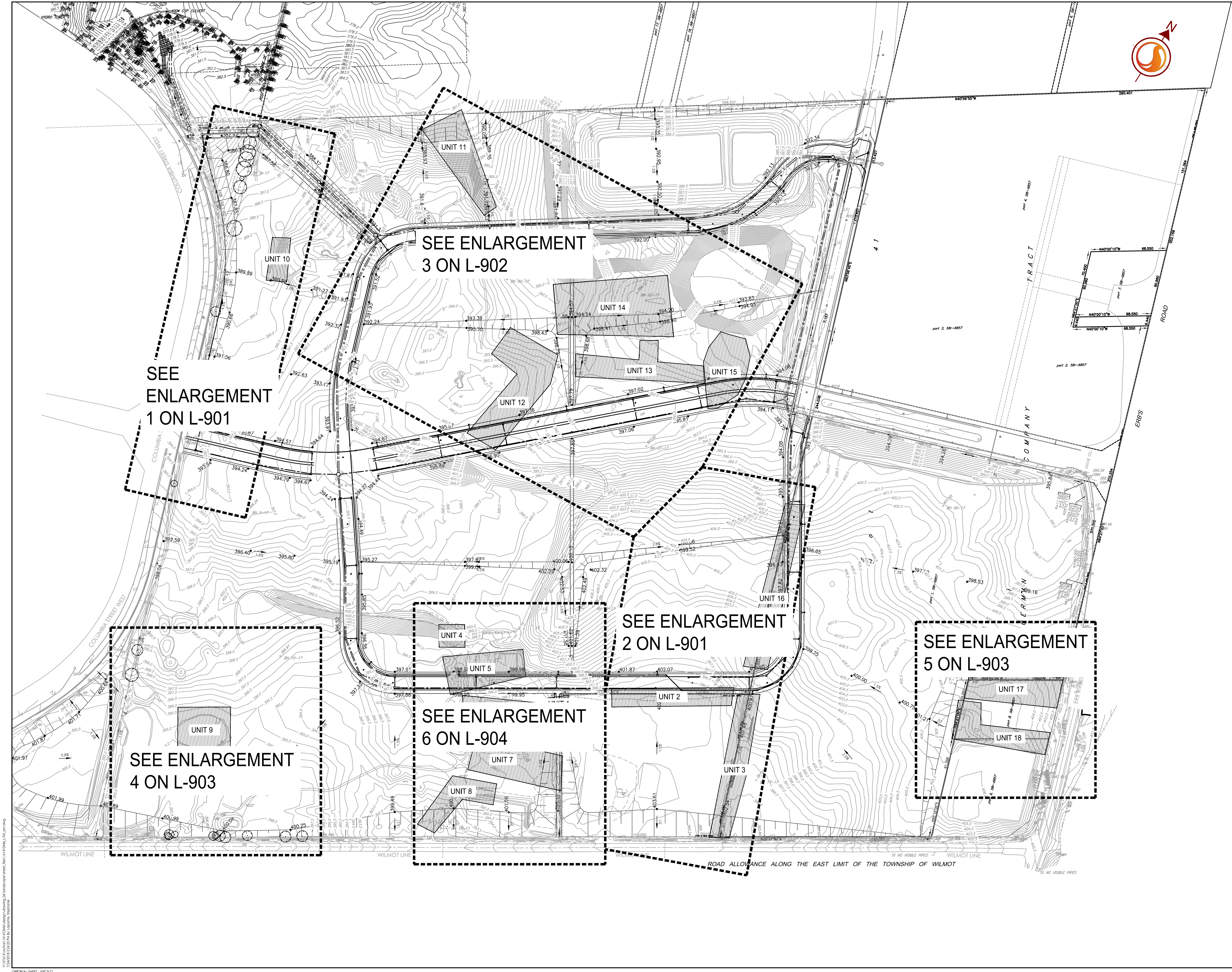
Tree 8



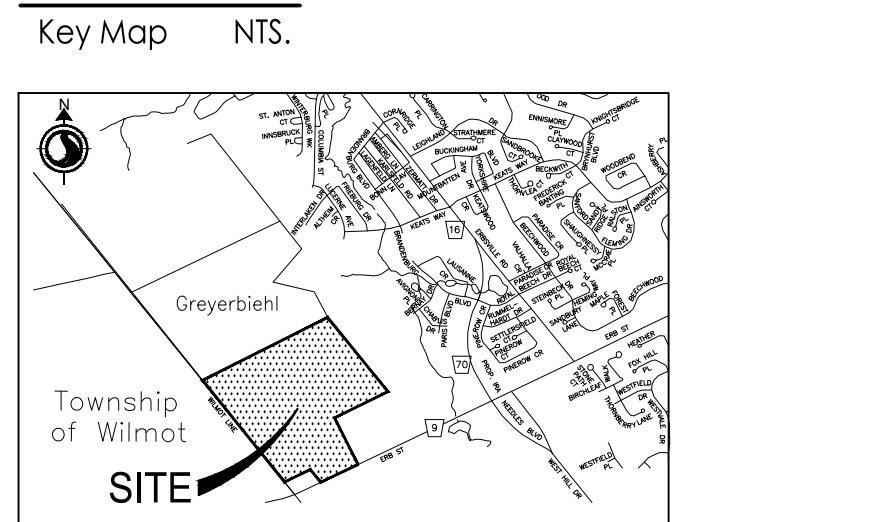
Tree 9

APPENDIX B

**Tree Management Plan,
Drawings L-900 and L-906**



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- Legend
- Existing Grade
 - Proposed Grade
 - Existing Deciduous Tree
 - Existing Coniferous Tree
 - Tree to be Retained and Protected Identification Tag
 - Tree to be Removed Identification Tag
 - Existing Vegetation Unit to be Retained and Protected
 - Existing Vegetation Unit to be Removed
 - Dead Standing Tree

ISSUED IN SUPPORT OF 28A/OPA		SL	TM	2018.07.24
Revision/Issue		By	Appd	YYYY.MM.DD
File Name: 161413446_L-TM.dwg		SL	JK	2018.06.26
		Dwn.	Chkd.	Dsgn.
				YY.MM.DD

Permit-Seal

Client/Project
City of Waterloo
West Side Employment Lands
Waterloo, ON Canada
Title
Tree Management Plan

Project No. 161413446	Scale 0 15 45 75m 1:1500
Revision 0	Sheet 1 of 7
Drawing No. L-900	



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	Existing Grade
	Proposed Grade
	Existing Deciduous Tree
	Existing Coniferous Tree
	Tree to be Retained and Protected Identification Tag
	Tree to be Removed Identification Tag
	Existing Vegetation Unit to be Retained and Protected
	Existing Vegetation Unit to be Removed
	Dead Standing Tree

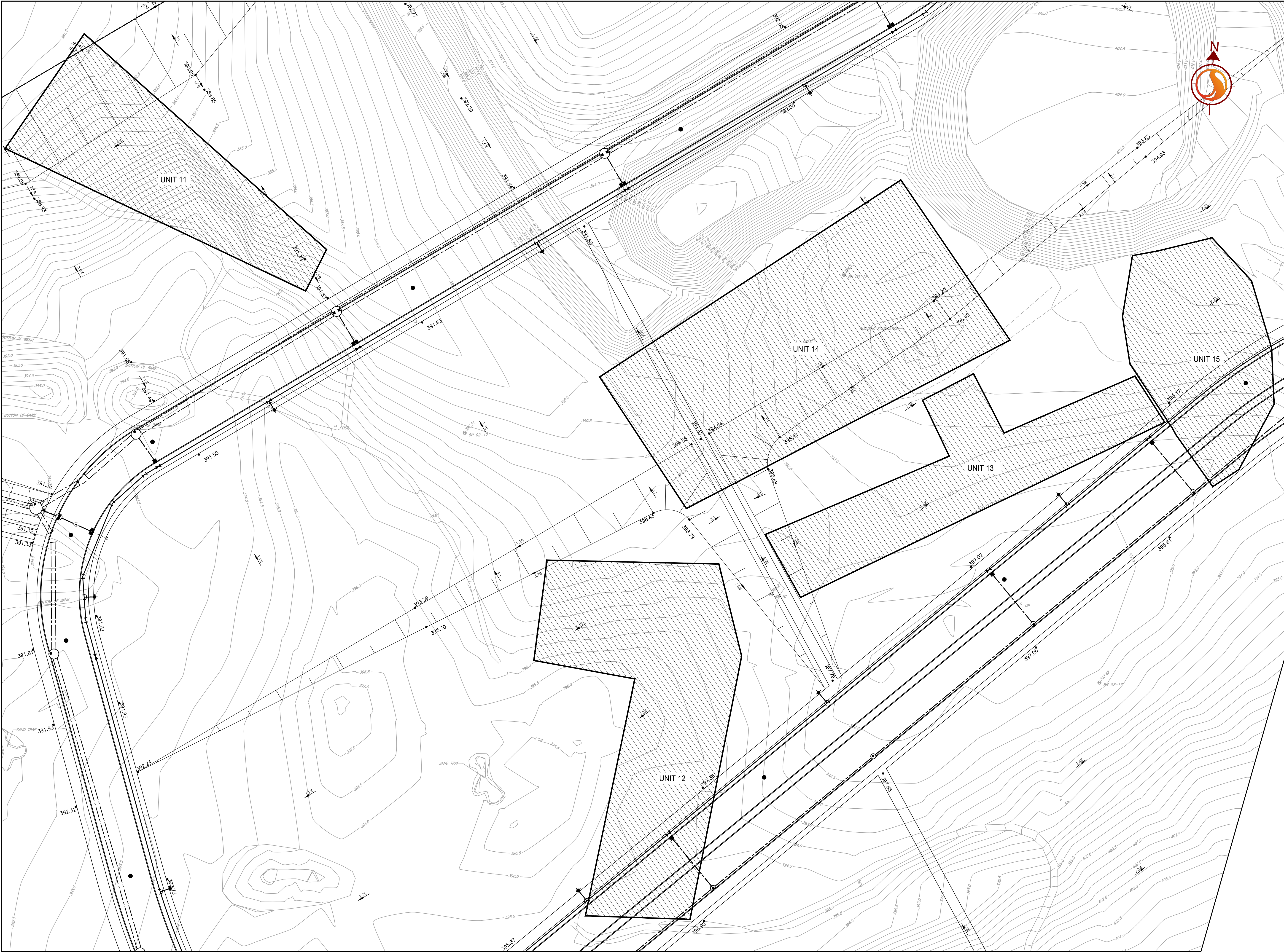
ISSUED IN SUPPORT OF 28A/OPA	SL	TM	2018.07.24
Revision/Issue	By	Appd	YYYY.MM.DD
File Name: 161413446_1-TM_am	SL	JK	SL
	Dwn.	Chkd.	Dsgn.
			2018.06.26
			YY.MM.DD

Drawing No.
L-901



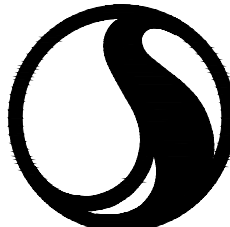
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2/24/2018 3:24:35 PM By: Lapointe, Stephanie

ORIGINAL SHEET - ARCH D



ENLARGEMENT 3



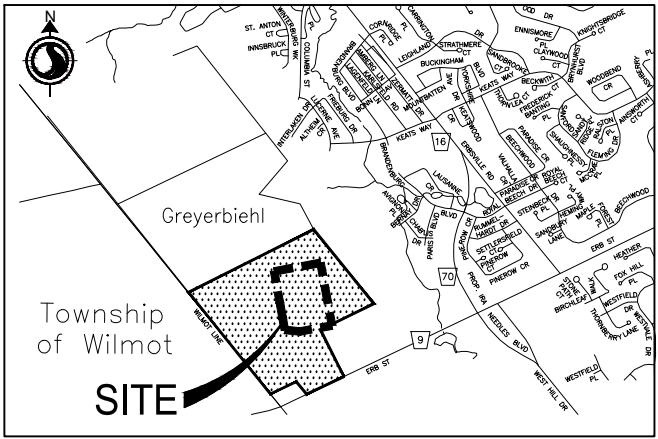


Stantec

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Waterloo ON N2L 0A4
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Key Map NTS.



- Legend
- Existing Grade
 - Proposed Grade
 - Existing Deciduous Tree
 - Existing Coniferous Tree
 - Tree to be Retained and Protected Identification Tag
 - Tree to be Removed Identification Tag
 - Existing Vegetation Unit to be Retained and Protected
 - Existing Vegetation Unit to be Removed
 - Dead Standing Tree

ISSUED IN SUPPORT OF 28A/OPA	SL	TM	2018.07.24
Revision/Issue	By	Appd	YYYY.MM.DD
File Name: 161413446_L-TM.dwg	SL	JK	2018.06.26
	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
City of Waterloo
West Side Employment Lands
Waterloo, ON Canada
Title
Tree Management Plan

Project No. 161413446		Scale
Revision 0	Sheet 3 of 7	Drawing No. L-902



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A map of the Township of Wilmot, Ontario, showing the location of the Greybreith site. The site is marked with a star and labeled 'SITE'. The map includes a north arrow, a scale bar, and various roads and landmarks. The site is located in the south-western part of the township, near the border with the Township of Wilmot.

	Existing Grade
	Proposed Grade
	Existing Deciduous Tree
	Existing Coniferous Tree
	Tree to be Retained and Protected Identification Tag
	Tree to be Removed Identification Tag
	Existing Vegetation Unit to be Retained and Protected
	Existing Vegetation Unit to be Removed
	Dead Standing Tree

ISSUED IN SUPPORT OF 28A/OPA	SL	TM	2018.07.24
Revision/Issue	By	Appd	YYYY.MM.DD
File Name: 161413446-I-TM_am	SL	JK	2018.06.26
	Dwn.	Chkd.	YY.MM.DD

Project No. 161413446

Scale 1:500

0 5 15 25m

Revision 0

Sheet 4 of 7

Drawing No. 1 803





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	Existing Grade
	Proposed Grade
	Existing Deciduous Tree
	Existing Coniferous Tree
	Tree to be Retained and Protected Identification Tag
	Tree to be Removed Identification Tag
	Existing Vegetation Unit to be Retained and Protected
	Existing Vegetation Unit to be Removed
	Dead Standing Tree

Permit-SealCity of Waterloo
West Side Employment Lands

Title
Tree Management Plan

Revision 0	Sheet 5 of 7	Drawing No. 1-904
---------------	-----------------	----------------------

L-904



ENLARGEMENT 6

TABLE 1 Continued. West Side Employment Land, Waterloo, ON
Date Inventoried: May 23, 2017

Tag #	Quantity	Botanical Name	Common Name	DBH (cm)	Dripline Radius (m)	Condition				Comments	Action
						Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition		
	1	<i>Picea glauca</i>	White Spruce	12	1.5	G					Remove
Unit 1											
	1	<i>Salix sp.</i>	Willow sp.	15	1.5	G	F	G	F	Dense clump of willow saplings adjacent.	Remove
	1	<i>Salix sp.</i>	Willow sp.	12	1.5	G	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(3) 10, 12	3	G					Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 10	2.5	G					Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 10	2.5	G					Remove
Unit 2											
	1	<i>Salix sp.</i>	Willow sp.	<10, (2) 10, 14	3	G					Remove
	1	<i>Salix sp.</i>	Willow sp.	<10, 10	1	G	G	G	G	Dense <10 willow sapplings adjacent.	Remove
	1	<i>Salix sp.</i>	Willow sp.	28	4	G					Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, (2) 10	2.5	G				(2) <10 Manitoba Maple adjacent.	Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 10	2	G					Remove
Unit 3											
	1	<i>Prunus sp.</i>	Domestic Cherry	20	3	G	F	G	F		Remove
	6	<i>Prunus sp.</i>	Domestic Cherry	15	2.5	G	F	G	F		Remove
	2	<i>Prunus sp.</i>	Domestic Cherry	10	2	G	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15, 25, 30, <10	4	F	F	G	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	<10, 14	3	F	G	F	F	<10 cherry sp. adjacent.	Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15, 25	4	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 18	3	F	F	F	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	21	2.5	F	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10, 15, 18		P	F	G	P		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	Dead	2	Dead	Dead	Dead	Dead		Remove
	1	<i>Malus sp.</i>	Apple sp.	18, 23	4	P	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10, 15, 18	5	F	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	18	4	F	F	F	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	25, 20	4	P	P	F	P	Some <10 buckthorn within under story.	Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 16	2	F	G	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	18	3	G	F	P	P	Multiple <10cm	Remove
	4	<i>Prunus sp.</i>	Domestic Cherry	16	3	G	F	P	P		Remove
	3	<i>Prunus sp.</i>	Domestic Cherry	14	3	G	F	P	P		Remove
	5	<i>Prunus sp.</i>	Domestic Cherry	10	3	G	F	P	P		Remove
	3	<i>Prunus sp.</i>	Domestic Cherry	21	3	G	F	P	P		Remove
	3	<i>Prunus sp.</i>	Domestic Cherry	18	3	G	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	48, <10	5	P	F	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	38, 45, 50, 55	8	F	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	39, 28	4.5	F	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	39, 28	4.5	F	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	23, 50	5	F	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	39, (2)45, 48	5	F	F	F	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	(2)18, 23	3.5	F	G	G	F		Remove
Unit 4											
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G	Dense willow clump saplings.	Remove
Unit 5											
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5	F	G	G	F	Dogwoods adj. dense shrubs	Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5	F	G	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5	F	P	F	P		Remove
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G	Dense willow clump saplings.	Remove
Unit 6											
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5						Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5						Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	15	2.5						Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	10	2						Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	10	2						Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 15, 25, 30	4	F	F	G	F		Remove
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G		Remove
	1	<i>Cornus sp.</i>	Dogwood sp.	<10	1	G	G	G	G		Remove
	1	<i>Ribes sp.</i>	Currant sp.	<10	1	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	10		F	G	F	F		Remove
Unit 7											
	1	<i>Gleditsia triacanthos</i>	Honey locust	<10	1	F	F	F	F		Remove
	1	<i>Gleditsia triacanthos</i>	Honey locust	<10	1	F	F	F	F		Remove
	1	<i>Gleditsia triacanthos</i>	Honey locust	<10	1	G	G	G	G		Remove
	1	<i>Gleditsia triacanthos</i>	Honey locust	<10	1	G	G	G	G		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	10	2	F	F	P	P		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	15	2	G	G	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	10	2	G	F	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	19	2.5	G	F	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	12	2.5	F	P	F	P		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	10	1.5	P	P	P	P		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	14	2.5	G	F	P	P		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	13	2.5	F	G	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	12	2	F	F	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	14, 16	3.5	F	G	F	F		Remove
	1	<i>Acer rubrum</i>	Red Maple	25	3.5	G	G	G	G		Remove
Unit 8											
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	12	2	F	F	F	F		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	14, 16	3.5	F	G	F	F		Remove
	1	<i>Acer rubrum</i>	Red Maple	25	3.5	G	G	G	G		Remove
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G	Dense willow clump.	Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	12	2	Dead	Dead	Dead	Dead		Remove
	1	<i>Fraxinus pennsylvanica</i>	Green Ash	12	2	P	F	F	P		Remove
	1	<i>Acer saccharinum</i>	Silver Maple	31	5	G	G	G	G		Remove
	1	<i>Prunus sp.</i>	Cherry	23	3	P	P	P	P		Remove
	1	<i>Malus sp.</i>	Apple sp.	(2)18, 10	4.5	G	F	F	F	Poor form from Dogwood growing. Adjacent with 2 <10 Cherry trees	Remove
Unit 9											
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G	Dense.	Remove
	1	<i>Cornus sericea</i>	Red Osier Dogwood	<10 (Multi)	1	G	G	G	G	Dense.	Remove
	1	<i>Salix sp.</i>	Willow sp.	12	1	F	P	P	P		Remove
	1	<i>Salix sp.</i>	Willow sp.	12	1	F	F	F	F		Remove
	1	<i>Salix sp.</i>	Willow sp.	(4)12, 16	1	G	F	P	P		Remove
Unit 10											
	1	<i>Salix sp.</i>	Willow sp.	<10	1	G	G	G	G		Remove
	1	<i>Cornus sericea</i>	Red Osier Dogwood	<10	1					Minimal	Remove
	1	<i>Morus alba</i>	White Mulberry	<10	1	G	G	G	G		Remove
	1	<i>Morus alba</i>	White Mulberry	<10	1	G	G	G	G		Remove
Unit 11											
	1	<i>Acer negundo</i>	Manitoba Maple	18	3.5	G	G	G	G		Remove
	1	<i>Elaeagnus angustifolia</i>	Russian Olive	<10							Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	21	4	F	G	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	14, 20	3.5	F	F	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	10, 14	3	Dead	Dead	Dead	Dead		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	(2) 18	4	F	G	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 18	5	G	G	G	G		Remove
	1	<i>Prunus sp.</i>	Cherry	18		F	G	G	F	Some <10 buckthorn between trees.	Remove
	16	<i>Malus sp.</i>	Apple sp.	10-15		F-G	F-G	F-G	F-G		Remove
	1	<i>Ulmus sp.</i>	Elm sp.	23	4	G	G	F	F		Remove

Tag #	Quantity	Botanical Name	Common Name	DBH (cm)	Dripline Radius (m)	Condition				Comments	Action
						Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition		
Unit 12											
		1 <i>Populus deltoides</i>	Cottonwood	35	2	P	P	P	P		Remove
		1 <i>Populus deltoides</i>	Cottonwood	42	4	P	P	P	P		Remove
		1 <i>Populus deltoides</i>	Cottonwood	50	Dead	Dead	Dead	Dead	Dead		Remove
		1 <i>Populus deltoides</i>	Cottonwood	38	Dead	Dead	Dead	Dead	Dead	Sumac <10 between trees.	Remove
		1 <i>Populus deltoides</i>	Cottonwood	50	Dead	Dead	Dead	Dead	Dead		Remove
		1 <i>Populus deltoides</i>	Cottonwood	30	2	G	G	G	G		Remove
		1 <i>Populus deltoides</i>	Cottonwood	45	4	G	G	G	G		Remove
		1 <i>Populus deltoides</i>	Cottonwood	50	6	G	F	F	F		Remove
		1 <i>Populus deltoides</i>	Cottonwood	28	3	G	G	G	G		Remove
		1 <i>Populus deltoides</i>	Cottonwood	28	3	G	G	G	G		Remove
		1 <i>Populus deltoides</i>	Cottonwood	25	2.5	G	G	G	G		Remove
		1 <i>Salix sp.</i>	Willow sp.	25	2	F	F	F	F		Remove
		1 <i>Salix sp.</i>	Willow sp.	(2) 28		F	F	F	F	Red Osier Dogwood (dense) between trees.	Remove
		1 <i>Salix sp.</i>	Willow sp.	30	4	F	F	G	F		Remove
		1 <i>Salix sp.</i>	Willow sp.	(2) 38, 40, 48, 50	8	F	F	F	F		Remove
		1 <i>Salix sp.</i>	Willow sp.	38	4	G	F	F	F		Remove
Unit 13											
		1 <i>Juglans cinerea</i>	White Walnut	<10	1	P	P	P	P		Remove
		1 <i>Juglans cinerea</i>	White Walnut	<10	1	P	P	P	P		Remove
		1 <i>Juglans cinerea</i>	White Walnut	19	3	P	P	P	P		Remove
		1 <i>Juglans cinerea</i>	White Walnut	12, 15	4	P	P	P	P		Remove
		1 <i>Juglans cinerea</i>	White Walnut	(3) 10, (3) 14	4	P	P	P	P		Remove
		1 <i>Thuja occidentalis</i>	Eastern White Cedar	(2) 18	2	G	G	G	G		Remove
		1 <i>Thuja occidentalis</i>	Eastern White Cedar	10	2	G	G	G	G		Remove
		1	N/A	28	N/A	Dead	Dead	Dead	Dead		Remove
		1 <i>Thuja occidentalis</i>	Eastern White Cedar	10, 14	2	G	G	G	G		Remove
		1 <i>Juglans cinerea</i>	White Walnut	18	5	F	F	F	F		Remove
		1 <i>Malus sp.</i>	Apple sp.	38, 42	5	F	F	G	F	Split in trunk, some rot visible.	Remove
		1 <i>Picea glauca</i>	White Spruce	10	2	G	G	G	G		Remove
		1 <i>Picea glauca</i>	White Spruce	<10	1.5	G	G	G	G		Remove
		1 <i>Juglans cinerea</i>	White Walnut	12, 13	5	G	F	F	F		Remove
		1 <i>Malus sp.</i>	Apple sp.	(2) 10, 14, 18	5	G	G	G	G		Remove
		1 <i>Picea glauca</i>	White Spruce	<10	2	G	G	G	G		Remove
		1 <i>Picea glauca</i>	White Spruce	10	2	G	G	G	G		Remove
		1 <i>Picea glauca</i>	White Spruce	(2) 18	2	G	G	G	G		Remove
		1 <i>Juglans cinerea</i>	White Walnut	<10, 10	1.5	P	F	P	P		Remove
		1 <i>Juglans nigra</i>	Black Walnut	12	2	F	G	F	F		Remove
		1 <i>Juglans nigra</i>	Black Walnut	<10	1	P	F	F	P		Remove
		1 <i>Malus sp.</i>	Apple sp.	(3) 23	3.5	G	G	G	G		Remove
		1 <i>Malus sp.</i>	Apple sp.	15, 35, 42	4	P	P	G	P	Tree on ground, split in trunk, rot.	Remove
	1	<i>Tilia americana</i>	Basswood	(2) 10, 15, (2) 16, 17, 18, 23, 26,	5.5	G	F	G	F		Remove
Unit 14											
	1	<i>Juglans nigra</i>	Black Walnut	28	6	G	F	F	F		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	(3) 10, 18		G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	28	4.5	G	G	G	G	Growing as a hedgerow.	Remove
	1	<i>Picea glauca</i>	White Spruce	18	3	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	14	2	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	30	3.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	40	4	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	(2) <10	1.5	F	F	F	F		Remove
	1	<i>Picea glauca</i>	White Spruce	40	3	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	18	2.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	30	3.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	44	3.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	18	1.5	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	21	3	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	10, 12, 21	2.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	18, 25	2	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	(2) 12, 18	2	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 15	2	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	15, 18	1.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	(2) <10, 15, 21, 22	2	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 10	1.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 28	2.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 23	2.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	10, 12, 28	3	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	10	2.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	(2) < 10, (2) 15, 20	2	G	G	G	G		Remove
Unit 15											
	1	<i>Malus sp.</i>	Apple sp.	23	4	P	G	G	P		Remove
	1	<i>Salix babylonica</i>	Weeping Willow	25, 39, 40, 55	5	F	G	G	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	21	3.5	P	F	G	P		Remove
	1	<i>Malus sp.</i>	Apple sp.	45	4	P	F	G	P		Remove
	1	<i>Syringa vulgaris</i>	Lilac sp.	<10	1						Remove
	1	<i>Malus sp.</i>	Apple sp.	38	5	G	G	G	G		Remove
	1	<i>Malus sp.</i>	Apple sp.	28	5	G	G	G	G		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	38	4	P	P	P	P		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 10, 14	3	G	G	G	G		Remove
	1	<i>Rhamnus</i>	Buckthorn	10	4	G	G	G	G		Remove
	1	<i>Pinus strobus</i>	White Pine	65	5	G	G	G	G		Remove
	1	<i>Pinus strobus</i>	White Pine	49	6	G	G	G	G		Remove
	1	<i>Malus sp.</i>	Apple sp.	20	3	F	F	F	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	33	6	F	F	F	F		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	15, 20	1	G	G	G	G		Remove
	1	<i>Pinus strobus</i>	White Pine	65	7	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	21	2.5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	20	1.5	G	G	G	G		Remove
	1	<i>Pinus strobus</i>	White Pine	42	4	G	G	G	G		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	18	N/A	Dead	Dead	Dead	Dead		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	18	2	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	15	1.5	G	G	G	G		Remove
	1	<i>Malus sp.</i>	Apple sp.	18, 20	4	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	20	4	G	G	G	G		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	18	2.5	P	P	P	P		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	20	2	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	28	4	G	F	G	F		Remove
	1	<i>Pinus resinosa</i>	Red Pine	27	3.5	G	F	G	F		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	16	1.5	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	38	5	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	28	3.5	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	23	4	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	18, 32	3.5	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	28	4	G	G	G	G		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	<10, 10, 21	1.5	G	G	G	G		Remove
	1	<i>Pinus resinosa</i>	Red Pine	35	5	G	F	F	F		Remove
	1	<i>Thuja occidentalis</i>	Eastern White Cedar	18	1.5	G	F	G	F		Remove

TABLE 1 Continued. West Side Employment Land, Waterloo, ON
Date Inventoried: May 23, 2017

Tag #	Quantity	Botanical Name	Common Name	DBH (cm)	Dripline Radius (m)	Condition				Comments	Action
						Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition		
Unit 16											
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10, 14, 35	5	F	G	G	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	(2) 18, 21	5	G	F	G	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	10	2.5	F	F	F	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	(2) 12, 14	3.5	F	F	F	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	12, 15, 18	4.5	F	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	12, 45		F	G	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	21	1.5	P	P	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	18	3.5	G	G	G	G		Remove
	2	<i>Prunus sp.</i>	Domestic Cherry	18	N/A	Dead	Dead	Dead	Dead		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	18	2	P	P	P	P		Remove
	1	<i>Malus sp.</i>	Apple sp.	15, 18, 19, 20	4	P	F	G	P	Dense grey alder between.	Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	15	3.5	G	F	F	F		Remove
	1		Unknown	40	N/A	Dead	Dead	Dead	Dead		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10, 14, 20	5	F	G	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	25, 38	6	F	G	G	F		Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	10, 14	2	F	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(4) 12	3	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, (2) 15	4	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 12	3	G	G	G	G		Remove
	1	<i>Fraxinus sp.</i>	Ash sp.	28	3	Dead	Dead	Dead	Dead		Remove
	3	<i>Prunus sp.</i>	Domestic Cherry	10	2	G	F	G	F		Remove
	5	<i>Prunus sp.</i>	Domestic Cherry	15	2.5	G	F	G	F		Remove
	1	<i>Malus sp.</i>	Apple sp.	45	4	P	F	G	P	Surrounded by dense grey dogwood.	Remove
	1	<i>Prunus sp.</i>	Domestic Cherry	25	3.5	F	G	G	F	Surrounded by dense grey dogwood.	Remove
Unit 17											
	1	<i>Salix babylonica</i>	Weeping Willow	132	9	G	G	G	G		Remove
	1	<i>Acer platanoides</i>	Norway Maple	10, (3) 19	3	P	P	P	P		Remove
	1	<i>Acer saccharinum</i>	Silver Maple	59	59	G	G	G	G		Remove
	1	<i>Acer platanoides</i>	Norway Maple	45	4	G	G	G	G		Remove
	1	<i>Acer saccharinum</i>	Silver Maple	67	6	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	38	3.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	24	3.5	G	G	G	G		Remove
	1	<i>Picea glauca</i>	White Spruce	26	3.5	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	12, 14, 18	3.5	G	F	G	F		Remove
	1	<i>Acer saccharinum</i>	Silver Maple	39, 40, 41	5	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	31, 73	5	G	G	F	F		Remove
Unit 18											
	1	<i>Acer negundo</i>	Manitoba Maple	14	3.5	F	G	G	F		Remove
	1	<i>Acer saccharinum</i>	Silver Maple	14, (2) 20, 21	5	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	18, (2) 20		F	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	12	3	F	G	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	17	2	F	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15	2.5	F	P	F	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	18	3	F	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15, 18	3	F	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	28	5	F	F	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15, 21	3	F	F	F	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	<10, 18	2.5	F	G	G	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	20	4	F	F	F	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	10, (2) 15	3	F	F	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	15	3	P	P	P	P		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10	2.5	F	F	F	F		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	10	1.5	P	P	P	P		Remove
	1	<i>Acer platanoides</i>	Norway Maple	18, 21	3.5	G	G	G	G		Remove
	1	<i>Acer negundo</i>	Manitoba Maple	(2) 10	2.5	P	P	P	P		Remove
	1	<i>Picea glauca</i>	White Spruce	18	2.5	G	G	G	G		Remove
	1	<i>Salix babylonica</i>	Weeping Willow	135	9	G	G	G	G		Remove
Edge Trees											
359	1	<i>Malus sp.</i>	Apple sp.	(2)10, 14, (3)15, <10	5	G	G	G	G	property line	Remove
36	1	<i>Prunus sp.</i>	Domestic Cherry	23	3	P	P	P	P		Remove
360	1	<i>Malus sp.</i>	Apple sp.	20, (3)16, 18, 14	4.5	G	G	G	G		Remove
37	1	<i>Malus sp.</i>	Apple sp.	(2)18, 10	4.5	G	F	F	F		Remove
361	1	<i>Malus sp.</i>	Apple sp.	21, 23, 14	5	F	F	G	F	Typical Apple form but still good to retain	Remove
362	1	<i>Malus sp.</i>	Apple sp.	<10, (2)15, 18	3	G	G	G	G		Remove
363	1	<i>Malus sp.</i>	Apple sp.	(2)12, 10, 15	4	G	F	G	F		Remove
364	1	<i>Malus sp.</i>	Apple sp.	(2)10, <10	4	G	F	G	F		Remove
365	1	<i>Prunus sp.</i>	Domestic Cherry	18, 14	4.5	G	F	G	F		Remove
366	1	<i>Prunus serotina</i>	Black Maple	20, <10	4	G	G	G	G	Crown adjacent to service line	Remove
367	1	<i>Malus sp.</i>	Apple sp.	12	3	P	G	G	P		Remove
368	1	<i>Ulmus laevis</i>	White Elm	58	6						Remove
369	1	<i>Ulmus laevis</i>	White Elm	47	5	P	P	P	P		Remove
370	1	<i>Malus sp.</i>	Apple sp.	10, 12, 14, 16	3	G	F	G	F	Try to retain.	Remove
371	1	<i>Malus sp.</i>	Apple sp.	(2) <10, 10, 12, 14, 17	4.5	G	F	G	F	Try to retain.	Remove
372	1	<i>Acer saccharum</i>	Sugar Maple	25	7	P	F	G	P	Large crack in centre trunk, rot inside.	Remove
373	1	<i>Acer saccharum</i>	Sugar Maple	67	6	F	F	G	F		Remove
374	1		Dead	60		Dead	Dead	Dead	Dead	Hazard Tree.	Remove
375	1	<i>Acer saccharum</i>	Sugar Maple	73	7	G	F	G	F		Remove
376	1	<i>Acer saccharum</i>	Sugar Maple	80		P	G	G	P	Wound/cavity at base of trunk. Rot may be limited to 1/3 and tree may be stable at base.	Remove
377	1	<i>Acer saccharum</i>	Sugar Maple	82	6	G	G	G	G		Remove
378	1	<i>Acer saccharum</i>	Sugar Maple	30		F	F	G	F		Remove
	1	<i>Acer saccharum</i>	Sugar Maple	42		P	P	P	P	Large cavity rot; Could be removed and 30cm would survive structurally.	Remove
379	1	<i>Acer saccharum</i>	Sugar Maple	78	6	G	G	G	G		Remove

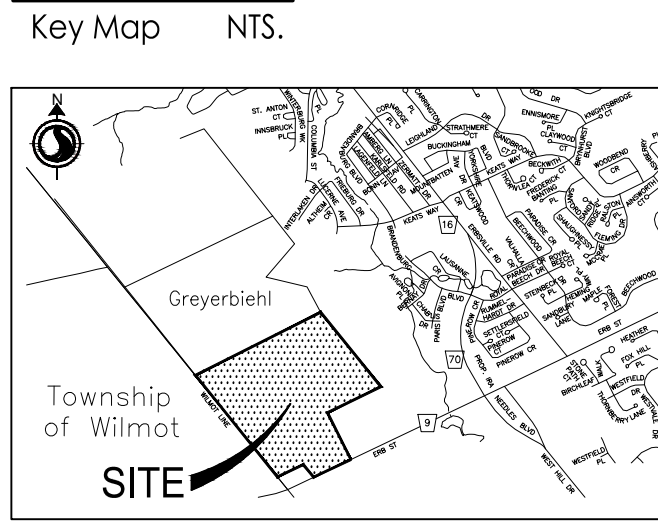


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Legend

- Existing Grade
- Proposed Grade
- Existing Deciduous Tree
- Existing Coniferous Tree
- Tree to be Retained and Protected Identification Tag
- Tree to be Removed Identification Tag
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed
- Dead Standing Tree

ISSUED IN SUPPORT OF 28A/OPA	SL	TM	2018.07.24
Revision/Issue	By	Appd	YYYY.MM.DD
File Name: 161413446_L-TM_Lam	SL	JK	2018.06.26
	Dwn.	Chkd.	YY.MM.DD

Permit-Seal

Client/Project

City of Waterloo

West Side Employment Lands

Waterloo, ON Canada

Title

Tree Management Plan

Project No. 161413446

Scale 1:500

Revision 0

Sheet 7 of 7

Drawing No. L-906