

April 5, 2022

Ainley Farm Environmental Impact Study

Addendum # 2

Prepared for

Black, Shoemaker, Robinson, Donaldson



north-south
ENVIRONMENTAL

Project Study Team

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1. Introduction

An Environmental Impact Study (EIS) for proposed development on Ainley Farm property was prepared by North-South Environmental Inc. (NSE) in 2017, followed by an Addendum in 2019 after receiving comments provided by the Grand River Conservation Authority (GRCA). Additional comments on the EIS and Addendum were provided by Natural Resource Solutions Inc (NRSI) through the peer review process for the Town of Centre Wellington. For each comment relating to natural heritage, a detailed response is provided in this second Addendum. **Appendix 1** summarizes which section addresses each of the comments.

1.1. Identification of Additional Tree Removal

This Addendum also addresses the impacts of additional tree removal along the south edge of the property, required for installation of the sanitary sewer that will connect to the sanitary pipe along Keating Drive. As noted in previous reports (the EIS and Addendum), the sewer will be installed along a drainage ditch between the woodland and the houses along Thomas Boulevard, with as few trees being removed as possible. This corridor has been established as the only feasible route for the sanitary sewer.

2. Wetland and Woodland Boundary Staking

The boundary of wetlands was staked with supervision of GRCA on September 24th, 2018. The results were reported in the previous Addendum in June, 2019. A third wetland (SWT 3-5) identified in the EIS was confirmed to have succeeded to a Red Raspberry (*Rubus idaeus* ssp. *strigosus*) thicket during wetland and woodland boundary confirmation with GRCA (as noted in previous EIS Addendum).

The woodland dripline boundary was revised and staked with members of NRSI and the Town present on November 13, 2021. The staked boundary is shown in **Figure 1**.

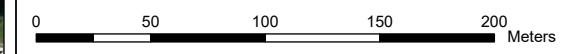
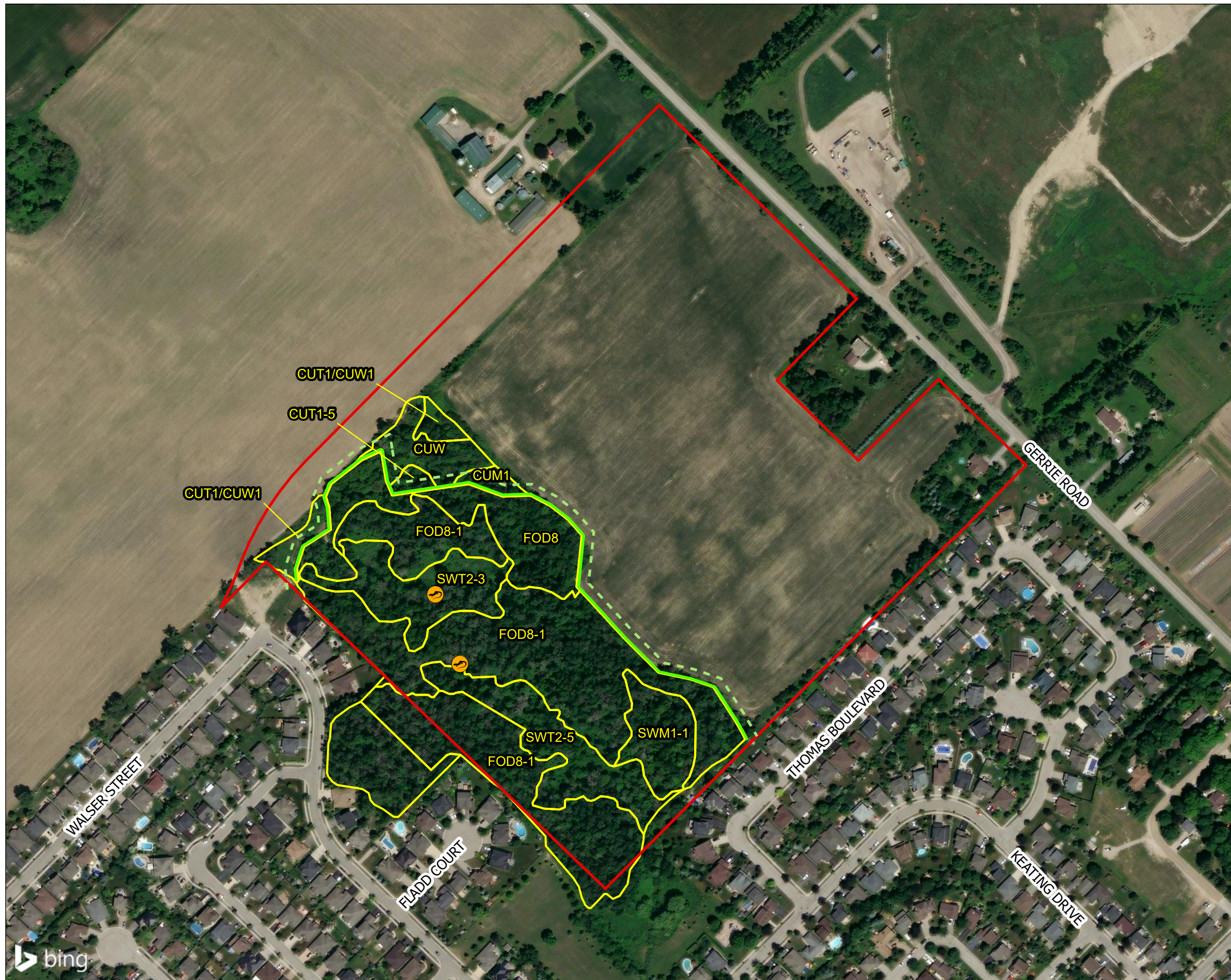
Figure 1 | Ainley Subdivision
Ecological Land Classification

Legend

- Subject Property
- Woodland Dripline (surveyed November 13, 2021)
- Woodland Dripline Buffer (10 m)
- Amphibian Monitoring Station
- Ecological Land Classification (ELC)

Vegetation Communities

- CUM1** - Mineral Cultural Meadow
- CUT1** - Mineral Cultural Thicket
- CUT1-5** - Raspberry Cultural Thicket
- CUW** - Cultural Woodland
- CUW1** - Mineral Cultural Woodland
- FOD8** - Fresh-Moist Poplar-Sassafras Deciduous Forest
- FOD8-1** - Fresh-Moist Poplar Deciduous Forest
- SWM1-1** - White Cedar-Hardwood Mineral Mixed Swamp
- SWT2-3** - Red-osier Mineral Thicket Swamp
- SWT2-5** - Willow Organic Thicket Swamp



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3. Tree Inventory and Tree Preservation Plan

An updated inventory of trees that will potentially be removed was completed on November 30th, 2021, May 6th 2022, and May 13th 2022 by Pauline Catling, Senior Ecologist; ISA Certified Arborist (ON-2721A) and Devin Bettencourt, Junior Ecologist; ISA Certified Arborist (ON-2831A). A Tree Inventory Report and Tree Preservation Plan (TPP) was developed to identify which trees require removal and determine compensation. The TPP is appended to this report (**Appendix 2**).

The County of Wellington Conservation and Sustainable Use of Woodlands Tree By-law (5115-09) does not state specific details on tree compensation. Recommendations for tree compensation have been determined by Madison Postma, Registered Professional Forester from Natural Resource Solutions Inc. (NRSI) and approved by Mariana Iglesias, Senior Planner and Mat Alain, Urban Forestry Project Manager from the Township of Wellington.

Tree compensation for the removal of 35 municipally owned trees located in the southern portion of the study area (park north of Keating Dr.) and hedgerow / individual trees within the Subject Property will be compensated according to the standards listed within the Public Forest Policy (Centre Wellington, 2018) (2 trees for every tree removed equal to or larger than 10 cm DBH). Therefore, 70 trees will need to be planted as compensation, with a caliper size of 50 mm to 70 mm. Locations of these trees are planned for areas throughout the subdivision where opportunities are identified.

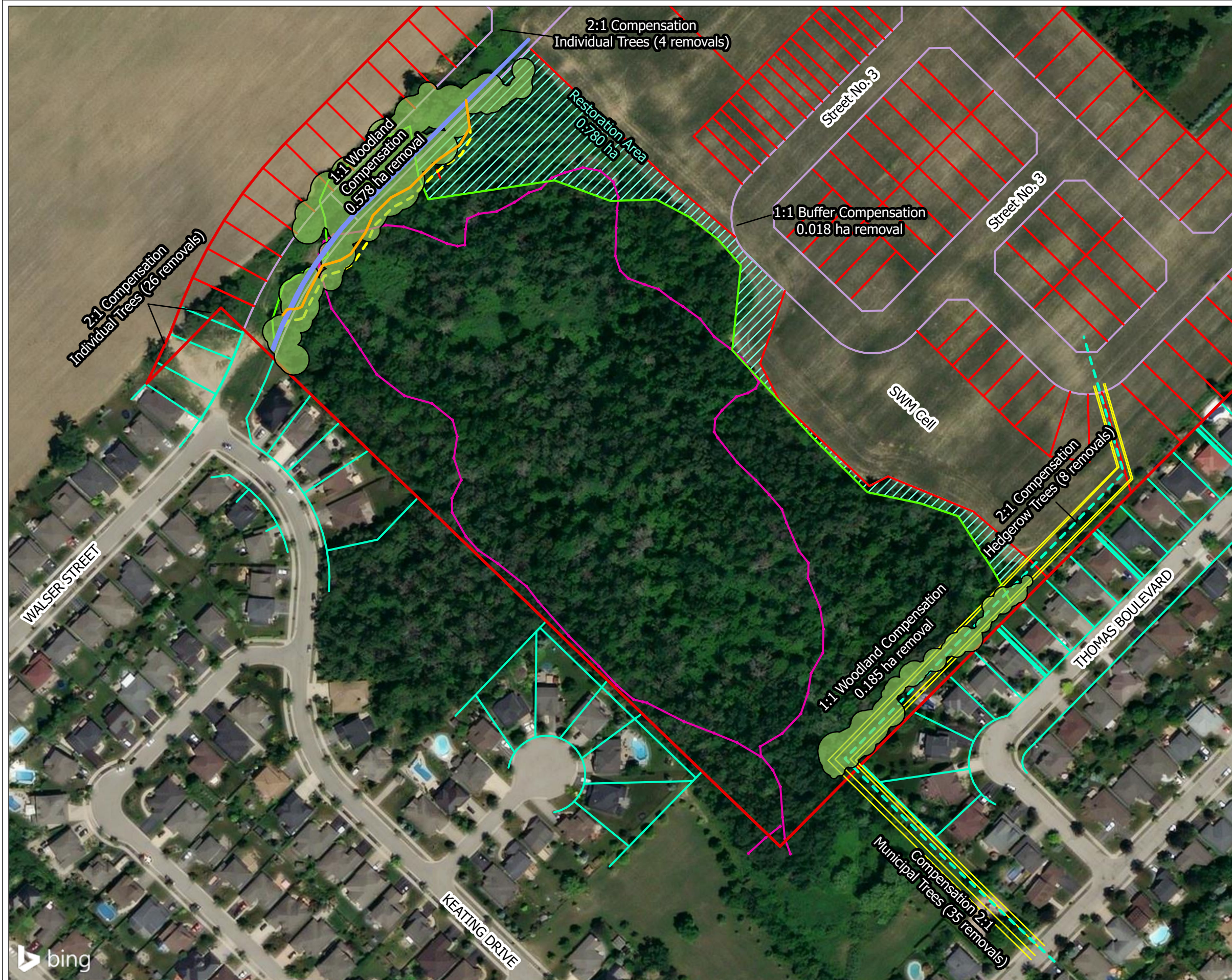
Tree compensation for the removal of 38 hedgerow/individual trees located within the Subject Property will be compensated according to the standards listed within the Public Forest Policy (Centre Wellington, 2018) (2 trees for every tree removed equal to or larger than 10 cm DBH). Therefore, 76 trees will need to be planted as compensation, with a caliper size of 50 mm to 70 mm. Locations of these trees are planned for areas throughout the subdivision where opportunities are identified.

It should be noted that a total of 7.223 ha of woodland area is being preserved on the Subject Property. The number of trees within the preserved woodland area is estimated to be 3100 trees \geq 10 cm DBH (calculations are shown in the Tree Protection Plan). This estimate is likely conservative. The areas of woodland proposed to be removed for the Walser Street Extension (0.578 ha) and the sanitary sewer on the south side of the woodland (0.185 ha) total 0.763 ha. An additional area of 0.008 ha of woodland buffer is proposed to be removed for Street 3, bringing the total to 0.771 ha. The area of woodland proposed for removal will be compensated at a 1:1 ratio in order to maintain tree canopy cover. A total of 0.780 ha (slightly larger than the area lost) is identified for compensation purposes adjacent to the woodland as it was assumed that the density of planted trees within the compensation areas may have to be adjusted in minor locations because of requirements for stormwater treatment facilities, presence of existing tree roots, etc. Restoration areas are shown in

Figure 2.

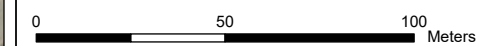
NRSI requested that tree planting occur at density of 1200 trees per hectare of any size. The proposed development plan will result in the removal of 0.771 ha of woodland trees. Based on the area proposed for removal, 925 trees of any size (e.g., whips, 50-100 cm height) will be planted for compensation. This is based on the calculation of $(0.771)(1200) = 925$ trees. If tree planting of larger caliper species is proposed within the development envelope, the density/numbers of trees per hectare will be adjusted consistent with the Forestry Act (e.g., 750 over 5 cm diameter per hectare). Planted trees shall come with a 2-year warranty period and monitoring will be conducted during this period to determine numbers of replacement trees.

Figure 2 | Ainley Subdivision
Tree Removal Compensation Ratios



Legend

- Subject Property
- Compensation Area**
- Woodland Removal / Injury
- Recommended Restoration Areas
- Recommended Screening Vegetation
- Proposed Development**
- Existing Lot Lines
- Proposed Lots
- Proposed Streets
- Proposed Pathway
- Top of Slope
- Woodland Dripline (surveyed November 13, 2021)
- Proposed Sanitation Line
- Limit of Disturbance for Road Construction
- Easement



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Table 1 below provides a summary of compensation requirements for trees proposed for removal.

Table 1. Summary of Compensation Requirements for Trees Proposed for Removal

Tree Location	Compensation Requirement	Live Tree Removals ³	Total area planned for removal ³	Number of Required Replacement Trees
Woodland Trees	1200 trees/ha removed	200	0.763 ha	925 (any size) ¹ including removal of buffer
Hedgerows/Individual Trees	2 trees for every 1 trees removed with a DBH \geq 10)	38	N/A	76 (caliper size of 50mm to 70mm) ²
Municipality Owned Trees	2 trees for every 1 trees removed with a DBH \geq 10)	35	N/A	70 (caliper size of 50mm to 70mm) ²

¹As per the recommendations of NRSI and the Township of Wellington (1200 trees/ha)

²Based on compensation requirements provided in the Public Forest Policy (Centre Wellington, 2018)

³Dead trees are not included, as they do not require compensation

4. Wildlife and Habitat Inventories

4.1. Bat Habitat

From the background review the Subject Property is located within 2 km of a documented colony of Little Brown Myotis (*Myotis lucifugus*), an Endangered Species at Risk.

A snag survey was conducted in conjunction with the update to the tree inventory on May 6 and 13 (prior to leaf-out), 2022. Results are shown in **Appendix 3**. Trees that provided potential bat habitat according to Bats & Treed Habitats - Maternity Roost Surveys Protocol provided by MECP, include the following criteria (in order of importance):

- Tallest snag/cavity tree
- Cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities
- Has the largest diameter at breast height (DBH) (>25 cm diameter DBH)
- Is within the highest density of snags/cavity trees (e.g., cluster of snags)
- Has a large amount of loose, peeling bark
- Cavity or crevice is high in snag/cavity tree (>10m)
- Has leaf clusters
- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Canopy is more open
- Exhibits early stages of decay (decay Class 1-3).

Surveys for leaf clusters that could potentially provide habitat for Tri-colored Bat (*Perimyotis subflavus*) were conducted prior to exit surveys. Preferred mature trees that tend to produce leaf clusters (oak and maple) are rare along the woodland edges, and leaf clusters were not observed.

Fifty-eight (58) trees in the area of potential tree removal (north and south edges of the woodlot) were found to support bat habitat, as shown in **Figures 3A, B**. Thirty (30) of the Fifty-two trees were dead and dying ash (*Fraxinus* sp.). Of the habitat assessed, many of the trees provided multiple forms of habitat, with most provided habitat consisting of loose bark, a common characteristic of ash trees that were dead and dying due to Emerald Ash Borer. Twelve (12) trees supported cavities, forty (40) had flakey bark, twenty-four (26) had cracks, and thirty-nine (39) had another snag tree within 10 m. No knot holes were recorded.

4.2. Bat Exit Surveys

Bat exit surveys were conducted according to MNRF protocols on June 3rd, June 7th and June 23rd, 2022, focusing on sampling locations at the edge of the woodlot where potential exit holes could be easily seen. Two of the surveys were conducted from one-half hour before sunset to one hour after sunset (from approximately 8:30 until 10:00 pm). The surveys were generally conducted in fair weather with winds between 0 and 3 on the Beaufort Scale. The first survey on June 3rd had to be aborted approximately 40 minutes before the end of the prescribed time because wind rose suddenly above 19 km/h (recommended as the maximum wind speed for bat surveys according to MNRF). Acoustic surveys were conducted with a hand-held bat detector (Wildlife Acoustics Inc. echo-meter touch and echo-meter touch pro) at four locations encompassing seven of the “best” trees, as shown in **Figures 3A, B**. The files recorded were identified through the echo-touch software and recorded in the field, and then the recordings were analyzed with the use of Wildlife Acoustic Inc. Kaleidoscope Pro software. All recordings of SAR bats were also screened by an observer trained to recognize the call signatures of Ontario bats.

Results are provided in **Table 2**. No bats were seen exiting from the trees under observation. However, five species of bats were identified flying overhead, with a total of 81 calls recorded. Of the five species, one, Little Brown Myotis, is a Species at Risk with a status of Endangered. This species was recorded by all observers on a single night, and was most likely foraging over the woodlot. However, it is possible that one or more species may have formed maternity roosts in the woodlot.

4.3. Consultation with MECP

The Ministry of Environment, Conservation and Parks were consulted regarding the removal of SAR bat habitat along the edges of the woodlot. The response is provided in **Appendix 4**.

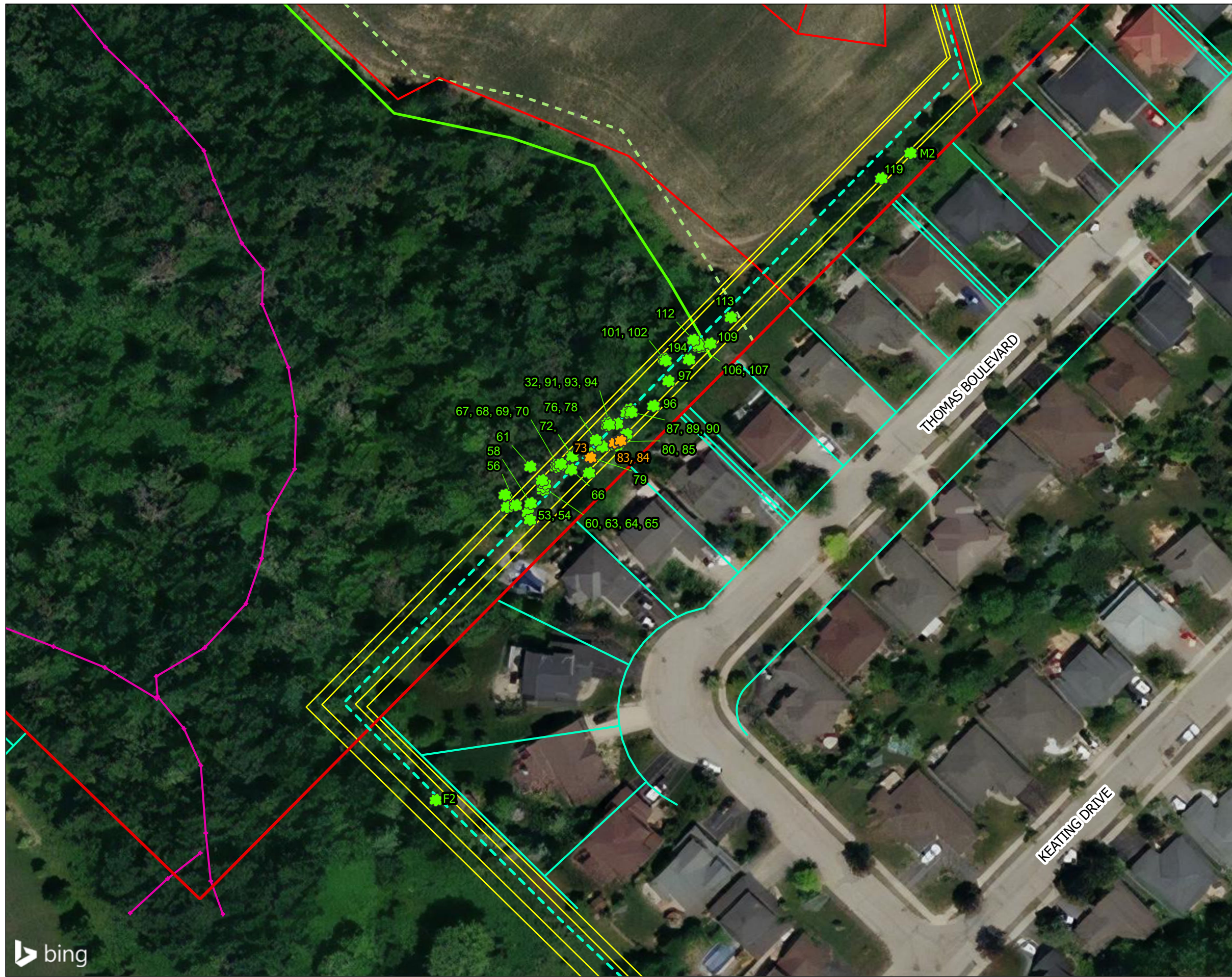
Figure 3a | Ainley Subdivision
Bat Habitat

Legend

- ▭ Subject Property
- Woodland Dripline (surveyed November 13, 2021)
- - - Woodland Dripline Buffer (10 m)
- ✿ Snag Survey - Bat Habitat
- ✿ Trees monitored for Bat Habitat

Proposed Development

- Existing Lot Lines
- Proposed Lots
- Proposed Streets
- Proposed Pathway
- Top of Slope
- - - Proposed Sanitation Line
- Easement



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Figure 3b | Ainley Subdivision
Bat Habitat

Legend

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- - - Woodland Dripline Buffer (10 m)
- ✿ Snag Survey - Bat Habitat
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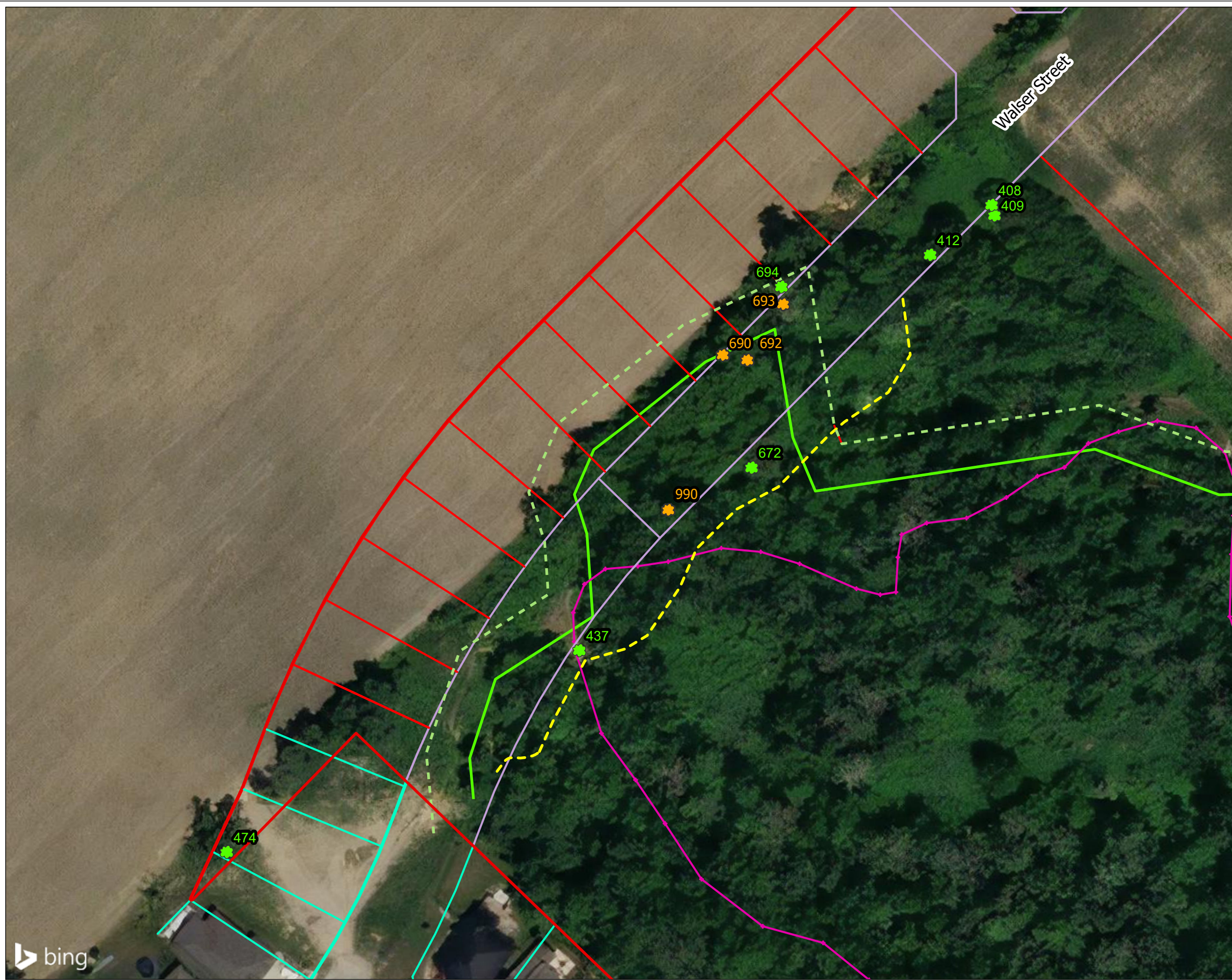


Table 2. Bat Survey Results

Date	Tree Numbers	Species ¹								
		No ID	EPTFUS	LASBOR	LASCIN	LASNOC	MYOLUC	PERSUB	MYOSEP	MYOLEI
June 3, 2022 (North side of woodlot only - survey aborted due to rising wind)	990		1			1				
	690, 692, 693	2								
June 7, 2022	83, 84	1	7							
	73	2	2							
	990									
	690, 692, 693		2	1	3	1				
June 23, 2022	83, 84		10				3			
	73	5	2				10			
	990						1			
	690, 692, 693	2	16		3	2	4			
Total		12	40	1	6	4	18	0	0	0

¹Species List:

Non-SAR Bat Species: EPTFUS = Big Brown Bat, LASBOR = Eastern Red Bat, LASCIN = Hoary Bat, LASNOC = Silver-haired Bat;

Species at Risk (SAR) Bat Species: MYOLUC = Little Brown Myotis, PERSUB = Tri-colored Bat, MYOSEP = Northern Long-eared Myotis, MYOLEI = Eastern Small-footed Myotis

4.4. Locations of Amphibian and Breeding Bird Point Counts

The locations of the amphibian survey locations are shown in **Figure 1**. Amphibian survey locations were selected based on the fact that the two locations were the only areas of pooled water at the time of the initial surveys in 2006, and these locations were surveyed again in 2015. However, the entire woodlot was searched for areas of pooling water again in 2015.

Breeding bird surveys were conducted as area searches, during which the entire woodlot was searched. Locations of all species observed were marked on a map. The woodland edge was also searched and birds noted in the adjacent agricultural fields were also recorded on mapping.

5. Significance and Impact to Features

5.1. Assessment of Significance

The Woodland is considered Significant Woodland based on meeting the requirements of the size criteria, under the County's Urban Greenlands System. Additionally, this woodland meets the criteria for Significant Wildlife Habitat, with the presence of Eastern Wood-pewee (*Contopus virens*), a species of Special Concern.

6. Subdivision Plan Revision and Trail Alignment

The subdivision plan has been revised in light of the revised dripline to conserve the 10 m buffer to the woodland and 30 m buffer to the wetland as much as possible, as shown on **Figure 4**. The corner of Street 3 cuts slightly into the woodland buffer, removing a small portion of the buffer.

Compensation planting is proposed for this removal, as shown in **Section 8**. The stormwater facility, which will include LID measures such as infiltration galleries, will also encroach on the woodland buffer. However, its buffer function will be maintained by its stormwater treatment function, and by plantings of non-woody plants where opportunities exist. Woody plants cannot be planted widely within this block as these will impair its function to treat stormwater.

A trail is proposed to follow the existing informal trail alignment (**Figure 2**). It is recommended that the trail be retained as informal, but surfaced with fine granular material. Signage should be used to warn people that dumping, off-trail encroachment and movement of soils and vegetation have high impacts and are not permitted.

7. Impact to Wetland from Discharge of Stormwater

A memo from GM BluePlan is appended to this Addendum (Technical memo from Sarah Primmer to Sarah Mainguy, 15 February, 2023, **Appendix 5**). Their analysis concludes that based on a review of the topographic survey information, the wetland areas do not have significant ponding areas, but

rather generally flow from northeast to southwest towards the drainage channel. The additional volumes of stormwater that discharge to the wetland under post-development conditions will not significantly impact the depth of the ponding in the wetland.

The overall effect of the proposed development results in increased runoff volume from the site and decreased recharge volume. The impact has been mitigated through the inclusion of infiltration galleries within the banks of the stormwater pond, as well as within the park block. These galleries combine to provide 6,502m³ of infiltration on an annual basis, and assist with reducing peak flows and volumes to the wetland during storm events.

There is an increase in runoff volume to the wetland under post-development conditions during the design storm events, however a significant amount of infiltration has reduced the impact. It should be noted that the additional volume that discharges to the wetland is routed through the wetland, as discussed above, rather than ponding in the wetland. As such, the additional volume does not result in increased inundation of the wetland.

On an annual basis, the total estimated recharge from the subdivision only decreases by 5.5%, as discussed in the Stormwater Management Report.

8. Grading Plan

The revised draft grading plan is provided in **Figure 5**.

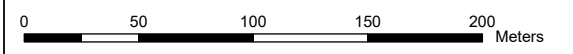
Figure 4 | Ainley Subdivision
Proposed Development

Legend

- Subject Property
- Woodland Dripline (surveyed November 13, 2021)
- Woodland Dripline Buffer (10 m)
- Ecological Land Classification (ELC)
- Proposed Development**
- Existing Lot Lines
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- Proposed Sanitation Line

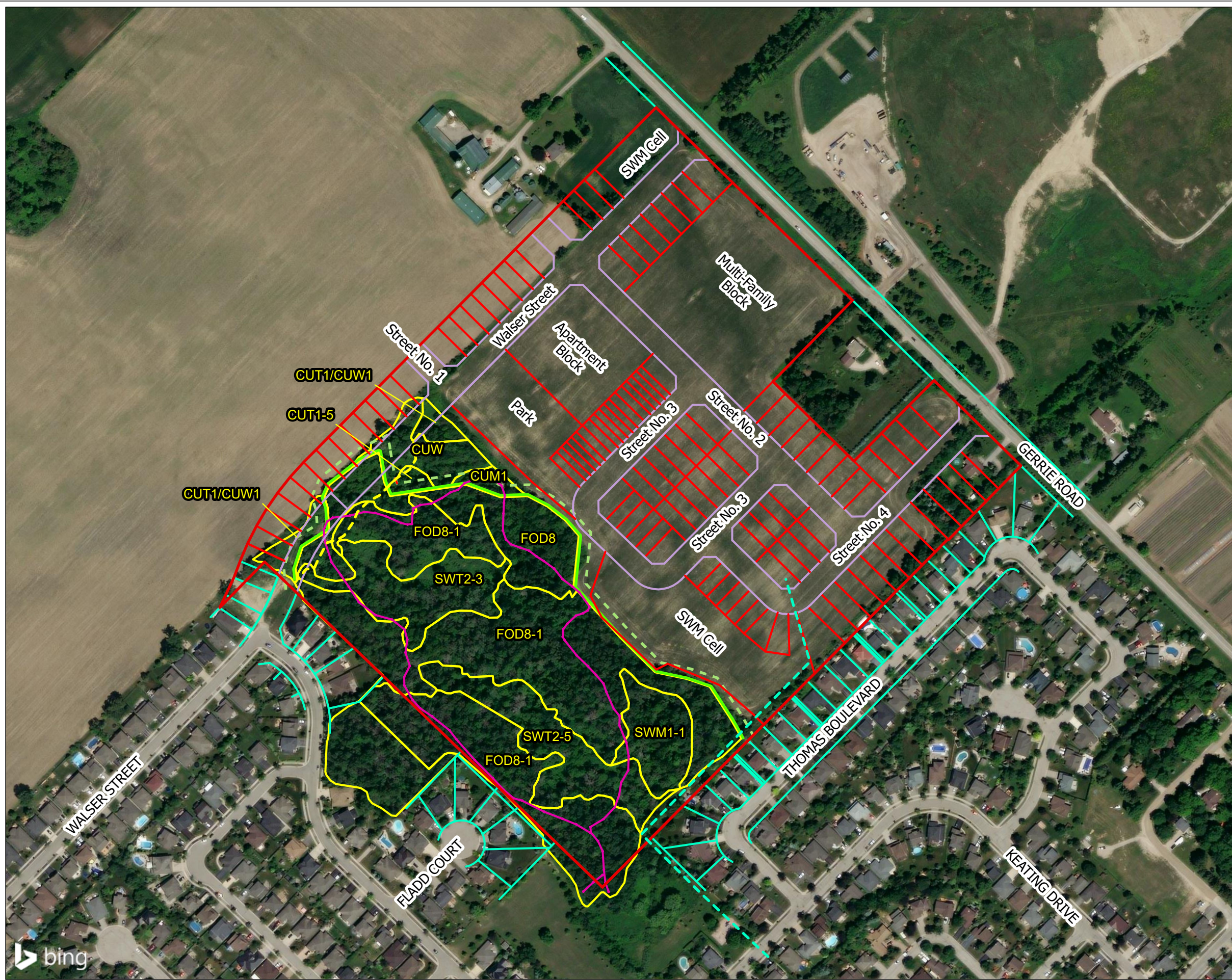
Vegetation Communities

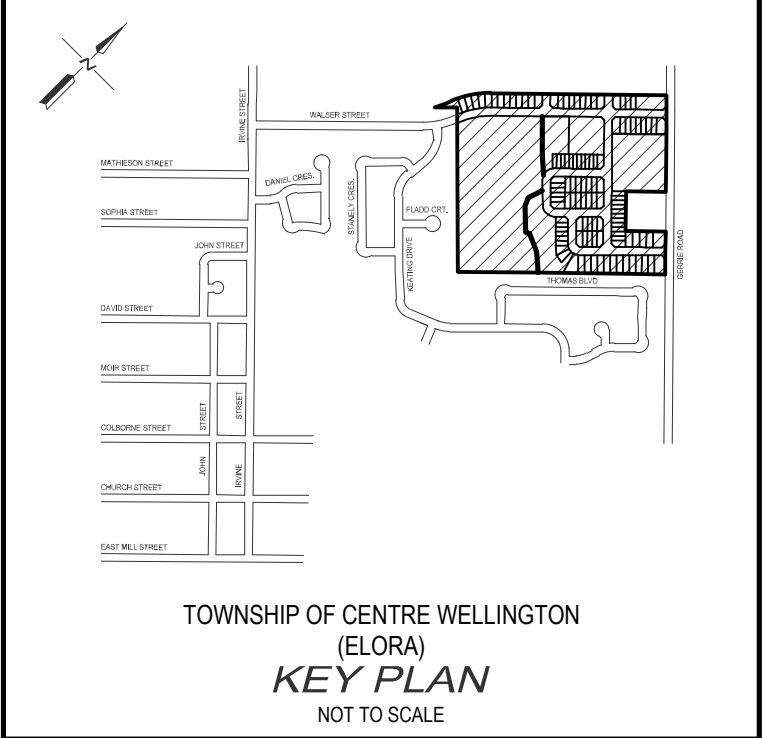
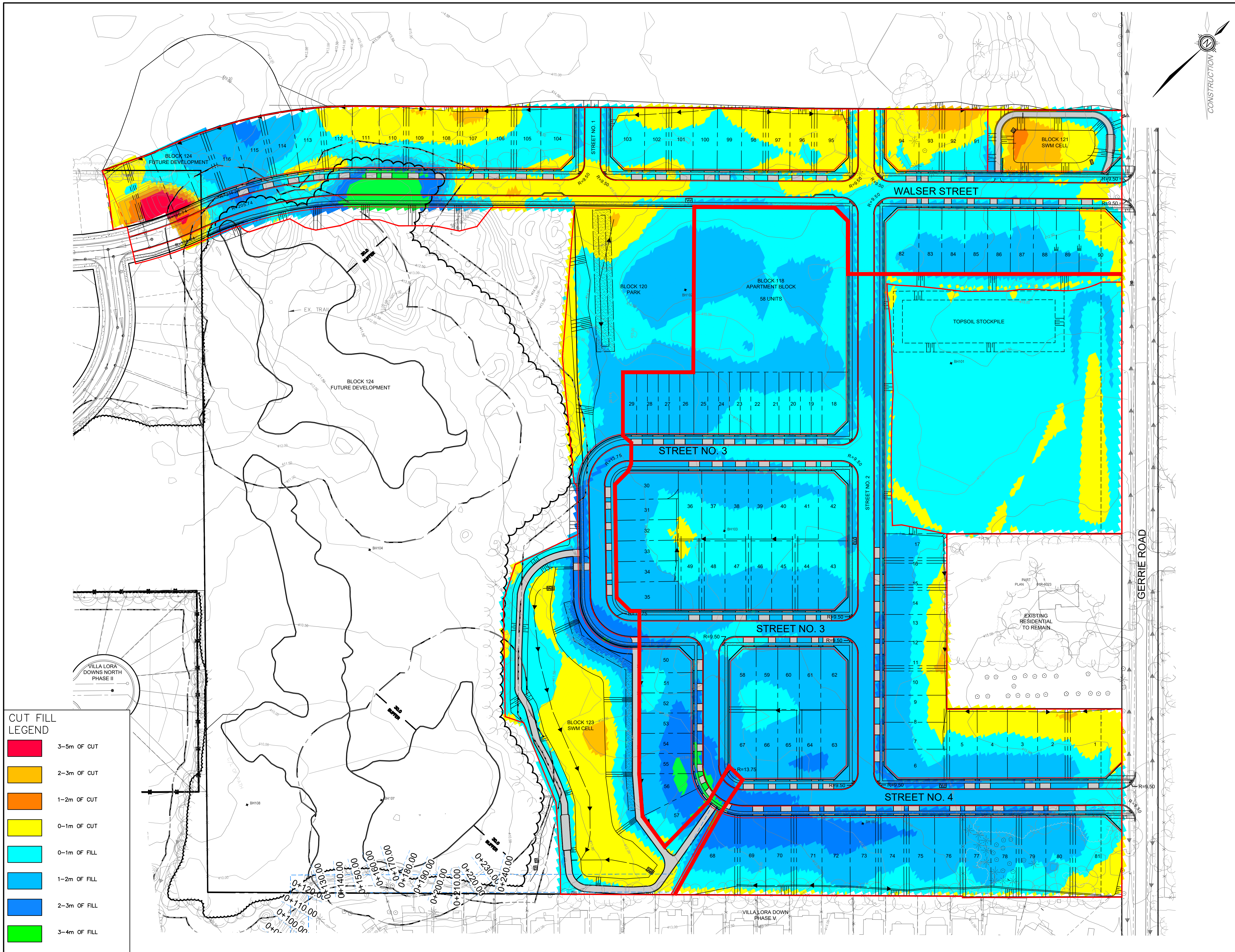
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- CUT1** - Mineral Cultural Thicket
- CUT1-5** - Raspberry Cultural Thicket
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- NOTES :**
1. TOPOGRAPHICAL SURVEY PROVIDED BY NORTHWAY PHOTOMAP INC. COMPLETED ON JUNE 2, 2005.
 2. ADDITIONAL TOPOGRAPHICAL SURVEY BY GAMBISY AND MANNERWORTH LIMITED COMPLETED ON JULY 29, 2013.
 3. DRAFT PLAN OF SUBDIVISION FROM BSR&D DATED FEBRUARY 3, 2022.
 4. BOREHOLE INFORMATION FROM GEOTECHNICAL INVESTIGATION PROVIDED BY CMT ENGINEERING INC. DATED MARCH 29, 2006.
 5. GRCA REGULATION LIMIT FROM AREAL MAP PROVIDED BY GRCA DATED JULY 31, 2018.
 6. WETLAND LIMIT BOUNDARIES FROM PRELIMINARY ENVIRONMENTAL IMPACT STUDY REPORT PROVIDED BY NORTH-SOUTH ENVIRONMENTAL INC. DATED JUNE 2006.
 7. HIGH WATER LEVEL ("HWL") INFORMATION FROM PRELIMINARY ENVIRONMENTAL IMPACT STUDY REPORT PROVIDED BY NORTH-SOUTH ENVIRONMENTAL INC. DATED JUNE 2006.

- BENCH MARKS :**
- TOP NUT OF HYDRANT BETWEEN HOUSE NO'S 92 & 94 ON KEATING DRIVE = ELEV. 410.878
 - NAIL IN EAST FACE OF HYDRO LIGHT POLE ON NORTHWEST CORNER OF IRVINE STREET AND MATHESON STREET = ELEV. 407.714
 - TOP NORTHEAST CORNER OF HYDRO TRANSFORMER AT NORTHWEST CORNER OF SWIM POND AND IRVINE STREET = ELEV. 408.468

THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

NO.	DATE	REVISION DESCRIPTION	CHKD
3.	03/14/2023	ISSUED FOR DRAFT PLAN APPROVAL	P.G.
2.	06/03/2022	ISSUED FOR DRAFT PLAN APPROVAL	G.E.A.
1.	07/04/2019	ISSUED FOR DRAFT PLAN APPROVAL	P.G.

BluePlan ENGINEERING
 330 TRILLIUM DRIVE, UNIT D, KITCHENER, ON N2E 3J2
 TEL 519-745-1440 www.blueplan.ca

AINLEY FARM SUBDIVISION
JAMES KEATING CONSTRUCTION LIMITED
 TOWNSHIP OF CENTRE WELLINGTON (ELORA)

CUT-FILL PLAN

DRAWN BY:	APPROVED BY:	PROJECT NO.:	DRAWING NO.:
C.M.	-	411009	-
DESIGNED BY:	DATE:	SCALE:	
S.P.	JANUARY 2019	1:1000	

9. Cumulative Impact Assessment

Cumulative impact assessment is the assessment of 1) multiple impacts that have the potential to interact, with overall impacts that are greater than the sum of their parts, and 2) the combined effect of single and multiple impacts over time. The following provides an analysis of cumulative impacts, and provides recommendations for mitigation to avoid further degradation of the woodland in the future.

There have been impacts on the woodland in the past from residential development adjacent to the woodland, and these are recommended to be addressed as much as possible. The woodland is currently surrounded to the south and west by residential housing, with very little buffer. In some cases, particularly along the south edge, property owners have encroached on the edge of the woodland, creating lawns and structures within the edge. User-created trails have been established within the woodland, and in some areas are used by BMX bikes in addition to pedestrians, with tree cutting and disturbance of soils by creation of jumps.

Impacts on the groundwater may have been responsible for reduction in water to the wetlands, as impacts due to reduced water levels were noted in the first EIS. These impacts could be increased by tree cutting along the northern edge, as this is likely to dry soils because of increased winds and ambient light. While the amount of water to the woodland will be increased due to the stormwater design, measures have been taken to reduce the potential for interruption of groundwater inputs through construction of infiltration galleries.

Impacts of encroachment will likely be reduced along the northern and eastern edges in the current development, as the lots will not back onto the feature - the road edges and stormwater facilities will be adjacent to the woodland edge. However, impacts of people within the woodland will likely be exacerbated by the increasing numbers of people, cars and houses in the surrounding area. Dumping as well as increased bike traffic may affect the woodland. Off-leash dogs will increase trampling and increase nutrient inputs because of deposition of feces. Outdoor cats will hunt adjacent to residences.

The northwest and northeast sides of the woodland are bordered by large tracts of agricultural land which lack hedgerows and other connecting corridors to other natural heritage features. The isolation of features is a characteristic of this area, as the entire area is intensively farmed. This isolation will compound with other impacts over time to result in a gradual reduction of species diversity and degradation of the feature.

The following are recommendations to avoid the proliferation of cumulative impacts in the woodland.

- The woodland should be fenced on sides adjacent to existing residential development.
- A brochure should be prepared that advises surrounding residents about what is entailed in the stewardship of the woodland, requesting that there be no dumping, off-trail walking, encroachment, creation of bike trails, or damage to vegetation.
- Dogs should not be permitted off-leash in the woodland. Cats should be kept indoors.
- Clay collars should be used for the sewer line and other infrastructure to reduce the potential for groundwater to be channeled away from the woodland.
- Impacts to bat habitat should be mitigated or compensated according to requirements of the Ministry of Environment, Conservation and Parks (MECP). Removal of bat habitat should be avoided during the bat activity season from April 1st to September 31st. Trees that have a high potential to provide bat habitat, such as Large-leaved Poplar (*Populus grandidentata*) should be planted in order to provide bat nursery habitat in the long term. Bat houses should be installed along the edge of the woodland using the “rocket box” design.
- Areas adjacent to the stormwater facilities should be re-planted with native trees to provide compensation and to reduce impacts on the woodland. Dense screening of cedars should be used to reduce penetration of light and drying winds into the woodland. The planting plans have been recommended in the EIS for the Walser Street Extension and the subdivision development, and these should be implemented as soon as possible after construction of the road and the stormwater facilities.
- Dense screening of cedars has been recommended for the Walser Street extension, as these are already a component of the woodland.
- The woodland trail should be constructed before the building lots are occupied.
- As noted in previous reports, snow dumping should be restricted to areas of the subdivision where there is a reduced change that salt will enter the stormwater facility, and migrate from there into the woodland.

APPENDIX 1 | Comments & Response Matrix

Appendix 1. Response Matrix for NRSI comments from Peer Review, dated October 29, 2021.

NRSI Recommendations	Response
Appropriately survey and map the dripline of the Significant Woodland at a higher level of accuracy and conduct an updated tree inventory of the area proposed for removal, in relation to the preliminary grading plan to allow for a complete understanding of the extent of impact to woodland edge proposed;	The woodland dripline boundary was revised and staked with members of NRSI and the Town present on November 13, 2021. The staked boundary is shown in Figure 1 .
Develop a Tree Preservation Plan (TPP) using the findings of the updated tree inventory and Significant Woodland dripline survey in order to identify trees will be impacted by the proposed development and require removal based on the required extent of construction. The TPP should also include recommendations towards the compensation of trees that require removal;	A tree inventory was carried out on November 30 th , 2021, May 6 th , 2022, and May 13 th , 2022, and a Tree Preservation Plan (TPP) was written and is appended to this Addendum (see Appendix 2).
Clarify how the proposed plan makes appropriate use of woodland edge areas in consideration of tree health in these areas;	Most of the planting is focused on restoration of the woodland edge, as shown in Figure 4 .
Further explore the possibility for bat Species at Risk habitat to exist within the Significant Woodland. Provide mitigation measures to minimize potential impacts to bats and confirm the approach with the Ministry of Environment, Conservation and Parks;	Results of bat habitat and bat acoustic surveys are shown in Section 4. Recommendations for restoration of bat habitat are provided. Consultation with MECP is provided in Appendix 4 .
Provide the location of amphibian and breeding bird survey stations or approximate transects to facilitate assessment of whether the number and location of point count stations were appropriate to adequately assess amphibian and bird habitat on and adjacent to the subject property;	The amphibian survey locations are shown in Figure 1 . Amphibian survey locations were selected based on the fact that the two locations were the only areas of pooled water at the time of the initial surveys in 2006, and these locations were surveyed again in 2015. Breeding bird surveys were conducted as area searches, during which the entire woodlot was searched. All species observed were marked on a map. The woodland edge was also searched and birds noted in the adjacent agricultural fields were also recorded on mapping.
Provide a statement regarding how the Significant Woodland will be protected from negative impacts related to development or site alterations that specifically relates to Section 5.5.4 of the County of Wellington's Official Plan;	As required by this policy, the woodland will be protected from development or site alterations which would negatively impact the woodlands or their ecological functions. In the arborist report, we have outlined good forestry practices to be encouraged and tree removal will be subject to the Wellington County Forest Conservation Bylaw.
Re-evaluate the results of the "no negative impacts" test as outlined above, by identifying the residual impacts and associated compensation, and determining whether residual impacts may act cumulatively;	Residual and cumulative impacts will be mitigated by providing screening to the woodland and curtailing activities that are currently affecting the woodland.
Consider additional mitigation measures to reduce impacts associated with the quantity and quality of water expected to enter the Significant Woodland, which may include LID principles, bioswales and/or additional clarification of measures proposed;	Additional LID measures are shown in the stormwater report under separate cover. The technical memo provided in b concludes that there will be no significant increased ponding of water within the wetland.
Clarify which party is responsible for addressing recommendations relating to the Walser Street extension with the Township and/or County;	The developer is responsible for addressing recommendations relating to the Walser Street extension with the Township and/or County
Complete an updated EIS or addendum and propose recommendations based on the foregoing, including presenting any required changes to the draft grading plan, potential reduction of extent of removal of forested areas, and other mitigation or restoration measures to minimize negative impacts as warranted.	Addendum has been completed with revised subdivision plan and recommendations showing restoration areas. The limit of grading is shown on Figure 5 accompanying the addendum.

APPENDIX 2 | Tree Protection and Compensation Plan

October, 2022

Tree Inventory and Preservation Plan

Ainley Subdivision, Township of Centre
Wellington, ON

Prepared for

Black, Shoemaker, Robinson Donaldson Limited



north-south
ENVIRONMENTAL

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Tree Inventory and Tree Preservation Plan

1. Introduction

In 2015 North-South Environmental Inc. (NSE) was retained by Black, Shoemaker, Robinson Donaldson Limited (BSRD) to conduct an Environmental Impact Study (EIS) for a proposed development at the Ainley Farm property, legally described as Lots 17 and 18, Concession 12, Township of Centre Wellington, County of Wellington (herein referred to as the “Subject Property”). The property includes approximately 19 hectares (ha) of land, with frontage on Gerrie Road to the east and access to the future extension of Walser Drive to the west. The Subject Property is illustrated in **Figure 1**. In winter 2021, BSRD requested NSE complete a Tree Inventory and Preservation Plan, as well as an assessment of potential bat habitat in conjunction with the Environmental Impact Study (EIS) Addendum. This report should be read in conjunction with the EIS (2017), EIS Addendums (2020; 2022), and all other design plans for the project.

The need for a tree inventory and preservation plan is necessitated by the proposed development area of the site. Surveyed trees include those with potential to be impacted by the proposed development area (i.e., removal, potentially injured). This includes areas of the woodland edge, consisting of cultural woodland and thicket along the northwest and northeast side of the wooded area, and the area along the proposed sanitation line (running through the southern portion of Subject Property from the agricultural land, through the southeastern woodland edge, and extending southeast through municipal land) (see **Figure 1**). Trees surveyed fall under a combination of the County of Wellington Conservation and Sustainable Use of Woodlands Tree By-law (5115-09) and the Public Forest Policy (Centre Wellington 2018).

The development area has been designed to avoid wetlands and mature natural vegetation as much as possible. The development will mainly occupy areas that were previously used as agricultural land. The total woodland area found on the Subject Property is 7.986 ha, the total area planned for removal is 0.763 ha, with a total of 7.223 ha of woodland area being preserved on the Subject Property. The number of trees within the preserved woodland area is estimated to be 3100 trees ≥ 10 DBH¹. This estimate is likely conservative.

This arborist report provides a policy assessment, tree inventory results, and a proposed tree protection and removal plan.

¹Number of trees estimated to be preserved within the woodland area has been calculated by using the tree inventory completed by NSE within the southeast and northeast woodland areas planned for removal, to estimate the density of trees ≥ 10 diameter at breast height (DBH). The average of the tree densities from the two areas was used as a proxy for the overall woodland density. The estimated density is 430.6 trees / ha. The calculation for total estimated trees preserved involves taking the average density of trees / ha and multiplying by the woodland area preserved (i.e., 430.6 trees / ha x 7.223 ha). This calculation results in an estimated tree preservation of 3100 trees ≥ 10 DBH within the woodland area being preserved.

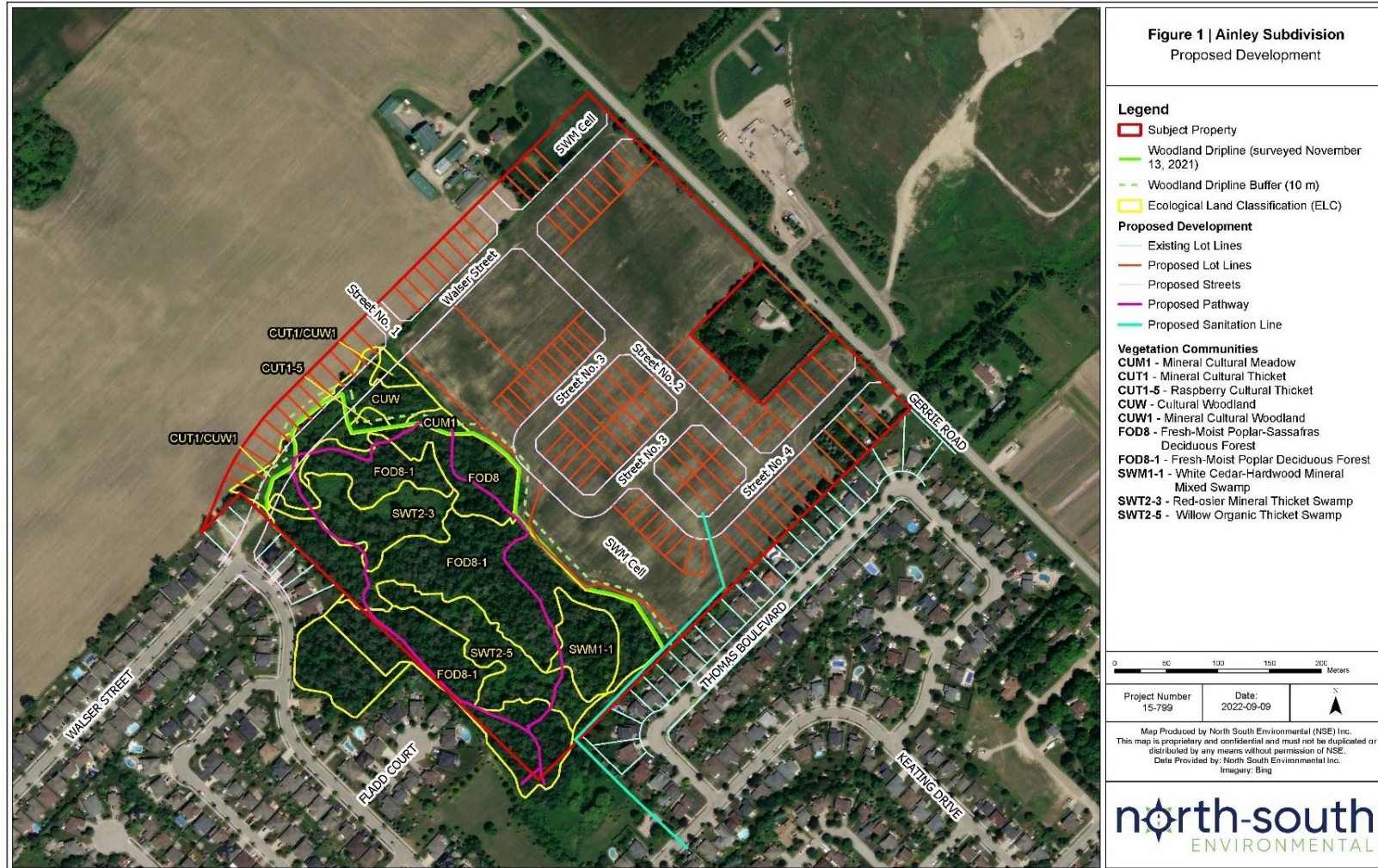


Figure 1. The Subject Property and ELC at Lots 17 and 18, Concession 12, Township of Centre Wellington (Geographic Township of Nichol), County of Wellington

1.1. Policy Context

1.1.1. County of Wellington Official Plan

1.1.1.1. Policy Overview

A full summary of Natural Heritage Features identified on the Subject Property and potential impacts to features and ecological functions has been provided in the EIS (2017), EIS Addendum (2020), and EIS Addendum (2022). In addition, the EIS and addenda has also provided a full policy review of the County of Wellington Official Plan 2013 to ensure the proposed develop conforms with relevant natural heritage policies.

Schedule 1A of the County of Wellington Official Plan (2013) includes all provincially and locally significant wetlands as part of the Core Greenlands designation. All other wetlands not identified as part of the Core Greenlands will be protected and development that would negatively impact their ecological functions shall be avoided.

1.1.1.1. Subject Property Assessment

The woodland (which contains wetland) on the Subject Property has been mapped as Core Greenland in the County of Wellington Official Plan Schedule 1A (County of Wellington Official Plan 2013).

1.1.2. Grand River Conservation Authority Regulations (under Ontario Regulation 150/06)

1.1.2.1. Policy Overview

Ontario Regulation (O.Reg.) 150/06 under the Conservation Authorities Act gives Grand River Conservation Authority (GRCA) the authority to regulate development, interference with wetlands and alterations to shorelines and watercourses. Generally, GRCA regulates floodplains, hazard lands, and wetlands.

1.1.2.2. Subject Property Assessment

GRCA (2018) Regulation Mapping (**Figure 2**) illustrates a non-provincially significant wetland within the wooded area on the western portion of the Subject Property. The extent of the “Regulated Area” on the Subject Property is mapped as 120 m from the boundary of the wetland mapped by GRCA.

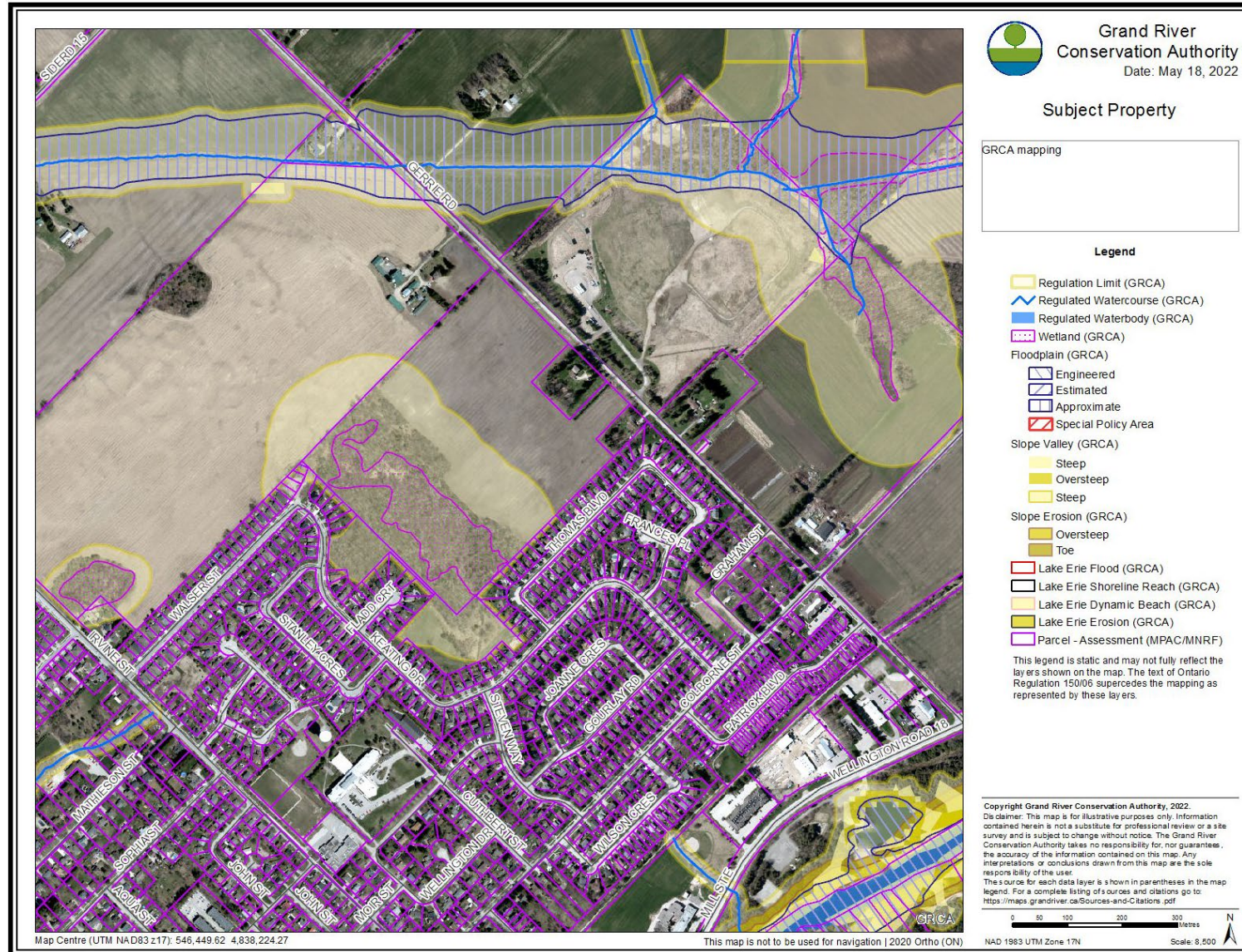


Figure 2. GRCA (2022) mapping illustrating aerial mapping of wetland (purple) and regulated area (yellow)

1.1.3. Township of Centre Wellington

The Township of Centre Wellington has a by-law that regulates trees within woodlands of at least 1 hectare in size. With respect to development proposals, tree removals can be addressed under the by-law (i.e., for removals that will occur before draft plan approval), or through the site plan approval process. Further, the Township has a policy document that provides guidance on how the Township intends to manage municipally owned trees. The Township does not have a private tree by-law that regulates individual trees on private property, or woodlands less than one hectare in size.

1.1.3.1. *Conservation and Sustainable Use of Woodlands By-law (5115-09) (2009)*

Policy Overview

The Conservation and Sustainable Use of Woodlands By-law (5115-09) (2009) regulates the destruction or injury of trees in woodlands. In the by-law “woodlands” is defined as “land, one hectare (2.47 acres) or more in area measured to the drip line, and includes any unforested corridors within the area that are equal to or less than 30 m (98.4 feet) in width, with at least:

- 1,000 trees, of any size, per hectare (405 trees, of any size, per acre);
- 750 trees, measuring over 5 cm in DBH, per hectare (304 trees, measuring over 2 inches in DBH, per acre);
- 500 trees, measuring over 12 cm in DBH, per hectare (202 trees, measuring over 4.7 inches in DBH, per acre); or
- 250 trees, measuring over 20 cm in DBH, per hectare (101 trees, measuring over 7.9 inches in DBH, per acre).”

The by-law excludes cultivated fruit orchards, nut orchards or plantations established for the purpose of producing Christmas trees.

Subject Property Assessment

The treed area, shown on **Figure 1** within the woodland dripline limit, meets size criteria to be considered a woodland. Further, while tree density surveys were not completed, the treed area is also believed to meet density requirements to be considered a woodland.

1.1.3.2. *Public Forest Policy (2018)*

Policy Overview

The Public Forest Policy (Centre Wellington 2018) applies to municipally owned trees.

The Public Forest Policy includes details on approved tree species (Appendix 1), tree planting details (Appendix 2), tree preservation details (Appendix 3), minimum caliper size of planted trees (Appendix 4), and tree planting setbacks (Appendix 5).

Per Section C.2.2, trees shall be replaced at a ratio of 2:1. Per Section C.4., no more than 10 percent of any one species of tree shall be planted at any planting site, no more than 6 trees of any one species shall be planted in a row on either side of the street (refer to section C.4).

Subject Property Assessment

Municipal street trees were surveyed as part of this arborist report. Further, as per direction from the Town and its peer reviewer, Natural Resource Solutions Inc. (NRSI), we have applied the Public Forest Policy compensation ratio for individual tree removals and tree removals within hedgerows (please see Agency Correspondence in **Appendix 5**).

1.1.4. Canadian Food Inspection Agency Directive: D-03-08 (2021)

1.1.4.1. Policy Overview

The Canadian Food Inspection Agency (CFIA) regulates the movement of all Ash (*Fraxinus spp.*) material, including logs, bark, branches, fresh leaves, woodchips, and nursery stock to control the spread of a non-native beetle, the Emerald Ash Borer, whose larvae burrow into Ash. To slow the spread of Emerald Ash Borer to new areas, Ash material may not be transported outside of a regulated area into a non-regulated area. People who move regulated materials from regulated areas within the permission of the CFIA could face fines and/or prosecution. A map of the Emerald Ash Borer Regulated Areas in Canada can be found at: [Areas regulated for the emerald ash borer - Canadian Food Inspection Agency \(canada.ca\)](https://www.inspection.gc.ca/areas-regulees-pour-le-cerambryx-vert/eng)

1.1.5. Subject Property Assessment

Ash trees are present on the Subject Property. Ash material may not be transported outside of a regulated area into a non-regulated area.

1.1.6. Migratory Birds Convention Act (1994)

1.1.6.1. Policy Overview

The *Migratory Birds Convention Act* (MBCA) and its *Regulations* protect listed migratory birds in Canada through the conservation of populations, individuals, and their nests. Article I of the MBCA identifies migratory species that are protected under this act. It is a contravention of this act to harass, harm, or kill protected migratory birds, remove, or disrupt their nests, and/or eggs.

1.1.6.2. Subject Property Assessment

The Subject Property contains habitat for migratory birds. Migratory birds could be impacted during works (tree / shrub removals). In addition to destruction of habitat, noise, vibrations and light from construction activities could disturb birds outside of the development footprint and deter them from their nests.

Any tree and vegetation removals should be conducted outside of the active bird nesting season (generally outside of April 1 – August 31). Where this is not possible, a qualified avian biologist should search the area within 48 hours of these activities as a due diligence measure to demonstrate compliance with the MBCA. Despite nest searches being conducted, some nests may go undetected. Therefore, if migratory birds, their nests or eggs are encountered during tree/vegetation removal activities, the works shall cease, and the consulting ecologist or Environment Canada be contacted for advice. A protective buffer will be placed around the nest and works will be prohibited within the buffer until the young have fledged.

1.1.7. Endangered Species Act (2007)

1.1.7.1. Policy Overview

The *Endangered Species Act* (ESA) provides regulatory protection for Species at Risk and their habitat in Ontario. Species listed as Endangered and Threatened, and habitat for those species, is protected from development under the ESA. Habitat for Special Concern species is not protected under the ESA but is considered Significant Wildlife Habitat (SWH) and is protected under Section 2.1 of the 2020 *Provincial Policy Statement* (PPS).

1.1.7.2. Subject Property Assessment

None of the trees species inventoried are considered Species at Risk.

1.1.8. Ontario Forestry Act (1990)

1.1.8.1. Policy Overview

The *Forestry Act* provides criteria for identifying treed areas that qualify as woodlands based on an assessment of tree diameter and density. It also provides a directive on boundary tree identification and regulates the injury or destruction of boundary trees. A boundary tree is defined in Section 10 (2) as a “tree whose trunk is growing on the boundary between adjoining lands” and “is the common property of the owners of the adjoining lands”. Section 10 (3) states that “every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the landowners is guilty of an offence under this Act.” The *Forestry Act* does not provide a definition of ‘tree trunk’ which has since been addressed via case law (*Hartley v Cunningham et al*, 2013 ONSC 2929). Per case law, a tree trunk is defined as the “entire trunk from its point of growth away from its roots up to its top where it branches out to limbs and foliage” (*ibid*). Therefore, boundary trees are trees where any part of the trunk (i.e., not restricted to the base of the trunk) straddles a property line.

1.1.8.2. Subject Property Assessment

Presumed boundary trees are present on the Subject Property and have been noted in the Tree Inventory Table (**Appendix 2**). Verification of tree ownership and consent to injure or remove boundary trees is the responsibility of the proponent.

1.2. Proposed Development

The proposed development on the Subject Property is illustrated in **Figure 1**.

The proposed residential development includes 113 single detached lots, 4 future single detached lots, a townhouse block, an apartment block, 2 stormwater management facilities, a park, and a large open space block. The development area has been designed to avoid wetlands and mature natural vegetation as much as possible. The development will mainly occupy areas that were previously used as agricultural land. Areas of woodland edge, consisting of cultural woodland and thicket along the northwest and northeast side of the wooded area, will be removed for the Walser Street extension and stormwater treatment (**Figure 1**). There will be some removal of vegetation, including trees, for placement of a sanitary sewer line along the southeast edge of the woodland. See the EIS Addendum (2022) for the grading plan.

In order to connect the Ainley Farm property to the existing subdivision to the southwest, the access road to the site will encroach into successional areas along the northwest side of the natural vegetation block as well as a small area of wetland. Development of storm water facilities along the northeast side of the natural vegetation block will also require removal of a portion of the successional vegetation along the northeastern boundary.

Where a buffer has been identified between the woodland and the proposed development, it ranges from 0 m (adjacent to the storm water management block) to 10 m. Since the wetland is contained within the woodland, the distance between the wetland the proposed development ranges from 10 m at two points where the wetland extends eastward, to approximately 80 m. As noted in the previous paragraph, on the northwest side of the development, it will not be possible to maintain a buffer due to the development of the Walser St. Extension.

Sanitary sewer service will be provided to the site via the installation of a new 200 mm diameter sanitary sewer on a 6 m wide easement from Keating Drive, running along the south boundary of the vegetation block. This area was previously occupied by a municipal drain, which was modified at the time of the development to the south. Water service for the site will be provided by the installation of a new 200 mm diameter watermain on Walser Street, connecting to the existing watermain on Walser Street. The implementation of services will require removal of very few trees.

2. Methods

The tree inventory was completed on November 30th 2021, May 6th 2022, and May 13th 2022 by Pauline Catling, Senior Ecologist; ISA Certified Arborist (ON-2721A) and Devin Bettencourt, Junior Ecologist; ISA Certified Arborist (ON-2831A). Tree diameter (DBH) was measured at approximately 1.4 m above grade. DBH for split stemmed trees was calculated by adding the DBH of each stem. All standing trees

equal to or greater than 10 cm diameter at breast height (DBH) that could be impacted by the proposed development were inventoried. GPS location was recorded using a handheld GPS unit.

Trunk integrity, crown structure, and crown vigour were evaluated, and the canopy height and width were estimated. Trees were tagged with aluminum tree tags for easy recognition. Trees on adjacent property or Township property were not tagged, and DBH was estimated. Trees bordering between the Subject Property and adjacent properties were also not tagged without adjacent landowner permission and DBH was estimated. Following the examination of these parameters, the tree vigour class was determined to categorize the condition of the tree. These classes range from excellent (1) to dead (6). These criteria are provided in **Appendix 1**.

3. Results and Discussion

A total of 343 trees were inventoried, of which 278 occurred on the Subject Property, 6 occurred along the border between adjacent properties and the Subject Property (i.e., 'boundary trees'), 40 occurred on Township property, and 19 occurred on adjacent properties (see the Tree Inventory table provided in **Appendix 2**). Tree locations and tag numbers are marked on the Tree Preservation Plan (**Appendix 3**). Adjacent landowners and the Township must be consulted and provide permission before injury/removal of off-site or boundary trees. Township of Centre Wellington will need to be consulted and provide permission to determine the process for requesting removal / injury of Township owned trees as part of the site plan application.

A total of 282 trees were native (83%), most common of which was Trembling Aspen (*Populus tremuloides*). 58 trees were non-native including: Domestic Apple (*Malus pumila*), Manitoba Maple (*Acer negundo*), Horse Chestnut (*Aesculus hippocastanum*), Amur Maple (*Acer ginnala*), Columnar English Oak (*Quercus robur 'Fastigiata'*), Norway Maple (*Acer platanoides*), and Sweet Cherry (*Prunus avium*). Manitoba Maple (*Acer negundo*), while native to Ontario is generally not considered indigenous to the Wellington area. The highly invasive European Buckthorn (*Rhamnus cathartica*), a shrub, was not included in the inventory but is present in high numbers within the area.

Trees ranged from excellent to dead in condition. The majority of trees surveyed were in excellent condition (**Table 1**). A total of 122 trees were in excellent condition, of which 111 were native species. 100 trees were in good condition, of which 70 were native species. All other trees ranged from fair to dead in condition. Tree size ranged from 10 to 160 cm (**Table 2**), the largest being a split stemmed Manitoba Maple (*Acer negundo*). No Heritage Trees or Species at Risk were present within the survey area.

Table 1. Summary of Tree Vigor Class for Trees Surveyed

Common Name	Latin Name	Condition*						Total
		1	2	3	4	5	6	
<i>Acer ginnala</i>	Amur Maple		1					1
<i>Acer negundo</i>	Manitoba Maple	5	24	10	3			42
<i>Acer platanoides</i>	Norway Maple	1						1
<i>Acer saccharinum</i>	Silver Maple			1				1
<i>Acer saccharum</i>	Sugar Maple	7	3	1	1			12
<i>Aesculus hippocastanum</i>	Horse Chestnut		1					1
<i>Betula alleghaniensis</i>	Yellow Birch	3	1		1			5
<i>Betula papyrifera</i>	Paper Birch		1					1
<i>Crataegus sp.</i>	Hawthorn sp.	4	6	2		1		13
<i>Fraxinus americana</i>	White Ash (incl. cf. Ash sp.)		7	13		2	3	25
<i>Fraxinus pennsylvanica</i>	Green Ash (incl. cf. Green Ash)		5	1	2		34	42
<i>Fraxinus sp.</i>	Ash sp. (incl. cf. Ash sp.)	1	1	1	1		9	13
<i>Juglans nigra</i>	Black Walnut	1	1				1	3
<i>Malus pumila</i>	Domestic Apple	1	3	1	1	2	1	9
<i>Malus sp.</i>	Apple sp.			1				1
<i>Ostrya virginiana</i>	Ironwood		1					1
<i>Picea glauca</i>	White Spruce	1						1
<i>Picea pungens</i>	Blue Spruce	4						4
<i>Picea sp.</i>	Spruce sp.	1						1
<i>Pinus strobus</i>	Eastern White Pine		1					1
<i>Populus balsamifera</i>	Balsam Poplar	2	1					3
<i>Populus sp.</i>	Poplar sp. (incl. cf. Poplar sp.)	3	1					4
<i>Populus tremuloides</i>	Trembling Aspen	34	17	5	1	2		59
<i>Prunus avium</i>	Sweet Cherry	1						1

Common Name	Latin Name	Condition*						Total
		1	2	3	4	5	6	
<i>Prunus serotina</i>	Black Cherry	4	3	1		1	1	10
<i>Quercus robur 'Fastigiata</i>	Columnar English Oak	2						2
<i>Quercus rubra</i>	Red Oak	2			1	1		4
<i>Quercus sp.</i>	Oak sp.	2						2
<i>Salix sp.</i>	Willow sp. (incl. cf. Willow sp.)	4	3	2	1			10
<i>Sorbus sp.</i>	Mountain Ash		1	4				5
<i>Thuja occidentalis</i>	Eastern White Cedar	33	9	6		1		49
<i>Tilia americana</i>	American Basswood		3	1				4
<i>Tilia sp.</i>	Basswood sp.	3	1					4
<i>Ulmus americana</i>	American Elm	2	5					7
<i>Ulmus sp.</i>	Elm sp.	1						1
Total		122	100	50	12	10	48	343

* 1 = excellent condition, 2 = good condition, 3 = fair condition, 4 = poor condition, 5 = very poor condition, 6 = dead.

Table 2. Summary of Tree Size for Trees Surveyed

Latin Name	Common Name	DBH (cm)											Total
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	160-170	
<i>Acer ginnala</i>	Amur Maple						1						1
<i>Acer negundo</i>	Manitoba Maple	14	12	6	2	1	3	1	1		1	1	42
<i>Acer platanoides</i>	Norway Maple		1										1
<i>Acer saccharinum</i>	Silver Maple					1							1
<i>Acer saccharum</i>	Sugar Maple	5		3	3		1						12
<i>Aesculus hippocastanum</i>	Horse Chestnut		1										1
<i>Betula alleghaniensis</i>	Yellow Birch	2	2							1			5
<i>Betula papyrifera</i>	Paper Birch			1									1
<i>Crataegus sp.</i>	Hawthorn sp.	5	3	3		1		1					13
<i>Fraxinus americana</i>	White Ash	12	6	4	3								25
<i>Fraxinus pennsylvanica</i>	Green Ash (incl. cf. Green Ash)	23	14	4		1							42
<i>Fraxinus sp.</i>	Ash sp. (incl. cf. Ash sp.)	7	5	1									13
<i>Juglans nigra</i>	Black Walnut	3											2
<i>Malus pumila</i>	Domestic Apple		1	1	6	1							9
<i>Malus sp.</i>	Apple sp.	1											1
<i>Ostrya virginiana</i>	Ironwood		1										1
<i>Picea glauca</i>	White Spruce	1											1
<i>Picea pungens</i>	Blue Spruce		3	1									4
<i>Picea sp.</i>	Spruce sp.	1											1
<i>Pinus strobus</i>	Eastern White Pine			1									1
<i>Populus balsamifera</i>	Balsam Poplar	2	1										2

Latin Name	Common Name	DBH (cm)											Total
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	160-170	
<i>Populus sp.</i>	Poplar sp. (incl. cf. Poplar sp.)	3			1								4
<i>Populus tremuloides</i>	Trembling Aspen	28	25	5	1								59
<i>Prunus avium</i>	Sweet Cherry			1									1
<i>Prunus serotina</i>	Black Cherry	1	1	2	3	1	2						10
<i>Quercus robur 'Fastigiata'</i>	Columnar English Oak	2											2
<i>Quercus rubra</i>	Red Oak		2					1			1		3
<i>Quercus sp.</i>	Oak sp.		1		1								3
<i>Salix sp.</i>	Willow sp. (incl. cf. Willow sp.)	3	5	1		1							10
<i>Sorbus sp.</i>	Mountain Ash	4				1							5
<i>Thuja occidentalis</i>	Eastern White Cedar	25	11	5	3	2		1	1		1		49
<i>Tilia americana</i>	American Basswood	1		1		1	1						4
<i>Tilia sp.</i>	Basswood sp.	1	2		1								4
<i>Ulmus americana</i>	American Elm	2	4	1									6
<i>Ulmus sp.</i>	Elm sp.			1									1
Total		146	101	42	24	11	8	4	2	1	3	1	343

3.1. Trees to be Removed/ Injured/ Retained

With the proposed plan, 320 trees will be removed and 21 have the potential to be injured (**Table 5**). Trees to be removed for the proposed development are trees that fall directly in the development footprint or trees that will be severely impacted by grading, excavation and/or construction activities. Of the 320 trees to be removed, 278 are located within the Subject Property, 6 trees along the boundary of the Subject Property and adjacent properties, and 36 trees within Township property that will require permission for removal. Guidelines for removal are as follows:

- Trees approved for removal must be clearly marked on-site, preferably with orange or yellow spray paint at breast height (1.4 m) and at the base of the stem (stump height) as per the Ontario Tree Marking Guide;
- Tree removal cannot proceed until written approval of the TIPP has been granted by The Township;
- Approved tree removals shall be carried out prior to site works and in such a manner as to minimize site disturbance and damage to trees to be retained;
- Approved tree protection fencing must be installed and inspected prior to tree removals unless otherwise approved by the Township;
- The Canadian Food Inspection Agency (CFIA) restricts the movement of any part of trees infested with or host to a regulated pest or disease. For more information about transporting regulated material, contact your local CFIA office;
- Timing of removals should avoid the migratory bird window of April 1st to August 30th

Trees identified as retained but that may be injured as a result of construction activity may have impacts to the root system, however tree stability and health should not be compromised with appropriate mitigation (e.g., root pruning, mulching of exposed roots, watering and fertilizing if more extensive root damage occurs). The potential to impact retained trees was determined by the amount and type of work to be completed within the Minimum Tree Protection Zone (MTPZ) in combination with factors related to age, species, and an assessment of the current health. It was determined that based on the proposed plan, 21 trees (17 trees on adjacent properties and 4 on Township property) will be injured. Trees identified as “retained” include trees either far enough away from proposed work so that they should not experience any injury or trees that are already dead. These trees would have no work proposed within their MTPZ.

No trees are recommended for relocation. It was determined that trees surveyed on site were not suitable for relocation because of their non-native status or large size. Larger trees are harder to relocate, and older trees are less likely to survive relocation or damage.

3.2. Potential Impacts to Remaining Trees

The majority of the surveyed trees are to be removed. The removal of trees and construction activities has the potential to impact adjacent retained trees via soil compaction, excavation, or increasing erosion potential in the surrounding area. Potential impacts to these trees are expected to be minor and are not expected to cause fatal injury. Impacts to injured trees may be direct or indirect and may include:

- Injury to roots or reduction in available water due to soil compaction within the root zone
- Acute or chronic effects of pollutants such as fuels, oils, salts, etc.
- Reduction or increase in soil moisture water due to alteration of the adjacent lands

3.3. Arborist Recommendations

1. Compensation planting for trees to be removed as outlined in **Section 4**.
2. Tree protection measures for retained trees as outlined in **Section 5**.
3. Mitigation measures for trees to be injured as outlined in **Section 5**.
4. Adjacent property owners sharing boundary trees proposed for removal or trees to be injured will need to provide authorization made aware of the proposed development and potential effects on their trees.

4. Tree Compensation

The County of Wellington Conservation and Sustainable Use of Woodlands Tree By-law (5115-09) does not state specific details on tree compensation. Recommendations for tree compensation has been determined by Madison Postma, Registered Professional Forester from Natural Resource Solutions Inc. (NRSI) and approved by Mariana Iglesias, Senior Planner and Mat Alain, Urban Forestry Project Manager from the Township of Wellington (**Appendix 5**). A map illustrating the breakdown of tree compensation ratios by area is provided in **Appendix 4**.

Tree compensation for the removal of 35 municipally owned trees located in the southern portion of the study area (park north of Keating Dr.) and hedgerow / individual trees within the Subject Property will be compensated according to the standards listed within the Public Forest Policy (Centre Wellington 2018) (2:1 ratio, meaning 2 trees for every tree removed equal to or larger than 10 cm DBH). Therefore, 70 trees will need to be planted as compensation, with a caliper size of 50 mm to 70 mm.

Tree compensation for the removal of 38 hedgerow/individual trees located within the Subject Property will be compensated according to the standards listed within the Public Forest Policy (Centre Wellington 2018) (2:1 ratio, meaning 2 trees for every tree removed equal to or larger than 10 cm

DBH). Therefore, 76 trees will need to be planted as compensation, with a caliper size of 50 mm to 70 mm.

The area of woodland proposed for removal will be compensated at a 1:1 ratio in order to maintain tree canopy cover. NRSI requested that tree planting occur at density of 1200 trees per hectare of any size. If tree planting of larger caliper species is proposed within the development envelope, the density/numbers of trees per hectare will be adjusted consistent with the Forestry Act (e.g., 750 over 5 cm diameter per hectare). The proposed development plan will result in the removal of 0.763 ha woodland trees. Based on the area proposed for removal, 916 trees of any size (e.g., whips, 50-100 cm height) will be planted for compensation. This is based on the calculation of $(0.763)(1200) = 916$ trees. Planted trees shall come with a 2-year warranty period and monitoring be conducted during this period to determine numbers of replacement trees.

To summarize, a total of 916 replacement trees of any size will be required for removal within the woodland, a total of 76 trees of caliper size 50 mm to 70 mm will be required for removal within the hedgerows / individual trees, and a total 70 trees of caliper size 50 mm to 70 mm will be required for removal of municipality owned trees. **Table 3** below provides a summary of compensation requirements for trees proposed for removal for each area.

Table 3. Summary of Compensation Requirements for Trees Proposed for Removal

Tree Removal Location	Compensation Requirement	Live Tree Removals ³	Total area planned for removal ³	Required Replacement Trees
Woodland Trees	1200 trees/ha removed	200	0.763 ha	916 (any size) ¹
Hedgerows/Individual Trees	2 trees for every 1 trees removed with a DBH ≥ 10)	38	N/A	76 (caliper size of 50mm to 70mm) ²
Municipality Owned Trees	2 trees for every 1 trees removed with a DBH ≥ 10)	35	N/A	70 (caliper size of 50mm to 70mm) ²

¹As per the recommendations of NRSI and the Township of Wellington (1200 trees/ha)

²Based on compensation requirements provided in the Public Forest Policy (Centre Wellington 2018)

³Dead trees are not included, as they do not require compensation

For trees removed within the Subject Property, it is believed the Subject Property is large enough in size to accommodate the replacement of trees directly on site. A map illustrating the available restoration area, equal to 1.055 ha, is provided within **Appendix 4**. Therefore, financial compensation is not considered a necessary means of fulfilling the required compensation recommendations. Compensation should be confirmed with the Township of Wellington. For trees removed outside of the Subject Property and owned by the municipality, discussion with the Township of Wellington is required to confirm the location of replacement trees.

Compensation plantings should be assessed for quality by a Certified Arborist prior to planting as well as after planting to assess ongoing health. Compensation plantings should be cared for with appropriate pruning, watering, and mulching. All pruning must be conducted by or supervised by an Arborist.

Trees planted for compensation within the Subject Property shall include species indigenous to south central Ontario area and suited to the local hydrological and soil conditions. **Table 4** provides a summary of trees species proposed as replacement trees within the Subject Property. Other native tree species may also be considered as approved by a consulting ecologist.

Table 4: Summary of Tree Species Proposed to be Planted within the Subject Property

Scientific Name	Common Name
<i>Acer saccharum</i>	Sugar Maple
<i>Betula papyrifera</i>	Paper Birch
<i>Juglans nigra</i>	Black Walnut
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam
<i>Picea glauca</i>	White Spruce
<i>Pinus strobus</i>	Eastern White Pine
<i>Populus balsamifera</i>	Balsam Poplar
<i>Populus tremuloides</i>	Trembling Aspen
<i>Prunus serotina</i>	Black Cherry
<i>Quercus rubra</i>	Red Oak
<i>Thuja occidentalis</i>	Eastern White Cedar
<i>Tilia americana</i>	American Basswood

*Other native tree species may also be considered

For municipally owned trees, conditions within the Public Forest Policy apply. For a list of suitable tree species for Centre Wellington refer to Appendix 1, for tree planting details refer to Appendix 2, and for tree planting specifications refer to Appendix 4 within the Public Forest Policy (Centre Wellington 2018).

5. Tree Preservation

5.1. Recommended Tree Protection and Mitigation Measures

According to the proposed plan, no trees within the development footprint on the Subject Property will be retained. 21 trees on Township and adjacent lands will be retained but may be injured by the proposed works.

In order to prevent fatal injury to the trees recommended for protection, Minimum Tree Protection Zone (MTPZ) shall be established according to the requirements in Appendix 3 of the Public Forest Policy (Centre Wellington 2018), which defines minimum MTPZ distance based on tree DBH. MTPZ

has been listed in **Table 5** (see also **Appendix 2**). MTPZ shall be established and delineated with protection fencing to prevent entry by the contractors during construction. The MTPZ detailed below should be measured from the tree trunk.

Table 5. Trees potentially injured and their associated MTPZ and PRZ.

Species	DBH (cm)	Height (m)	Canopy Radius (m)	Condition ¹	Location		MTPZ (m)
					X Coord	Y Coord	
Sugar Maple <i>Acer saccharum</i>	45	19	10	2	-80.423142	43.692828	3
Sugar Maple <i>Acer saccharum</i>	39	19	10	1	-80.423371	43.693005	2.4
Yellow Birch <i>Betula alleghaniensis</i>	17	7	4	1	-80.423623	43.694022	1.8
Paper Birch <i>Betula papyrifera</i>	33.5	12	7	2	-80.423322	43.692968	2.4
Ash sp. <i>Fraxinus sp.</i>	10	14	4	1	-80.423415	43.694174	1.2
Blue Spruce <i>Picea pungens</i>	30	12	4	1	-80.423594	43.693366	2.4
Poplar sp. <i>Populus sp.</i>	10	15	2.5	1	-80.423826	43.693874	1.2
Poplar sp. <i>Populus sp.</i>	40	25	7	1	-80.423951	43.693786	2.4
cf. Poplar sp. <i>cf. Populus sp.</i>	15	16	3.5	1	-80.423794	43.693901	1.8
Sweet Cherry <i>Prunus avium</i>	30	8	4	1	-80.422238	43.695006	2.4
Columnar English Oak <i>Quercus robur</i> 'Fastigiata	15	11	2	1	-80.423570	43.693354	1.8
Columnar English Oak <i>Quercus robur</i> 'Fastigiata	15	11	2	1	-80.423556	43.693345	1.8
Red Oak <i>Quercus rubra</i>	24	13	5.5	1	-80.423399	43.692957	2.4
Willow sp. <i>Salix sp.</i>	11	6	6	2	-80.423989	43.693758	1.8

Species	DBH (cm)	Height (m)	Canopy Radius (m)	Condition ¹	Location		MTPZ (m)
					X Coord	Y Coord	
Willow sp. <i>Salix sp.</i>	16	14	5	1	-80.423785	43.693910	1.8
Willow sp. <i>Salix sp.</i>	27	13	4	2	-80.423831	43.693874	2.4
Willow sp. <i>Salix sp.</i>	28	11	7	1	-80.423575	43.694056	2.4
Willow sp. <i>Salix sp.</i>	29	11	6	3	-80.423869	43.693846	2.4
Eastern White Cedar <i>Thuja occidentalis</i>	18	7	5	1	-80.423783	43.693908	1.8
Eastern White Cedar <i>Thuja occidentalis</i>	27	12	4	1	-80.423820	43.693880	2.4
American Elm <i>Ulmus americana</i>	18	14	3.5	1	-80.423818	43.693882	1.8

¹1 = excellent condition, 2 = good condition, 3 = fair condition, 4 = poor condition, 5 = very poor condition, 6 = dead.

Tree protection fencing shall be installed to the specifications detailed in Appendix 3 of the Public Forest Policy (Centre Wellington 2018). Entry into tree protection zones by the contractor shall be prohibited. If entry into tree protection zones is required to accommodate construction, a Certified Arborist shall be consulted to ensure construction activities do not cause injury to the trees. Tree protection fencing shall be installed prior to commencing construction and maintained throughout the duration of the proposed works.

5.1.1. Root Pruning in Excavation Area to be Supervised by Qualified Arborist

If excavation within the root zones of trees to be protected is required, root pruning shall be undertaken or supervised by a qualified arborist and follow the guidelines in Appendix 3 of the Public Forest Policy (Centre Wellington 2018).

5.1.2. Equipment Refueling to be Conducted away from Natural Vegetation

During construction, refueling of equipment shall be conducted a minimum of 30 m away from the Core Area.

5.1.3. Recommendation to Minimize Use of Deicing Salts during Site Occupation

It is recommended that long-term occupants of the Subject Property minimize salt application on the driveways and paths in order to prevent potential chronic effects of salts on trees and other vegetation.

5.2. Monitoring Requirements

It is recommended that a Certified Arborist be on site to supervise critical stages, including:

- Tree marking and removal;
- Installation of tree protection hoarding and other tree protection measures;
- Excavation or grading within the MTPZ, and root pruning, if required;
- Occurrences of physical tree injury;
- Site preparation for planting; and
- Tree planting and maintenance.

Reporting requirements may be required by the Township of Wellington at any critical stage of development. Tree protection fencing should be inspected bi-monthly or on a timeline agreed upon with the Township of Centre Wellington. Erosion and sediment control inspections should ensure that no work occurs outside of the designated work area in order to ensure no harm comes to additional trees outside of the Subject Property and proposed sanitation line area. Post-construction monitoring should be completed by an Arborist to assess health of compensation plantings and nearby trees.

5.3. Additional Mitigation Measures

- Vegetation removal should occur outside of the breeding bird season for Nesting Zone C2 (April 1- August 31) (Government of Canada 2017).
- Erosion and sediment control measures as outlined in the EIS (2017) should be followed.
- Clearing equipment and vehicles should be cleaned to prevent the introduction of non-native species (Clean Equipment Protocol for Industry, 2013).
- Ash species removed should be mulched and disposed of on-site.
- Monitoring pre, during, and post-construction should be completed to provide adaptive management recommendations.
 - A 2-year monitoring program is required by the Township to ensure the woodland habitat has been adequately restored and compensated for.
- It is recommended that long-term occupants of the Subject Property minimize salt application on the driveways and paths in order to prevent potential chronic effects of salts on trees and other vegetation that may be planted in compensation.

6. Conclusion/ Summary

A total of 343 trees above 10 cm DBH were inventoried, of which 278 occurred on the Subject Property, 6 occurred along the border between adjacent properties and the Subject Property, 40 occurred on Township property, and 19 occurred on adjacent properties. The proposed works will require the removal of the majority of surveyed trees (320 total). Permission will be required for removal or injury of trees on adjacent properties and Township property including removal of 36 trees and injury of 21 trees. Additionally, there are 6 trees planned for removal which occur along the border between adjacent properties and the Subject Property where the ownership was unclear, these tree species will also require permission.

Tree compensation requires a total of 916 replacement trees of any size for removal within the woodland, a total of 76 trees of caliper size 50 mm to 70 mm for removal within the hedgerows / individual trees, and a total 70 trees of caliper size 50 mm to 70 mm for removal of municipality owned trees.

For trees removed within the Subject Property (i.e., woodland, hedgerow/individual trees), replacement trees can be planted within the restoration area illustrated in **Appendix 4**. For trees removed outside of the Subject Property, owned by the municipality, discussion with the Township of Wellington is required to confirm the location of replacement trees.

A site visit by a Certified Arborist should occur post-construction to ensure trees to be protected did not experience fatal injury and appropriate compensation plantings have occurred.

7. References

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APPENDIX 1 | Tree Vigor Criterion

Trunk Integrity:

r	root damage or decay
st	split stem/weak crotch
br	butt rot
l	excessive lean (e.g. 30° to 45°)
h	upper stem holes/decay
w	wound (bark damage, large pruning cuts)
f	fungus (conks)
ib	insect borers
b	burl
wh	woodpecker holes
s	seam or cracks
c	cankers
ba	bark loss

Crown Structure:

bt	broken top
bl	broken or severed primary limbs
p	pollarded (severe and improper pruning)
ab	adventitious branching (clusters of new shoots on main trunk)

Crown Vigour:

db	dead branch (less than 11% dead wood)
dl	moderate dead wood (e.g. 11 to 35% secondary branches mostly)
d	significant crown dieback (e.g. >35% dead wood in primary limbs)
u	undersized leaves
fc	foliar chlorosis/yellowing
fn	foliar necrosis/browning
id	insect defoliators (species if known)
di	disease (species if known)

Tree Vigour Classes:

Class 1 Excellent Condition, No Risk Trees

Sound, thrifty, full crowned trees of natural shape with no dead limbs in the top of the crown and no significant evidence of decline.

Class 2 Good Condition, Low Risk Trees

Full to medium crowned trees of natural shape with a live crown ratio $\geq 40\%$ that exhibit no more than minor dead wood (e.g. up to 10% secondary branches only and mainly in the lower crown) and no more than one moderate trunk defect or indicator of decline.

Class 3 Fair Condition, Medium Risk Trees

Full to small crowned trees with a live crown ratio $\geq 25\%$ that exhibit no more than moderate dead wood (e.g. 11 to 35% secondary branches mostly) and no more than two moderate trunk defects or indicators of decline.

Class 4 Poor Condition, High Risk Trees

Medium to very small crowned trees (e.g. live crown ratio $< 25\%$) that exhibit one or more of the following conditions.

- a) Trees with significant foliage of poor colour and less than normal size.
- b) Trees with significant crown dieback (e.g. $> 35\%$ dead wood in primary limbs).
- c) Trees with major trunk defects or decay (e.g. one extensive problem, or 3 or more distinct but moderate decline indicators).

Class 5 Very Poor Condition, Very High Risk Trees

Dying trees with very little live crown.

Class 6 Dead, Very High Risk Trees

Dead trees with no live crown.

APPENDIX 2 | Tree Inventory Data

Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Acer ginnala</i>	Amur Maple	Y1	N/A	63.5	8	4	st, p	ab		2	N	Township	Remove	N/A	80.423442	43.693240	
<i>Acer negundo</i>	Manitoba Maple	23	23	33	17	7	st		dl	1	N	Proponent	Remove	N/A	80.424010	43.693864	Few lower broken branches
<i>Acer negundo</i>	Manitoba Maple	81	81	16.8	12	5				1	N	Proponent	Remove	2.4	80.423331	43.694238	
<i>Acer negundo</i>	Manitoba Maple	82	82	18.1	13	5	l		dl	1	N	Proponent	Remove	N/A	80.423330	43.694238	A couple dead branches
<i>Acer negundo</i>	Manitoba Maple	86	86	18	9	4	l	ab	dl	2	N	Proponent	Remove	N/A	80.423302	43.694258	A couple dead branches
<i>Acer negundo</i>	Manitoba Maple	419	419	31.8	22	9	w		dl	2	N	Proponent	Remove	N/A	80.426706	43.696565	
<i>Acer negundo</i>	Manitoba Maple	424	424	19	18	10	l			2	N	Proponent	Remove	N/A	80.426931	43.696414	
<i>Acer negundo</i>	Manitoba Maple	425	425	11.9	15	4	l			2	N	Proponent	Remove	N/A	80.426917	43.696453	
<i>Acer negundo</i>	Manitoba Maple	426	426	10	15	4			dl	2	N	Proponent	Remove	N/A	80.426947	43.696450	
<i>Acer negundo</i>	Manitoba Maple	671	671	26.4	18	8	l	bl		3	N	Proponent	Remove	N/A	80.427086	43.696331	
<i>Acer negundo</i>	Manitoba Maple	673	673	27.8	25	8			v	1	N	Proponent	Remove	N/A	80.427099	43.696377	
<i>Acer negundo</i>	Manitoba Maple	674	674	50.5	26	10	st, ab			3	N	Proponent	Remove	N/A	80.427183	43.696349	
<i>Acer negundo</i>	Manitoba Maple	675	675	61	22	10	st	dl		3	N	Proponent	Remove	N/A	80.427287	43.696438	
<i>Acer negundo</i>	Manitoba Maple	676	676	27.4	20	8	l, ab			2	N	Proponent	Remove	N/A	80.427246	43.696413	
<i>Acer negundo</i>	Manitoba Maple	677	677	31.6	25	8	ab			2	N	Proponent	Remove	N/A	80.427153	43.696440	
<i>Acer negundo</i>	Manitoba Maple	678	678	65	24	9	w, f, st			3	N	Proponent	Remove	N/A	80.427126	43.696497	
<i>Acer negundo</i>	Manitoba Maple	679	679	32.2	22	8	ab	dl		2	N	Proponent	Remove	N/A	80.427177	43.696425	
<i>Acer negundo</i>	Manitoba Maple	680	680	17	19	6	ab	dl		4	N	Proponent	Remove	N/A	80.427075	43.696449	
<i>Acer negundo</i>	Manitoba Maple	681	681	27.5	25	8		dl		2	N	Proponent	Remove	N/A	80.427080	43.696496	
<i>Acer negundo</i>	Manitoba Maple	682	682	35	25	9		bl, dl		2	N	Proponent	Remove	N/A	80.427050	43.696491	
<i>Acer negundo</i>	Manitoba Maple	683	683	28.5	18	8	l, ab	dl		3	N	Proponent	Remove	N/A	80.427010	43.696472	Heavy lean, width tree canopy has been adjusted accordingly.

Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Acer negundo</i>	Manitoba Maple	684	684	72	26	10	st, loose bark	bl		2	N	Proponent	Remove	N/A	80.427035	43.696483	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Acer negundo</i>	Manitoba Maple	685	685	17	22	4	ab	bl		4	N	Proponent	Remove	N/A	80.427035	43.696579	
<i>Acer negundo</i>	Manitoba Maple	686	686	34.4	25	10		dl		3	N	Proponent	Remove	N/A	80.427011	43.696567	
<i>Acer negundo</i>	Manitoba Maple	687	687	18.8	20	8		dl		2	N	Proponent	Remove	N/A	80.427080	43.696552	
<i>Acer negundo</i>	Manitoba Maple	688	688	18.1	20	6	l			2	N	Proponent	Remove	N/A	80.427063	43.696602	
<i>Acer negundo</i>	Manitoba Maple	689	689	62.3	25	10	st			2	N	Proponent	Remove	N/A	80.427007	43.696578	
<i>Acer negundo</i>	Manitoba Maple	690	690	85	26	10	l, st			2	N	Proponent	Remove	N/A	80.427051	43.696611	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Acer negundo</i>	Manitoba Maple	946	946	14.3	8	4	w, s			3	N	Proponent	Remove	N/A	80.427697	43.695572	
<i>Acer negundo</i>	Manitoba Maple	983	983	43.9	10	10	st			2	N	Proponent	Remove	N/A	80.427440	43.696316	
<i>Acer negundo</i>	Manitoba Maple	984	984	105	10	10	st, ab	dl, bl		3	N	Proponent	Remove	N/A	80.427437	43.696384	
<i>Acer negundo</i>	Manitoba Maple	985	985	29	9	8	st			3	N	Proponent	Remove	N/A	80.427430	43.696275	
<i>Acer negundo</i>	Manitoba Maple	986	986	20.3	9	8				3	N	Proponent	Remove	N/A	80.427394	43.696294	
<i>Acer negundo</i>	Manitoba Maple	988	988	12.5	9	4		dl		2	N	Proponent	Remove	N/A	80.427284	43.696340	
<i>Acer negundo</i>	Manitoba Maple	989	989	46.5	10	10	st, w			2	N	Proponent	Remove	N/A	80.427344	43.696342	
<i>Acer negundo</i>	Manitoba Maple	990	990	160	30	14	st, cavity, s, w	db		2	N	Proponent	Remove	N/A	80.427212	43.696286	Bat habitat
<i>Acer negundo</i>	Manitoba Maple	991	991	24.5	25	6	twisted			2	N	Proponent	Remove	N/A	80.427099	43.696342	
<i>Acer negundo</i>	Manitoba Maple	992	992	25.9	27	8		dl		2	N	Proponent	Remove	N/A	80.427136	43.696317	
<i>Acer negundo</i>	Manitoba Maple	993	993	21.5	28	8		dl		2	N	Proponent	Remove	N/A	80.427076	43.696388	
<i>Acer negundo</i>	Manitoba Maple	994	994	14	5	4	l	bl	v	2	N	Proponent	Remove	N/A	80.427045	43.696385	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Acer negundo</i>	Manitoba Maple	995	995	14.2	8	4	ab	bt		4	N	Proponent	Remove	N/A	80.427045	43.696385	

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<i>Acer negundo</i>	Manitoba Maple	R	N/A	20.5	19	5			dl	2	N	Township	Remove	N/A	80.423911	43.693472	
<i>Acer negundo</i>	Manitoba Maple	A1	N/A	26	12	5	s			1	N	Township	Remove	N/A	80.423820	43.693389	
<i>Acer platanoides</i>	Norway maple	121	121	20.7	7	4	s			1	N	Proponent	Remove	N/A	80.422452	43.694870	
<i>Acer saccharinum</i>	Silver Maple	W1	N/A	52.5	18	12	r, st, w, peeling bark			3	Y	Township	Remove	N/A	80.423271	43.693042	
<i>Acer saccharum</i>	Sugar Maple	197	197	16.8	20	7				1	Y	Proponent	Remove	2.4	80.426667	43.696770	
<i>Acer saccharum</i>	Sugar Maple	198	198	31.7	22	8				1	Y	Proponent	Remove	N/A	80.426637	43.696785	
<i>Acer saccharum</i>	Sugar Maple	202	202	11.2	19	6				1	Y	Proponent	Remove	1.8	80.426654	43.696774	
<i>Acer saccharum</i>	Sugar Maple	309	309	13	19	6				1	Y	Proponent	Remove	N/A	80.426655	43.696758	
<i>Acer saccharum</i>	Sugar Maple	405	405	11.7	16	5				1	Y	Proponent	Remove	N/A	80.426528	43.696948	
<i>Acer saccharum</i>	Sugar Maple	700	700	30	19	6	st, w			2	Y	Proponent	Remove	N/A	80.426699	43.696777	
<i>Acer saccharum</i>	Sugar Maple	J	N/A	15	9	4.5	r, w, peeling bark		dl	4	Y	Township	Remove	N/A	80.422911	43.692828	Few lower broken branches, DBH estimated
<i>Acer saccharum</i>	Sugar Maple	O1	N/A	39	19	10	r			1	Y	Township	Injure	2.4	80.423371	43.693005	
<i>Acer saccharum</i>	Sugar Maple	R1	N/A	45	19	10	r, st, w, s			2	Y	Township	Injure	3	80.423142	43.692828	
<i>Acer saccharum</i>	Sugar Maple	S1	N/A	47	19	10	r, w, s, st, ib	p	d	3	Y	Township	Remove	N/A	80.423218	43.693061	Emerald Ash Borer
<i>Acer saccharum</i>	Sugar Maple	T1	N/A	48.5	18	10	r, st			2	Y	Township	Remove	N/A	80.423124	43.692880	
<i>Acer saccharum</i>	Sugar Maple	X1	N/A	60	18	9	r, st, w			1	Y	Township	Remove	N/A	80.423007	43.692814	
<i>Aesculus hippocastanum</i>	Horse Chestnut	E1	N/A	28.5	11	6	r, st, w			2	N	Township	Remove	N/A	80.423034	43.692895	
<i>Betula alleghaniensis</i>	Yellow Birch	36	36	24	14	6				1	Y	Proponent	Remove	N/A	80.423855	43.693945	
<i>Betula alleghaniensis</i>	Yellow Birch	404	404	13.1	18	5	w, ab			4	Y	Proponent	Remove	N/A	80.426567	43.696949	Burn marks
<i>Betula alleghaniensis</i>	Yellow Birch	474	474	90.5	30	14	f, cavity, s, loose bark			2	Y	Proponent	Remove	N/A	80.428495	43.695564	bat habitat

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<i>Betula alleghaniensis</i>	Yellow Birch	N	N/A	17	7	4		p		1	Y	Adjacent Landowner	Injure	1.8	80.423623	43.694022	DBH estimated
<i>Betula alleghaniensis</i>	Yellow Birch	D1	N/A	28	11	7	r			1	Y	Adjacent Landowner	Injure	2.4	80.423575	43.694056	DBH estimated
<i>Betula papyrifera</i>	Paper Birch	L1	N/A	33.5	12	7	w, st, s, br			2	Y	Township	Injure	2.4	80.423322	43.692968	
<i>cf. Fraxinus pennsylvanica</i>	cf. Green ash	35	35	15	12	4	s		ab, dl	2	Y	Proponent	Remove	N/A	80.423851	43.693904	Few lower broken branches
<i>cf. Fraxinus sp.</i>	cf. Ash sp.	416	416	24.5	24	6	cavity, no bark		dl	6	Y	Proponent	Remove	N/A	80.426507	43.696723	Dead, Bat habitat
<i>cf. Populus sp.</i>	cf. Poplar sp.	C2	N/A	15	16	3.5				1	Y	Adjacent Landowner	Injure	1.8	80.423794	43.693901	DBH estimated
<i>cf. Salix sp.</i>	cf. Willow sp.	18	18	20.5	8	6	st		dl	2	Y	Proponent	Remove	N/A	80.424010	43.693770	
<i>cf. Salix sp.</i>	cf. Willow sp.	V1	N/A	52.5	10	5.5	st, r,	bl	dl	4	Y	Township	Remove	N/A	80.423912	43.693480	
<i>cf. Salix sp.</i>	cf. Willow sp.	K2	N/A	29	20	5.5	l			1	Y	Proponent	Remove	N/A	80.423920	43.693809	DBH estimated
<i>Crataegus sp.</i>	Hawthorn sp.	115	115	57	9	5				1	Y	Proponent	Remove	N/A	80.422714	43.694682	
<i>Crataegus sp.</i>	Hawthorn sp.	403	403	19.8	12	5				2	Y	Proponent	Remove	N/A	80.426500	43.696787	
<i>Crataegus sp.</i>	Hawthorn sp.	410	410	36	11	6	st		v	2	Y	Proponent	Remove	N/A	80.426251	43.696887	
<i>Crataegus sp.</i>	Hawthorn sp.	411	411	25	11	6	st		v	2	Y	Proponent	Remove	N/A	80.426243	43.696899	
<i>Crataegus sp.</i>	Hawthorn sp.	414	414	32	18	6	st		dl	2	Y	Proponent	Remove	N/A	80.426385	43.696779	
<i>Crataegus sp.</i>	Hawthorn sp.	417	417	10	12	4			dl	2	Y	Proponent	Remove	N/A	80.426405	43.696754	
<i>Crataegus sp.</i>	Hawthorn sp.	422	422	20	15	6	st			3	Y	Proponent	Remove	N/A	80.426830	43.696506	
<i>Crataegus sp.</i>	Hawthorn sp.	439	439	11	15	5		bl		1	Y	Proponent	Remove	2.4	80.427605	43.695894	
<i>Crataegus sp.</i>	Hawthorn sp.	441	441	11.8	15	3				1	Y	Proponent	Remove	N/A	80.427575	43.695870	
<i>Crataegus sp.</i>	Hawthorn sp.	445	445	11	15	5	st			5	Y	Proponent	Remove	2.4	80.427588	43.695877	
<i>Crataegus sp.</i>	Hawthorn sp.	456	456	28	18	6	st			2	Y	Proponent	Remove	N/A	80.428036	43.695835	
<i>Crataegus sp.</i>	Hawthorn sp.	974	974	34	6	6	st			1	Y	Proponent	Remove	N/A	80.427554	43.696247	
<i>Crataegus sp.</i>	Hawthorn sp.	987	987	70	10	10	st	dl		3	Y	Proponent	Remove	N/A	80.427370	43.696292	

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<i>Fraxinus americana</i>	White Ash	401	401	23.5	17	4	ib, w, s			3	Y	Proponent	Remove	N/A	80.426615	43.696738	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	408	408	43.1	30	4	c,ba	bl	dl	6	Y	Proponent	Remove	N/A	80.426265	43.696914	Dead, Bat habitat
<i>Fraxinus americana</i>	White Ash	409	409	32.7	18	3	c, ba, f			6	Y	Proponent	Remove	N/A	80.426257	43.696892	Dead, Bat habitat
<i>Fraxinus americana</i>	White Ash	412	412	41.7	28	9	ib, s, ab			2	Y	Proponent	Remove	N/A	80.426444	43.696810	Bat habitat
<i>Fraxinus americana</i>	White Ash	428	428	15.4	22	5	ib		dl	3	Y	Proponent	Remove	N/A	80.427173	43.696179	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	429	429	12	18	6	ib		dl	3	Y	Proponent	Remove	N/A	80.427170	43.696244	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	431	431	13.5	21	6	ib		dl	3	Y	Proponent	Remove	N/A	80.427211	43.696200	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	432	432	12.1	17	4	ib		dl	3	Y	Proponent	Remove	N/A	80.427211	43.696200	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	433	433	17	22	8	ib, w			2	Y	Proponent	Remove	N/A	80.427277	43.696199	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	435	435	16	18	5	ib		dl	3	Y	Proponent	Remove	N/A	80.427376	43.696090	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	436	436	13.1	18	5	ib, w		dl	3	Y	Proponent	Remove	N/A	80.427416	43.696044	
<i>Fraxinus americana</i>	White Ash	437	437	20	20	6	ib, w, loose bark		dl	5	Y	Proponent	Remove	N/A	80.427469	43.695983	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	440	440	17.3	22	5	ib		dl	3	Y	Proponent	Remove	N/A	80.427556	43.695901	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	457	457	34	30	10				2	Y	Proponent	Remove	N/A	80.428034	43.695803	
<i>Fraxinus americana</i>	White Ash	695	695	30	22	6			v	2	Y	Proponent	Remove	N/A	80.426898	43.696536	
<i>Fraxinus americana</i>	White Ash	696	696	35	20	8		dl	v	2	Y	Proponent	Remove	N/A	80.426849	43.696566	
<i>Fraxinus americana</i>	White Ash	947	947	11.7	8.5	4	w, s, ib			3	Y	Proponent	Remove	N/A	80.427673	43.695595	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	948	948	28.4	11	7	w, s, ib			3	Y	Proponent	Remove	N/A	80.427694	43.695597	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	950	950	24.5	10	8	w, s, ib			3	Y	Proponent	Remove	N/A	80.427725	43.695667	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	957	957	10.4	7	4	v, ib			3	Y	Proponent	Remove	1.8	80.427681	43.695900	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	959	959	40.2	7	1	ib	bt, db		6	Y	Proponent	Remove	N/A	80.427599	43.695919	Dead, Emerald Ash Borer

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<i>Fraxinus americana</i>	White Ash	965	965	10	7	1	ib, w, s			5	Y	Proponent	Remove	1.8	80.427556	43.695926	Emerald Ash Borer
<i>Fraxinus americana</i>	White Ash	971	971	29.5	10	8	w			2	Y	Proponent	Remove	N/A	80.427561	43.696191	
<i>Fraxinus americana</i>	White Ash	973	973	26.8	10	7				2	Y	Proponent	Remove	N/A	80.427555	43.696261	
<i>Fraxinus americana</i>	White Ash	976	976	13	8	5	ib			3	Y	Proponent	Remove	N/A	80.427426	43.696082	Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	34	34	57	14	7	st		ab, dl	2	Y	Proponent	Remove	N/A	80.423835	43.693914	Few lower broken branches
<i>Fraxinus pennsylvanica</i>	Green Ash	41	41	17	10	4	l	ab		2	Y	Proponent	Remove	N/A	80.423832	43.694026	
<i>Fraxinus pennsylvanica</i>	Green Ash	58	58	14	18	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423586	43.694113	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	59	59	14	18	2	ib		d	6	Y	Proponent	Remove	N/A	80.423550	43.694139	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	60	60	16	18	3	ib		d	6	Y	Proponent	Remove	N/A	80.423549	43.694141	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	61	61	21	18	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423552	43.694146	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	62	62	31	25	3	ib		d	6	Y	Proponent	Remove	N/A	80.423549	43.694145	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	63	63	16	15	3	ib		d	6	Y	Proponent	Remove	N/A	80.423550	43.694147	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	64	64	25	22	3	ib		d	6	Y	Proponent	Remove	N/A	80.423544	43.694154	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	66	66	27	22	5	ib, peeling bark		d	6	Y	Proponent	Remove	N/A	80.423468	43.694183	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	67	67	22.2	15	4	ib		d	6	Y	Proponent	Remove	N/A	80.423511	43.694189	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	68	68	30	17	5	ib		d	6	Y	Proponent	Remove	N/A	80.423507	43.694194	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	69	69	14.9	16	5	ib		d	6	Y	Proponent	Remove	N/A	80.423504	43.694192	DBH estimated, dead
<i>Fraxinus pennsylvanica</i>	Green Ash	70	70	23	19.7	3	ib		d	6	Y	Proponent	Remove	N/A	80.423498	43.694195	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	73	73	31.2	20	5	s, ib		d	6	Y	Proponent	Remove	N/A	80.423415	43.694217	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	74	74	14	6	4	ib		d	6	Y	Proponent	Remove	N/A	80.423444	43.694201	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	78	78	22.3	8	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423377	43.694231	Dead, Emerald Ash Borer

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<i>Fraxinus pennsylvanica</i>	Green Ash	79	79	15	6	3	s, ib		d	6	Y	Adjacent Landowner	Retain	N/A	80.423389	43.694208	DBH estimated, dead
<i>Fraxinus pennsylvanica</i>	Green Ash	80	80	26.5	6	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423336	43.694233	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	83	83	36.7	20	5	ib		d	6	Y	Proponent	Remove	N/A	80.423335	43.694242	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	84	84	26	20	6	s			2	Y	Proponent	Remove	N/A	80.423325	43.694249	
<i>Fraxinus pennsylvanica</i>	Green Ash	85	85	13	8	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423307	43.694257	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	87	87	22.2	20	2	s, ib, peeling bark		d	6	Y	Proponent	Remove	N/A	80.423297	43.694308	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	88	88	11	5	N/A	l, ib		d	6	Y	Proponent	Remove	2.4	80.423308	43.694304	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	89	89	26.1	23	4	s, ib		d	6	Y	Proponent	Remove	N/A	80.423306	43.694302	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	90	90	14.2	18	2.5	ib		d	6	Y	Proponent	Remove	N/A	80.423292	43.694303	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	91	91	24	6	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423334	43.694279	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	93	93	22.6	15	6	ib		d	6	Y	Proponent	Remove	N/A	80.423363	43.694276	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	94	94	21.5	22	4	ib		d	6	Y	Proponent	Remove	N/A	80.423361	43.694281	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	95	95	13	8	3	s, ib		d, ab	3	Y	Proponent	Remove	N/A	80.423224	43.694314	Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	96	96	10.5	10	4	ib		d, ab	4	Y	Proponent	Remove	2.4	80.423228	43.694316	Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	97	97	12.7	8	3	s, ib, peeling bark		d	6	Y	Proponent	Remove	N/A	80.423184	43.694368	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	98	98	16.5	11	4			ab	2	Y	Proponent	Remove	1.8	80.423192	43.694372	
<i>Fraxinus pennsylvanica</i>	Green Ash	100	100	11	6	2	ib, peeling bark		d	6	Y	Proponent	Remove	2.4	80.423209	43.694352	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	104	104	13.5	8	3	ib		d	6	Y	Proponent	Remove	N/A	80.423124	43.694412	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	106	106	15	10	2	ib, peeling bark		d	6	Y	Proponent	Remove	N/A	80.423095	43.694439	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	108	108	14.5	6	4	ib		d	6	Y	Proponent	Remove	N/A	80.423062	43.694440	Dead, Emerald Ash Borer

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<i>Fraxinus pennsylvanica</i>	Green Ash	112	112	16	10	5	ib		d	6	Y	Proponent	Remove	N/A	80.423111	43.694454	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	113	113	16.3	7	3.5	ib		d	6	Y	Proponent	Remove	1.8	80.423002	43.694501	Dead, Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	B	N/A	10	6	3.5	s, w, ib		dl	4	Y	Boundary	Remove	N/A	80.423000	43.694473	Emerald Ash Borer
<i>Fraxinus pennsylvanica</i>	Green Ash	Z	N/A	26	15	5	st, ib		d	6	Y	Adjacent Landowner	Retain	N/A	80.423416	43.694176	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	978	978	24.8	6	1	w, no bark	bt, db, bl	d	6	Y	Proponent	Remove	N/A	80.427359	43.696227	Dead
<i>Fraxinus sp.</i>	Ash sp.	120	120	18	4	2	ib		d	6	Y	Proponent	Remove	N/A	80.422552	43.694799	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	27	27	18	14	10	w, ib		d	6	Y	Proponent	Remove	N/A	80.423921	43.693832	DBH estimated, dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	4	4	13.5	12	4		ab	dl	2	Y	Proponent	Remove	N/A	80.424187	43.693686	
<i>Fraxinus sp.</i>	Ash sp.	5	5	13	10	10	w, l, s, ib	ab	dl	6	Y	Proponent	Remove	N/A	80.424206	43.693673	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	53	53	21	6	0	ib		d	6	Y	Proponent	Remove	N/A	80.423588	43.694078	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	54	54	22.4	20	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423594	43.694093	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	56	56	32.6	20	N/A	ib		d	6	Y	Proponent	Remove	N/A	80.423629	43.694109	Dead, Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	6	6	13	12	2.5		bl		4	Y	Proponent	Remove	N/A	80.424247	43.693703	
<i>Fraxinus sp.</i>	Ash sp.	7	7	15	10	6	l, ib, w		dl	3	Y	Proponent	Remove	N/A	80.424228	43.693710	Emerald Ash Borer
<i>Fraxinus sp.</i>	Ash sp.	A2	N/A	10	14	4				1	Y	Adjacent Landowner	Injure	1.2	80.423415	43.694174	DBH estimated
<i>Fraxinus sp.</i>	Ash sp.	F2	N/A	20		N/A	ib		d	6	Y	Township	Remove	N/A	80.423867	43.693490	Dead, Emerald Ash Borer
<i>Juglans nigra</i>	Black Walnut	11	11	18.5	14	5			dl	6	Y	Proponent	Remove	N/A	80.424070	43.693757	
<i>Juglans nigra</i>	Black Walnut	Q	N/A	18.5	7	4	st			2	Y	Township	Remove	N/A	80.423741	43.693342	
<i>Malus pumila</i>	Domestic Apple	199	199	45	14	8	st, w		dl, v	5	N	Proponent	Remove	N/A	80.426495	43.696792	
<i>Malus pumila</i>	Domestic Apple	402	402	21	14	6	ab		dl	4	N	Proponent	Remove	N/A	80.426615	43.696745	
<i>Malus pumila</i>	Domestic Apple	415	415	46	18	6	st			2	N	Proponent	Remove	N/A	80.426387	43.696801	
<i>Malus pumila</i>	Domestic Apple	418	418	46.5	16	7	ab, st		dl	3	N	Proponent	Remove	N/A	80.426598	43.696673	

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<i>Malus pumila</i>	Domestic Apple	420	420	30	15	6	st			5	N	Proponent	Remove	N/A	80.426744	43.696583	
<i>Malus pumila</i>	Domestic Apple	446	446	45	15	6		bl	dl	1	N	Proponent	Remove	N/A	80.427608	43.695760	
<i>Malus pumila</i>	Domestic Apple	459	459	55	18	10	st, w		dl	2	N	Proponent	Remove	N/A	80.428119	43.695827	
<i>Malus pumila</i>	Domestic Apple	691	691	40	18	6	ab	dl		2	N	Proponent	Remove	N/A	80.426980	43.696600	
<i>Malus pumila</i>	Domestic Apple	694	694	40	10	6	cavity, loose bark, hollow	dl		6	N	Proponent	Remove	N/A	80.426876	43.696745	Dead tree, bat habitat
<i>Malus sp.</i>	Apple sp.	H	N/A	13.5	6	3	st, w			3	N	Township	Remove	N/A	80.423775	43.693362	
<i>Ostrya virginiana</i>	Ironwood	968	968	25.3	11	8				2	Y	Proponent	Remove	N/A	80.427353	43.696073	
<i>Picea glauca</i>	White Spruce	E	N/A	11	9	2				1	Y	Township	Remove	3	80.423907	43.693615	
<i>Picea pungens</i>	Blue Spruce	G2	N/A	20	10	3				1	Y	Township	Remove	N/A	80.423646	43.693349	
<i>Picea pungens</i>	Blue Spruce	H2	N/A	22	12	3.5				1	Y	Township	Remove	N/A	80.423685	43.693372	
<i>Picea pungens</i>	Blue Spruce	I2	N/A	22	10	3.5				1	Y	Township	Remove	N/A	80.423720	43.693394	
<i>Picea pungens</i>	Blue Spruce	L2	N/A	30	12	4				1	Y	Adjacent Landowner	Injure	2.4	80.423594	43.693366	DBH estimated
<i>Picea sp.</i>	Spruce sp.	G	N/A	12.5	6	3				1	Y	Boundary	Remove	N/A	80.423334	43.694235	Did not tag due to uncertainty about ownership
<i>Pinus strobus</i>	Eastern White Pine	N1	N/A	36	14	5.5	st, l			2	Y	Township	Remove	N/A	80.423884	43.693517	
<i>Populus balsamifera</i>	Balsam Poplar	W	N/A	22	18	5			dl	2	-	Township	Remove	N/A	80.423933	43.693559	Dead lower branches
<i>Populus balsamifera</i>	Balsam Poplar	37	37	14.8	15	3				1	Y	Proponent	Remove	N/A	80.423785	43.693917	
<i>Populus balsamifera</i>	Balsam Poplar	38	38	14	16	3				1	Y	Proponent	Remove	N/A	80.423820	43.693886	DBH estimated
<i>Populus sp.</i>	Poplar sp.	8	8	15	8	10		bl		2	Y	Proponent	Remove	N/A	80.424185	43.693739	
<i>Populus sp.</i>	Poplar sp.	C	N/A	10	15	2.5				1	Y	Adjacent Landowner	Injure	1.2	80.423826	43.693874	DBH estimated
<i>Populus sp.</i>	Poplar sp.	P1	N/A	40	25	7			dl	1	Y	Adjacent Landowner	Injure	2.4	80.423951	43.693786	DBH estimated, a few lower broken branches

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<i>Populus tremuloides</i>	Trembling Aspen	3	3	19	20	5.5		bl		1	Y	Proponent	Remove	N/A	80.424215	43.693675	Couple broken branches
<i>Populus tremuloides</i>	Trembling aspen	71	71	12	14	4	s			1	Y	Proponent	Remove	N/A	80.423464	43.694211	
<i>Populus tremuloides</i>	Trembling Aspen	75	75	21.3	22	6				1	Y	Proponent	Remove	N/A	80.423417	43.694233	
<i>Populus tremuloides</i>	Trembling Aspen	77	77	13	13	5				1	Y	Proponent	Remove	N/A	80.423383	43.694238	
<i>Populus tremuloides</i>	Trembling Aspen	99	99	14.6	14	3				1	Y	Proponent	Remove	N/A	80.423162	43.694390	
<i>Populus tremuloides</i>	Trembling Aspen	101	101	11	11	3	h, s			3	Y	Proponent	Remove	2.4	80.423196	43.694414	
<i>Populus tremuloides</i>	Trembling Aspen	102	102	13.2	9	4	s, h			2	Y	Proponent	Remove	N/A	80.423192	43.694411	
<i>Populus tremuloides</i>	Trembling Aspen	103	103	24	23	5	w, s		dl	2	Y	Proponent	Remove	N/A	80.423187	43.694411	A couple dead branches
<i>Populus tremuloides</i>	Trembling Aspen	105	105	26.4	22	5				1	Y	Proponent	Remove	N/A	80.423115	43.694417	
<i>Populus tremuloides</i>	Trembling Aspen	107	107	17	14	3	w		ab	1	Y	Proponent	Remove	N/A	80.423095	43.694443	
<i>Populus tremuloides</i>	Trembling Aspen	109	109	20.6	14	5	w		dl	2	Y	Proponent	Remove	N/A	80.423062	43.694446	A couple dead branches
<i>Populus tremuloides</i>	Trembling Aspen	110	110	21	16	5	w, s		dl	1	Y	Proponent	Remove	N/A	80.423055	43.694450	A couple dead lower brances
<i>Populus tremuloides</i>	Trembling Aspen	111	111	24	23	5			dl	1	Y	Proponent	Remove	N/A	80.423111	43.694454	A couple dead lower brances
<i>Populus tremuloides</i>	Trembling Aspen	114	114	10	11	3	w			2	Y	Proponent	Remove	1.8	80.422958	43.694525	
<i>Populus tremuloides</i>	Trembling Aspen	406	406	25.1	22	8			dl, v	2	Y	Proponent	Remove	N/A	80.426506	43.696997	
<i>Populus tremuloides</i>	Trembling Aspen	427	427	30.6	30	8			dl, bl	3	Y	Proponent	Remove	N/A	80.427032	43.696317	
<i>Populus tremuloides</i>	Trembling Aspen	434	434	25.2	22	7				1	Y	Proponent	Remove	N/A	80.427374	43.696083	
<i>Populus tremuloides</i>	Trembling Aspen	442	442	29	24	8				1	Y	Proponent	Remove	N/A	80.427613	43.695833	
<i>Populus tremuloides</i>	Trembling Aspen	443	443	12.8	17	5			v	1	Y	Proponent	Remove	N/A	80.427606	43.695829	
<i>Populus tremuloides</i>	Trembling Aspen	444	444	28.2	20	10		bl	bt, dl, v	1	Y	Proponent	Remove	N/A	80.427612	43.695832	
<i>Populus tremuloides</i>	Trembling Aspen	448	448	11.2	16	5				1	Y	Proponent	Remove	1.8	80.427666	43.695686	
<i>Populus tremuloides</i>	Trembling Aspen	449	449	20.1	18	4	w, br		bt, bl, dl	5	Y	Proponent	Remove	N/A	80.427984	43.695886	

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<i>Populus tremuloides</i>	Trembling Aspen	450	450	26.4	28	8	w			1	Y	Proponent	Remove	N/A	80.427961	43.695895	
<i>Populus tremuloides</i>	Trembling Aspen	451	451	25.8	28	8				1	Y	Proponent	Remove	N/A	80.428034	43.695893	
<i>Populus tremuloides</i>	Trembling Aspen	452	452	17.6	25	6				1	Y	Proponent	Remove	N/A	80.428031	43.695897	
<i>Populus tremuloides</i>	Trembling Aspen	453	453	30.5	29	10	w		dl	1	Y	Proponent	Remove	N/A	80.428039	43.695891	
<i>Populus tremuloides</i>	Trembling Aspen	454	454	31	30	8	w			1	Y	Proponent	Remove	N/A	80.428033	43.695863	
<i>Populus tremuloides</i>	Trembling Aspen	455	455	36	28	8				1	Y	Proponent	Remove	N/A	80.428021	43.695838	
<i>Populus tremuloides</i>	Trembling Aspen	458	458	24	18	6	w		bt, dl	3	Y	Proponent	Remove	N/A	80.428046	43.695883	
<i>Populus tremuloides</i>	Trembling Aspen	460	460	19.5	26	8				1	Y	Proponent	Remove	N/A	80.428146	43.695795	
<i>Populus tremuloides</i>	Trembling Aspen	461	461	12.6	18	6				1	Y	Proponent	Remove	N/A	80.428212	43.695763	
<i>Populus tremuloides</i>	Trembling Aspen	462	462	15	17	6				1	Y	Proponent	Remove	N/A	80.428204	43.695766	
<i>Populus tremuloides</i>	Trembling Aspen	463	463	17	15	4	f		bt, dl	5	Y	Proponent	Remove	N/A	80.428190	43.695756	
<i>Populus tremuloides</i>	Trembling Aspen	464	464	13.6	12	4	l, w			2	Y	Proponent	Remove	N/A	80.428218	43.695768	
<i>Populus tremuloides</i>	Trembling Aspen	465	465	18.3	20	6				1	Y	Proponent	Remove	N/A	80.428229	43.695750	
<i>Populus tremuloides</i>	Trembling Aspen	466	466	25	20	8	w		dl	2	Y	Proponent	Remove	N/A	80.428225	43.695746	
<i>Populus tremuloides</i>	Trembling Aspen	467	467	11.4	10	4	l			2	Y	Proponent	Remove	2.4	80.428231	43.695750	
<i>Populus tremuloides</i>	Trembling Aspen	468	468	22.5	25	8	w		dl	1	Y	Proponent	Remove	N/A	80.428277	43.695771	
<i>Populus tremuloides</i>	Trembling Aspen	469	469	18.3	25	8	w			1	Y	Proponent	Remove	N/A	80.428265	43.695747	
<i>Populus tremuloides</i>	Trembling Aspen	470	470	20.4	25	8	w			1	Y	Proponent	Remove	N/A	80.428283	43.695753	
<i>Populus tremuloides</i>	Trembling Aspen	471	471	44.2	25	8	w		dl	2	Y	Proponent	Remove	N/A	80.428311	43.695750	
<i>Populus tremuloides</i>	Trembling Aspen	472	472	21.5	24	6			dl	4	Y	Proponent	Remove	N/A	80.428327	43.695731	half canopy diebak
<i>Populus tremuloides</i>	Trembling Aspen	473	473	27.8	25	8	w,br,f	bl	dl	2	Y	Proponent	Remove	N/A	80.428381	43.695645	
<i>Populus tremuloides</i>	Trembling Aspen	949	949	17.3	10	8				2	Y	Proponent	Remove	N/A	80.427656	43.695581	

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<i>Populus tremuloides</i>	Trembling Aspen	951	951	11.5	9	3	w			3	Y	Proponent	Remove	N/A	80.427669	43.695691	
<i>Populus tremuloides</i>	Trembling Aspen	952	952	24.6	10	6	w, s	br		3	Y	Proponent	Remove	N/A	80.427740	43.695736	
<i>Populus tremuloides</i>	Trembling Aspen	953	953	17.9	10	7	w, v			2	Y	Proponent	Remove	N/A	80.427768	43.695712	
<i>Populus tremuloides</i>	Trembling Aspen	955	955	24	11	8				1	Y	Proponent	Remove	N/A	80.427637	43.695827	
<i>Populus tremuloides</i>	Trembling Aspen	956	956	19.4	11	8				1	Y	Proponent	Remove	N/A	80.427649	43.695889	
<i>Populus tremuloides</i>	Trembling Aspen	958	958	13.9	8	4				1	Y	Proponent	Remove	N/A	80.427678	43.695896	
<i>Populus tremuloides</i>	Trembling Aspen	961	961	26.5	11	8	c, sn	bl		2	Y	Proponent	Remove	N/A	80.427599	43.695913	
<i>Populus tremuloides</i>	Trembling Aspen	962	962	24.3	11	8				2	Y	Proponent	Remove	N/A	80.427612	43.695903	
<i>Populus tremuloides</i>	Trembling Aspen	963	963	13.6	10	6				2	Y	Proponent	Remove	N/A	80.427555	43.695885	
<i>Populus tremuloides</i>	Trembling Aspen	966	966	10.5	7	4				1	Y	Proponent	Remove	2.4	80.427542	43.695977	
<i>Populus tremuloides</i>	Trembling Aspen	K	N/A	16	20	5			dl	2	Y	Boundary	Remove	N/A	80.423006	43.694469	DBH estimated
<i>Populus tremuloides</i>	Trembling Aspen	L	N/A	16	20	5				1	Y	Boundary	Remove	N/A	80.423006	43.694469	DBH estimated
<i>Populus tremuloides</i>	Trembling Aspen	S	N/A	21	8	2	st, w			2	Y	Boundary	Remove	N/A	80.422981	43.694488	
<i>Populus tremuloides</i>	Trembling Aspen	T	N/A	21	17	4	st	bl		1	Y	Township	Remove	N/A	80.423955	43.693644	One broken branch
<i>Populus tremuloides</i>	Trembling Aspen	I1	N/A	30	24	6	s			1	Y	Township	Remove	N/A	80.423912	43.693480	
<i>Prunus avium</i>	Sweet Cherry	H1	N/A	30	8	4				1	N	Adjacent Landowner	Injure	2.4	80.422238	43.695006	DBH estimated, tree growing through fence
<i>Prunus serotina</i>	Black Cherry	430	430	17.3	20	6				2	Y	Proponent	Remove	N/A	80.427169	43.696182	
<i>Prunus serotina</i>	Black Cherry	438	438	25.5	24	8		bl		1	Y	Proponent	Remove	N/A	80.427562	43.695912	
<i>Prunus serotina</i>	Black Cherry	692	692	31.5	23	7		dl	v	3	Y	Proponent	Remove	N/A	80.426906	43.696650	
<i>Prunus serotina</i>	Black Cherry	954	954	33.3	9	2	w, d	bt		6	Y	Proponent	Remove	N/A	80.427665	43.695842	Dead
<i>Prunus serotina</i>	Black Cherry	960	960	44.5	10	8		br, bl		2	Y	Proponent	Remove	N/A	80.427597	43.695910	
<i>Prunus serotina</i>	Black Cherry	970	970	44	11	8	w			1	Y	Proponent	Remove	N/A	80.427302	43.696192	

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<i>Prunus serotina</i>	Black Cherry	975	975	44.2	9	7	s, t, l	bl,		1	Y	Proponent	Remove	N/A	80.427534	43.696218	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Prunus serotina</i>	Black Cherry	977	977	64	12	10	w	br, l		1	Y	Proponent	Remove	N/A	80.427314	43.696201	
<i>Prunus serotina</i>	Black Cherry	980	980	56	12	8	s	bl		2	Y	Proponent	Remove	N/A	80.427387	43.696250	
<i>Juglans nigra</i>	Black Walnut	57	57	14.6	20	3				1	Y	Proponent	Remove	N/A	80.423627	43.694113	
<i>Prunus serotina</i>	Black Cherry	M2	N/A	60	15	5	w, st		dl	5	Y	Boundary	Remove	N/A	80.422478	43.694843	
<i>Quercus robur 'Fastigiata'</i>	Columnar English Oak	D2	N/A	15	11	2				1	N	Adjacent Landowner	Injure	1.8	80.423570	43.693354	DBH estimated
<i>Quercus robur 'Fastigiata'</i>	Columnar English Oak	E2	N/A	15	11	2				1	N	Adjacent Landowner	Injure	1.8	80.423556	43.693345	DBH estimated
<i>Quercus rubra</i>	Red Oak	J2	N/A	23	15	5	st		dl	1	Y	Township	Remove	N/A	80.424063	43.693620	Unable to reach buds, no leaves to id
<i>Quercus rubra</i>	Red Oak	672	672	75	32	10	loose bark, cavity	bl	db	5	Y	Proponent	Remove	N/A	80.426966	43.696365	Bat habitat
<i>Quercus rubra</i>	Red Oak	693	693	100	30	10	f, st, loose bark	dl	v	4	Y	Proponent	Remove	N/A	80.426875	43.696717	Bat habitat
<i>Quercus rubra</i>	Red Oak	X	N/A	24	13	5.5	r			1	Y	Township	Injure	2.4	80.423399	43.692957	Estimated DBH
<i>Quercus sp.</i>	Oak sp.	F1	N/A	29	22	7			dl	1	Y	Township	Remove	N/A	80.423906	43.693408	Few broken branches
<i>Quercus sp.</i>	Oak sp.	Q1	N/A	44.5	20	6	St			1	Y	Township	Remove	N/A	80.423901	43.693401	
<i>Salix sp.</i>	Willow sp.	10	10	16	9	4			dl	1	Y	Proponent	Remove	N/A	80.424096	43.693697	Couple dead branches
<i>Salix sp.</i>	Willow sp.	13	13	28	12	7	st, w		dl	3	Y	Proponent	Remove	N/A	80.424130	43.693765	
<i>Salix sp.</i>	Willow sp.	F	N/A	11	6	3	l		dl	2	Y	Adjacent Landowner	Injure	1.8	80.423989	43.693758	DBH estimated, lean canopy adjusted accordingly
<i>Salix sp.</i>	Willow sp.	M	N/A	16	14	5				1	Y	Adjacent Landowner	Injure	1.8	80.423785	43.693910	DBH estimated
<i>Salix sp.</i>	Willow sp.	C1	N/A	27	13	4	st			2	Y	Adjacent Landowner	Injure	2.4	80.423831	43.693874	DBH estimated
<i>Salix sp.</i>	Willow sp.	G1	N/A	29	11	6	st		dl	3	Y	Adjacent Landowner	Injure	2.4	80.423869	43.693846	Few lower broken branches

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<i>Salix sp.</i>	Willow sp.	J1	N/A	30.5	22	6				1	Y	Township	Remove	N/A	80.423956	43.693447	
<i>Sorbus sp.</i>	Mountain Ash	699	699	13	16	5	ab			2	Y	Proponent	Remove	N/A	80.426780	43.696843	
<i>Sorbus sp.</i>	Mountain Ash	976	976	15	7	5	w	db		3	Y	Proponent	Remove	N/A	80.427316	43.696194	
<i>Sorbus sp.</i>	Mountain Ash	979	979	60	9	7		ab, bl		3	Y	Proponent	Remove	N/A	80.427240	43.696247	
<i>Sorbus sp.</i>	Mountain Ash	981	981	12.2	6	4	ab	bl		3	Y	Proponent	Remove	N/A	80.427426	43.696294	
<i>Sorbus sp.</i>	Mountain Ash	982	982	10.8	4	3		ab		3	Y	Proponent	Remove	2.4	80.427423	43.696310	
<i>Thuja occidentalis</i>	Eastern White Cedar	1	1	20	9	2	st			2	Y	Proponent	Remove	N/A	80.424207	43.693628	
<i>Thuja occidentalis</i>	Eastern White Cedar	2	2	17	10	2	l, s		dl	2	Y	Proponent	Remove	2.4	80.424164	43.693642	Trunk lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	9	9	43	12	5	st			1	Y	Proponent	Remove	N/A	80.424128	43.693709	
<i>Thuja occidentalis</i>	Eastern White Cedar	12	12	10.5	9	3.5	l			1	Y	Proponent	Remove	1.8	80.424105	43.693757	
<i>Thuja occidentalis</i>	Eastern White Cedar	14	14	15	10	4				1	Y	Proponent	Remove	N/A	80.424111	43.693781	
<i>Thuja occidentalis</i>	Eastern White Cedar	15	15	10.1	10	3.5	l			1	Y	Proponent	Remove	1.8	80.424095	43.693776	
<i>Thuja occidentalis</i>	Eastern White Cedar	16	16	20	6	2	l, st			2	Y	Proponent	Remove	N/A	80.424114	43.693787	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	17	17	81	11	6	st			1	Y	Proponent	Remove	N/A	80.424020	43.693778	
<i>Thuja occidentalis</i>	Eastern White Cedar	19	19	22	7	3	l			2	Y	Proponent	Remove	N/A	80.424038	43.693831	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	20	20	31	14	6				1	Y	Proponent	Remove	N/A	80.424033	43.693839	

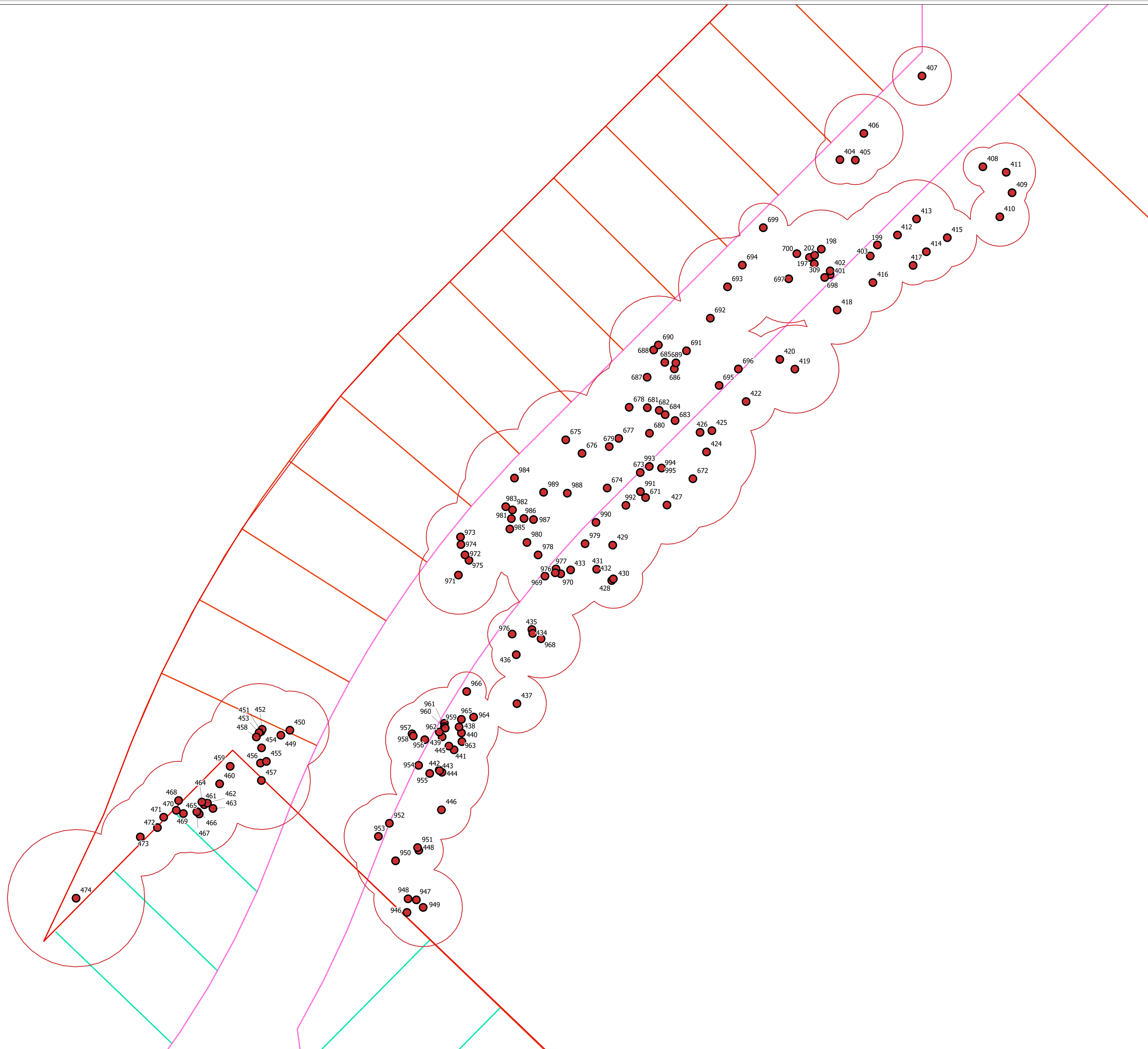
Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Thuja occidentalis</i>	Eastern White Cedar	21	21	21	4	3	l			2	Y	Proponent	Remove	N/A	80.424041	43.693836	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	22	22	12	5	2	l			1	Y	Proponent	Remove	N/A	80.424009	43.693828	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	24	24	110	10	9	st			1	Y	Proponent	Remove	N/A	80.423964	43.693851	
<i>Thuja occidentalis</i>	Eastern White Cedar	25	25	15	8	4				1	Y	Proponent	Remove	N/A	80.423937	43.693842	
<i>Thuja occidentalis</i>	Eastern White Cedar	26	26	58	10	5	st			1	Y	Proponent	Remove	N/A	80.423932	43.693834	
<i>Thuja occidentalis</i>	Eastern White Cedar	28	28	12	12	2	l			1	Y	Proponent	Remove	N/A	80.423917	43.693845	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	29	29	15	6	2	l			2	Y	Proponent	Remove	N/A	80.423926	43.693880	DBH estimated, tree runs across ground and sprouts up (canopy adjusted accordingly)
<i>Thuja occidentalis</i>	Eastern White Cedar	30	30	26	14	2	l, r			3	Y	Proponent	Remove	N/A	80.423917	43.693891	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	31	31	15	13	2	l			1	Y	Proponent	Remove	N/A	80.423946	43.693917	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	32	32	56	12	7	st, r			1	Y	Proponent	Remove	N/A	80.423874	43.693918	
<i>Thuja occidentalis</i>	Eastern White Cedar	33	33	33	12	4	st			1	Y	Proponent	Remove	N/A	80.423867	43.693913	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	39	39	18	6	2	l			1	Y	Proponent	Remove	N/A	80.423854	43.694000	DBH estimated
<i>Thuja occidentalis</i>	Eastern White Cedar	40	40	35.5	6	3	st, l, s			2	Y	Proponent	Remove	N/A	80.423863	43.694003	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	42	42	24	5	2	l			1	Y	Proponent	Remove	N/A	80.423848	43.694037	Heavy lean, width tree canopy has been adjusted accordingly.

Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Thuja occidentalis</i>	Eastern White Cedar	43	43	27	5	2	s, l			3	Y	Proponent	Remove	N/A	80.423816	43.694028	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	44	44	17	7	5				1	Y	Proponent	Remove	2.4	80.423804	43.694039	
<i>Thuja occidentalis</i>	Eastern White Cedar	45	45	18.5	7	2	s, l	db		3	Y	Proponent	Remove	N/A	80.423814	43.694046	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	46	46	15	6	4	s			1	Y	Proponent	Remove	N/A	80.423701	43.694082	
<i>Thuja occidentalis</i>	Eastern White Cedar	47	47	16.8	7	5				1	Y	Proponent	Remove	1.8	80.423701	43.694082	
<i>Thuja occidentalis</i>	Eastern White Cedar	48	48	18.6	7	5				1	Y	Proponent	Remove	N/A	80.423710	43.694087	
<i>Thuja occidentalis</i>	Eastern White Cedar	49	49	14.3	7	2				1	Y	Proponent	Remove	N/A	80.423709	43.694088	
<i>Thuja occidentalis</i>	Eastern White Cedar	50	50	16	8	2				1	Y	Proponent	Remove	N/A	80.423681	43.694102	
<i>Thuja occidentalis</i>	Eastern White Cedar	51	51	14	6	6				1	Y	Proponent	Remove	N/A	80.423708	43.694094	
<i>Thuja occidentalis</i>	Eastern White Cedar	52	52	14	7	6				1	Y	Proponent	Remove	N/A	80.423684	43.694104	
<i>Thuja occidentalis</i>	Eastern White Cedar	55	55	18	6	2	l	bl		5	Y	Proponent	Remove	N/A	80.423595	43.694098	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Thuja occidentalis</i>	Eastern White Cedar	65	65	49	15	6	s	dead branches		3	Y	Proponent	Remove	N/A	80.423553	43.694161	
<i>Thuja occidentalis</i>	Eastern White Cedar	72	72	76	10	5	s, st,	db		3	Y	Proponent	Remove	N/A	80.423414	43.694217	
<i>Thuja occidentalis</i>	Eastern White Cedar	76	76	31.3	12	3	l, s			2	Y	Proponent	Remove	N/A	80.423395	43.694245	Heavy lean, width tree canopy has been adjusted accordingly.

Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Thuja occidentalis</i>	Eastern White Cedar	92	92	44.5	9	4.5	st, h, peeling bark			3	Y	Proponent	Remove	N/A	80.423357	43.694277	
<i>Thuja occidentalis</i>	Eastern White Cedar	964	964	11.6	7	3	w			1	Y	Proponent	Remove	N/A	80.427525	43.695930	
<i>Thuja occidentalis</i>	Eastern White Cedar	A	N/A	10	10	4				1	Y	Township	Remove	N/A	80.423879	43.693512	
<i>Thuja occidentalis</i>	Eastern White Cedar	D	N/A	11	6	4	p			2	Y	Township	Remove	2.4	80.423816	43.693356	
<i>Thuja occidentalis</i>	Eastern White Cedar	I	N/A	14	10	3				1	Y	Township	Remove	N/A	80.423810	43.693497	
<i>Thuja occidentalis</i>	Eastern White Cedar	O	N/A	18	7	5				1	Y	Adjacent Landowner	Injure	1.8	80.423783	43.693908	DBH estimated, unable to see from proponents property
<i>Thuja occidentalis</i>	Eastern White Cedar	U	N/A	22	14	4.5				1	Y	Township	Remove	N/A	80.423884	43.693513	
<i>Thuja occidentalis</i>	Eastern White Cedar	V	N/A	22	10	4				1	Y	Township	Remove	N/A	80.423913	43.693480	
<i>Thuja occidentalis</i>	Eastern White Cedar	Y	N/A	26	12	5.5				1	Y	Township	Remove	N/A	80.424045	43.693637	
<i>Thuja occidentalis</i>	Eastern White Cedar	B1	N/A	27	12	4	st			1	Y	Adjacent Landowner	Injure	2.4	80.423820	43.693880	DBH estimated
<i>Thuja occidentalis</i>	Eastern White Cedar	K1	N/A	32.5	7	6	s			1	Y	Township	Remove	N/A	80.424124	43.693589	
<i>Tilia americana</i>	American Basswood	M1	N/A	35	8	6	st, r, s, w			3	Y	Township	Remove	N/A	80.423892	43.693410	
<i>Tilia americana</i>	American Basswood	U1	N/A	51.5	22	8	st			2	Y	Township	Remove	N/A	80.423895	43.693404	
<i>Tilia americana</i>	American Basswood	Z1	N/A	69	15	7	st, w		dl	2	Y	Township	Remove	N/A	80.423821	43.693360	Few broken branches
<i>Tilia americana</i>	American Basswood	B2	N/A	15	10	4	l, w			2	Y	Township	Remove	N/A	80.423894	43.693406	Heavy lean, width tree canopy has been adjusted accordingly.
<i>Tilia sp.</i>	Basswood sp.	116	116	25.7	10	6				1	Y	Proponent	Remove	N/A	80.422712	43.694704	

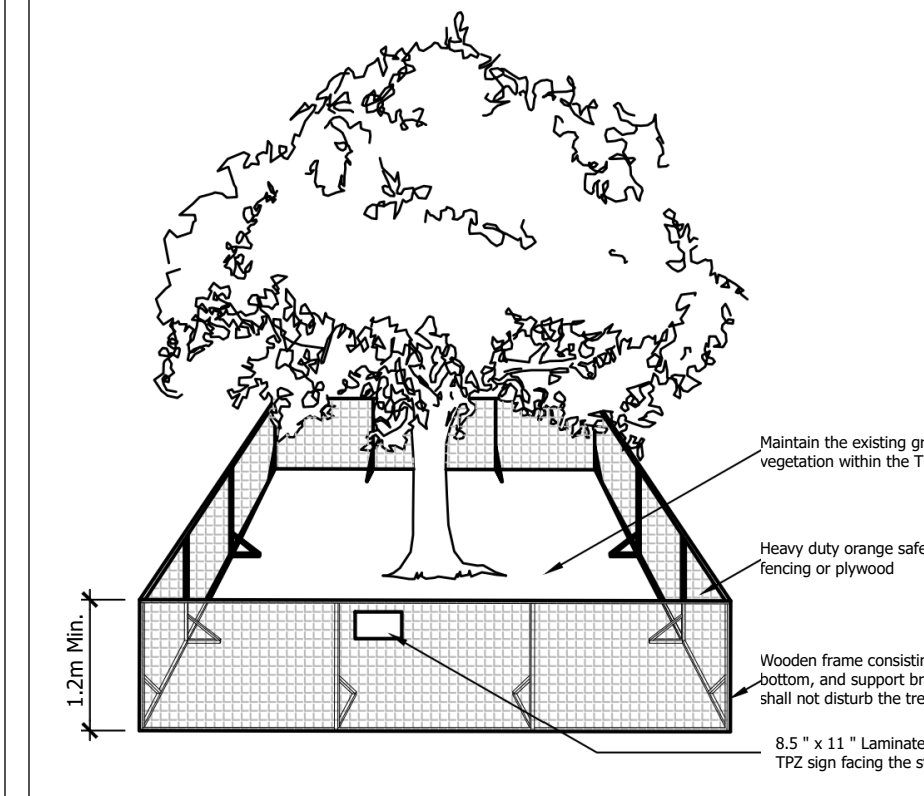
Latin Name	Common Name	Label on TPP	Tree Tag #	DBH (cm)	Height (m)	Canopy Radius (m)	Trunk Integrity	Crown Structure	Crown Vigor	Condition	Native (Y/N)	Ownership	Proposed Action	MTPZ (m)	X Coord	Y Coord	Comments
<i>Tilia sp.</i>	Basswood sp.	117	117	14.5	9	5				1	Y	Proponent	Remove	N/A	80.422626	43.694740	
<i>Tilia sp.</i>	Basswood sp.	118	118	26	9	5	st		dl	2	Y	Proponent	Remove	N/A	80.422627	43.694753	
<i>Tilia sp.</i>	Basswood sp.	222	222	54.5	8	5	st			1	Y	Proponent	Remove	N/A	80.422374	43.694938	
<i>Ulmus americana</i>	American Elm	P	N/A	18	14	3.5				1	-	Adjacent Landowner	Injure	1.8	80.423818	43.693882	DBH estimated
<i>Ulmus americana</i>	American Elm	407	407	11.3	18	6			dl	2	Y	Proponent	Remove	1.8	80.426409	43.697071	
<i>Ulmus americana</i>	American Elm	413	413	27.2	20	8				1	Y	Proponent	Remove	N/A	80.426420	43.696816	
<i>Ulmus americana</i>	American Elm	697	697	29.2	24	9		dl	v	2	Y	Proponent	Remove	N/A	80.426720	43.696731	
<i>Ulmus americana</i>	American Elm	698	698	36	24	8		dl	v	2	Y	Proponent	Remove	N/A	80.426629	43.696733	
<i>Ulmus americana</i>	American Elm	969	969	24	8	4	ab			2	Y	Proponent	Remove	N/A	80.427342	43.696188	
<i>Ulmus americana</i>	American Elm	972	972	20.5	9	5	w, ab			2	Y	Proponent	Remove	N/A	80.427544	43.696228	
<i>Ulmus sp.</i>	Elm sp.	119	119	39.5	19	4				1	Y	Proponent	Remove	N/A	80.422563	43.694791	

APPENDIX 3 | Tree Preservation Plan



Tree Protection Barrier

1. Tree Protection Barriers constructed with a solid wood frame are required to define the Tree Protection Zone (TPZ).
2. No construction activity, grade changes, surface treatment or excavation of any kind is permitted within the TPZ.
3. All Tree Protection Barriers shall be in place and approved by the Township prior to construction access.
4. Tree Protection Barriers shall remain in place and in good condition until all construction is complete and approved by the Township.
5. During construction activities the TPZ will be inspected and monitored by and a certified arborist to monitor tree health.
6. All arboriculture work such as pruning of both branches and roots, shall be done by a qualified tree worker certified by the International Society of Arboriculture (ISA) approved by the Township.
7. Sediment control fencing shall be installed as indicated in the Tree Protection Plan and approved by the Township.

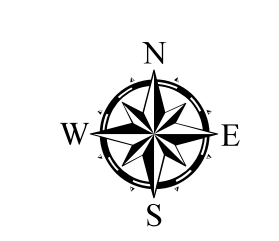


Legend

- Subject Property
- Proposed Development
- Existing Lot Lines
- Proposed Lot Lines
- Proposed Streets
- Tree Inventory
 - Injure
 - Remove
 - Retain

Minimum TPZ distance from the base of the trunk

<10 cm DBH	1.2 m
11 - 19 cm DBH	1.8 m
20 - 40 cm DBH	2.4 m
41 - 50 cm DBH	3.0 m
51 - 60 cm DBH	3.6 m
61 - 70 cm DBH	4.2 m
71 - 80 cm DBH	4.8 m
81 - 90 cm DBH	5.4 m
91 - 100 cm DBH	6.0 m
>100 cm DBH	6cm / 1cm dia.

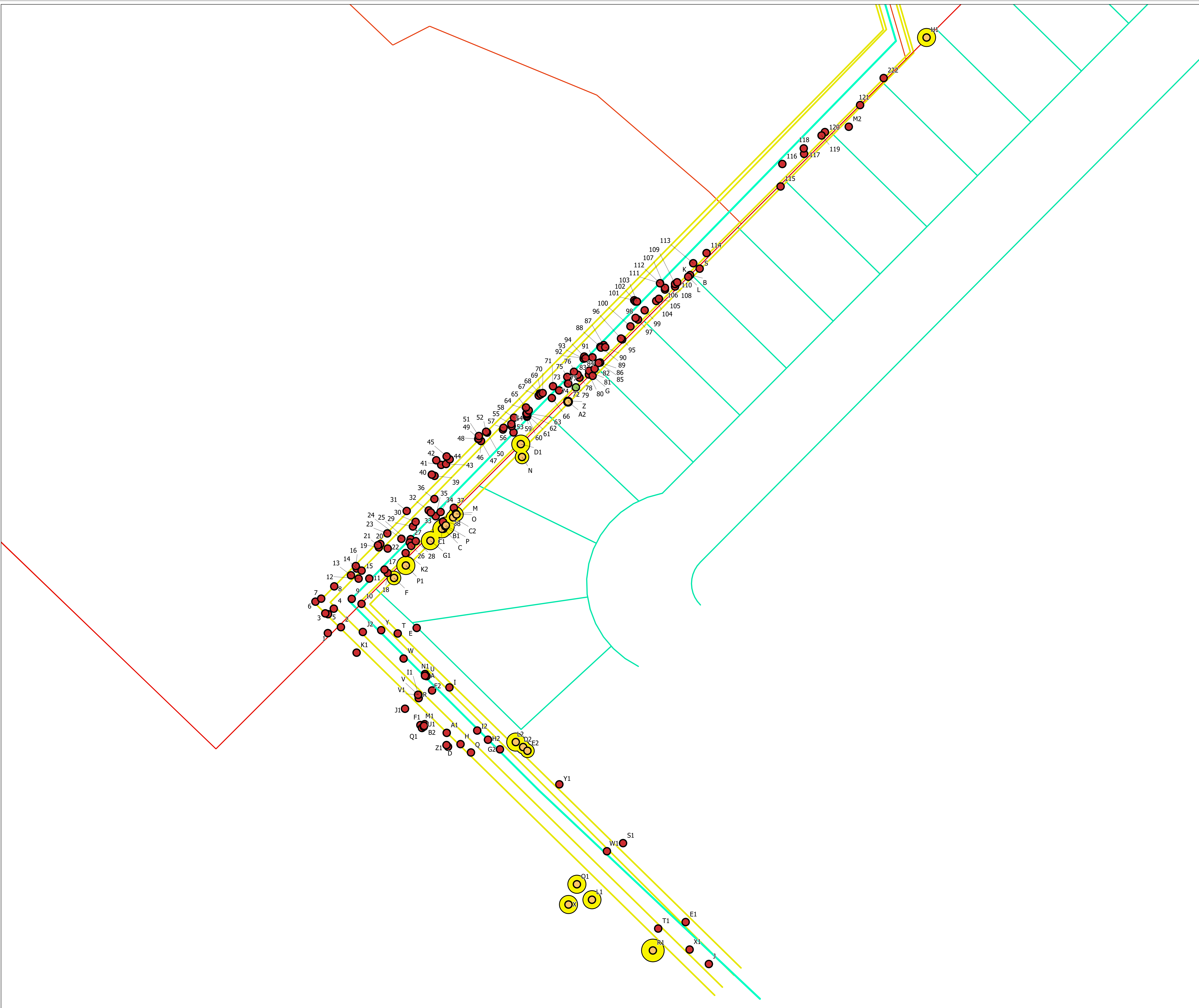


**Tree Protection Plan (A)
Ainley Subdivision**

Project Number 15-799	Date 2022-09-30	1:240
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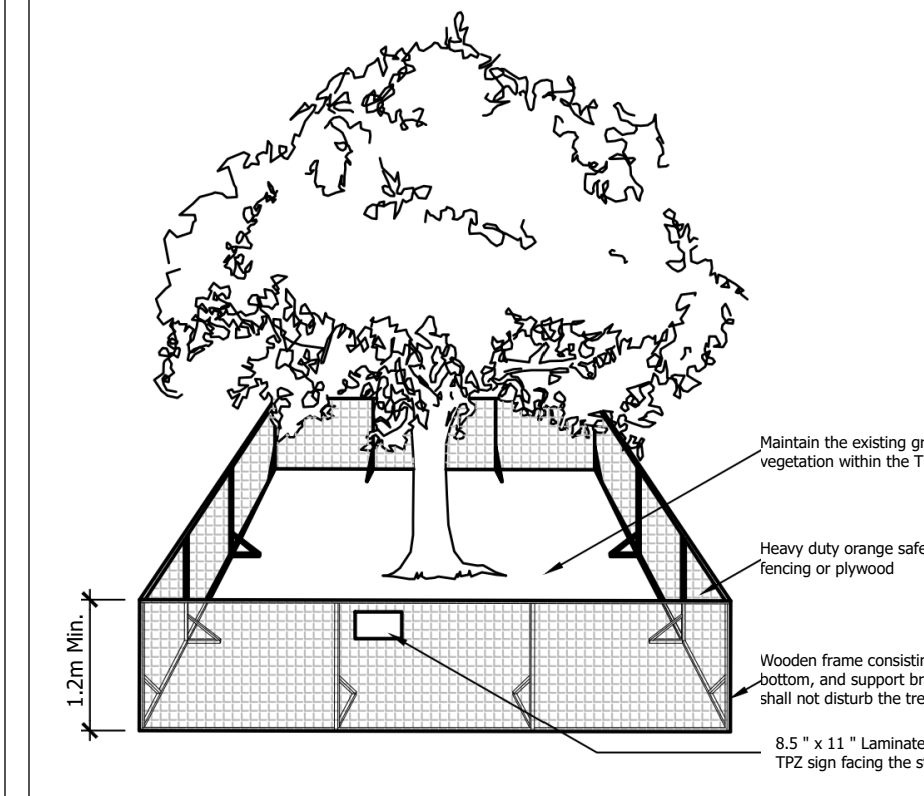
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101B King Street West,
Cambridge, Ontario
N3H 1B5





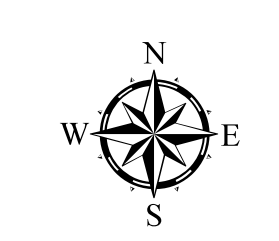
Tree Protection Barrier

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3. All Tree Protection Barriers shall be in place and approved by the Township prior to construction access.
4. Tree Protection Barriers shall remain in place and in good condition until all construction is complete and approved by the Township.
5. During construction activities the TPZ will be inspected and monitored by and a certified arborist to monitor tree health.
6. All arboriculture work such as pruning of both branches and roots, shall be done by a qualified tree worker certified by the International Society of Arboriculture (ISA) approved by the Township.
7. Sediment control fencing shall be installed as indicated in the Tree Protection Plan and approved by the Township.



Legend

- Subject Property
 - Existing Lot Lines
 - Proposed Lot Lines
 - Proposed Streets
 - Easement
 - Proposed Sanitation Line
- Tree Inventory**
- Stature (A2, B1, C, C1, C2, D1, D2, E2, F, G1, H1, L1, L2, M, N, O, O1, P, P1, R1, X)
 - Remove
 - Retain (79, Z)
 - Minimum TPZ
- Minimum TPZ distance from the base of the trunk**
- | | |
|-----------------|----------------|
| <10 cm DBH | 1.2 m |
| 11 - 19 cm DBH | 1.8 m |
| 20 - 40 cm DBH | 2.4 m |
| 41 - 50 cm DBH | 3.0 m |
| 51 - 60 cm DBH | 3.6 m |
| 61 - 70 cm DBH | 4.2 m |
| 71 - 80 cm DBH | 4.8 m |
| 81 - 90 cm DBH | 5.4 m |
| 91 - 100 cm DBH | 6.0 m |
| >100 cm DBH | 6cm / 1cm dia. |



**Tree Protection Plan (B)
Ainley Subdivision**

Project Number 15-799	Date 2022-09-30	1:300
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101B King Street West,
Cambridge, Ontario
N3H 1B5



APPENDIX 4 | Tree Compensation Mapping

Figure 4 | Ainley Subdivision
Tree Removal Compensation Ratios



Legend

- Subject Property
- Limit of Disturbance for Road Construction
- Proposed Development**
- Existing Lot Lines
- Proposed Lot Lines
- Proposed Streets
- Proposed Pathway
- Proposed Sanitation Line
- Easement
- Compensation Area**
- Woodland Removal
- Recommended Restoration Areas
- Recommended Screening Vegetation

0 50 100 Meters

Project Number
15-799

Date:
2022-09-30



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Data Provided by: North South Environmental Inc.
Imagery: Bing

APPENDIX 5 | Agency Correspondence

Re: Tree Inventory Ainley Farm

Madison Postma <mpostma@nr.si.on.ca>

Mon 2022-07-11 1:35 PM

To: Devin Bettencourt <dbettencourt@nsenvironmental.com>; Mariana Iglesias <MIglesias@centrewellington.ca>; Brett Salmon <BSalmon@centrewellington.ca>; Pauline Catling <pcatling@nsenvironmental.com>

Cc: Sarah Mainguy <smainguy@nsenvironmental.com>; David Stephenson <dstephenson@nr.si.on.ca>; Jack Richard <jrichard@nr.si.on.ca>

Hi Devin,

I apologies for the delay in response, we appreciate your patience.

I have discussed with my fellow colleagues at NRSI the appropriate compensation ratios for the removal of the woodland edge on the Ainley Farm property. You had previously mentioned the Centre of Wellington Public Forest Policy specifies a 2:1 compensation ratio for the removal of municipally owned trees. It is of our opinion that a 2:1 ratio is suitable for individual and hedgerow trees, but is not suitable compensation for woodlands.

We recommend that woodland removals should be compensated for based on area (1:1) and that compensation should achieve the minimum tree density to be considered a woodland, which is "1,000 trees, of any size, per hectare", as defined in the County of Wellington Forest Conservation Bylaw (5115-09). This being said we also recommend increasing this ratio to 1,200 per ha and guaranteeing a 2-year monitoring program to ensure that woodland habitat has been adequately restored and compensated for.

Mariana Iglesias and Mat Alain, the Urban Forestry Project Manager for the Township, were also consulted and agree with our recommendation. They also believe that space is available on the property for compensation at a ratio of 1,200 per ha removed.

As for scope of work, in a previous email you had mentioned that your tree inventory will include the collection of all trees within the proposed Walser Street Extension limit of development along the north edge and sanitary alignment of the development along the south edge. We believe this is appropriate for the site. As for data collection please be sure to collect the follow data for each surveyed tree:

1. Tree species
2. Diameter at breast height (DBH)
3. Approximate height
4. Canopy width
5. General health (excellent, good, fair, poor, very poor, dead)
6. Potential for structural failure (improbable, possible, probable, imminent)
7. General comments

If a full bat habitat assessment has not already been completed, please ensure that any potential bat habitat is also noted and addressed for the impacted trees.

Please let me know if you have any further questions.

Thank you,
Madison

Madison Postma B.E.S. M.F.C. R.P.F.
Registered Professional Forester
Natural Resource Solutions Inc.
415 Phillip Street, Unit C
Waterloo, ON N2L 3X2

APPENDIX 3 | Bat Habitat Snag Survey Results

Table A3-1. Snag Survey Results.

Tree Tag #	DBH (cm)	Common Name	Scientific Name	Height Class	Decay Class	Decay class (#)	Snag Attribute					Other snag (within 10 m)	Location		Notes
							Cavity	Cavity Height (m)	Loose Bark	Crack	Knot Hole		x	y	
32	22.5	Eastern White Cedar	<i>Thuja occidentalis</i>	CoDominant	Healthy	1	Yes		Yes	No	No	Yes	-80.423357	43.694277	
53	21	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	Yes	0-5	Yes	No	No	Yes	-80.423588	43.694078	
54	21.4	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423594	43.694093	Dead for extended period of time
56	32.6	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	Yes	5-20	Yes	No	No	Yes	-80.423629	43.694109	
58	14	Green Ash	<i>Fraxinus pennsylvanica</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423586	43.694113	Dead for extended period of time
60	16	Green Ash	<i>Fraxinus pennsylvanica</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423550	43.694141	Dead for extended period of time
61	21	Green Ash	<i>Fraxinus pennsylvanica</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423586	43.694190	Dead for extended period of time
63	16	Green Ash	<i>Fraxinus pennsylvanica</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423550	43.694147	Dead for extended period of time
64	25	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	No	No	No	-80.423544	43.694154	Dead for extended period of time
65	49	Eastern White Cedar	<i>Thuja occidentalis</i>	CoDominant	Declining	2	Yes		No	No	No	Yes	-80.423553	43.694161	Low cavity may extend up all the way, small holes higher up
66	27	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	Yes	No	Yes	-80.423468	43.694183	Dead for extended period of time
67	22.2	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	No	No	No	-80.423511	43.694189	Dead for extended period of time
68	30	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	No	No	No	-80.423508	43.694194	Dead for extended period of time
69	14.9	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423504	43.694191	Dead for extended period of time
70	19.7	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	No	No	Yes	-80.423498	43.694195	
71	12	Trembling Aspen	<i>Populus tremuloides</i>	Intermediate	Healthy	1	No		No	Yes	No	Yes	-80.423464	43.694211	
72	25.5	Eastern White Cedar	<i>Thuja occidentalis</i>	CoDominant	Healthy	1	Yes		No	Yes	No	Yes	-80.423414	43.694217	leaf cluster, big crack, cavity at root
73	31.2	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	Yes	No	Yes	-80.423415	43.694217	
76	31.3	Eastern White Cedar	<i>Thuja occidentalis</i>	CoDominant	Healthy	1	Yes		No	Yes	No	Yes	-80.423396	43.694245	
78	22.3	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Dead	3	No		No	Yes	No	Yes	-80.423377	43.694231	
79	14	Green Ash	<i>Fraxinus pennsylvanica</i>	Intermediate	Not Applicable	4	No		Yes	No	No	Yes	-80.423389	43.694208	Dead for extended period of time
80	26.5	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Not Applicable	4	No		Yes	No	No	Yes	-80.423336	43.694233	dead
83	36.7	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	No	No	Yes	-80.423335	43.694242	
84	26	Green Ash	<i>Fraxinus pennsylvanica</i>	Intermediate	Declining	2	No		No	Yes	No	Yes	-80.423325	43.694249	
85	13	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	No		Yes	No	No	Yes	-80.423307	43.694257	
87	22.2	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	No	No	Yes	-80.423298	43.694309	
89	26.1	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Dead	3	No		Yes	No	No	Yes	-80.423306	43.694302	
90	14.2	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Dead	3	No		Yes	Yes	No	Yes	-80.423292	43.694303	
91	24.5	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	No		Yes	No	No	Yes	-80.423334	43.694279	

Tree Tag #	DBH (cm)	Common Name	Scientific Name	Height Class	Decay Class	Decay class (#)	Snag Attribute					Other snag (within 10 m)	Location		Notes
							Cavity	Cavity Height (m)	Loose Bark	Crack	Knot Hole		x	y	
93	22.6	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	No	No	Yes	-80.423363	43.694276	
94	21.5	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		Yes	No	No	Yes	-80.423361	43.694281	
96	10.5	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	No		Yes	No	No	Yes	-80.423228	43.694316	
97	12.7	Ash sp.	<i>Fraxinus sp.</i>	Suppressed	Declining	2	No		No	Yes	No	Yes	-80.423184	43.694368	
101	13	Trembling Aspen	<i>Populus tremuloides</i>	CoDominant	Healthy	1	No		No	Yes	No	Yes	-80.423196	43.694414	
102	13.5	Trembling Aspen	<i>Populus tremuloides</i>	CoDominant	Healthy	1	No		No	Yes	No	Yes	-80.423192	43.694411	
106	25	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Declining	2	No		No	Yes	No	Yes	-80.423095	43.694439	
107	17	Trembling Aspen	<i>Populus tremuloides</i>	CoDominant	Healthy	1	No		No	Yes	No	Yes	-80.423095	43.694443	
109	20.8	Trembling Aspen	<i>Populus tremuloides</i>	Intermediate	Healthy	1	No		No	Yes	No	Yes	-80.423062	43.694446	
112	16	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Dead	3	No		Yes	No	No	Yes	-80.423111	43.694454	
113	16.3	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	No		Yes	No	No	Yes	-80.423002	43.694501	
119	39.5	American Elm	<i>Ulmus americana</i>	Dominant	Healthy	1	No		Yes	No	No	No	-80.422563	43.694791	
194	13.5	Ash sp.	<i>Fraxinus sp.</i>	Intermediate	Dead	3	No		Yes	No	No	Yes	-80.423124	43.694413	
408	43.1	White Ash	<i>Fraxinus americana</i>		Dead	3	Yes		No	Yes	No		-80.426265	43.696914	
409	32.7	White Ash	<i>Fraxinus americana</i>		Dead	3	No		No	Yes	No		-80.426257	43.696892	
412	41.7	White Ash	<i>Fraxinus americana</i>				No		No	Yes	No		-80.426444	43.696810	
437	20	White Ash	<i>Fraxinus americana</i>				No		Yes	No	No		-80.427469	43.695983	
474	90.5	Yellow Birch	<i>Betula alleghaniensis</i>				No		Yes	Yes	No		-80.428495	43.695564	
672	75	Red Oak	<i>Quercus rubra</i>				Yes		Yes	No	No		-80.426966	43.696365	
690	85	Manitoba Maple	<i>Acer negundo</i>				No		Yes	Yes	No		-80.427051	43.696611	Heavy lean, width tree canopy has been adjusted accordingly
692	31.5	Black Cherry	<i>Prunus serotina</i>				No		Yes	Yes	No		-80.426906	43.696650	
693	100	Red Oak	<i>Quercus rubra</i>				Yes		Yes	No	No		-80.426875	43.696717	
694	40	Domestic Apple	<i>Malus pumila</i>		Dead	3	Yes		Yes	No	No		-80.426876	43.696745	
990	160	Manitoba Maple	<i>Acer negundo</i>				Yes		No	Yes	No		-80.427212	43.696286	
N/A	16	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Not Applicable	4	No	1-5	No	Yes	No	Yes	-80.423655	43.694105	
N/A	13	Ash sp.	<i>Fraxinus sp.</i>	Dominant	Dead	3	No		No	Yes	No	No	-80.423661	43.694131	No tag due to being outside of sewage line boundary
N/A	13, 13	Green Ash	<i>Fraxinus pennsylvanica</i>	Intermediate	Not Applicable	4	No		Yes	Yes	No	No	-80.423416	43.694176	Dead for extended period of time
N/A	20	Ash sp.	<i>Fraxinus sp.</i>	CoDominant	Dead	3	No		Yes	Yes	No	No	-80.423867	43.693490	Located on city property, not tagged
N/A	60	Black Cherry	<i>Prunus serotina</i>	Dominant	Declining	2	Yes		Yes	Yes	No	No	-80.422478	43.694844	Located on border of subject property, not tagged, DBH estimated

APPENDIX 4 | Correspondence with MECP Regarding Species at Risk Bats

Hello Sarah,

RE: Ainley Subdivision, Gerrie Road & Thomas Boulevard, Elora, Township of Centre Wellington, Wellington County and the *Endangered Species Act, 2007*

The Ministry of the Environment, Conservation and Parks (MECP) has reviewed the draft EIS Addendum to assess the potential impacts of the residential development project on Little Brown Myotis, which is an endangered species that receives both species and general habitat protection under the *Endangered Species Act, 2007* (ESA 2007).

Based on the ministry's review of the project documentation and information that has been provided, the conclusions that neither section 9 (species protection) nor section 10 (habitat protection) of the ESA 2007 will be contravened for Little Brown Myotis – as long as the proposed mitigation measures are implemented (including avoiding tree removal between April 1 and September 30) – appear reasonable and valid. Therefore, authorization under the ESA 2007 is not required for this project. However, please note that for future similar projects, additional details about species at risk bats should be included in reports for MECP review, including snag density calculations.

Should any of the project activities change from what has been presented to MECP, please notify the ministry immediately (SAROntario@ontario.ca) to obtain guidance on whether the changes require authorization under the ESA 2007 in order to remain in compliance with the Act. Failure to carry out the project as described to MECP could potentially result in contravention of the ESA 2007. The proponent remains responsible for ensuring compliance with the Act and may be subject to prosecution or other enforcement action if activities result in any harm to species at risk and/or habitat.

The ministry's position is based on the information that has been provided on behalf of the proponent. Should information not have been made available and considered in our review, or new information comes to light that changes the conclusions made, or if on-site conditions and circumstances change so as to alter the basis for the conclusions, or if any of the species at risk mitigation measures cannot be completed, please contact the ministry (SAROntario@ontario.ca) as soon as possible to discuss next steps.

MECP notes that while it does not appear that an authorization under the ESA 2007 will be required, the proposed activities may be subject to other approvals, such as those issued by local municipalities and conservation authorities. Please be advised that it is the responsibility of the proponent to be aware of and comply with all other relevant provincial or federal requirements, municipal by-laws or required approvals from other agencies. It is also the responsibility of the proponent to ensure that all required approvals are obtained and relevant policies adhered to.

Regards,

Catherine Stewart
Management Biologist
Permissions Section, Species at Risk Branch
Ainley Farm EIS Addendum • April 5, 2023

Ministry of the Environment, Conservation and Parks

From: Sarah Mainguy <smainguy@nsenvironmental.com>

Sent: November 23, 2022 10:34 AM

To: Species at Risk (MECP) <SAROntario@ontario.ca>

Subject: RE: EIS Centre Wellington - Little Brown Myotis Mitigation

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello Catherine,

We communicated with you in June of 2022 regarding the requirement for bat surveys for an area of tree removal in Elora, Ontario. We have now completed a draft report documenting the area of tree removal, describing bat exit surveys completed, and providing the results of the surveys. Exit surveys showed Little Brown Myotis (*Myotis lucifugus*) likely was present in the woodland, but the exit surveys did not indicate that it specifically formed roosts in the edge trees that will be removed for the development.

We are asking for advice regarding next steps for consultation regarding this project.

Yours Truly,

Sarah Mainguy


Sarah Mainguy, B.Sc., M.Sc.
Senior Ecologist
905-854-1112 ext. 204
Sustainable solutions for natural systems

From: Species at Risk (MECP) <SAROntario@ontario.ca>

Sent: June 20, 2022 2:14 PM

To: Grace Pitman <gpitman@nsenvironmental.com>

Subject: RE: EIS Centre Wellington - Little Brown Myotis Mitigation

This message's attachments contains at least one web link. This is often used for phishing attempts. Please only interact with this attachment if you know its source and that the content is safe. If in doubt, confirm the legitimacy with the sender by phone.

Hello Grace,

RE: Ainley Subdivision, Gerrie Road & Thomas Boulevard, Elora, Township of Centre Wellington, Wellington County and the *Endangered Species Act, 2007*

The Ministry of the Environment, Conservation and Parks (MECP) understands that North-South Environmental is conducting an EIS for the Ainley residential subdivision, as identified in the information provided.

An initial species at risk (SAR) information screening has been completed under the *Endangered Species Act, 2007* (ESA 2007) for the above-noted project location with respect to endangered and threatened species in Ontario. There are known occurrences of SAR bats in the general area with potential to also occur at the project location.

Please note that this is an initial screening for endangered and threatened SAR and the absence of an element occurrence does not indicate the absence of species. The province has not been surveyed comprehensively for the presence or absence of SAR and Ontario's data relies on observers to report sightings of SAR. Field assessments by a qualified professional may be necessary if there is a high likelihood for SAR species and/or habitat to occur within the project footprint and potentially be impacted. Attached is MECP's current SAR bat survey guidance, which should be followed during SAR bat fieldwork. The results of the SAR fieldwork should be used to inform appropriate mitigation measures or next steps under the ESA 2007.

The ministry's position is based on the information that has been provided by you on behalf of the proponent. Should information not have been made available and considered in our review, or new information comes to light, or if on-site conditions and circumstances change, please contact Species at Risk Branch as soon as possible (SAROntario@ontario.ca) to discuss next steps.

Regards,

Catherine Stewart

Management Biologist
Permissions Section, Species at Risk Branch
Ministry of the Environment, Conservation and Parks

From: Grace Pitman <gpitman@nsenvironmental.com>
Sent: June 6, 2022 10:36 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: RE: EIS Centre Wellington - Little Brown Myotis Mitigation

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Catherine,

Thank you for your reply. Please see the attached map which shows the property boundary and the proposed development.

Thanks,

Grace



www.nsenvironmental.com

Grace Pitman
Ecologist

P: 905-854-1112 • Ext. 212

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Monday, June 6, 2022 10:00 AM
To: Grace Pitman <gpitman@nsenvironmental.com>
Subject: RE: EIS Centre Wellington - Little Brown Myotis Mitigation

Hello Grace,

Before MECP can respond, please provide a map of the property location. If available, can you also provide a figure showing the proposed development?

Thank you,

Catherine Stewart

Management Biologist
Permissions Section, Species at Risk Branch
Ministry of the Environment, Conservation and Parks

From: Grace Pitman <gpitman@nsenvironmental.com>
Sent: May 25, 2022 4:32 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: EIS Centre Wellington - Little Brown Myotis Mitigation

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hello,

North-South Environmental has been retained to complete an Environmental Impact Study for the a proposed subdivision development located at Part of Lots 17 and 18, Concession 12, Township of Centre Wellington, County of Wellington. The development plans include removing trees on the edge of the woodland to accommodate for an access road and sanitation line. The subject property is located within 2 km of a documented colony of Little Brown Myotis (*Myotis lucifugus*), a Species at Risk.

A roost tree survey was completed to document the number of potential SAR bat habitat trees. Of the trees to be impacted by the proposed development, 36 trees were recorded with potential bat habitat (snag attributes).

Our proposed survey approach is to perform bat exit surveys in the area of proposed tree removal to assess the presence of roosting SAR bat species, following:

- Sample the best 6 trees that provide habitat, for two nights with 3 observers/night.
- Exit surveys will be conducted during the month of June.
- Observers will choose a viewing station with a clear aspect of cavity opening or crevice.
- Cavity opening or crevice will be monitored from 30 minutes before dusk until 60 minutes after dusk for evidence of bats exiting.
- A bat detector will be used in conjunction with visual surveys to determine species.
- If SAR bat species are detected, the entire ELC stand is considered bat habitat.

Mitigation measures to be taken include making sure the trees are removed outside the bat habitat season (April 1st to October 31st).

Please let us know whether the proposed survey methods and mitigation is satisfactory or if additional measures are required.

Sincerely,
Grace



101B King Street West
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Grace Pitman
Ecologist

gpitman@nsenvironmental.com
P: 905-854-1112 • Ext. 212

APPENDIX 5 | Technical Memo from GM BluePlan Re. Impacts to Wetland



Date: 2/15/2023 File: 411009
 To: Sarah Mainguy, North-South Environmental
 From: Sarah Primmer
 Project: Ainley Farm Subdivision
 Subject: Impact to Wetland

TECHNICAL MEMO

This Technical Memo has been prepared to identify the impacts of the proposed development on the existing wetland in terms of the stormwater discharge from the site following development. This memo has been prepared to support the Environmental Impact Study being prepared by North-South Environmental.

Impact to Depth and Draindown of Wetland

Based on a review of the topographic survey information completed by Northway Photomap Inc., completed on June 2, 2005, the wetland areas do not have significant ponding areas, but rather generally flow from northeast to southwest towards the drainage channel. As such, the additional volumes of stormwater that discharge to the wetland under post-development conditions will not significantly impact the depth of the ponding in the wetland. The table below summarizes the pre and post-development ponding elevations and draindown times in the wetland for the various design storm events:

Storm Event	Ponding Elevation (m)*		Drawdown Time (hr)**	
	Existing	Proposed	Existing	Proposed
2-Year	409.65	409.65	5.5	6.8
5-Year	409.69	409.67	5.6	8.0
10-Year	409.73	409.70	5.6	8.1
25-Year	409.77	409.72	5.5	8.5
50-Year	409.79	409.76	5.4	8.8
100-Year	409.82	409.79	5.4	8.8
Regional Storm	409.83	409.82	52.0	55.0

* The ponding elevation is within SWM1-1 which is the lower wetland area within the ecologically protected lands

**Drawdown time obtained from the hydrologic modelling software MIDUSS

As can be seen, the depth of flow in the wetland actually decreases under post-development conditions. This is because the proposed stormwater pond controls the peak-development flows to less than the pre-development flow rates. The lower peak flow in post-development conditions means the flows in the wetland are slightly shallower or equal to the existing conditions. The draindown times have increased by a few hours because the stormwater volume has been held back in the stormwater pond under post-development conditions and releases at a slower rate.

Water Balance Impact

Another aspect of the post-development stormwater impact is the effect on the water balance. The overall effect of the proposed development results in increased runoff volume from the site and decreased recharge volume. The impact has been mitigated through the inclusion of infiltration galleries within the banks of the stormwater pond, as well as within the park block. These galleries combine to provide 6,502m³ of infiltration on an annual basis, and assist with reducing peak flows and volumes to the wetland during storm events. A comparison of the runoff volumes to the wetland during the various storm events is shown in the table below:

Storm Event	Pre-Development Runoff Volume to Wetland (m ³)	Post-Development Runoff Volume to Wetland without Infiltration (m ³)	Post-Development Runoff Volume to Wetland with Infiltration (m ³)	Infiltration Volume Provided (m ³)	Difference between Post-Development and Pre-Development (m ³)	Difference between Post-Development and Pre-Development (%)
2-year	768.4	1,718.2	1,454.3	263.90	685.90	89%
5-year	1,925.6	3,134.8	2,662.1	472.70	736.50	38%
10-year	2,911.0	4,255.8	3,625.2	630.60	714.20	25%
25-year	4,274.9	5,752.7	4,920.7	832.00	645.80	15%
50-year	5,435.7	7,002.0	6,000.2	1,001.80	564.50	10%
100-year	6,665.1	8,309.9	7,146.60	1,163.30	481.50	7%
Regional	30,583.9	33,410	29,575.5	3,834.50	-1,008.40	-3%

As can be seen, there is an increase in runoff volume to the wetland under post-development conditions during the design storm events, however a significant amount of infiltration has reduced the impact. It should be noted that the additional volume that discharges to the wetland is routed through the wetland, as discussed above, rather than ponding in the wetland. As such, the additional volume does not result in increased inundation of the wetland.

On an annual basis, the total estimated recharge from the subdivision only decreases by 5.5%, as discussed in the Stormwater Management Report.

Impact to Water Quality

The quality impact of stormwater runoff being released to the wetland/woodland has been mitigated through the use of oil/grit separators upstream of the pond, to provide 80% TSS removal. In addition, the dry pond will provide additional polishing of stormwater flows prior to discharge.

We trust that this is the information you require at this time. All of which is respectfully submitted.

GM BLUEPLAN ENGINEERING LIMITED
 Per:



Sarah Primmer, P.Eng.